

BASIC REMEDIATION - PARCEL H

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Analytical Data Package Prepared For
TESTAMERICA ST. LOUIS

BASIC REMEDIATION - PARCEL H

Radiochemical Analysis By

TestAmerica

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

Assigned Laboratory Code:

Data Package Contains _____ Pages

Report No.: 38633

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
8035233		TSB-HJ-08-0'	F8A290183-6	KF8N91AA	9KF8N910	8035233
		TSB-HJ-08-0'	F8A290183-6	KF8N91AE	9KF8N910	8042383
		TSB-HJ-08-0'	F8A290183-6	KF8N91AF	9KF8N910	8042385
		TSB-HJ-08-10'	F8A290183-7	KF8PD1AA	9KF8PD10	8035233
		TSB-HJ-08-10'	F8A290183-7	KF8PD1AE	9KF8PD10	8042383
		TSB-HJ-08-10'	F8A290183-7	KF8PD1AF	9KF8PD10	8042385
		TSB-HJ-10-0'	F8A290183-1	KF8NX1AA	9KF8NX10	8035233
		TSB-HJ-10-0'	F8A290183-1	KF8NX1AE	9KF8NX10	8042383
		TSB-HJ-10-0'	F8A290183-1	KF8NX1AF	9KF8NX10	8042385
		TSB-HJ-10-10'	F8A290183-2	KF8N41AA	9KF8N410	8035233
		TSB-HJ-10-10'	F8A290183-2	KF8N41AE	9KF8N410	8042383
		TSB-HJ-10-10'	F8A290183-2	KF8N41AF	9KF8N410	8042385
		TSB-HR-05-0'	F8A290183-8	KF8PE1AA	9KF8PE10	8035233
		TSB-HR-05-0'	F8A290183-8	KF8PE1AE	9KF8PE10	8042383
		TSB-HR-05-0'	F8A290183-8	KF8PE1AF	9KF8PE10	8042385
		TSB-HR-05-10'	F8A290183-9	KF8PG1AA	9KF8PG10	8035233
		TSB-HR-05-10'	F8A290183-9	KF8PG1AH	9KF8PG10	8042383
		TSB-HR-05-10'	F8A290183-9	KF8PG1AJ	9KF8PG10	8042385
		TSB-HR-06-0'	F8A290183-3	KF8N51AA	9KF8N510	8035233
		TSB-HR-06-0'	F8A290183-3	KF8N51AE	9KF8N510	8042383
		TSB-HR-06-0'	F8A290183-3	KF8N51AF	9KF8N510	8042385
		TSB-HR-06-0' FD	F8A290183-4	KF8N61AA	9KF8N610	8035233
		TSB-HR-06-0' FD	F8A290183-4	KF8N61AE	9KF8N610	8042383
		TSB-HR-06-0' FD	F8A290183-4	KF8N61AF	9KF8N610	8042385
		TSB-HR-06-10'	F8A290183-5	KF8N81AA	9KF8N810	8035233
		TSB-HR-06-10'	F8A290183-5	KF8N81AE	9KF8N810	8042383

Report No.: 38633

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
8035233		TSB-HR-06-10'	F8A290183-5	KF8N81AF	9KF8N810	8042385
8035240		RINSATE-2	F8A290183-10	KF8PH1AE	9KF8PH10	8035239
		RINSATE-2	F8A290183-10	KF8PH1AD	9KF8PH10	8035240
		RINSATE-2	F8A290183-10	KF8PH1AA	9KF8PH10	8035242
		RINSATE-2	F8A290183-10	KF8PH1AC	9KF8PH10	8035244
8065248		TSB-HJ-08-0'	F8A290183-6	KF8N93AD	9KF8N930	8065248
		TSB-HJ-08-10'	F8A290183-7	KF8PD3AD	9KF8PD30	8065248
		TSB-HJ-10-0'	F8A290183-1	KF8NX3AD	9KF8NX30	8065248
		TSB-HJ-10-10'	F8A290183-2	KF8N43AD	9KF8N430	8065248
		TSB-HR-05-0'	F8A290183-8	KF8PE3AD	9KF8PE30	8065248
		TSB-HR-05-10'	F8A290183-9	KF8PG3AD	9KF8PG30	8065248
		TSB-HR-06-0'	F8A290183-3	KF8N53AD	9KF8N530	8065248
		TSB-HR-06-0' FD	F8A290183-4	KF8N63AD	9KF8N630	8065248
		TSB-HR-06-10'	F8A290183-5	KF8N83AD	9KF8N830	8065248

Certificate of Analysis

March 25, 2008

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045

Attention: Jerry Everett

Date Received at Lab	:	January 31, 2008
Sample Type	:	Nine (9) Soil / One (1) Water
Project Name	:	Basic Remediation / Tronox Parcel H

CASE NARRATIVE

I. Introduction

On January 31, 2008, one water and nine soil samples were received at the TestAmerica Laboratories in Richland, WA for radiochemical analysis. Upon receipt at St. Louis, the samples were assigned to Lot Number F8A290183 with the laboratory ID numbers corresponding to the client ID as shown on the cover page.

II. Sample Receipt

The samples were received in good condition. The lab was notified on 1-31-08 that the Ra226/228 soils now needed to be performed by the chemical methods (EPA 903.1/904.0), rather than the Gamma Spectrometry analysis. St. Louis re-logged the samples and Richland made the changes accordingly.

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

Uranium-234, -235, -238 by method RICH-RC-5067

Gas Proportional Detectors

Radium-228 by method RICH-RC-5005

Alpha Scintillation

Radium-226 by method 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

SOIL:

Alpha Spectroscopy

Thorium-228, -230, -232 by method RICH-RC-5087:

The batch blank yield was elevated and the sample duplicate was out of agreement. The batch was recounted but did not improve. The batch was then re-analyzed and is now within acceptance limits. Except as noted, the LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Uranium-234, -235, -238 by method RICH-RC-5067:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Gas Proportional Detectors

Radium-228 by method RICH-RC-5005:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Alpha Scintillation

Radium-226 by method RICH-RC-5005:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

WATER:

Alpha Spectroscopy

Thorium-228, -230, -232 by method RICH-RC-5087:

The FWHM was slightly elevated; 105%. The data can be accepted based on the wider peak produced by Thorium. Except as noted, the LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Uranium-234, -235, -238 by method RICH-RC-5067:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Gas Proportional Detectors

Radium-228 by method RICH-RC-5005:

There was insufficient sample volume available to process a sample duplicate. Except as noted, the LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Alpha Scintillation

Radium-226 by method RICH-RC-5005:

There was insufficient sample volume available to process a sample duplicate. Except as noted, the LCS, batch blank, sample and sample duplicate results are within acceptance limits.

TestAmerica St. Louis
March 25, 2008

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:



Erika Jordan
Customer Service 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 00-02	Gross Alpha (Coprecipitation)	RICH-RC-5021
EPA 903.0	Total Alpha Radium (Ra-226)	RICH-RC-5027
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr-89/90	RICH-RC-5006
ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007

Uncertainty Estimation

Test America Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x,y,z,\dots)$. The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

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

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

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) <i>u_c Combined Uncertainty.</i>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, <i>u_c the combined uncertainty.</i> The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \text{Sqrt}(2 * (\text{BkgrndCnt}/\text{BkgrndCntMin})/\text{SCntMin})) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol})) * \text{IngrFct}$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \text{Sqrt}((\text{BkgrndCnt}/\text{BkgrndCntMin})/\text{SCntMin}) + 2.71/\text{SCntMin}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol})) * \text{IngrFct}$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S-D)/[\text{sqrt}(\text{TPUs}^2 + \text{TPUd}^2)]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 26-Mar-08

TestAmerica

Ordered by Method, Batch No., Client Sample ID.

Report No. : 38633

SDG No: 8035233

Client Id	Batch	Work Order	Parameter	Result +/- Uncertainty (1s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
8042383 EPA 903.1										
			TSB-HJ-08-0'							
		KF8N91AE	RADIUM-226	1.44E+00 +/- 1.94E-01		pci/g	89%	1.79E-01	1.00E+00	
			TSB-HJ-08-10'							
		KF8PD1AE	RADIUM-226	1.80E+00 +/- 2.06E-01		pci/g	100%	9.88E-02	1.00E+00	
			TSB-HJ-10-0'							
		KF8NX1AE	RADIUM-226	1.22E+00 +/- 1.47E-01		pci/g	100%	1.11E-01	1.00E+00	
			TSB-HJ-10-10'							
		KF8N41AE	RADIUM-226	2.37E+00 +/- 2.77E-01		pci/g	98%	1.14E-01	1.00E+00	
			TSB-HR-05-0'							
		KF8PE1AE	RADIUM-226	1.54E+00 +/- 1.96E-01		pci/g	100%	1.31E-01	1.00E+00	
			TSB-HR-05-10'							
		KF8PG1AH	RADIUM-226	1.48E+00 +/- 1.70E-01		pci/g	100%	9.92E-02	1.00E+00	
			TSB-HR-05-10' DUP							
		KF8PG1AK	RADIUM-226	1.73E+00 +/- 2.01E-01		pci/g	100%	9.71E-02		1.0
			TSB-HR-06-0'							
		KF8N51AE	RADIUM-226	7.11E-01 +/- 1.05E-01	J	pci/g	100%	1.40E-01	1.00E+00	
			TSB-HR-06-0' FD							
		KF8N61AE	RADIUM-226	6.98E-01 +/- 1.03E-01	J	pci/g	100%	1.20E-01	1.00E+00	
			TSB-HR-06-10'							
		KF8N81AE	RADIUM-226	2.10E+00 +/- 2.61E-01		pci/g	92%	1.52E-01	1.00E+00	
8042385 EPA 904.0										
			TSB-HJ-08-0'							
		KF8N91AF	RADIUM-228	1.40E+00 +/- 1.83E-01	J	pci/g	81%	4.39E-01	2.00E+00	
			TSB-HJ-08-10'							
		KF8PD1AF	RADIUM-228	1.16E+00 +/- 1.60E-01	J	pci/g	89%	3.97E-01	2.00E+00	
			TSB-HJ-10-0'							
		KF8NX1AF	RADIUM-228	1.91E+00 +/- 2.00E-01	J	pci/g	92%	3.99E-01	2.00E+00	
			TSB-HJ-10-10'							
		KF8N41AF	RADIUM-228	1.17E+00 +/- 1.58E-01	J	pci/g	88%	4.15E-01	2.00E+00	
			TSB-HR-05-0'							
		KF8PE1AF	RADIUM-228	1.30E+00 +/- 1.73E-01	J	pci/g	91%	5.24E-01	2.00E+00	
			TSB-HR-05-10'							
		KF8PG1AJ	RADIUM-228	1.06E+00 +/- 1.63E-01	J	pci/g	88%	5.34E-01	2.00E+00	
			TSB-HR-05-10' DUP							
		KF8PG1AL	RADIUM-228	1.26E+00 +/- 1.72E-01		pci/g	91%	5.28E-01		0.8
			TSB-HR-06-0'							
		KF8N51AF	RADIUM-228	1.63E+00 +/- 1.81E-01	J	pci/g	89%	3.69E-01	2.00E+00	
			TSB-HR-06-0' FD							
		KF8N61AF	RADIUM-228	1.17E+00 +/- 1.57E-01	J	pci/g	90%	3.83E-01	2.00E+00	

TestAmerica
rptSTLRchSaSum
mary2 V5.1.5
A2002

RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUD))] as defined by ICPT BOA.
J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

Sample Results Summary

Date: 26-Mar-08

TestAmerica

Ordered by Method, Batch No., Client Sample ID.

Report No. : 38633

SDG No: 8035233

Client Id	Batch	Work Order	Parameter	Result +/- Uncertainty (1s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
8042385 EPA 904.0										
TSB-HR-06-10'										
	KF8N81AF		RADIUM-228	1.58E+00 +/- 2.06E-01	J	pci/g	82%	5.28E-01	2.00E+00	
8065248 HASL-300 Th Mod										
TSB-HJ-08-0'										
	KF8N93AD		THORIUM-228	1.62E+00 +/- 1.93E-01		pci/g	88%	6.06E-02	1.00E-01	
			THORIUM-230	1.14E+00 +/- 1.49E-01		pci/g	88%	5.77E-02	1.00E-01	
			THORIUM-232	1.77E+00 +/- 2.03E-01		pci/g	88%	5.77E-02	1.00E-01	
TSB-HJ-08-10'										
	KF8PD3AD		THORIUM-228	2.09E+00 +/- 2.32E-01		pci/g	74%	6.96E-02	1.00E-01	
			THORIUM-230	2.05E+00 +/- 2.26E-01		pci/g	74%	6.63E-02	1.00E-01	
			THORIUM-232	1.72E+00 +/- 1.98E-01		pci/g	74%	5.62E-02	1.00E-01	
TSB-HJ-10-0'										
	KF8NX3AD		THORIUM-228	2.79E+00 +/- 2.73E-01		pci/g	91%	6.15E-02	1.00E-01	
			THORIUM-230	1.47E+00 +/- 1.62E-01		pci/g	91%	4.08E-02	1.00E-01	
			THORIUM-232	2.16E+00 +/- 2.20E-01		pci/g	91%	4.08E-02	1.00E-01	
TSB-HJ-10-10'										
	KF8N43AD		THORIUM-228	1.75E+00 +/- 2.02E-01		pci/g	88%	6.84E-02	1.00E-01	
			THORIUM-230	2.70E+00 +/- 2.78E-01		pci/g	88%	5.52E-02	1.00E-01	
			THORIUM-232	1.45E+00 +/- 1.74E-01		pci/g	88%	5.52E-02	1.00E-01	
TSB-HR-05-0'										
	KF8PE3AD		THORIUM-228	2.44E+00 +/- 2.55E-01		pci/g	85%	6.99E-02	1.00E-01	
			THORIUM-230	1.24E+00 +/- 1.52E-01		pci/g	85%	5.05E-02	1.00E-01	
			THORIUM-232	1.98E+00 +/- 2.14E-01		pci/g	85%	5.05E-02	1.00E-01	
TSB-HR-05-10'										
	KF8PG3AD		THORIUM-228	2.14E+00 +/- 2.46E-01		pci/g	86%	7.02E-02	1.00E-01	
			THORIUM-230	2.15E+00 +/- 2.44E-01		pci/g	86%	6.68E-02	1.00E-01	
			THORIUM-232	2.08E+00 +/- 2.38E-01		pci/g	86%	6.68E-02	1.00E-01	
TSB-HR-05-10' DUP										
	KF8PG3AG		THORIUM-228	2.03E+00 +/- 2.35E-01		pci/g	86%	6.81E-02		0.3
			THORIUM-230	2.05E+00 +/- 2.34E-01		pci/g	86%	6.48E-02		0.3
			THORIUM-232	1.79E+00 +/- 2.11E-01		pci/g	86%	6.48E-02		0.9
TSB-HR-06-0'										
	KF8N53AD		THORIUM-228	1.94E+00 +/- 1.97E-01		pci/g	85%	4.30E-02	1.00E-01	
			THORIUM-230	1.07E+00 +/- 1.23E-01		pci/g	85%	4.09E-02	1.00E-01	
			THORIUM-232	1.87E+00 +/- 1.89E-01		pci/g	85%	3.47E-02	1.00E-01	
TSB-HR-06-0' FD										
	KF8N63AD		THORIUM-228	1.57E+00 +/- 1.71E-01		pci/g	77%	5.37E-02	1.00E-01	
			THORIUM-230	9.92E-01 +/- 1.20E-01		pci/g	77%	5.12E-02	1.00E-01	

TestAmerica

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

rptSTLRchSaSum
mary2 V5.1.5
A2002

J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

Sample Results Summary

Date: 26-Mar-08

TestAmerica

Ordered by Method, Batch No., Client Sample ID.

Report No. : 38633

SDG No: 8065248

Client Id	Batch	Work Order	Parameter	Result +/- Uncertainty (1s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
8065248 HASL-300 Th Mod										
TSB-HR-06-0' FD										
	KF8N63AD		THORIUM-232	1.71E+00 +/- 1.80E-01		pci/g	77%	3.88E-02	1.00E-01	
TSB-HR-06-10'										
	KF8N83AD		THORIUM-228	1.72E+00 +/- 2.01E-01		pci/g	84%	5.98E-02	1.00E-01	
			THORIUM-230	2.14E+00 +/- 2.34E-01		pci/g	84%	5.70E-02	1.00E-01	
			THORIUM-232	1.42E+00 +/- 1.72E-01		pci/g	84%	5.70E-02	1.00E-01	
8035233 KWSR										
TSB-HJ-08-0'										
	KF8N91AA		URANIUM-233/234	1.20E+00 +/- 1.32E-01		pci/g	97%	2.91E-02	1.00E+00	
			URANIUM-235/236	4.74E-02 +/- 1.77E-02	J	pci/g	97%	2.91E-02	1.00E+00	
			URANIUM-238	9.71E-01 +/- 1.11E-01	J	pci/g	97%	2.91E-02	1.00E+00	
TSB-HJ-08-10'										
	KF8PD1AA		URANIUM-233/234	2.93E+00 +/- 2.77E-01		pci/g	99%	2.84E-02	1.00E+00	
			URANIUM-235/236	9.36E-02 +/- 2.50E-02	J	pci/g	99%	2.84E-02	1.00E+00	
			URANIUM-238	2.36E+00 +/- 2.29E-01		pci/g	99%	2.84E-02	1.00E+00	
TSB-HJ-10-0'										
	KF8NX1AA		URANIUM-233/234	1.29E+00 +/- 1.42E-01		pci/g	88%	3.73E-02	1.00E+00	
			URANIUM-235/236	5.28E-02 +/- 1.92E-02	J	pci/g	88%	3.16E-02	1.00E+00	
			URANIUM-238	1.13E+00 +/- 1.28E-01		pci/g	88%	3.16E-02	1.00E+00	
TSB-HJ-10-10'										
	KF8N41AA		URANIUM-233/234	3.06E+00 +/- 2.93E-01		pci/g	94%	3.20E-02	1.00E+00	
			URANIUM-235/236	7.21E-02 +/- 2.30E-02	J	pci/g	94%	3.20E-02	1.00E+00	
			URANIUM-238	2.49E+00 +/- 2.45E-01		pci/g	94%	3.20E-02	1.00E+00	
TSB-HR-05-0'										
	KF8PE1AA		URANIUM-233/234	1.21E+00 +/- 1.33E-01		pci/g	93%	2.96E-02	1.00E+00	
			URANIUM-235/236	4.94E-02 +/- 1.80E-02	J	pci/g	93%	2.96E-02	1.00E+00	
			URANIUM-238	1.23E+00 +/- 1.34E-01		pci/g	93%	2.96E-02	1.00E+00	
TSB-HR-05-10'										
	KF8PG1AA		URANIUM-233/234	2.05E+00 +/- 2.09E-01		pci/g	86%	3.22E-02	1.00E+00	
			URANIUM-235/236	8.73E-02 +/- 2.53E-02	J	pci/g	86%	3.22E-02	1.00E+00	
			URANIUM-238	1.71E+00 +/- 1.80E-01		pci/g	86%	3.22E-02	1.00E+00	
TSB-HR-05-10' DUP										
	KF8PG1AE		URANIUM-233/234	2.38E+00 +/- 2.37E-01		pci/g	92%	3.27E-02		1.0
			URANIUM-235/236	1.09E-01 +/- 2.88E-02		pci/g	92%	3.27E-02		0.6
			URANIUM-238	1.97E+00 +/- 2.02E-01		pci/g	92%	4.31E-02		0.9
TSB-HR-06-0'										
	KF8N51AA		URANIUM-233/234	1.35E+00 +/- 1.45E-01		pci/g	98%	4.16E-02	1.00E+00	
			URANIUM-235/236	2.91E-02 +/- 1.38E-02	J	pci/g	98%	2.90E-02	1.00E+00	

TestAmerica RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPuD))] as defined by ICPT BOA.
 rptSTLRchSaSum J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 mary2 V5.1.5
 A2002

Sample Results Summary

Date: 26-Mar-08

TestAmerica

Ordered by Method, Batch No., Client Sample ID.

Report No. : 38633

SDG No: 8035233

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (1s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
8035233 KWSR									
	TSB-HR-06-0'								
	KF8N51AA	URANIUM-238	1.23E+00 +- 1.34E-01		pci/g	98%	4.16E-02	1.00E+00	
	TSB-HR-06-0' FD								
	KF8N61AA	URANIUM-233/234	1.29E+00 +- 1.40E-01		pci/g	95%	4.56E-02	1.00E+00	
		URANIUM-235/236	1.12E-02 +- 8.91E-03	U	pci/g	95%	2.97E-02	1.00E+00	
		URANIUM-238	1.15E+00 +- 1.28E-01		pci/g	95%	2.97E-02	1.00E+00	
	TSB-HR-06-10'								
	KF8N81AA	URANIUM-233/234	2.87E+00 +- 2.72E-01		pci/g	89%	3.75E-02	1.00E+00	
		URANIUM-235/236	5.82E-02 +- 1.94E-02	J	pci/g	89%	2.85E-02	1.00E+00	
		URANIUM-238	2.49E+00 +- 2.40E-01		pci/g	89%	4.64E-02	1.00E+00	
8035239 HASL-300 U Mod									
	RINSATE-2								
	KF8PH1AE	URANIUM-233/234	3.59E-02 +- 4.40E-02	U	pci/l	91%	2.05E-01	1.00E+00	
		URANIUM-235/236	2.39E-02 +- 3.06E-02	U	pci/l	91%	1.43E-01	1.00E-01	
		URANIUM-238	-6.48E-06 +- 3.28E-02	U	pci/l	91%	2.20E-01	1.00E+00	
	RINSATE-2 DUP								
	KF8PH1AF	URANIUM-233/234	3.27E-02 +- 3.34E-02	U	pci/l	90%	1.56E-01		0.1
		URANIUM-235/236	-6.53E-03 +- 3.33E-02	U	pci/l	90%	1.56E-01		0.7
		URANIUM-238	-6.53E-03 +- 3.33E-02	U	pci/l	90%	1.56E-01		0.1
8035240 HASL-300 Th Mod									
	RINSATE-2								
	KF8PH1AD	THORIUM-228	-8.06E-02 +- 6.54E-02	U	pci/l	89%	4.73E-01	1.00E+00	
		THORIUM-230	4.55E-02 +- 5.81E-02	U	pci/l	89%	2.73E-01	1.00E+00	
		THORIUM-232	0.00E+00 +- 5.80E-02	U	pci/l	89%	2.73E-01	1.00E+00	
	RINSATE-2 DUP								
	KF8PH1AG	THORIUM-228	-4.09E-02 +- 7.23E-02	U	pci/l	78%	4.31E-01		0.4
		THORIUM-230	0.00E+00 +- 6.88E-02	U	pci/l	78%	3.23E-01		0.5
		THORIUM-232	0.00E+00 +- 6.88E-02	U	pci/l	78%	3.23E-01		0.0
8035242 EPA 903.1									
	RINSATE-2								
	KF8PH1AA	RADIUM-226	-1.98E-02 +- 2.30E-02	U	pci/l	100%	1.09E-01	1.00E+00	
8035244 EPA 904.0									
	RINSATE-2								
	KF8PH1AC	RADIUM-228	5.50E-02 +- 1.18E-01	U	pci/l	92%	5.52E-01	3.00E+00	
No. of Results: 94									

TestAmerica RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUD))] as defined by ICPT BOA.
 rptSTLRchSaSummary2 V5.1.5 J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 A2002 U 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.

QC Results Summary

Date: 26-Mar-08

TestAmerica

Ordered by Method, Batch No, QC Type,.

Report No. : 38633

SDG No.: 8035233

Batch	Work Order	Parameter	Result +- Uncertainty (1s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDC MDA
EPA 903.1									
8042383	BLANK QC,								
	KGXJG1AA	RADIUM-226	4.81E-02 +- 3.09E-02	U	pci/g	98%			1.03E-01
8042383	LCS,								
	KGXJG1AC	RADIUM-226	1.36E+00 +- 1.70E-01		pci/g	100%	100%	0.0	9.32E-02
EPA 904.0									
8042385	BLANK QC,								
	KGXJK1AA	RADIUM-228	1.99E-01 +- 1.13E-01	U	pci/g	87%			4.99E-01
8042385	LCS,								
	KGXJK1AC	RADIUM-228	3.83E+00 +- 3.15E-01		pci/g	90%	77%	-0.2	5.33E-01
HASL-300 Th Mod									
8065248	BLANK QC,								
	KGH0L3AA	THORIUM-228	4.60E-02 +- 2.70E-02	U	pci/g	82%			7.34E-02
		THORIUM-230	4.38E-02 +- 2.57E-02	U	pci/g	82%			6.99E-02
		THORIUM-232	0.00E+00 +- 1.49E-02	U	pci/g	82%			6.99E-02
8065248	LCS,								
	KGH0L3AC	THORIUM-230	2.65E+00 +- 2.66E-01		pci/g	87%	116%	0.2	4.69E-02
KWSR									
8035233	BLANK QC,								
	KGHX71AA	URANIUM-233/234	4.22E-02 +- 1.64E-02	J	pci/g	91%			2.89E-02
		URANIUM-235/236	-1.21E-03 +- 6.15E-03	U	pci/g	91%			2.89E-02
		URANIUM-238	2.89E-02 +- 1.37E-02	J	pci/g	91%			2.89E-02
8035233	LCS,								
	KGHX71AC	URANIUM-233/234	1.60E+00 +- 1.63E-01		pci/g	102%	95%	0.0	2.73E-02
		URANIUM-238	1.80E+00 +- 1.80E-01		pci/g	102%	103%	0.0	2.73E-02
HASL-300 U Mod									
8035239	BLANK QC,								
	KGH091AA	URANIUM-233/234	6.05E-02 +- 4.82E-02	U	pci/l	90%			1.61E-01
		URANIUM-235/236	-6.72E-03 +- 3.43E-02	U	pci/l	90%			1.61E-01
		URANIUM-238	2.69E-02 +- 3.43E-02	U	pci/l	90%			1.61E-01
8035239	LCS,								
	KGH091AC	URANIUM-233/234	8.53E+00 +- 8.74E-01		pci/l	88%	98%	0.0	1.58E-01
		URANIUM-238	9.19E+00 +- 9.29E-01		pci/l	88%	100%	0.0	1.58E-01
HASL-300 Th Mod									
8035240	BLANK QC,								
	KGH1A1AA	THORIUM-228	3.29E-02 +- 8.28E-02	U	pci/l	93%			4.50E-01
		THORIUM-230	1.52E-01 +- 9.52E-02	U	pci/l	93%			2.59E-01
		THORIUM-232	0.00E+00 +- 5.52E-02	U	pci/l	93%			2.59E-01
8035240	LCS,								
	KGH1A1AC	THORIUM-230	1.19E+01 +- 1.26E+00		pci/l	87%	106%	0.1	2.90E-01
EPA 903.1									
8035242	BLANK QC,								

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.
 rptSTLRchQcSummary V5.1.5 A2002 J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 U 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.

QC Results Summary

Date: 26-Mar-08

TestAmerica

Ordered by Method, Batch No, QC Type,.

Report No. : 38633

SDG No.: 8035240

Batch	Work Order	Parameter	Result +- Uncertainty (1s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDC MDA
	KGH1C1AA	RADIUM-226	7.69E-02 +- 3.54E-02	U	pci/l	100%			1.05E-01
8035242	LCS,								
	KGH1C1AC	RADIUM-226	1.42E+00 +- 1.72E-01		pci/l	100%	104%	0.0	8.70E-02
EPA 904.0									
8035244	BLANK QC,								
	KGH1D1AA	RADIUM-228	1.88E-01 +- 1.10E-01	U	pci/l	92%			4.86E-01
8035244	LCS,								
	KGH1D1AC	RADIUM-228	4.39E+00 +- 3.40E-01		pci/l	92%	88%	-0.1	5.28E-01
No. of Results: 26									

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.
 rptSTLRchQcSummary V5.1.5 A2002 U 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: 26-Mar-08

Lab Name: TestAmerica
 Lot-Sample No.: F8A290183-10
 Client Sample ID: RINSATE-2
 BASIC REMEDIATION - PARCEL H

SDG: 8035240
 Report No.: 38633
 COC No.:

Collection Date: 1/28/2008 11:15:00 AM
 Received Date: 1/29/2008 9:20:00 AM
 Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL) Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035239 HASL-300 U Mod Work Order: KF8PH1AE Report DB ID: 9KF8PH10											
URANIUM-233/234	3.59E-02	U	4.4E-02	4.4E-02	2.05E-01	pci/l	91% 0.17	2/12/08 08:08 a	0.2001	L	ALP5
					6.22E-02		0.81				
URANIUM-235/236	2.39E-02	U	3.0E-02	3.1E-02	1.43E-01	pci/l	91% 0.17	2/12/08 08:08 a	0.2001	L	ALP5
					3.11E-02		0.78				
URANIUM-238	-6.48E-06	U	3.3E-02	3.3E-02	2.20E-01	pci/l	91% 0.	2/12/08 08:08 a	0.2001	L	ALP5
					6.96E-02		0.				

Ratio U-234/238 = -5538.8

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL) Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035240 HASL-300 Th Mod Work Order: KF8PH1AD Report DB ID: 9KF8PH10											
THORIUM-228	-8.06E-02	U	6.5E-02	6.5E-02	4.73E-01	pci/l	89% -0.17	2/8/08 04:53 p	0.2002	L	ALP119
					1.58E-01		-(1.2)				
THORIUM-230	4.55E-02	U	5.8E-02	5.8E-02	2.73E-01	pci/l	89% 0.17	2/8/08 04:53 p	0.2002	L	ALP119
					5.92E-02		0.78				
THORIUM-232	0.00E+00	U	0.0E+00	5.8E-02	2.73E-01	pci/l	89% 0.	2/8/08 04:53 p	0.2002	L	ALP119
					5.92E-02		0.				

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL) Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035242 EPA 903.1 Work Order: KF8PH1AA Report DB ID: 9KF8PH10											
RADIUM-226	-1.98E-02	U	2.3E-02	2.3E-02	1.09E-01	pci/l	100% -0.18	2/11/08 03:18 p	0.9723	L	ASCJUA
					4.46E-02		-0.86				

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL) Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035244 EPA 904.0 Work Order: KF8PH1AC Report DB ID: 9KF8PH10											
RADIUM-228	5.50E-02	U	1.2E-01	1.2E-01	5.52E-01	pci/l	92% 0.1	2/14/08 08:22 a	0.9723	L	GPC6B
					2.53E-01		0.46				

TestAmerica MDC|MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLrchSample U 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.
 V5.1.5 A2002

**FORM I
SAMPLE RESULTS**

Date: 26-Mar-08

Lab Name: TestAmerica **SDG:** 8035240 **Collection Date:** 1/28/2008 11:15:00 AM
Lot-Sample No.: F8A290183-10 **Report No.:** 38633 **Received Date:** 1/29/2008 9:20:00 AM
Client Sample ID: RINSATE-2 **COC No.:** **Matrix:** WATER W
 BASIC REMEDIATION - PARCEL H Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL) Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
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No. of Results: 8 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample U 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.
 V5.1.5 A2002

FORM I

SAMPLE RESULTS

Date: 26-Mar-08

Lab Name: TestAmerica
 Lot-Sample No.: F8A290183-6
 Client Sample ID: TSB-HJ-08-0'
 BASIC REMEDIATION - PARCEL H

SDG: 8035233
 Report No.: 38633
 COC No.:

Collection Date: 1/28/2008 8:30:00 AM
 Received Date: 1/29/2008 9:20:00 AM
 Matrix: SOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL) Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035233 KWSR Work Order: KF8N91AA Report DB ID: 9KF8N910											
URANIUM-233/234	1.20E+00		8.6E-02	1.3E-01	2.91E-02 pci/g		97% (41.3)	2/25/08 12:07 p		1.0	ALP6
					6.32E-03		(9.1)			G	
URANIUM-235/236	4.74E-02	J	1.7E-02	1.8E-02	2.91E-02 pci/g		97% (1.6)	2/25/08 12:07 p		1.0	ALP6
					6.32E-03		(2.7)			G	
URANIUM-238	9.71E-01	J	7.7E-02	1.1E-01	2.91E-02 pci/g		97% (33.4)	2/25/08 12:07 p		1.0	ALP6
					6.32E-03		(8.7)			G	
Ratio U-234/238 = 1.2											
Batch: 8042383 EPA 903.1 Work Order: KF8N91AE Report DB ID: 9KF8N910											
RADIUM-226	1.44E+00		1.3E-01	1.9E-01	1.79E-01 pci/g		89% (8.)	3/10/08 02:46 p		1.01	ASCFSA
					7.45E-02		(7.4)			G	
Batch: 8042385 EPA 904.0 Work Order: KF8N91AF Report DB ID: 9KF8N910											
RADIUM-228	1.40E+00	J	1.6E-01	1.8E-01	4.39E-01 pci/g		81% (3.2)	3/12/08 06:18 a		1.01	GPC4C
					1.89E-01		(7.6)			G	
Batch: 8065248 HASL-300 Th Mod Work Order: KF8N93AD Report DB ID: 9KF8N930											
THORIUM-228	1.62E+00		1.4E-01	1.9E-01	6.06E-02 pci/g		88% (26.7)	3/17/08 06:35 p		1.0	ALP120
					1.32E-02		(8.4)			G	
THORIUM-230	1.14E+00		1.2E-01	1.5E-01	5.77E-02 pci/g		88% (19.8)	3/17/08 06:35 p		1.0	ALP120
					1.25E-02		(7.7)			G	
THORIUM-232	1.77E+00		1.5E-01	2.0E-01	5.77E-02 pci/g		88% (30.7)	3/17/08 06:35 p		1.0	ALP120
					1.25E-02		(8.7)			G	

TestAmerica MDC|MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No U|c qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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

Date: 26-Mar-08

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: F8A290183-6
 Client Sample ID: TSB-HJ-08-0'
 BASIC REMEDIATION - PARCEL H

SDG: 8065248
 Report No.: 38633
 COC No.:

Collection Date: 1/28/2008 8:30:00 AM

Received Date: 1/29/2008 9:20:00 AM

Matrix: SOLID SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
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No. of Results: 8 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rpt\$TLRchSample J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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

Date: 26-Mar-08

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: F8A290183-7
 Client Sample ID: TSB-HJ-08-10'
 BASIC REMEDIATION - PARCEL H

SDG: 8035233
 Report No.: 38633
 COC No.:

Collection Date: 1/28/2008 8:40:00 AM
 Received Date: 1/29/2008 9:20:00 AM
 Matrix: SOLID SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL) Rst/TotUcert	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035233 KWSR Work Order: KF8PD1AA Report DB ID: 9KF8PD10												
URANIUM-233/234	2.93E+00		1.3E-01	2.8E-01	2.84E-02	pci/g	99% (103.1)	(103.1)	2/25/08 12:07 p	1.03	1.03	ALP7
							6.17E-03	1.00E+00 (10.6)		G		
URANIUM-235/236	9.36E-02	J	2.4E-02	2.5E-02	2.84E-02	pci/g	99% (3.3)	(3.3)	2/25/08 12:07 p	1.03	1.03	ALP7
							6.17E-03	1.00E+00 (3.7)		G		
URANIUM-238	2.36E+00		1.2E-01	2.3E-01	2.84E-02	pci/g	99% (83.)	(83.)	2/25/08 12:07 p	1.03	1.03	ALP7
							6.17E-03	1.00E+00 (10.3)		G		
Ratio U-234/238 = 1.2												
Batch: 8042383 EPA 903.1 Work Order: KF8PD1AE Report DB ID: 9KF8PD10												
RADIUM-226	1.80E+00		1.1E-01	2.1E-01	9.88E-02	pci/g	100% (18.2)	(18.2)	3/10/08 02:42 p	1.01	1.01	ASCGAB
							4.15E-02	1.00E+00 (8.7)		G		
Batch: 8042385 EPA 904.0 Work Order: KF8PD1AF Report DB ID: 9KF8PD10												
RADIUM-228	1.16E+00	J	1.4E-01	1.6E-01	3.97E-01	pci/g	89% (2.9)	(2.9)	3/12/08 06:18 a	1.01	1.01	GPC4D
							1.70E-01	2.00E+00 (7.2)		G		
Batch: 8065248 HASL-300 Th Mod Work Order: KF8PD3AD Report DB ID: 9KF8PD30												
THORIUM-228	2.09E+00		1.6E-01	2.3E-01	6.96E-02	pci/g	74% (30.)	(30.)	3/17/08 06:37 p	1.01	1.01	ALP171
							1.81E-02	1.00E-01 (9.)		G		
THORIUM-230	2.05E+00		1.6E-01	2.3E-01	6.63E-02	pci/g	74% (30.9)	(30.9)	3/17/08 06:37 p	1.01	1.01	ALP171
							1.73E-02	1.00E-01 (9.1)		G		
THORIUM-232	1.72E+00		1.4E-01	2.0E-01	5.62E-02	pci/g	74% (30.7)	(30.7)	3/17/08 06:37 p	1.01	1.01	ALP171
							1.22E-02	1.00E-01 (8.7)		G		

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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: 26-Mar-08

Lab Name: TestAmerica **SDG:** 8065248 **Collection Date:** 1/28/2008 8:40:00 AM
Lot-Sample No.: F8A290183-7 **Report No.:** 38633 **Received Date:** 1/29/2008 9:20:00 AM
Client Sample ID: TSB-HJ-08-10' **Matrix:** SOLID SO
BASIC REMEDIATION - PARCEL H Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
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No. of Results: 8 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit; RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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: 26-Mar-08

Lab Name: TestAmerica
 Lot-Sample No.: F8A290183-1
 Client Sample ID: TSB-HJ-10-0'
 BASIC REMEDIATION - PARCEL H

SDG: 8035233
 Report No.: 38633
 COC No.:

Collection Date: 1/28/2008 7:00:00 AM
 Received Date: 1/29/2008 9:20:00 AM
 Matrix: SOLID SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL) Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035233 KWSR											
URANIUM-233/234	1.29E+00		9.2E-02	1.4E-01	3.73E-02	pci/g	88% (34.4)	2/25/08 12:06 p		1.02	ALP1
							9.72E-03 (9.1)			G	
URANIUM-235/236	5.28E-02	J	1.9E-02	1.9E-02	3.16E-02	pci/g	88% (1.7)	2/25/08 12:06 p		1.02	ALP1
							6.87E-03 (2.7)			G	
URANIUM-238	1.13E+00		8.6E-02	1.3E-01	3.16E-02	pci/g	88% (35.7)	2/25/08 12:06 p		1.02	ALP1
							6.87E-03 (8.8)			G	
Ratio U-234/238 = 1.1											
Batch: 8042383 EPA 903.1											
RADIUM-226	1.22E+00		8.8E-02	1.5E-01	1.11E-01	pci/g	100% (11.)	3/10/08 02:35 p		1.01	ASC8HC
							4.80E-02 (8.3)			G	
Batch: 8042385 EPA 904.0											
RADIUM-228	1.91E+00	J	1.7E-01	2.0E-01	3.99E-01	pci/g	92% (4.8)	3/12/08 06:18 a		1.01	GPC3A
							1.72E-01 (9.5)			G	
Batch: 8065248 HASL-300 Th Mod											
THORIUM-228	2.79E+00		1.6E-01	2.7E-01	6.15E-02	pci/g	91% (45.4)	3/17/08 06:34 p		1.02	ALP113
							1.86E-02 (10.2)			G	
THORIUM-230	1.47E+00		1.1E-01	1.6E-01	4.08E-02	pci/g	91% (36.1)	3/17/08 06:34 p		1.02	ALP113
							8.87E-03 (9.1)			G	
THORIUM-232	2.16E+00		1.4E-01	2.2E-01	4.08E-02	pci/g	91% (53.)	3/17/08 06:34 p		1.02	ALP113
							8.87E-03 (9.9)			G	

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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: 26-Mar-08

Lab Name: TestAmerica
 Lot-Sample No.: F8A290183-1
 Client Sample ID: TSB-HJ-10-0'
 BASIC REMEDIATION - PARCEL H

SDG: 8065248
 Report No.: 38633
 COC No.:

Collection Date: 1/28/2008 7:00:00 AM
 Received Date: 1/29/2008 9:20:00 AM
 Matrix: SOLID SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
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No. of Results: 8 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rpt\$TLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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: 26-Mar-08

Lab Name: TestAmerica
 Lot-Sample No.: F8A290183-2
 Client Sample ID: TSB-HJ-10-10'
 BASIC REMEDIATION - PARCEL H

SDG: 8035233
 Report No.: 38633
 COC No.:

Collection Date: 1/28/2008 7:15:00 AM

Received Date: 1/29/2008 9:20:00 AM

Matrix: SOLID SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL) Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035233 KWSR Work Order: KF8N41AA Report DB ID: 9KF8N410											
URANIUM-233/234	3.06E+00		1.4E-01	2.9E-01	3.20E-02	pci/g	94% (95.6) 6.94E-03 (10.4)	2/25/08 12:06 p	1.0	G	ALP2
URANIUM-235/236	7.21E-02	J	2.2E-02	2.3E-02	3.20E-02	pci/g	94% (2.3) 6.94E-03 (3.1)	2/25/08 12:06 p	1.0	G	ALP2
URANIUM-238	2.49E+00		1.3E-01	2.5E-01	3.20E-02	pci/g	94% (77.9) 6.94E-03 (10.1)	2/25/08 12:06 p	1.0	G	ALP2
Batch: 8042383 EPA 903.1 Work Order: KF8N41AE Report DB ID: 9KF8N410											
RADIUM-226	2.37E+00		1.3E-01	2.8E-01	1.14E-01	pci/g	98% (20.8) 4.77E-02 (8.5)	3/10/08 02:28 p	1.0	G	ASCASB
Batch: 8042385 EPA 904.0 Work Order: KF8N41AF Report DB ID: 9KF8N410											
RADIUM-228	1.17E+00	J	1.4E-01	1.6E-01	4.15E-01	pci/g	88% (2.8) 1.80E-01 (7.4)	3/12/08 06:18 a	1.0	G	GPC3C
Batch: 8065248 HASL-300 Th Mod Work Order: KF8N43AD Report DB ID: 9KF8N430											
THORIUM-228	1.75E+00		1.5E-01	2.0E-01	6.84E-02	pci/g	88% (25.6) 1.78E-02 (8.7)	3/17/08 06:34 p	1.02	G	ALP116
THORIUM-230	2.70E+00		1.8E-01	2.8E-01	5.52E-02	pci/g	88% (48.9) 1.20E-02 (9.7)	3/17/08 06:34 p	1.02	G	ALP116
THORIUM-232	1.45E+00		1.3E-01	1.7E-01	5.52E-02	pci/g	88% (26.3) 1.20E-02 (8.4)	3/17/08 06:34 p	1.02	G	ALP116

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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

Date: 26-Mar-08

SAMPLE RESULTS

Lab Name: TestAmerica **SDG:** 8065248 **Collection Date:** 1/28/2008 7:15:00 AM **Primary Detector**
Lot-Sample No.: F8A290183-2 **Report No.:** 38633 **Received Date:** 1/29/2008 9:20:00 AM
Client Sample ID: TSB-HJ-10-10' **COC No.:** **Matrix:** SOLID SO **Analysis, Prep Date**
 BASIC REMEDIATION - PARCEL H **Ordered by Client Sample ID, Batch No.**

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
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No. of Results: 8 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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

Date: 26-Mar-08

SAMPLE RESULTS

Lab Name: TestAmerica **SDG:** 8035233 **Collection Date:** 1/28/2008 9:00:00 AM
Lot-Sample No.: F8A290183-8 **Report No.:** 38633 **Received Date:** 1/29/2008 9:20:00 AM
Client Sample ID: TSB-HR-05-0' **COC No.:** **Matrix:** SOLID SO
 BASIC REMEDIATION - PARCEL H Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC\MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL), Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035233 KWSR											
URANIUM-233/234	1.21E+00		8.7E-02	1.3E-01	2.96E-02 pci/g	6.43E-03	93% (40.9)	2/25/08 12:07 p	1.01	G	ALP8
URANIUM-235/236	4.94E-02 J		1.8E-02	1.8E-02	2.96E-02 pci/g	6.43E-03	93% (1.7)	2/25/08 12:07 p	1.01	G	ALP8
URANIUM-238	1.23E+00		8.7E-02	1.3E-01	2.96E-02 pci/g	6.43E-03	93% (41.5)	2/25/08 12:07 p	1.01	G	ALP8

Ratio U-234/238 = 1.0

Batch: 8042383 EPA 903.1											
RADIUM-226	1.54E+00		1.1E-01	2.0E-01	1.31E-01 pci/g	5.60E-02	100% (11.7)	3/10/08 02:38 p	1.0	G	ASCHSB

Batch: 8042385 EPA 904.0											
RADIUM-228	1.30E+00 J		1.6E-01	1.7E-01	5.24E-01 pci/g	2.40E-01	91% (2.5)	3/12/08 06:18 a	1.0	G	GPC5C

Batch: 8065248 HASL-300 Th Mod											
THORIUM-228	2.44E+00		1.6E-01	2.6E-01	6.99E-02 pci/g	2.00E-02	85% (34.9)	3/17/08 06:37 p	1.01	G	ALP172
THORIUM-230	1.24E+00		1.1E-01	1.5E-01	5.05E-02 pci/g	1.10E-02	85% (24.6)	3/17/08 06:37 p	1.01	G	ALP172
THORIUM-232	1.98E+00		1.4E-01	2.1E-01	5.05E-02 pci/g	1.10E-02	85% (39.2)	3/17/08 06:37 p	1.01	G	ALP172

TestAmerica MDC\MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 AZ002 U 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

Date: 26-Mar-08

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: F8A290183-8
 Client Sample ID: TSB-HR-05-0'
 SDG: 8065248
 Report No.: 38633
 COC No.:
 Collection Date: 1/28/2008 9:00:00 AM
 Received Date: 1/29/2008 9:20:00 AM
 Matrix: SOLID SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
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No. of Results: 8 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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: 26-Mar-08

Lab Name: TestAmerica
 Lot-Sample No.: F8AZ90183-9
 Client Sample ID: TSB-HR-05-10'
 BASIC REMEDIATION - PARCEL H

SDG: 8035233
 Report No.: 38633
 COC No.:

Collection Date: 1/28/2008 9:15:00 AM
 Received Date: 1/29/2008 9:20:00 AM
 Matrix: SOLID SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL) Rst/TotUcert	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035233 KWSR Work Order: KF8PG1AA Report DB ID: 9KF8PG10												
URANIUM-233/234	2.05E+00		1.2E-01	2.1E-01	3.22E-02	pci/g	86% (63.9)	(9.8)	2/25/08 12:07 p	1.03	1.03	ALP9
URANIUM-235/236	8.73E-02	J	2.4E-02	2.5E-02	3.22E-02	pci/g	86% (2.7)	(3.4)	2/25/08 12:07 p	1.03	1.03	ALP9
URANIUM-238	1.71E+00		1.1E-01	1.8E-01	3.22E-02	pci/g	86% (53.2)	(9.5)	2/25/08 12:07 p	1.03	1.03	ALP9
Batch: 8042383 EPA 903.1 Work Order: KF8PG1AH Report DB ID: 9KF8PG10												
RADIUM-226	1.48E+00		9.4E-02	1.7E-01	9.92E-02	pci/g	100% (14.9)	(8.7)	3/10/08 03:09 p	1.02	1.02	ASCJUA
Batch: 8042385 EPA 904.0 Work Order: KF8PG1AJ Report DB ID: 9KF8PG10												
RADIUM-228	1.06E+00	J	1.5E-01	1.6E-01	5.34E-01	pci/g	88% (2.)	(6.5)	3/12/08 06:18 a	1.02	1.02	GPC5D
Batch: 8065248 HASL-300 Th Mod Work Order: KF8PG3AD Report DB ID: 9KF8PG30												
THORIUM-228	2.14E+00		1.8E-01	2.5E-01	7.02E-02	pci/g	86% (30.4)	(8.7)	3/17/08 06:37 p	1.01	1.01	ALP173
THORIUM-230	2.15E+00		1.7E-01	2.4E-01	6.68E-02	pci/g	86% (32.1)	(8.8)	3/17/08 06:37 p	1.01	1.01	ALP173
THORIUM-232	2.08E+00		1.7E-01	2.4E-01	6.68E-02	pci/g	86% (31.1)	(8.7)	3/17/08 06:37 p	1.01	1.01	ALP173

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 U 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.
 V5.1.5 A2002

FORM I

Date: 26-Mar-08

SAMPLE RESULTS

Lab Name: TestAmerica **SDG:** 8065248 **Collection Date:** 1/28/2008 9:15:00 AM
Lot-Sample No.: F8A290183-9 **Report No.:** 38633 **Received Date:** 1/29/2008 9:20:00 AM
Client Sample ID: TSB-HR-05-10' **COC No.:** SOLID SO **Matrix:** SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
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No. of Results: 8 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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: 26-Mar-08

Lab Name: TestAmerica
 Lot-Sample No.: F8A290183-3
 Client Sample ID: TSB-HR-06-0'
 BASIC REMEDIATION - PARCEL H

SDG: 8035233
 Report No.: 38633
 COC No.:

Collection Date: 1/28/2008 7:55:00 AM
 Received Date: 1/29/2008 9:20:00 AM
 Matrix: SOLID SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL) Rst/TotUcert	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035233 KWSR Work Order: KF8N51AA Report DB ID: 9KF8N510												
URANIUM-233/234	1.35E+00		9.1E-02	1.4E-01	4.16E-02	pci/g	98% (32.5)	(32.5)	2/25/08 12:06 p		1.01	ALP3
							1.26E-02	1.00E+00 (9.4)			G	
URANIUM-235/236	2.91E-02	J	1.4E-02	1.4E-02	2.90E-02	pci/g	98% (1.)	(1.)	2/25/08 12:06 p		1.01	ALP3
							6.31E-03	1.00E+00 (2.1)			G	
URANIUM-238	1.23E+00		8.7E-02	1.3E-01	4.16E-02	pci/g	98% (29.6)	(29.6)	2/25/08 12:06 p		1.01	ALP3
							1.26E-02	1.00E+00 (9.2)			G	
Ratio U-234/238 = 1.1												
Batch: 8042383 EPA 903.1 Work Order: KF8N51AE Report DB ID: 9KF8N510												
RADIUM-226	7.11E-01	J	7.4E-02	1.1E-01	1.40E-01	pci/g	100% (5.1)	(5.1)	3/10/08 02:36 p		1.01	ASCBMA
							6.25E-02	1.00E+00 (6.8)			G	
Batch: 8042385 EPA 904.0 Work Order: KF8N51AF Report DB ID: 9KF8N510												
RADIUM-228	1.63E+00	J	1.6E-01	1.8E-01	3.69E-01	pci/g	89% (4.4)	(4.4)	3/12/08 06:18 a		1.01	GPC3D
							1.57E-01	2.00E+00 (9.)			G	
Batch: 8065248 HASL-300 Th Mod Work Order: KF8N53AD Report DB ID: 9KF8N530												
THORIUM-228	1.94E+00		1.2E-01	2.0E-01	4.30E-02	pci/g	85% (45.1)	(45.1)	3/17/08 06:34 p		1.01	ALP117
							1.12E-02	1.00E-01 (9.9)			G	
THORIUM-230	1.07E+00		8.8E-02	1.2E-01	4.09E-02	pci/g	85% (26.1)	(26.1)	3/17/08 06:34 p		1.01	ALP117
							1.07E-02	1.00E-01 (8.7)			G	
THORIUM-232	1.87E+00		1.2E-01	1.9E-01	3.47E-02	pci/g	85% (53.9)	(53.9)	3/17/08 06:34 p		1.01	ALP117
							7.53E-03	1.00E-01 (9.9)			G	

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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

Date: 26-Mar-08

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: F8A290183-3
 Client Sample ID: TSB-HR-06-0'
 BASIC REMEDIATION - PARCEL H

SDG: 8065248
 Report No.: 38633
 COC No.:

Collection Date: 1/28/2008 7:55:00 AM
 Received Date: 1/29/2008 9:20:00 AM
 Matrix: SOLID SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
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No. of Results: 8 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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: 26-Mar-08

Lab Name: TestAmerica SDG: 8035233 Collection Date: 1/28/2008 7:55:00 AM
 Lot-Sample No.: F8A290183-4 Report No.: 38633 Received Date: 1/29/2008 9:20:00 AM
 Client Sample ID: TSB-HR-06-0' FD COC No.: Matrix: SOLID SO
 BASIC REMEDIATION - PARCEL H Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL) Rst/TotUcert	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035233 KWSR Work Order: KF8N61AA Report DB ID: 9KF8N610												
URANIUM-233/234	1.29E+00		9.0E-02	1.4E-01	4.56E-02	pci/g	95% (28.3)	(28.3)	2/25/08 12:06 p		1.02	ALP4
							1.44E-02	1.00E+00			G	
URANIUM-235/236	1.12E-02	U	8.9E-03	8.9E-03	2.97E-02	pci/g	95% 0.38	0.38	2/25/08 12:06 p		1.02	ALP4
							6.45E-03	1.00E+00			G	
URANIUM-238	1.15E+00		8.5E-02	1.3E-01	2.97E-02	pci/g	95% (38.8)	(38.8)	2/25/08 12:06 p		1.02	ALP4
							6.45E-03	1.00E+00			G	

Ratio U-234/238 = 1.1

Batch: 8042383 EPA 903.1 Work Order: KF8N61AE Report DB ID: 9KF8N610												
RADIUM-226	6.98E-01	J	7.3E-02	1.0E-01	1.20E-01	pci/g	100% (5.8)	(5.8)	3/10/08 02:36 p		1.03	ASCCSB
							5.12E-02	1.00E+00			G	

Batch: 8042385 EPA 904.0 Work Order: KF8N61AF Report DB ID: 9KF8N610												
RADIUM-228	1.17E+00	J	1.4E-01	1.6E-01	3.83E-01	pci/g	90% (3.)	(3.)	3/12/08 06:18 a		1.03	GPC4A
							1.65E-01	2.00E+00			G	

Batch: 8065248 HASL-300 Th Mod Work Order: KF8N63AD Report DB ID: 9KF8N630												
THORIUM-228	1.57E+00		1.2E-01	1.7E-01	5.37E-02	pci/g	77% (29.2)	(29.2)	3/17/08 06:34 p		1.01	ALP118
							1.53E-02	1.00E-01			G	
THORIUM-230	9.92E-01		9.0E-02	1.2E-01	5.12E-02	pci/g	77% (19.4)	(19.4)	3/17/08 06:34 p		1.01	ALP118
							1.46E-02	1.00E-01			G	
THORIUM-232	1.71E+00		1.2E-01	1.8E-01	3.88E-02	pci/g	77% (44.1)	(44.1)	3/17/08 06:34 p		1.01	ALP118
							8.43E-03	1.00E-01			G	

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No U|c qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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

Date: 26-Mar-08

SAMPLE RESULTS

Lab Name: TestAmerica **SDG:** 8065248 **Collection Date:** 1/28/2008 7:55:00 AM
Lot-Sample No.: F8A290183-4 **Report No.:** 38633 **Received Date:** 1/29/2008 9:20:00 AM
Client Sample ID: TSB-HR-06-0' FD **COC No.:** SOLID SO **Matrix:** SO
 Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
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No. of Results: 8 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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: 26-Mar-08

Lab Name: TestAmerica **SDG:** 8035233 **Collection Date:** 1/28/2008 8:11:00 AM
Lot-Sample No.: F8A290183-5 **Report No.:** 38633 **Received Date:** 1/29/2008 9:20:00 AM
Client Sample ID: TSB-HR-06-10' **COC No.:** **Matrix:** SOLID SO
BASIC REMEDIATION - PARCEL H Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035233 KWSR Work Order: KF8N81AA Report DB ID: 9KF8N810												
URANIUM-233/234	2.87E+00		1.3E-01	2.7E-01	3.75E-02	pci/g	89%	(76.4)	2/25/08 12:06 p		1.03	ALP5
							1.07E-02	1.00E+00			G	
URANIUM-235/236	5.82E-02	J	1.9E-02	1.9E-02	2.85E-02	pci/g	89%	(2.)	2/25/08 12:06 p		1.03	ALP5
							6.18E-03	1.00E+00			G	
URANIUM-238	2.49E+00		1.2E-01	2.4E-01	4.64E-02	pci/g	89%	(53.8)	2/25/08 12:06 p		1.03	ALP5
							1.51E-02	1.00E+00			G	

Ratio U-234/238 = 1.1

Batch: 8042383 EPA 903.1 Work Order: KF8N81AE Report DB ID: 9KF8N810												
RADIUM-226	2.10E+00		1.4E-01	2.6E-01	1.52E-01	pci/g	92%	(13.8)	3/10/08 02:40 p		1.0	ASCEC
							6.40E-02	1.00E+00			G	
Batch: 8042385 EPA 904.0 Work Order: KF8N81AF Report DB ID: 9KF8N810												
RADIUM-228	1.58E+00	J	1.8E-01	2.1E-01	5.28E-01	pci/g	82%	(3.)	3/12/08 06:18 a		1.0	GPC4B
							2.33E-01	2.00E+00			G	

Batch: 8065248 HASL-300 Th Mod Work Order: KF8N83AD Report DB ID: 9KF8N830												
THORIUM-228	1.72E+00		1.5E-01	2.0E-01	5.98E-02	pci/g	84%	(28.8)	3/17/08 06:35 p		1.01	ALP119
							1.30E-02	1.00E-01			G	
THORIUM-230	2.14E+00		1.6E-01	2.3E-01	5.70E-02	pci/g	84%	(37.5)	3/17/08 06:35 p		1.01	ALP119
							1.24E-02	1.00E-01			G	
THORIUM-232	1.42E+00		1.3E-01	1.7E-01	5.70E-02	pci/g	84%	(24.8)	3/17/08 06:35 p		1.01	ALP119
							1.24E-02	1.00E-01			G	

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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

Date: 26-Mar-08

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: F8A290183-5
 Client Sample ID: TSB-HR-06-10'
 BASIC REMEDIATION - PARCEL H

SDG: 8065248
 Report No.: 38633
 COC No.:

Collection Date: 1/28/2008 8:11:00 AM
 Received Date: 1/29/2008 9:20:00 AM
 Matrix: SOLID S0

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
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No. of Results: 8 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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

Date: 26-Mar-08

DUPLICATE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: F8A290183-10
 Client Sample ID: RINSATE-2 DUP

SDG: 8035240
 Report No.: 38633
 COC No.:

Collection Date: 1/28/2008 11:15:00 AM
 Received Date: 1/29/2008 9:20:00 AM
 Matrix: WATER W

Parameter	Result, Orig Rst	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035239	HASL-300 U Mod								Orig Sa DB ID: 9KF8PH10			
URANIUM-233/234	3.27E-02	U	3.3E-02	3.3E-02	1.56E-01	pci/l	90%	0.21	2/12/08 08:08 a	0.2001	0.2001	ALP6
	3.59E-02	U	RER2 0.1					0.98		L	L	
URANIUM-235/236	-6.53E-03	U	3.3E-02	3.3E-02	1.56E-01	pci/l	90%	-0.04	2/12/08 08:08 a	0.2001	0.2001	ALP6
	2.39E-02	U	RER2 0.7					-0.2		L	L	
URANIUM-238	-6.53E-03	U	3.3E-02	3.3E-02	1.56E-01	pci/l	90%	-0.04	2/12/08 08:08 a	0.2001	0.2001	ALP6
	-6.48E-06	U	RER2 0.1					-0.2		L	L	

Ratio U-234/238 = -5.0

Alpha Spec Result Sum = 2.0E-02

Parameter	Result, Orig Rst	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035240	HASL-300 Th Mod								Orig Sa DB ID: 9KF8PH10			
THORIUM-228	-4.09E-02	U	7.2E-02	7.2E-02	4.31E-01	pci/l	78%	-0.1	2/8/08 04:53 p	0.2001	0.2001	ALP120
	-8.06E-02	U	RER2 0.4					-0.57		L	L	
THORIUM-230	0.00E+00	U	0.0E+00	6.9E-02	3.23E-01	pci/l	78%	0.	2/8/08 04:53 p	0.2001	0.2001	ALP120
	4.55E-02	U	RER2 0.5					0.		L	L	
THORIUM-232	0.00E+00	U	0.0E+00	6.9E-02	3.23E-01	pci/l	78%	0.	2/8/08 04:53 p	0.2001	0.2001	ALP120
	0.00E+00	U	RER2 0.0					0.		L	L	

No. of Results: 6 Comments:

TestAmerica RER2 - Replicate Error Ratio = (S-D)/[sqrt((sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
 rptSTLRLchDupV5.1 MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 .5 A2002 U 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

Date: 26-Mar-08

DUPLICATE RESULTS

Lab Name: TestAmerica **SDG:** 8035233 **Collection Date:** 1/28/2008 9:15:00 AM
Lot-Sample No.: F8A290183-9 **Report No.:** 38633 **Received Date:** 1/29/2008 9:20:00 AM
Client Sample ID: TSB-HR-05-10' DUP **COC No.:** **Matrix:** SOLID SO

Parameter	Result, Orig Rst	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035233 KWSR												
URANIUM-233/234	2.38E+00		1.3E-01	2.4E-01	3.27E-02	pci/g	92%	(72.8)	2/25/08 12:07 p	9KF8PG10	1.0	ALP10
	2.05E+00		RER2 1.0					(10.)			G	
URANIUM-235/236	1.09E-01		2.7E-02	2.9E-02	3.27E-02	pci/g	92%	(3.3)	2/25/08 12:07 p		1.0	ALP10
	8.73E-02		RER2 0.6					(3.8)			G	
URANIUM-238	1.97E+00		1.2E-01	2.0E-01	4.31E-02	pci/g	92%	(45.7)	2/25/08 12:07 p		1.0	ALP10
	1.71E+00		RER2 0.9					(9.7)			G	

Ratio U-234/238 = 1.2

Alpha Spec Result Sum = 4.5E+00

Batch: 8042383 EPA 903.1												
RADIUM-226	1.73E+00		1.0E-01	2.0E-01	9.71E-02	pci/g	100%	(17.9)	3/10/08 03:01 p	9KF8PG10	1.02	ASCKME
	1.48E+00		RER2 1.0					(8.6)			G	

Alpha Spec Result Sum = 4.5E+00

Batch: 8042385 EPA 904.0												
RADIUM-228	1.26E+00		1.6E-01	1.7E-01	5.28E-01	pci/g	91%	(2.4)	3/12/08 06:18 a	9KF8PG10	1.02	GPC6A
	1.06E+00		RER2 0.8					(7.3)			G	

Alpha Spec Result Sum = 4.5E+00

Batch: 8065248 HASL-300 Th Mod												
THORIUM-228	2.03E+00		1.7E-01	2.3E-01	6.81E-02	pci/g	86%	(29.9)	3/17/08 06:37 p	9KF8PG30	1.02	ALP174
	2.14E+00		RER2 0.3					(8.7)			G	
THORIUM-230	2.05E+00		1.7E-01	2.3E-01	6.48E-02	pci/g	86%	(31.7)	3/17/08 06:37 p		1.02	ALP174
	2.15E+00		RER2 0.3					(8.8)			G	

TestAmerica RER2 - Replicate Error Ratio = (S-D)/sqrt((sq(TPU_s)+sq(TPU_d))) as defined by ICPT BOA.

rptSTLRchDupV5.1 MDC|MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

FORM II

Date: 26-Mar-08

DUPLICATE RESULTS

Lab Name: TestAmerica SDG: 8065248 Collection Date: 1/28/2008 9:15:00 AM
 Lot-Sample No.: F8A290183-9 Report No.: 38633 Received Date: 1/29/2008 9:20:00 AM
 Client Sample ID: TSB-HR-05-10' DUP COC No.: Matrix: SOLID SO

Parameter	Result, Orig Rst	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
THORIUM-232	1.79E+00		1.6E-01	2.1E-01	6.48E-02	pci/g	86%	(27.6)	3/17/08 06:37 p		1.02	ALP174
	2.08E+00							(8.5)			G	

Alpha Spec Result Sum = 1.8E+00

No. of Results: 8 Comments:

TestAmerica RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
 rptSTLRchDupV5.1 MDC|MDA,Le - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 .5 A2002

FORM II

BLANK RESULTS

Date: 26-Mar-08

Lab Name: TestAmerica
Matrix: SOLID

SDG: 8065248
Report No.: 38633

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8065248												
Work Order: KGH0L3AA Report DB ID: KGH0L3AB												
THORIUM-228	4.60E-02	U	2.7E-02	2.7E-02	7.34E-02	pci/g	82%	0.63	3/17/08 06:37 p	1.0	1.0	ALP175
					1.60E-02	1.00E-01		(1.7)		G		
THORIUM-230	4.38E-02	U	2.5E-02	2.6E-02	6.99E-02	pci/g	82%	0.63	3/17/08 06:37 p	1.0	1.0	ALP175
					1.52E-02	1.00E-01		(1.7)		G		
THORIUM-232	0.00E+00	U	0.0E+00	1.5E-02	6.99E-02	pci/g	82%	0.	3/17/08 06:37 p	1.0	1.0	ALP175
					1.52E-02	1.00E-01		0.		G		
Batch: 8042383												
Work Order: KGXJG1AA Report DB ID: KGXJG1AB												
RADIUM-226	4.81E-02	U	3.0E-02	3.1E-02	1.03E-01	pci/g	98%	0.47	3/10/08 03:10 p	1.01	1.01	ASCLMD
					4.33E-02	1.00E+00		(1.6)		G		
Batch: 8042385												
Work Order: KGXJK1AA Report DB ID: KGXJK1AB												
RADIUM-228	1.99E-01	U	1.1E-01	1.1E-01	4.99E-01	pci/g	87%	0.4	3/12/08 06:18 a	1.01	1.01	GPC6C
					2.26E-01	2.00E+00		(1.8)		G		
Batch: 8035233												
Work Order: KGHX71AA Report DB ID: KGHX71AB												
URANIUM-233/234	4.22E-02	J	1.6E-02	1.6E-02	2.89E-02	pci/g	91%	(1.5)	2/25/08 12:07 p	1.01	1.01	ALP11
					6.27E-03	1.22E+00		(2.6)		G		
URANIUM-235/236	-1.21E-03	U	6.1E-03	6.1E-03	2.89E-02	pci/g	91%	-0.04	2/25/08 12:07 p	1.01	1.01	ALP11
					6.27E-03	5.83E-02		-0.2		G		
URANIUM-238	2.89E-02	J	1.4E-02	1.4E-02	2.89E-02	pci/g	91%	(1.)	2/25/08 12:07 p	1.01	1.01	ALP11
					6.27E-03	1.28E+00		(2.1)		G		

Ratio U-234/238 = 1.5

No. of Results: 8 Comments:

TestAmerica MDC|MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchBlank J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.1.5 A2002 U 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: 26-Mar-08

Lab Name: TestAmerica
Matrix: WATER

SDG: 8035240
Report No.: 38633

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8035239 HASL-300 U Mod Work Order: KGH091AA Report DB ID: KGH091AB												
URANIUM-233/234	6.05E-02	U	4.8E-02	4.8E-02	1.61E-01	pci/l	90%	0.38	2/12/08 08:08 a	0.2	0.2	ALP7
					3.50E-02	1.00E+00		(1.3)		L	L	
URANIUM-235/236	-6.72E-03	U	3.4E-02	3.4E-02	1.61E-01	pci/l	90%	-0.04	2/12/08 08:08 a	0.2	0.2	ALP7
					3.50E-02	1.00E+00		-0.2		L	L	
URANIUM-238	2.69E-02	U	3.4E-02	3.4E-02	1.61E-01	pci/l	90%	0.17	2/12/08 08:08 a	0.2	0.2	ALP7
					3.50E-02	1.00E+00		0.78		L	L	
Ratio U-234/238 = 2.3												
Batch: 8035240 HASL-300 Th Mod Work Order: KGH1A1AA Report DB ID: KGH1A1AB												
THORIUM-228	3.29E-02	U	8.3E-02	8.3E-02	4.50E-01	pci/l	93%	0.07	2/9/08 08:30 a	0.2001	0.2001	ALP119
					1.51E-01	1.00E+00		0.4		L	L	
THORIUM-230	1.52E-01	U	9.4E-02	9.5E-02	2.59E-01	pci/l	93%	0.58	2/9/08 08:30 a	0.2001	0.2001	ALP119
					5.64E-02	1.00E+00		(1.6)		L	L	
THORIUM-232	0.00E+00	U	0.0E+00	5.5E-02	2.59E-01	pci/l	93%	0.	2/9/08 08:30 a	0.2001	0.2001	ALP119
					5.64E-02	1.00E+00		0.		L	L	
Batch: 8035242 EPA 903.1 Work Order: KGH1C1AA Report DB ID: KGH1C1AB												
RADIUM-226	7.69E-02	U	3.5E-02	3.5E-02	1.05E-01	pci/l	100%	0.73	2/11/08 03:19 p	1.0005	1.0005	ASCKME
					4.25E-02	1.00E+00		(2.2)		L	L	
Batch: 8035244 EPA 904.0 Work Order: KGH1D1AA Report DB ID: KGH1D1AB												
RADIUM-228	1.88E-01	U	1.1E-01	1.1E-01	4.86E-01	pci/l	92%	0.39	2/14/08 08:22 a	1.0005	1.0005	GPC6C
					2.20E-01	3.00E+00		(1.7)		L	L	

No. of Results: 8 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchBlank U 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.
 V5.1.5 A2002

FORM II
LCS RESULTS

Date: 26-Mar-08

Lab Name: TestAmerica
Matrix: SOLID

SDG: 8065248
Report No.: 38633

Parameter	Result	Qual	Count Error (1 s)	Total Uncert(1 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 8065248 HASL-300 Th Mod													
THORIUM-230	2.65E+00		1.6E-01	2.7E-01	4.69E-02	pci/g	87%	2.28E+00	6.9E-02	116%	3/17/08 06:37 p	1.0	ALP176
Work Order: KGH0L3AC													
Rec Limits: 75 125 0.2													
Report DB ID: KGH0L3CS													
Batch: 8042383 EPA 903.1													
RADIUM-226	1.36E+00		9.2E-02	1.7E-01	9.32E-02	pci/g	100%	1.36E+00	2.1E-02	100%	3/10/08 03:11 p	1.0	ASCPMA
Work Order: KGXJG1AC													
Rec Limits: 70 130 0.0													
Report DB ID: KGXJG1CS													
Batch: 8042385 EPA 904.0													
RADIUM-228	3.83E+00		2.2E-01	3.1E-01	5.33E-01	pci/g	90%	4.99E+00	1.7E-02	77%	3/12/08 06:18 a	1.0	GPC6D
Work Order: KGXJK1AC													
Rec Limits: 70 130 -0.2													
Report DB ID: KGXJK1CS													
Batch: 8035233 KWSR													
URANIUM-233/234	1.60E+00		9.5E-02	1.6E-01	2.73E-02	pci/g	102%	1.67E+00	5.2E-02	95%	2/25/08 12:07 p	1.03	ALP12
Work Order: KGHX71AC													
Rec Limits: 75 125 0.0													
Report DB ID: KGHX71CS													
URANIUM-238	1.80E+00		1.0E-01	1.8E-01	2.73E-02	pci/g	102%	1.75E+00	5.4E-02	103%	2/25/08 12:07 p	1.03	ALP12
Work Order: KGHX71AC													
Rec Limits: 75 125 0.0													
Report DB ID: KGHX71CS													
No. of Results: 5													
Comments:													

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

rptSTLRchLcs
V5.1.5 A2002

FORM II
LCS RESULTS

Date: 26-Mar-08

Lab Name: TestAmerica SDG: 8035240 Report No.: 38633
 Matrix: WATER

Parameter	Result	Count Error (1 s)	Total Uncert(1 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 8035239 HASL-300 U Mod Work Order: KGH091AC Report DB ID: KGH091CS												
URANIUM-233/234	8.53E+00	5.3E-01	8.7E-01	1.58E-01	pci/l	88%	8.74E+00	4.9E-02	98%	2/12/08 08:08 a	0.2	ALP8
						Rec Limits:	75	125	0.0		L	
URANIUM-238	9.19E+00	5.5E-01	9.3E-01	1.58E-01	pci/l	88%	9.15E+00	5.2E-02	100%	2/12/08 08:08 a	0.2	ALP8
						Rec Limits:	75	125	0.0		L	
Batch: 8035240 HASL-300 Th Mod Work Order: KGH1A1AC Report DB ID: KGH1A1CS												
THORIUM-230	1.19E+01	8.5E-01	1.3E+00	2.90E-01	pci/l	87%	1.13E+01	3.4E-01	106%	2/9/08 08:30 a	0.2004	ALP120
						Rec Limits:	70	130	0.1		L	
Batch: 8035242 EPA 903.1 Work Order: KGH1C1AC Report DB ID: KGH1C1CS												
RADIUM-226	1.42E+00	1.1E-01	1.7E-01	8.70E-02	pci/l	100%	1.36E+00	2.1E-02	104%	2/11/08 03:12 p	1.0	ASCLMB
						Rec Limits:	70	130	0.0		L	
Batch: 8035244 EPA 904.0 Work Order: KGH1D1AC Report DB ID: KGH1D1CS												
RADIUM-228	4.39E+00	2.3E-01	3.4E-01	5.28E-01	pci/l	92%	4.99E+00	1.7E-02	88%	2/14/08 08:22 a	1.0	GPC6D
						Rec Limits:	70	130	-0.1		L	
No. of Results: 5 Comments:												

CHAIN OF CUSTODY

COMMENTS:

Project Manager:
 Project: LANDWELL - Tronox Parc
 Report Type: W
 Client: 1418995 - Landwell Company

Date Received: 2008-01-29
 Analytical Due Date: 2008-02-08
 Report Due Date: 2008-02-14

WORK LOCATION: 10 TestAmerica Richland

SMP#: 1 CLIENT ID: TSB-HJ-10-0' DATE SAMPLED: 20080128 MATRIX: A SOLID
 SAMPLE COMMENTS:

METHOD: T9 NONE Gamma by GER 1 Gamma by HPGE 10 day ingrowth
EXTRACTION: AX Gamma PrpRC5013/5017 QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8NX1AC METAL: XX

METHOD: S1 NONE ThIso by ALP Thorium-228,230,232 by Alpha Spec
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8NX1AD METAL: XX

METHOD: SR NONE Uiso by ALP Uranium-234,235,238 by Alpha Spec
EXTRACTION: KW Uiso PrpRC5013/5032/5086 SepRC5067(5039) QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8NX1AA METAL: XX

SMP#: 2 CLIENT ID: TSB-HJ-10-10' DATE SAMPLED: 20080128 MATRIX: A SOLID
 SAMPLE COMMENTS:

METHOD: T9 NONE Gamma by GER 1 Gamma by HPGE 10 day ingrowth
EXTRACTION: AX Gamma PrpRC5013/5017 QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8N41AC METAL: XX

METHOD: S1 NONE ThIso by ALP Thorium-228,230,232 by Alpha Spec
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8N41AD METAL: XX

METHOD: SR NONE Uiso by ALP Uranium-234,235,238 by Alpha Spec
EXTRACTION: KW Uiso PrpRC5013/5032/5086 SepRC5067(5039) QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8N41AA METAL: XX

SMP#: 3 CLIENT ID: TSB-HR-06-0' DATE SAMPLED: 20080128 MATRIX: A SOLID
 SAMPLE COMMENTS:

METHOD: T9 NONE Gamma by GER 1 Gamma by HPGE 10 day ingrowth
EXTRACTION: AX Gamma PrpRC5013/5017 QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8N51AC METAL: XX

METHOD: S1 NONE ThIso by ALP Thorium-228,230,232 by Alpha Spec
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8N51AD METAL: XX

METHOD: SR NONE Uiso by ALP Uranium-234,235,238 by Alpha Spec
EXTRACTION: KW Uiso PrpRC5013/5032/5086 SepRC5067(5039) QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8N51AA METAL: XX

SMP#: 4 CLIENT ID: TSB-HR-06-0' FD DATE SAMPLED: 20080128 MATRIX: A SOLID
 SAMPLE COMMENTS:

METHOD: T9 NONE Gamma by GER 1 Gamma by HPGE 10 day ingrowth
EXTRACTION: AX Gamma PrpRC5013/5017 QC TYPE: 01 STANDARD TEST SET

COMMENTS:

Project Manager:
 Project: LANDWELL - Tronox Parc
 Report Type: W
 Client: 1418995 - Landwell Company

Date Received: 2008-01-29
 Analytical Due Date: 2008-02-08
 Report Due Date: 2008-02-14

WORKORDER KF8N61AC METAL: XX

METHOD: S1 NONE ThIso by ALP Thorium-228,230,232 by Alpha Spec
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET

WORKORDER KF8N61AD METAL: XX

METHOD: SR NONE Uiso by ALP Uranium-234,235,238 by Alpha Spec
EXTRACTION: KW Uiso PrpRC5013/5032/5086 SepRC5067(5039) QC TYPE: 01 STANDARD TEST SET

WORKORDER KF8N61AA METAL: XX

SMP#: 5 CLIENT ID: TSB-HR-06-10' DATE SAMPLED: 20080128 MATRIX: A SOLID

SAMPLE COMMENTS:

METHOD: T9 NONE Gamma by GER 1 Gamma by HPGE 10 day ingrowth
EXTRACTION: AX Gamma PrpRC5013/5017 QC TYPE: 01 STANDARD TEST SET

WORKORDER KF8N81AC METAL: XX

METHOD: S1 NONE ThIso by ALP Thorium-228,230,232 by Alpha Spec
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET

WORKORDER KF8N81AD METAL: XX

METHOD: SR NONE Uiso by ALP Uranium-234,235,238 by Alpha Spec
EXTRACTION: KW Uiso PrpRC5013/5032/5086 SepRC5067(5039) QC TYPE: 01 STANDARD TEST SET

WORKORDER KF8N81AA METAL: XX

SMP#: 6 CLIENT ID: TSB-HJ-08-0' DATE SAMPLED: 20080128 MATRIX: A SOLID

SAMPLE COMMENTS:

METHOD: T9 NONE Gamma by GER 1 Gamma by HPGE 10 day ingrowth
EXTRACTION: AX Gamma PrpRC5013/5017 QC TYPE: 01 STANDARD TEST SET

WORKORDER KF8N91AC METAL: XX

METHOD: S1 NONE ThIso by ALP Thorium-228,230,232 by Alpha Spec
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET

WORKORDER KF8N91AD METAL: XX

METHOD: SR NONE Uiso by ALP Uranium-234,235,238 by Alpha Spec
EXTRACTION: KW Uiso PrpRC5013/5032/5086 SepRC5067(5039) QC TYPE: 01 STANDARD TEST SET

WORKORDER KF8N91AA METAL: XX

SMP#: 7 CLIENT ID: TSB-HJ-08-10' DATE SAMPLED: 20080128 MATRIX: A SOLID

SAMPLE COMMENTS:

METHOD: T9 NONE Gamma by GER 1 Gamma by HPGE 10 day ingrowth
EXTRACTION: AX Gamma PrpRC5013/5017 QC TYPE: 01 STANDARD TEST SET

WORKORDER KF8PD1AC METAL: XX

METHOD: S1 NONE ThIso by ALP Thorium-228,230,232 by Alpha Spec
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET

WORKORDER KF8PD1AD METAL: XX

METHOD: SR NONE Uiso by ALP Uranium-234,235,238 by Alpha Spec

COMMENTS:

Project Manager:
 Project: LANDWELL - Tronox Parc
 Report Type: W
 Client: 1418995 - Landwell Company

Date Received: 2008-01-29
 Analytical Due Date: 2008-02-08
 Report Due Date: 2008-02-14

EXTRACTION: KW Uiso PrpRC5013/5032/5086 SepRC5067(5039 QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8PD1AA METAL: XX

SMP#: 8 CLIENT ID: TSB-HR-05-0' DATE SAMPLED: 20080128 MATRIX: A SOLID
SAMPLE COMMENTS:

METHOD: T9 NONE Gamma by GER 1 Gamma by HPGE 10 day ingrowth
EXTRACTION: AX Gamma PrpRC5013/5017 QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8PE1AC METAL: XX

METHOD: S1 NONE ThIso by ALP Thorium-228,230,232 by Alpha Spec
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8PE1AD METAL: XX

METHOD: SR NONE Uiso by ALP Uranium-234,235,238 by Alpha Spec
EXTRACTION: KW Uiso PrpRC5013/5032/5086 SepRC5067(5039 QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8PE1AA METAL: XX

SMP#: 9 CLIENT ID: TSB-HR-05-10' DATE SAMPLED: 20080128 MATRIX: A SOLID
SAMPLE COMMENTS:

METHOD: T9 NONE Gamma by GER 1 Gamma by HPGE 10 day ingrowth
EXTRACTION: AX Gamma PrpRC5013/5017 QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8PG1AC METAL: XX

WORKORDER KF8PG1AF X METAL: XX

METHOD: S1 NONE ThIso by ALP Thorium-228,230,232 by Alpha Spec
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8PG1AD METAL: XX

WORKORDER KF8PG1AG X METAL: XX

METHOD: SR NONE Uiso by ALP Uranium-234,235,238 by Alpha Spec
EXTRACTION: KW Uiso PrpRC5013/5032/5086 SepRC5067(5039 QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8PG1AA METAL: XX

WORKORDER KF8PG1AE X METAL: XX

SMP#: 10 CLIENT ID: RINSATE-2 DATE SAMPLED: 20080128 MATRIX: I WATER
SAMPLE COMMENTS:

METHOD: TE NONE Ra-226 by ASC-7 Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow
EXTRACTION: BU Ra-226/228 Prp/SepRC5005 QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8PH1AA METAL: XX

METHOD: TF NONE Ra-228 by GPC Radium-228 by GPC
EXTRACTION: BU Ra-226/228 Prp/SepRC5005 QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8PH1AC METAL: XX

METHOD: S1 NONE ThIso by ALP Thorium-228,230,232 by Alpha Spec
EXTRACTION: 9N ThIso PrpRc5016, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8PH1AD METAL: XX

COMMENTS:

Project Manager:
Project: LANDWELL - Tronox Parc
Report Type: W
Client: 1418995 - Landwell Company

Date Received: 2008-01-29
Analytical Due Date: 2008-02-08
Report Due Date: 2008-02-14

METHOD: SR NONE Uiso by ALP Uranium-234,235,238 by Alpha Spec
EXTRACTION: 7Y Uiso PrpRC5016/5086, SepRC5067(5039) QC TYPE: 01 STANDARD TEST SET
WORKORDER KF8PH1AE METAL: XX

The sample(s) listed on this form are being sent to your location for the specified analysis. If you have any questions, please contact the Project Manager listed above. PLEASE RETURN THE ORIGINAL SIGNED FORM WITH THE REPORT AT THE COMPLETION OF ANALYSIS.

Thank You

STL- St. Louis
Sample Receiving

RELINQUISHED BY: Amyla Brown DATE: 1/29/08 17:30
RECEIVED FOR LAB BY: RJ DATE: 1-31-08



Sample Check-in List

Date/Time Received: 1-31-08 1200 GM Screen Result 0.1K

Client: TA-STL SDG #: _____ NA [] SAF #: _____ NA

Work Order Number: _____ Chain of Custody # N/A

Shipping Container ID: _____ Air Bill # _____

1. Custody Seals on shipping container intact? NA Yes [] No []
2. Custody Seals dated and signed? NA Yes [] No []
3. Chain of Custody record present? NA [] Yes No []
4. Cooler Temperature: _____ NA 5. Vermiculite/packing materials is NA Wet [] Dry []
6. Number of samples in shipping container: 10
7. Sample holding times exceeded? NA Yes [] No []
8. Samples have:

_____ Tape	_____ Hazard Lables
_____ Custody Seals	<input checked="" type="checkbox"/> Appropriate Sample Lables
9. Samples are:

_____ In Good Condition	_____ Leaking
_____ Broken	_____ Have Air Bubbles

(Only for samples requiring no head space.)
10. Sample pH taken? NA pH < 2 pH > 2 [] pH > 9 [] Amount HNO₃ Added _____
11. Sample Location, Sample Collector Listed? *
*For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [] No
13. Description of anomalies (include sample numbers): _____

Sample Custodian: [Signature] Date: 1-31-08

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person Contacted _____

[] No action necessary; process as is.

Project Manager _____ Date _____

THORIUM
SAMPLE AND QC DATA

Lot No., Due Date: F8A290183; 02/28/2008
Client, Site: 1418995; LANDWELL - Tronox Parcel H
QC Batch No., Method Test: 8065248; RTHISO Thlso by ALP
SDG, Matrix: ;

- 1.0 COC**
 1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions? Yes No N/A
- 2.0 QC Batch**
 2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes No N/A
 2.2 Are the QC appropriate for the analysis included in the batch? Yes No N/A
 2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes No N/A
 2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A
- 3.0 QC & Samples**
 3.1 Is the blank results, yield, and MDA within contract limits? Yes No N/A
 3.2 Is the LCS result, yield, and MDA within contract limits? Yes No N/A
 3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A
 3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes No N/A
 3.5 Are the sample yields and MDAs within contract limits? Yes No N/A
- 4.0 Raw Data**
 4.1 Were results calculated in the correct units? Yes No N/A
 4.2 Were analysis volumes entered correctly? Yes No N/A
 4.3 Were Yields entered correctly? Yes No N/A
 4.4 Were spectra reviewed/meet contractual requirements? Yes No N/A
 4.5 Were raw counts reviewed for anomalies? Yes No N/A
- 5.0 Other**
 5.1 Are all nonconformances included and noted? Yes No N/A
 5.2 Are all required forms filled out? Yes No N/A
 5.3 Was the correct methodology used? Yes No N/A
 5.4 Was transcription checked? Yes No N/A
 5.5 Were all calculations checked at a minimum frequency? Yes No N/A
 5.6 Are worksheet entries complete and correct? Yes No N/A
- 6.0 Comments on any No response:
 Please see NCM # 10-12009

First Level Review *[Signature]*

Date 3-25-8

Data Review Checklist
RADIOCHEMISTRY
 Second Level Review

Batch Number: 8065248

Review Item	Yes (✓)	No (✓)	NA (✓)
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 within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other			
1. Are all Non-conformances 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 Num

Second Level Review: Erika Jode Date: 3/26/18 ^{3/26/18}

Clouseau Nonconformance Memo



NCM #: 10-12009 NCM Initiated By: John Norton Date Opened: 03/25/2008 Date Closed:	Classification: Anomaly Status: GLREVIEW Production Area: Environmental - Sep Tests: Thlso by ALP Lot #'s (Sample #'s): J8B040000 (234), QC Batches: 8065248,
Nonconformance: Blank result above Contract Limit Subcategory: Unknown	

Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
John Norton	03/25/2008	Originally counted as batch 8035234, this batch showed a high blank yield.

Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
John Norton	03/25/2008	The batch was re-analyzed as batch # 8065248.

Client Notification Summary

<u>Client</u>	<u>Project Manager</u>	<u>Notified</u>	<u>Response</u>	<u>How Notified</u>	<u>Note</u>
			<u>Response</u>		<u>Response Note</u>

Quality Assurance Verification

<u>Verified By</u>	<u>Due Date</u>	<u>Status</u>	<u>Notes</u>
		This section not yet completed by QA.	

Approval History

<u>Date Approved</u>	<u>Approved By</u>	<u>Position</u>
----------------------	--------------------	-----------------

3/13/2008 6:43:56 AM

Sample Preparation/Analysis

Balance Id:1120373922

1418995, Landwell Company
Landwell Company

D2 Th PrpRC5013/5032, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Pipet #:
Sep1 DT/Tm Tech:

AnalyDueDate: 02/25/2008

Sep2 DT/Tm Tech:
Prep Tech: ,Barcott

PM, Quote: JAE, 78254
9NS1, 8035242 BUTE, 8035244

Batch: 8065248

SEQ Batch, Test: None
All Tests: 8035233 KWSR, 8035234 AX19, 8035239 7YSR, 8035240 9NS1, 8035242 BUTE, 8035244 BUTF, 8042383 D9TE, 8042385 D9TF, 8065248 D2S1,

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On/Off (24hr) Circle	CR Analyst, Iniv/Date	Comments:
1 KF8NX-3-AD		1.02g.in	THTC12293							
F8A290183-1-SAMP		03/03/08.pd								
01/28/2008 07:00		AmtRec: 500SL								
2 KF8N4-3-AD		1.02g.in	THTC12294							
F8A290183-2-SAMP		03/03/08.pd								
01/28/2008 07:15		AmtRec: 500SL								
3 KF8N5-3-AD		1.01g.in	THTC12295							
F8A290183-3-SAMP		03/03/08.pd								
01/28/2008 07:55		AmtRec: 500SL								
4 KF8N6-3-AD		1.01g.in	THTC12296							
F8A290183-4-SAMP		03/03/08.pd								
01/28/2008 07:55		AmtRec: 500SL								
5 KF8N8-3-AD		1.01g.in	THTC12297							
F8A290183-5-SAMP		03/03/08.pd								
01/28/2008 08:11		AmtRec: 500SL								
6 KF8N9-3-AD		1.00g.in	THTC12298							
F8A290183-6-SAMP		03/03/08.pd								
01/28/2008 08:30		AmtRec: 500SL								
7 KF8PD-3-AD		1.01g.in	THTC12299							
F8A290183-7-SAMP		03/03/08.pd								
01/28/2008 08:40		AmtRec: 500SL								

QAC

Sample Preparation/Analysis

Balance Id: 1120373922

1418995, Landwell Company
Landwell Company

D2 Th PrpRC5013/5032, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Pipet #:

Analyte Due Date: 02/25/2008

Sep1 DT/Tm Tech:

Batch: 8065248
SEQ Batch, Test: None

PM, Quote: JAE, 78254

Sep2 DT/Tm Tech:

pCi/g

Prep Tech: ,Barcotl

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Int/Date	Comments:
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8 KF8PE-3-AD

1.01g.in

See

F8A290183-8-SAMP

THTC12300
03/03/08.pd

See

01/28/2008 09:00

AmtRec: 500SL

#Containers: 1

Scr:

Alpha:

Beta:

9 KF8PG-3-AD

1.01g.in

THTC12301
03/03/08.pd

See

F8A290183-9-SAMP

THTC12302
03/03/08.pd

See

01/28/2008 09:15

AmtRec: 2X500SL

#Containers: 2

Scr:

Alpha:

Beta:

10 KF8PG-3-AG-X

1.02g.in

THTC12302
03/03/08.pd

See

F8A290183-9-DUP

THTC12303
03/03/08.pd

See

01/28/2008 09:15

AmtRec: 2X500SL

#Containers: 2

Scr:

Alpha:

Beta:

11 KGH0L-3-AA-B

1.00g.in

THS1170
03/03/08.pd

See

J8B040000-234-BLK

THS1170
03/03/08.pd

See

01/28/2008 07:00

AmtRec:

#Containers: 1

Scr:

Alpha:

Beta:

12 KGH0L-3-AC-C

1.00g.in

J8B040000-234-LCS

See

J8B040000-234-LCS

J8B040000-234-LCS
03/03/08.pd

See

01/28/2008 07:00

AmtRec:

#Containers: 1

Scr:

Alpha:

Beta:

Comments:

All Clients for Batch:
1418995, Landwell Company

JAE, 78254

KF8NX3AD-SAMP Constituent List:

TAL Richland
Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2

ISV - Insufficient Volume for Analysis

WO Cnt: 12

Prep_SamplePrep v4.8.32

3/13/2008 6:43:58 AM

Sample Preparation/Analysis

Balance Id:1120373922

D2 Th PrpRC5013/5032, SepRC5084(5003)

Pipet #:

S1 Thorium-228,230,232 by Alpha Spec

AnalysDueDate: 02/25/2008

Sep1 DT/Tm Tech:

Batch: 8065248

pCi/g

Sep2 DT/Tm Tech:

SEO Batch, Test: None

Prep Tech: ,Barcott



Work Order, Lot, Sample Date	Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
KGH013AA-BLK:											
TH-228	RDL:0.1	pCi/g	LCL:	UCL:	RPD:	Th-230	RDL:0.1	PCI/g	LCL:	UCL:	RPD:
TH-232	RDL:0.1	pCi/g	LCL:	UCL:	RPD:	Th-234	RDL:	PCI/g	LCL:20	UCL:115	RPD:35
KGH013AC-LCS:											
TH-230	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35	Th-234	RDL:	PCI/g	LCL:20	UCL:115	RPD:35
KF8NX3AD-SAMP Calc Info:											
Uncert Level (#s): 4		Decay to SaDt: N		Blk Subt.: N		Sci.Not.: N		ODRs: B			
KGH013AA-BLK:											
Uncert Level (#s): 4		Decay to SaDt: N		Blk Subt.: N		Sci.Not.: N		ODRs: B			
KGH013AC-LCS:											
Uncert Level (#s): 4		Decay to SaDt: N		Blk Subt.: N		Sci.Not.: N		ODRs: B			

Approved By _____ Date: _____

ICOC Fraction Transfer/Status Report

ByDate: 3/26/2007, 3/30/2008, Batch: '8065248', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
8065248				
AC	Rev1C	Barcotl	3/13/2008 6:46:59	
SC		antonsonl	IsBatched	3/6/2008 7:45:24 AM
SC		Barcotl	InPrep	3/13/2008 6:46:59 AM
SC		Barcotl	Prep1C	3/13/2008 6:47:16 AM
SC		AshworthA	Sep1C	3/17/2008 10:52:40 AM
SC		AshworthA	Sep2C	3/17/2008 1:42:04 PM
SC		ClarkR	InCnt1	3/17/2008 1:47:22 PM
SC		DAWKINSO	InCnt1	3/17/2008 5:52:48 PM
SC		DAWKINSO	CalcC	3/17/2008 10:37:44 PM
SC		nortonj	Rev1C	3/25/2008 3:41:37 PM
AC		Barcotl	3/13/2008 6:47:16	
AC		AshworthA	3/17/2008 10:52:40	
AC		AshworthA	3/17/2008 1:42:04 PM	
AC		ClarkR	3/17/2008 1:47:22 PM	
AC		DAWKINSO	3/17/2008 5:52:48 PM	
AC		DAWKINSO	3/17/2008 10:37:44	
AC		nortonj	3/25/2008 3:41:37 PM	

AC: Accepting Entry; SC: Status Change

Rpt DB Transfer log (Batch Results)

SDG or Batch Isotope	Rpt Db Id Method	RTst Qc	LotSample Analysis Date	Client Id Result	Matrix	Received Date	Sample Date	Units	Expected Yield	Volumes
8065248	9KF8N430		F8A2901832	TSB-HJ-10-10'	SOLID	1/29/2008 9:20:00	1/28/2008 7:15:00 AM			
TH-228	D2S1	2	3/17/2008 6:34:13 PM	1.7505E+00	1.458E-01	2.018E-01	6.841E-02	pCi/g	0.876	1.02E+0
TH-230	D2S1	2	3/17/2008 6:34:13 PM	2.6971E+00	1.763E-01	2.781E-01	5.521E-02	pCi/g	0.876	1.02E+0
TH-232	D2S1	2	3/17/2008 6:34:13 PM	1.4523E+00	1.294E-01	1.736E-01	5.521E-02	pCi/g	0.876	1.02E+0
8065248	9KF8N530		F8A2901833	TSB-HR-06-0'	SOLID	1/29/2008 9:20:00	1/28/2008 7:55:00 AM			
TH-228	D2S1	2	3/17/2008 6:34:25 PM	1.9362E+00	1.215E-01	1.965E-01	4.298E-02	pCi/g	0.853	1.01E+0
TH-230	D2S1	2	3/17/2008 6:34:25 PM	1.0688E+00	8.811E-02	1.226E-01	4.092E-02	pCi/g	0.853	1.01E+0
TH-232	D2S1	2	3/17/2008 6:34:25 PM	1.8682E+00	1.163E-01	1.891E-01	3.468E-02	pCi/g	0.853	1.01E+0
8065248	9KF8N630		F8A2901834	TSB-HR-06-0' FD	SOLID	1/29/2008 9:20:00	1/28/2008 7:55:00 AM			
TH-228	D2S1	2	3/17/2008 6:34:38 PM	1.5699E+00	1.158E-01	1.708E-01	5.374E-02	pCi/g	0.774	1.01E+0
TH-230	D2S1	2	3/17/2008 6:34:38 PM	9.9217E-01	8.994E-02	1.199E-01	5.117E-02	pCi/g	0.774	1.01E+0
TH-232	D2S1	2	3/17/2008 6:34:38 PM	1.7104E+00	1.178E-01	1.804E-01	3.883E-02	pCi/g	0.774	1.01E+0
8065248	9KF8N830		F8A2901835	TSB-HR-06-10'	SOLID	1/29/2008 9:20:00	1/28/2008 8:11:00 AM			
TH-228	D2S1	2	3/17/2008 6:35:10 PM	1.7244E+00	1.468E-01	2.012E-01	5.985E-02	pCi/g	0.841	1.01E+0
TH-230	D2S1	2	3/17/2008 6:35:10 PM	2.1392E+00	1.596E-01	2.337E-01	5.698E-02	pCi/g	0.841	1.01E+0
TH-232	D2S1	2	3/17/2008 6:35:10 PM	1.4158E+00	1.298E-01	1.721E-01	5.698E-02	pCi/g	0.841	1.01E+0
8065248	9KF8N930		F8A2901836	TSB-HJ-08-0'	SOLID	1/29/2008 9:20:00	1/28/2008 8:30:00 AM			
TH-228	D2S1	2	3/17/2008 6:35:21 PM	1.6195E+00	1.432E-01	1.929E-01	6.06E-02	pCi/g	0.879	1.0E+0
TH-230	D2S1	2	3/17/2008 6:35:21 PM	1.1445E+00	1.174E-01	1.488E-01	5.77E-02	pCi/g	0.879	1.0E+0
TH-232	D2S1	2	3/17/2008 6:35:21 PM	1.7709E+00	1.461E-01	2.033E-01	5.77E-02	pCi/g	0.879	1.0E+0
8065248	9KF8NX30		F8A2901831	TSB-HJ-10-0'	SOLID	1/29/2008 9:20:00	1/28/2008 7:00:00 AM			
TH-228	D2S1	2	3/17/2008 6:34:01 PM	2.7937E+00	1.584E-01	2.732E-01	6.148E-02	pCi/g	0.915	1.02E+0
TH-230	D2S1	2	3/17/2008 6:34:01 PM	1.4723E+00	1.121E-01	1.623E-01	4.081E-02	pCi/g	0.915	1.02E+0
TH-232	D2S1	2	3/17/2008 6:34:01 PM	2.1641E+00	1.358E-01	2.195E-01	4.081E-02	pCi/g	0.915	1.02E+0
8065248	9KF8PD30		F8A2901837	TSB-HJ-08-10'	SOLID	1/29/2008 9:20:00	1/28/2008 8:40:00 AM			
TH-228	D2S1	2	3/17/2008 6:37:27 PM	2.0888E+00	1.606E-01	2.317E-01	6.96E-02	pCi/g	0.739	1.01E+0
TH-230	D2S1	2	3/17/2008 6:37:27 PM	2.0475E+00	1.552E-01	2.256E-01	6.627E-02	pCi/g	0.739	1.01E+0
TH-232	D2S1	2	3/17/2008 6:37:27 PM	1.7239E+00	1.422E-01	1.98E-01	5.617E-02	pCi/g	0.739	1.01E+0
8065248	9KF8PE30		F8A2901838	TSB-HR-05-0'	SOLID	1/29/2008 9:20:00	1/28/2008 9:00:00 AM			
TH-228	D2S1	2	3/17/2008 6:37:27 PM	2.4411E+00	1.647E-01	2.551E-01	6.991E-02	pCi/g	0.848	1.01E+0
TH-230	D2S1	2	3/17/2008 6:37:27 PM	1.2444E+00	1.146E-01	1.516E-01	5.051E-02	pCi/g	0.848	1.01E+0
TH-232	D2S1	2	3/17/2008 6:37:27 PM	1.9806E+00	1.446E-01	2.142E-01	5.051E-02	pCi/g	0.848	1.01E+0
8065248	9KF8PG30		F8A2901839	TSB-HR-05-10'	SOLID	1/29/2008 9:20:00	1/28/2008 9:15:00 AM			
TH-228	D2S1	2	3/17/2008 6:37:27 PM	2.1367E+00	1.771E-01	2.458E-01	7.019E-02	pCi/g	0.862	1.01E+0
TH-230	D2S1	2	3/17/2008 6:37:27 PM	2.1462E+00	1.732E-01	2.436E-01	6.683E-02	pCi/g	0.862	1.01E+0
TH-232	D2S1	2	3/17/2008 6:37:27 PM	2.0792E+00	1.704E-01	2.378E-01	6.683E-02	pCi/g	0.862	1.01E+0
8065248	KF8PG3GR		F8A2901839	TSB-HR-05-10' DUP	SOLID	1/29/2008 9:20:00	1/28/2008 9:15:00 AM			
TH-228	D2S1	2 R	3/17/2008 6:37:27 PM	2.0328E+00	1.7E-01	2.349E-01	6.809E-02	pCi/g	0.862	1.02E+0
TH-230	D2S1	2 R	3/17/2008 6:37:27 PM	2.0547E+00	1.669E-01	2.339E-01	6.483E-02	pCi/g	0.862	1.02E+0
TH-232	D2S1	2 R	3/17/2008 6:37:27 PM	1.7867E+00	1.555E-01	2.11E-01	6.483E-02	pCi/g	0.862	1.02E+0
8065248	KGH0L3AB		J8B040000234	INTRA-LAB BLANK	SOLID	1/29/2008 9:20:00	1/28/2008 7:00:00 AM			
TH-228	D2S1	2 B	3/17/2008 6:37:27 PM	4.6E-02	2.673E-02	2.699E-02	7.344E-02	pCi/g	0.815	1.0E+0
TH-230	D2S1	2 B	3/17/2008 6:37:27 PM	4.3796E-02	2.545E-02	2.569E-02	6.992E-02	pCi/g	0.815	1.0E+0
TH-232	D2S1	2 B	3/17/2008 6:37:27 PM	0.0E+00	0.0E+00	1.489E-02	6.992E-02	pCi/g	0.815	1.0E+0
8065248	KGH0L3CS		J8B040000234	INTRA-LAB CHECK	SOLID	1/29/2008 9:20:00	1/28/2008 7:00:00 AM			
TH-230	D2S1	2 S	3/17/2008 6:37:27 PM	2.6523E+00	1.611E-01	2.66E-01	4.688E-02	pCi/g	2.2839E+00	0.868

8065248, **Samples Inserted | Updated | NotUpdated => 12 | 0 | 0,
 **Results Inserted | ReTestInserted | Updated | NotInserted => 34 | 0 | 0 | 0.
 **Diff RptDb | Qtimes => .

Alpha Spec, Thlso by ALP , Results

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC	Trc	Yld	LCS	Yld
Thlso by ALP			Richland Standard Alplso Wo Bik Subt. *CntU: 0+1, + *SystU, *MDCConst:2.71													
Calc	S1	SOLID	KF8NX3AD	TH-228	2.79E+00	(2.73E-01)		pCi/g	R	1.86E-02	6.15E-02					91%
Calc	S1	SOLID	KF8NX3AD	TH-230	1.47E+00	(1.62E-01)		pCi/g	R	8.87E-03	4.08E-02					91%
Calc	S1	SOLID	KF8NX3AD	TH-232	2.16E+00	(2.20E-01)		pCi/g	R	8.87E-03	4.08E-02					91%
Calc	S1	SOLID	KF8N43AD	TH-228	1.75E+00	(2.02E-01)		pCi/g	R	1.78E-02	6.84E-02					88%
Calc	S1	SOLID	KF8N43AD	TH-230	2.70E+00	(2.78E-01)		pCi/g	R	1.20E-02	5.52E-02					88%
Calc	S1	SOLID	KF8N43AD	TH-232	1.45E+00	(1.74E-01)		pCi/g	R	1.20E-02	5.52E-02					88%
Calc	S1	SOLID	KF8N53AD	TH-228	1.94E+00	(1.97E-01)		pCi/g	R	1.12E-02	4.30E-02					85%
Calc	S1	SOLID	KF8N53AD	TH-230	1.07E+00	(1.23E-01)		pCi/g	R	1.07E-02	4.09E-02					85%
Calc	S1	SOLID	KF8N53AD	TH-232	1.87E+00	(1.89E-01)		pCi/g	R	7.53E-03	3.47E-02					85%
Calc	S1	SOLID	KF8N63AD	TH-228	1.57E+00	(1.71E-01)		pCi/g	R	1.53E-02	5.37E-02					77%
Calc	S1	SOLID	KF8N63AD	TH-230	9.92E-01	(1.20E-01)		pCi/g	R	1.46E-02	5.12E-02					77%
Calc	S1	SOLID	KF8N63AD	TH-232	1.71E+00	(1.80E-01)		pCi/g	R	8.43E-03	3.88E-02					77%
Calc	S1	SOLID	KF8N83AD	TH-228	1.72E+00	(2.01E-01)		pCi/g	R	1.30E-02	5.98E-02					84%
Calc	S1	SOLID	KF8N83AD	TH-230	2.14E+00	(2.34E-01)		pCi/g	R	1.24E-02	5.70E-02					84%
Calc	S1	SOLID	KF8N83AD	TH-232	1.42E+00	(1.72E-01)		pCi/g	R	1.24E-02	5.70E-02					84%
Calc	S1	SOLID	KF8N93AD	TH-228	1.62E+00	(1.93E-01)		pCi/g	R	1.32E-02	6.06E-02					88%
Calc	S1	SOLID	KF8N93AD	TH-230	1.14E+00	(1.49E-01)		pCi/g	R	1.25E-02	5.77E-02					88%
Calc	S1	SOLID	KF8N93AD	TH-232	1.77E+00	(2.03E-01)		pCi/g	R	1.25E-02	5.77E-02					88%
Calc	S1	SOLID	KF8PD3AD	TH-228	2.09E+00	(2.32E-01)		pCi/g	R	1.81E-02	6.96E-02					74%
Calc	S1	SOLID	KF8PD3AD	TH-230	2.05E+00	(2.26E-01)		pCi/g	R	1.73E-02	6.63E-02					74%
Calc	S1	SOLID	KF8PD3AD	TH-232	1.72E+00	(1.98E-01)		pCi/g	R	1.22E-02	5.62E-02					74%
Calc	S1	SOLID	KF8PE3AD	TH-228	2.44E+00	(2.55E-01)		pCi/g	R	2.00E-02	6.99E-02					85%
Calc	S1	SOLID	KF8PE3AD	TH-230	1.24E+00	(1.52E-01)		pCi/g	R	1.10E-02	5.05E-02					85%
Calc	S1	SOLID	KF8PE3AD	TH-232	1.98E+00	(2.14E-01)		pCi/g	R	1.10E-02	5.05E-02					85%
Calc	S1	SOLID	KF8PG3AD	TH-228	2.14E+00	(2.46E-01)		pCi/g	R	1.52E-02	7.02E-02					86%
Calc	S1	SOLID	KF8PG3AD	TH-230	2.15E+00	(2.44E-01)		pCi/g	R	1.45E-02	6.68E-02					86%
Calc	S1	SOLID	KF8PG3AD	TH-232	2.08E+00	(2.38E-01)		pCi/g	R	1.45E-02	6.68E-02					86%
Calc	S1	SOLID	KF8PG3AG	TH-228	2.03E+00	(2.35E-01)		pCi/g	R	1.48E-02	6.81E-02	R				86%
Calc	S1	SOLID	KF8PG3AG	TH-230	2.05E+00	(2.34E-01)		pCi/g	R	1.41E-02	6.48E-02	R				86%
Calc	S1	SOLID	KF8PG3AG	TH-232	1.79E+00	(2.11E-01)		pCi/g	R	1.41E-02	6.48E-02	R				86%
Calc	S1	SOLID	KGH0L3AA	TH-228	4.60E-02	(2.70E-02)		pCi/g	R	1.60E-02	7.34E-02	B				82%
Calc	S1	SOLID	KGH0L3AA	TH-230	4.38E-02	(2.57E-02)		pCi/g	R	1.52E-02	6.99E-02	B				82%
Calc	S1	SOLID	KGH0L3AA	TH-232	0.00E+00	(1.49E-02)	U4	pCi/g	R	1.52E-02	6.99E-02	B				82%
Calc	S1	SOLID	KGH0L3AC	TH-228	4.93E-02	(2.34E-02)		pCi/g	R	1.07E-02	4.92E-02	S				87%
Calc	S1	SOLID	KGH0L3AC	TH-230	2.65E+00	(2.66E-01)		pCi/g	R	1.02E-02	4.69E-02	S				116%

() - (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

Alpha Spec, Thlso by ALP , Results Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC	Trc	Yld	LCS	Yld
Calc	S1	SOLID	KGH0L3AC	TH-232	3.72E-02	(1.99E-02)		pCi/g	R	1.02E-02	4.69E-02	S		87%		2%

RER=
 Th 228 = 0.3233
 Th 230 = 0.2958
 Th 232 = 0.9118

OK
 WMA
 3/24/08

() - (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

Alpha Spec, Thlso by ALP , Calculated Results Detailed Report

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
1	Calc	S1	SOLID	*STLE	AlplsoWoBS	KF8NX3AD	pci/g		01/28/08 07:00	03/17/08 18:34				1	9	
							SOLID								755.86	1.02 g
0	03/17/08	16:53	TH-228	313	4	ALP113	COP	N	N	2.8313E-01	N	91%	N	1.0000E+00	4.5045E-01	1.0503E+00
				200.08333333	1000.05			Y		(8.494E-03)		5%		(0.000E+00)	0.980392	
1	03/17/08	16:53	TH-230	173	1	ALP113	COP	N	N	2.8313E-01	N	91%	N	1.0000E+00	4.5045E-01	1.0000E+00
				200.08333333	1000.05			Y		(8.494E-03)		5%		(0.000E+00)	0.980392	
2	03/17/08	16:53	TH-232	254	0	ALP113	COP	N	N	2.8313E-01	N	91%	N	1.0000E+00	4.5045E-01	1.0000E+00
				200.08333333	1000.05			Y		(8.494E-03)		5%		(0.000E+00)	0.980392	
3	03/17/08	14:34	Th-234	6217	746	GPC30A	COP	Y	N	4.4730E-01	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
				20	500			Y		(1.789E-02)				(0.000E+00)	0.980392	
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BlkLcC/MDC	StdDvMdc/LcC		
	03/17/08	TH-228	R	2.793747		1.56035E+00	6.023163	6.023163	1.02 G	91%			0.061475			
	3.338E+02			(0.273212)		(8.8445E-02)	(0.495782)	(0.495782)	(0.017321)				0.018623			
	03/17/08	TH-230	R	1.472253		8.63640E-01	3.33377	3.33377	1.02 G	91%			0.04081			
	3.338E+02			(0.162255)		(6.5745E-02)	(0.32249)	(0.32249)	(0.017321)				0.008866			
	03/17/08	TH-232	R	2.164075		1.26947E+00	4.900335	4.900335	1.02 G	91%			0.04081			
	3.338E+02			(0.219506)		(7.9660E-02)	(0.424383)	(0.424383)	(0.017321)				0.008866			
	03/17/08	Th-234	R	305.425627		3.09358E+02	691.60648	691.60648	1.02 G	91%						
	3.338E+02			(20.603865)		(3.9428E+00)	(29.03459)	(29.03459)	(0.017321)							
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
2	Calc	S1	SOLID	*STLE	AlplsoWoBS	KF8N43AD	pci/g		01/28/08 07:15	03/17/08 18:34				1	9	
							SOLID								773.74	1.02 g
0	03/17/08	16:54	TH-228	145	2	ALP116	COP	N	N	2.1858E-01	N	88%	N	1.0000E+00	4.5045E-01	1.0503E+00
				200.08333333	1000.1			Y		(6.557E-03)		5%		(0.000E+00)	0.980392	
1	03/17/08	16:54	TH-230	234	0	ALP116	COP	N	N	2.1858E-01	N	88%	N	1.0000E+00	4.5045E-01	1.0000E+00
				200.08333333	1000.1			Y		(6.557E-03)		5%		(0.000E+00)	0.980392	
2	03/17/08	16:54	TH-232	126	0	ALP116	COP	N	N	2.1858E-01	N	88%	N	1.0000E+00	4.5045E-01	1.0000E+00
				200.08333333	1000.1			Y		(6.557E-03)		5%		(0.000E+00)	0.980392	
3	03/17/08	14:34	Th-234	6023	776	GPC30B	COP	Y	N	4.4197E-01	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
				20	500			Y		(1.768E-02)				(0.000E+00)	0.980392	

(1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

Batch Nbr: 8065248

Alpha Spec, Thiso by ALP, Calculated Results

3/17/2008 10:31:08 PM

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC
03/17/08	TH-228	R	1.75049 (0.201836)	7.22698E-01 (6.0200E-02)	3.773998 (0.386837)	3.773998 (0.386837)	3.773998 (0.386837)	1.02 G (0.017321)	88%	0.068414				
03/17/08	TH-230	R	2.697097 (0.278081)	1.16951E+00 (7.6460E-02)	6.107305 (0.540834)	6.107305 (0.540834)	6.107305 (0.540834)	1.02 G (0.017321)	88%	0.055208				
03/17/08	TH-232	R	1.452281 (0.173638)	6.29738E-01 (5.6110E-02)	3.288549 (0.352762)	3.288549 (0.352762)	3.288549 (0.352762)	1.02 G (0.017321)	88%	0.055208				
03/17/08	Th-234	R	299.355961 (20.206284)	2.99598E+02 (3.8808E+00)	677.862316 (28.500781)	677.862316 (28.500781)	677.862316 (28.500781)	1.02 G (0.017321)	88%	0.011993				

Sq Status Method Matrix Protocol Equation Set Wrk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol

Sq	Calc	S1	SOLID	*STLE AlpIsoWoBS	KF8N53AD	pCi/g	SOLID	F8A290183-3	01/28/08 07:55	03/17/08 18:34	761.82 Alq	1	g			
0	03/17/08	16:54	TH-228	255	2	ALP117	COP	N	N	3.6088E-01	N	85%	N	1.0000E+00	4.5045E-01	1.0503E+00
1	03/17/08	16:54	TH-230	148	2	ALP117	COP	N	N	3.6088E-01	N	85%	N	1.0000E+00	4.5045E-01	1.0000E+00
2	03/17/08	16:54	TH-232	258	0	ALP117	COP	N	N	3.6088E-01	N	85%	N	1.0000E+00	4.5045E-01	1.0000E+00
3	03/17/08	14:34	Th-234	590	743	GPC30C	COP	Y	Y	4.5171E-01	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC
03/17/08	TH-228	R	1.936231 (0.19651)	1.27258E+00 (7.9830E-02)	4.133636 (0.358135)	4.133636 (0.358135)	4.133636 (0.358135)	1.01 G (0.017321)	85%	0.042976				
03/17/08	TH-230	R	1.068774 (0.122618)	7.37754E-01 (6.0824E-02)	2.396405 (0.244014)	2.396405 (0.244014)	2.396405 (0.244014)	1.01 G (0.017321)	85%	0.040919				
03/17/08	TH-232	R	1.86818 (0.189064)	1.28957E+00 (8.0291E-02)	4.188838 (0.361499)	4.188838 (0.361499)	4.188838 (0.361499)	1.01 G (0.017321)	85%	0.034682				
03/17/08	Th-234	R	289.844807 (19.583958)	2.93564E+02 (3.8413E+00)	649.890676 (27.35119)	649.890676 (27.35119)	649.890676 (27.35119)	1.01 G (0.017321)	85%	0.007534				

Sq Status Method Matrix Protocol Equation Set Wrk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol

Sq	Calc	S1	SOLID	*STLE AlpIsoWoBS	KF8N63AD	pCi/g	SOLID	F8A290183-4	01/29/08 07:55	03/17/08 18:34	755.86 Alq	1	g			
0	03/17/08	16:54	TH-228	185	3	ALP118	COP	N	N	3.5511E-01	N	77%	N	1.0000E+00	4.5045E-01	1.0503E+00
				200.05	1000			Y								

(1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
IDC - Instrument Detection Level in Conc Units, MLC - 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

Alpha Spec, Thiso by ALP, Calculated Results

Batch Nbr: 8065248

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC	
1	03/17/08 16:54	TH-230	123	3	ALP118 COP	N	N	3.5511E-01 (1.065E-02)	N	77%	N	4%	1.0000E+00 (0.0000E+00)	4.5045E-01 0.990099	1.0000E+00 1.0000E+00
2	03/17/08 16:54	TH-232	200.05	1000	ALP118 COP	N	N	3.5511E-01 (1.065E-02)	N	77%	N	4%	1.0000E+00 (0.0000E+00)	4.5045E-01 0.990099	1.0000E+00 1.0000E+00
3	03/17/08 14:34	Th-234	5234	597	GPC30D COP	Y	N	4.4500E-01 (1.780E-02)	N	100%	N		1.0000E+00 (0.0000E+00)	4.5045E-01 0.990099	1.0000E+00 1.0000E+00

Sq Status Method Matrix Protocol Equation Set Wrk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol

Sq	Calc	S1	SOLID	*STLE	AlptsoWoBS	KF8N83AD	pCi/g	SOLID	758.41	Alq	1	9			
0	03/17/08 16:55	TH-228	138	0	ALP119 COP	N	N	2.2282E-01 (6.684E-03)	N	84%	N	4%	1.0000E+00 (0.0000E+00)	4.5045E-01 0.990099	1.0503E+00
1	03/17/08 16:55	TH-230	180	1	ALP119 COP	N	N	2.2282E-01 (6.684E-03)	N	84%	N	4%	1.0000E+00 (0.0000E+00)	4.5045E-01 0.990099	1.0000E+00
2	03/17/08 16:55	TH-232	119	0	ALP119 COP	N	N	2.2282E-01 (6.684E-03)	N	84%	N	4%	1.0000E+00 (0.0000E+00)	4.5045E-01 0.990099	1.0000E+00
3	03/17/08 15:02	Th-234	5736	746	GPC30A COP	Y	N	4.4730E-01 (1.789E-02)	N	100%	N		1.0000E+00 (0.0000E+00)	4.5045E-01 0.990099	1.0000E+00

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC
0	03/17/08 3:38E+02	TH-228	1.724417	0.201239	6.89885E-01 (5.8735E-02)	3.681476 (0.383027)	3.681476 (0.383027)	3.681476 (0.383027)	1.01 G (0.017321)	84%	0.059848 0.013	0.059848 0.013		
1	03/17/08 3:38E+02	TH-230	2.139234	0.233749	8.98850E-01 (6.7078E-02)	4.79659 (0.458705)	4.79659 (0.458705)	4.79659 (0.458705)	1.01 G (0.017321)	84%	0.056984 0.012378	0.056984 0.012378		
2	03/17/08 3:38E+02	TH-232	1.415843	0.172108	5.94901E-01 (5.4544E-02)	3.174606 (0.347505)	3.174606 (0.347505)	3.174606 (0.347505)	1.01 G (0.017321)	84%	0.056984 0.012378	0.056984 0.012378		
3	03/17/08 3:38E+02	Th-234	284.47026	19.231307	2.85308E+02 (3.7872E+00)	637.839855 (26.88177)	637.839855 (26.88177)	637.839855 (26.88177)	1.01 G (0.017321)	84%	0.056984 0.012378	0.056984 0.012378		

RecCnt:6 RADCALC v4.8.29
TA Richland
Page 3
- (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPV
IDC - Instrument Detection Level in Conc Units, MLC - 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

Sq	Calc	S1	SOLID	STLE AlplsoWoBS	KF8N93AD	pCi/g	SOLID	Wk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol	
6	1418995	TSB-HJ-08-0		1418995	TSB-HJ-08-0			1	757.85	Alq	03/17/08 18:35	03/17/08 08:30	03/17/08 18:35	1	1.00	g		
Sq	CalcDate,TrcAct	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/17/08 16:55	TH-228	128	0	ALP120	COP	N	N	2.1268E-01	N	N	88%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0502E+00	
			200.0666666	1000.2833			Y	N	(6.380E-03)			5%		(0.000E+00)	1.00			
1	03/17/08 16:55	TH-230	95	0	ALP120	COP	N	N	2.1268E-01	N	N	88%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200.0666666	1000.2833			Y	N	(6.380E-03)			5%		(0.000E+00)	1.00			
2	03/17/08 16:55	TH-232	147	0	ALP120	COP	N	N	2.1268E-01	N	N	88%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200.0666666	1000.2833			Y	N	(6.380E-03)			5%		(0.000E+00)	1.00			
3	03/17/08 15:02	Th-234	5918	776	GPC30B	COP	Y	N	4.4197E-01	N	N	100%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			20	500			Y	N	(1.768E-02)					(0.000E+00)	1.00			
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm	Wo Blk	Dpm-Blk	Vol Used	TrcYld,EntFct	LCSYld,EFctU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC			
03/17/08	3.414E+02	TH-228	R	1.619472		6.39787E-01	3.423241	3.423241	3.423241	1.00 G	88%		0.060599					
				(0.192885)		(5.6559E-02)	(0.365273)	(0.365273)	(0.365273)	(0.017321)			0.013163					
03/17/08	3.414E+02	TH-230	R	1.144454		4.74842E-01	2.540686	2.540686	2.540686	1.00 G	88%		0.0577					
				(0.148786)		(4.8728E-02)	(0.301706)	(0.301706)	(0.301706)	(0.017321)			0.012534					
03/17/08	3.414E+02	TH-232	R	1.770889		7.34755E-01	3.931378	3.931378	3.931378	1.00 G	88%		0.0577					
				(0.20327)		(6.0610E-02)	(0.400448)	(0.400448)	(0.400448)	(0.017321)			0.012534					
03/17/08	3.414E+02	Th-234	R	299.992407		2.94348E+02	665.983809	665.983809	665.983809	1.00 G	88%							
				(20.281791)		(3.8468E+00)	(28.025169)	(28.025169)	(28.025169)	(0.017321)								

Batch Nbr: 8065248

Alpha Spec, Thlso by ALP, Calculated Results

3/17/2008 10:31:09 PM

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Trc Yld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdVvMdc/LcC
03/17/08	TH-228	R	2.088793	8.48920E-01	4.459469	4.459469	1.01 G	74%	0.069596					
3.380E+02			(0.231714)	(6.5278E-02)	(0.434926)	(0.434926)	(0.017321)		0.018121					
03/17/08	TH-230	R	2.047516	8.73947E-01	4.590939	4.590939	1.01 G	74%	0.066267					
3.380E+02			(0.225563)	(6.6231E-02)	(0.443733)	(0.443733)	(0.017321)		0.017254					
03/17/08	TH-232	R	1.723851	7.35797E-01	3.865223	3.865223	1.01 G	74%	0.056166					
3.380E+02			(0.198037)	(6.0696E-02)	(0.394243)	(0.394243)	(0.017321)		0.0122					
03/17/08	Th-234	R	249.709806	2.52914E+02	559.899887	559.899887	1.01 G	74%						
3.380E+02			(16.923238)	(3.5669E+00)	(23.747305)	(23.747305)	(0.017321)							

Sq Status Method Matrix Protocol Equation Set Wrk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol

Sq	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KFBPE3AD	pCi/g	SOLID	764.09	Alq	1	g			
1418995	TSB-HR-05-0				F8A290183-8							1.01 g			
0	03/17/08	16:57	TH-228	221	3	ALP172	COP	N	N	2.4969E-01	85%	N	1.0000E+00	4.5045E-01	1.0502E+00
								Y	Y	(7.491E-03)	4%		(0.000E+00)	0.990099	
1	03/17/08	16:57	TH-230	118	0	ALP172	COP	N	N	2.4969E-01	85%	N	1.0000E+00	4.5045E-01	1.0000E+00
								Y	Y	(7.491E-03)	4%		(0.000E+00)	0.990099	
2	03/17/08	16:57	TH-232	188	1	ALP172	COP	N	N	2.4969E-01	85%	N	1.0000E+00	4.5045E-01	1.0000E+00
								Y	Y	(7.491E-03)	4%		(0.000E+00)	0.990099	
3	03/17/08	15:02	Th-234	5789	597	GPC30D	COP	Y	N	4.4500E-01	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
								Y	Y	(1.780E-02)			(0.000E+00)	0.990099	

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Trc Yld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdVvMdc/LcC
03/17/08	TH-228	R	2.441112	1.10320E+00	5.211723	5.211723	1.01 G	85%	0.069909					
3.408E+02			(0.255097)	(7.4431E-02)	(0.469814)	(0.469814)	(0.017321)		0.019958					
03/17/08	TH-230	R	1.24445	5.90640E-01	2.790305	2.790305	1.01 G	85%	0.050511					
3.408E+02			(0.151628)	(5.4382E-02)	(0.30632)	(0.30632)	(0.017321)		0.010972					
03/17/08	TH-232	R	1.980571	9.40018E-01	4.440841	4.440841	1.01 G	85%	0.050511					
3.408E+02			(0.214231)	(6.8638E-02)	(0.419085)	(0.419085)	(0.017321)		0.010972					
03/17/08	Th-234	R	288.897207	2.88256E+02	647.765965	647.765965	1.01 G	85%						
3.408E+02			(19.526316)	(3.8046E+00)	(27.284746)	(27.284746)	(0.017321)							

Sq Status Method Matrix Protocol Equation Set Wrk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol

Sq	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KFBPG3AD	pCi/g	SOLID	758.13	Alq	1	g			
1418995	TSB-HR-05-10				F8A290183-9							1.01 g			
0	03/17/08	16:57	TH-228	146	1	ALP173	COP	N	N	1.8556E-01	86%	N	1.0000E+00	4.5045E-01	1.0502E+00
								Y	Y	(5.567E-03)	4%		(0.000E+00)	0.990099	

() - (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 Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time
 RecCnt:9
 RADCALC v4.8.29
 TA Richland

Batch Nbr: 8065248

Alpha Spec, Thiso by ALP, Calculated Results

3/17/2008 10:31:09 PM

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total	U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC
1	03/17/08 16:57	TH-230	154	1			7.29791E-01 (6.0489E-02)	4.561813 (0.466152)	4.561813 (0.466152)	1.01 G (0.017321)	86%	0.07019	1.0000E+00 (0.000E+00)	4.5045E-01 (0.990099)	1.0000E+00
2	03/17/08 16:57	TH-232	149	0			7.69834E-01 (6.2124E-02)	4.812118 (0.483229)	4.812118 (0.483229)	1.01 G (0.017321)	86%	0.066834	1.0000E+00 (0.000E+00)	4.5045E-01 (0.990099)	1.0000E+00
3	03/17/08 15:26	Th-234	587	746			7.45808E-01 (6.1107E-02)	4.661935 (0.472793)	4.661935 (0.472793)	1.01 G (0.017321)	86%	0.066834	1.0000E+00 (0.000E+00)	4.5045E-01 (0.990099)	1.0000E+00
			20	500			2.92358E+02 (3.8335E+00)	653.600965 (27.512881)	653.600965 (27.512881)	1.01 G (0.017321)	86%				

Sq Status Method Matrix Protocol Equation Set Wrk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sept1/Sept2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol

Sq	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KFBPG3AG	pCi/g	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn	
10	1418995	TSB-HR-06-10	DUP	F8A290183-9	SOLID												757.85 Alq	1	1.02 g		
0	03/17/08 16:57	TH-228	143	0	ALP174	COP	N	N	1.8950E-01	N	86%	86%	N	86%	N	1.0000E+00 (0.000E+00)	1.0000E+00	4.5045E-01 (0.980392)	1.0502E+00		
1	03/17/08 16:57	TH-230	152	1	ALP174	COP	N	N	1.8950E-01	N	86%	86%	N	86%	N	1.0000E+00 (0.000E+00)	1.0000E+00	4.5045E-01 (0.980392)	1.0000E+00		
2	03/17/08 16:57	TH-232	132	0	ALP174	COP	N	N	1.8950E-01	N	86%	86%	N	86%	N	1.0000E+00 (0.000E+00)	1.0000E+00	4.5045E-01 (0.980392)	1.0000E+00		
3	03/17/08 15:26	Th-234	580	776	GPC30B	COP	Y	N	4.4197E-01	N	100%	100%	N	100%	N	1.0000E+00 (0.000E+00)	1.0000E+00	4.5045E-01 (0.980392)	1.0000E+00		

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total	U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC
03/17/08	TH-228	R	2.032821	7.15775E-01 (5.9865E-02)			4.383046 (0.450605)	4.383046 (0.450605)	4.383046 (0.450605)	1.02 G (0.017321)	86%	0.068085			
03/17/08	TH-230	R	2.054749	7.59823E-01 (6.1719E-02)			4.652772 (0.469267)	4.652772 (0.469267)	4.652772 (0.469267)	1.02 G (0.017321)	86%	0.06483			
03/17/08	TH-232	R	1.786736	6.60716E-01 (5.7517E-02)			4.045888 (0.427263)	4.045888 (0.427263)	4.045888 (0.427263)	1.02 G (0.017321)	86%	0.06483			
03/17/08	Th-234	R	288.414807	2.88648E+02 (3.8096E+00)			653.087143 (27.508772)	653.087143 (27.508772)	653.087143 (27.508772)	1.02 G (0.017321)	86%	0.014082			

() - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

RecCnt:11

RADCALC v4.8.29
 TA Richland

Batch Nbr: 8065248

Alpha Spec, Thlso by ALP, Calculated Results

3/17/2008 10:31:09 PM

Sq	Calc	S1	SOLID	STLE	AlpIsoWoBS	KGH0L3AA	pCi/g	QC/BB	Sa/On	Date	AnalysisDate/PptWt	Sep1/Sep2	Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy	Vol	Final/Count	Vol
0	03/17/08	16:57	TH-228	3	0	ALP175	COP	N	N	1.8939E-01	Efficiency1	N	82%	N	1.0000E+00	Ingr Fct	Conv Fct/VolAdj	Decay	Abn	
				199.7833333	998.95			Y		(5.682E-03)	Efficiency2	N	4%	N	(0.000E+00)		4.5045E-01	1.0503E+00		
1	03/17/08	16:57	TH-230	3	0	ALP175	COP	N	N	1.8939E-01	Efficiency1	N	82%	N	1.0000E+00	Ingr Fct	Conv Fct/VolAdj	Decay	Abn	
				199.7833333	998.95			Y		(5.682E-03)	Efficiency2	N	4%	N	(0.000E+00)		4.5045E-01	1.0000E+00		
2	03/17/08	16:57	TH-232	0	0	ALP175	COP	N	N	1.8939E-01	Efficiency1	N	82%	N	1.0000E+00	Ingr Fct	Conv Fct/VolAdj	Decay	Abn	
				199.7833333	998.95			Y		(5.682E-03)	Efficiency2	N	4%	N	(0.000E+00)		4.5045E-01	1.0000E+00		
3	03/17/08	15:26	Th-234	5617	743	GPC30C	COP	Y	N	4.5171E-01	Efficiency1	N	100%	N	1.0000E+00	Ingr Fct	Conv Fct/VolAdj	Decay	Abn	
				20	500			Y		(1.807E-02)	Efficiency2	N		N	(0.000E+00)		4.5045E-01	1.0000E+00		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total	U	Q	Net Cnt Rtt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BKLCc/MDC	StdDvMdc/LcC					
	03/17/08	TH-228	R	0.046			1.50163E-02	0.097228	0.097228	1.00 G	82%		0.073439							
	3.416E+02			(0.026986)			(8.7272E-03)	(0.056806)	(0.056806)	(0.017321)			0.015952							
	03/17/08	TH-230	R	0.043796			1.50163E-02	0.097228	0.097228	1.00 G	82%		0.069921							
	3.416E+02			(0.025693)			(8.7272E-03)	(0.056806)	(0.056806)	(0.017321)			0.015188							
	03/17/08	TH-232	R	0.00E00		U4	0.00000E+00	0.00E00	0.00E00	1.00 G	82%		0.069921							
	3.416E+02			(0.014888)			(5.1045E-03)	(0.033051)	(0.033051)	(0.017321)			0.015188							
	03/17/08	Th-234	R	278.582955			2.79364E+02	618.454779	618.454779	1.00 G	82%									
	3.416E+02			(18.85323)			(3.7477E+00)	(26.092402)	(26.092402)	(0.017321)										

11 Calc S1 SOLID *STLE AlpIsoWoBS KGH0L3AA pCi/g QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol
 0,INTRA-LAB BLANK ,J8B040000-234 B 01/28/08 07:00 03/17/08 18:37 758.41 Alq 1 9 1.00 g

12 Calc S1 SOLID *STLE AlpIsoWoBS KGH0L3AC pCi/g QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol
 0,INTRA-LAB CHECK ,J8B040000-234 S 01/28/08 07:00 03/17/08 18:37 763.52 Alq 1 9 1.00 g

0 03/17/08 16:57 TH-228 5 199.7833333 998.95 ALP176 COP N N 2.6546E-01 (7.964E-03) 87% N 1.0000E+00 (0.000E+00) 1.00 4.5045E-01 1.0503E+00
 1 03/17/08 16:57 TH-230 271 199.7833333 998.95 ALP176 COP N N 2.6546E-01 (7.964E-03) 87% N 1.0000E+00 (0.000E+00) 1.00 4.5045E-01 1.0000E+00
 2 03/17/08 16:57 TH-232 4 199.7833333 998.95 ALP176 COP N N 2.6546E-01 (7.964E-03) 87% N 1.0000E+00 (0.000E+00) 1.00 4.5045E-01 1.0000E+00
 3 03/17/08 15:26 Th-234 5921 20 597 500 GPC30D COP Y N 4.4500E-01 (1.780E-02) 100% N 1.0000E+00 (0.000E+00) 1.00 4.5045E-01 1.0000E+00

RecCnt:12 RADCALC v4.8.29
 TA Richland

Page 7
 () - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lo = 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 Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time

Batch Nbr: 8065248

Alpha Spec, Thiso by ALP , Calculated Results

3/17/2008 10:31:09 PM

BikLc/MDC StdDv/MdC/LcC

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bik	Dpm-Bik	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC
03/17/08	TH-228	R	0.049342	2.40261E-02	0.104291	0.104291	0.104291	1.00 G	87%	2%	0.049234	
3.439E+02			(0.023411)	(1.1237E-02)	(0.049174)	(0.049174)	(0.049174)	(0.017321)			0.010694	
03/17/08	TH-230	R	2.652305	1.35647E+00	5.888116	5.888116	5.888116	1.00 G	87%	116%	0.046875	
3.439E+02			(0.266036)	(8.2406E-02)	(0.501731)	(0.501731)	(0.501731)	(0.017321)			0.010182	
03/17/08	TH-232	R	0.037191	1.90206E-02	0.082564	0.082564	0.082564	1.00 G	87%	2%	0.046875	
3.439E+02			(0.019894)	(1.0061E-02)	(0.043949)	(0.043949)	(0.043949)	(0.017321)			0.010182	
03/17/08	Th-234	R	298.467007	2.94856E+02	662.597418	662.597418	662.597418	1.00 G	87%			
3.439E+02			(20.177536)	(3.8477E+00)	(27.878651)	(27.878651)	(27.878651)	(0.017321)				

0 - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

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RecCnt:12
 RADCALC v4.8.29
 T.A. Richland

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 13:07:06.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
CAL6669	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
17-MAR-2008 13:07:06.00	49598	20.00	746	500.00	30A

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
1	28	656	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
 Richland, WA

GPC Report

17-MAR-2008 13:07:06.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
CAL6670	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
17-MAR-2008 13:07:06.00	46759	20.00	776	500.00	30B

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
1	18	656	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 13:07:06.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
CAL6671	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
17-MAR-2008 13:07:06.00	47141	20.00	743	500.00	30C

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
1	17	656	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 13:07:06.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
CAL6672	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
17-MAR-2008 13:07:06.00	47483	20.00	597	500.00	30D

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
1	9	656	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 14:34:24.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8NX3AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
17-MAR-2008 14:34:24.00	6217	20.00	746	500.00	30A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
7	28	652	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 14:34:24.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
KF8N43AD	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
17-MAR-2008 14:34:24.00	6023	20.00	776	500.00	30B

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
2	18	652	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 14:34:24.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8N53AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
17-MAR-2008 14:34:24.00	5901	20.00	743	500.00	30C

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
3	17	652	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 14:34:24.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8N63AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
17-MAR-2008 14:34:24.00	5234	20.00	597	500.00	30D

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
1	9	652	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 15:02:58.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
KF3N83AD	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
17-MAR-2008 15:02:58.00	5736	20.00	746	500.00	30A

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
2	28	655	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 15:02:58.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8N93AD	COP	COP

<u>Sample Count</u> <u>Date/Time</u>	<u>Beta</u> <u>Counts</u>	<u>Count</u> <u>Duration*</u>	<u>Beta Bkg</u> <u>Counts</u>	<u>Bkg Count</u> <u>Duration*</u>	<u>Instr</u> <u>ID</u>
17-MAR-2008 15:02:58.00	5918	20.00	776	500.00	30B

<u>Alpha</u> <u>Counts</u>	<u>Alpha Bkg</u> <u>Counts</u>	<u>Guard</u> <u>Counts</u>	<u>HV</u>	<u>Bkg Count</u> <u>Date/Time</u>
6	18	655	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 15:02:58.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8PD3AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
17-MAR-2008 15:02:58.00	5088	20.00	743	500.00	30C

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
3	17	655	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 15:02:58.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8PE3AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
17-MAR-2008 15:02:58.00	5789	20.00	597	500.00	30D

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
3	9	655	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 15:26:00.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8PG3AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
17-MAR-2008 15:26:00.00	5877	20.00	746	500.00	30A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
4	28	670	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 15:26:00.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8PG3AG	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
17-MAR-2008 15:26:00.00	5804	20.00	776	500.00	30B

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
3	18	670	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 15:26:00.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KGH0L3AA	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
17-MAR-2008 15:26:00.00	5617	20.00	743	500.00	30C

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
1	17	670	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

17-MAR-2008 15:26:00.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KGH0L3AC	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
17-MAR-2008 15:26:00.00	5921	20.00	597	500.00	30D

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
1	9	670	1492	16-MAR-2008 16:45:13.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

THORIUM ISOTOPICT COUNTING REQUEST

2014

C.R. Technician OP
Date Counted 3/17/08

Counting Time 200 Minutes
Sample 200

SOP's RICHRD008
Operating: RICHRD008

C.R. Analyst OP
Date Analyzed 3/17/08

Background See Alpha Analysis Report
Review: 1/28/2008

8065248

WorkOrder #	Th-229 (4845 KeV) Tracer				TOTAL COUNTS			Det #	Comment
	from Th-234 Beta Count (7)				Th-228 (5423 KeV)	Th-230 (4688 KeV)	Th-232 (4010 KeV)		
	ID	Activity	ROI Cts	BKG	(6)	(8)	(9)		
KF8NX 3AD	10		0		See Alpha Analysis Report for ROI Information			113	
KF8NX 43AD	10		0		See Alpha Analysis Report for ROI Information			116	
KF8NX 53AD	10		0		See Alpha Analysis Report for ROI Information			117	
KF8NX 63AD	10		0		See Alpha Analysis Report for ROI Information			118	
KF8NX 83AD	10		0		See Alpha Analysis Report for ROI Information			119	
KF8NX 93AD	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				

Comments:

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8NX3AD

Detector: ALP113 1

Report Date: 17-Mar-08 08:57 PM

Acquire Date: 17-MAR-2008 16:53:58.08

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

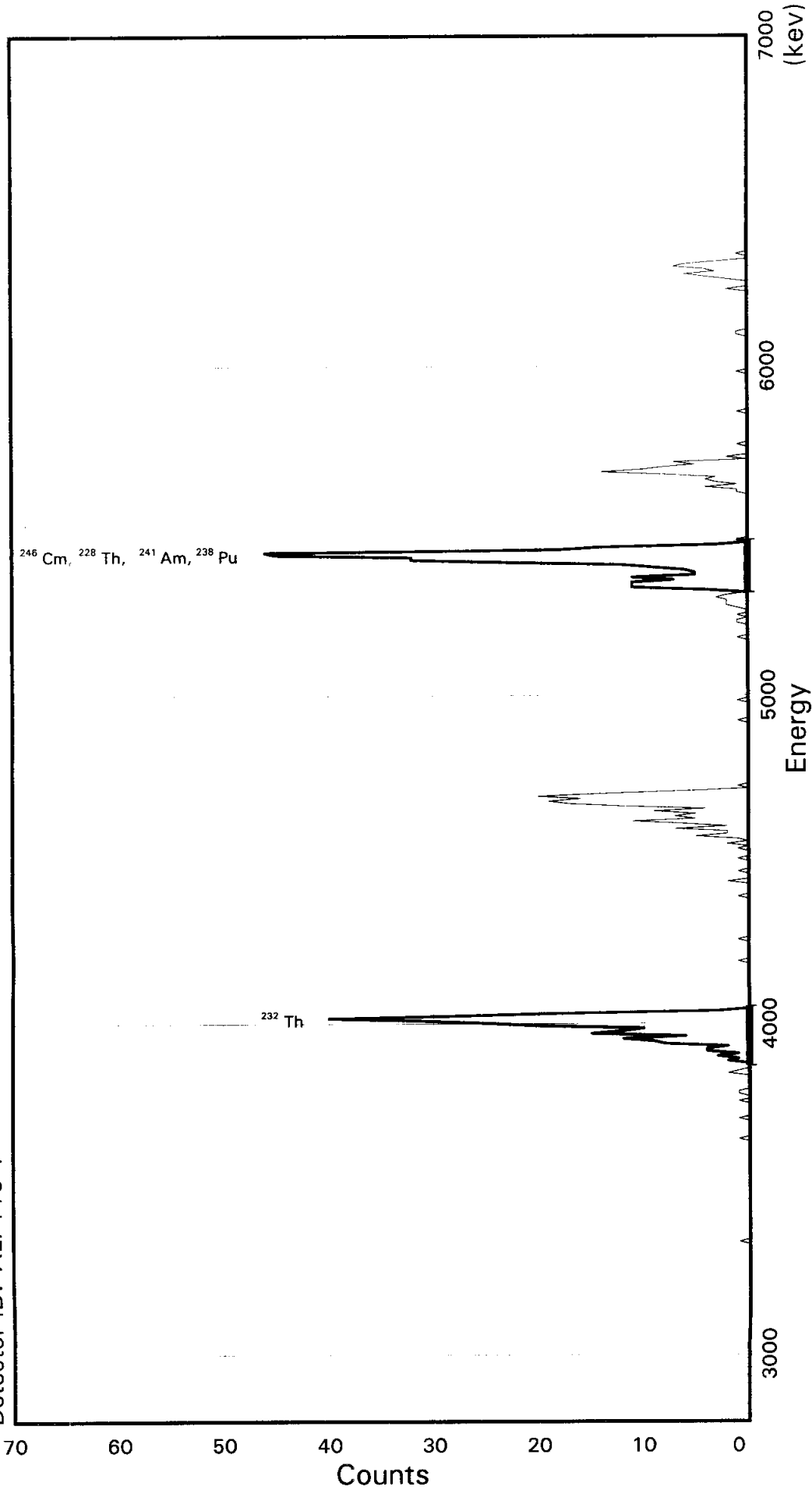
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	313	4	1.560	5423.2	182.9	330	354
TH-230	173	1	0.864	4687.7	182.9	233	257
TH-232	254	0	1.269	4013.0	175.3	145	168

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8065248

Sample ID: KF8NX3AD
Detector ID: ALP113 1



Energy Coefficients:
Offset: 2.77422E+03
Slope: 7.62469E+00
Quadrature: -7.72101E-06

Acquisition Start: 17-MAR-2008 16:53:58.08
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:05.00

SAMPLE IDENTIITY: KF8NX3AD

TITLE : TH BRCO

DETECTOR : ALP113 1

CONFIGURATION NAME : RDND06\$DKA100: [ALP113.SAMPLE] KF8NX3AD_170381
653.CNF;1

ACQUIRE DATE of BACKGROUND: 13-MAR-2008 08:35:53

REPORT DATE : 17-Mar-08

SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 17-MAR-2008 16:53:58

CALIB DATE : 12-MAR-2008 22:59:25

PRESET LIVE TIME: 0 03:20:00

ELAPSED LIVE TIME: 0 03:20:05

OFFSET : 2774.22 keV

CONSTANT FWHM : 5.33333 Channels

SLOPE : 7.62469 keV/C

SENSITIVITY : 6.00000 Std Dev's

QUAD COEFF : $-.772101E-05$ keV/C²

SUM SENSITIVITY: 0.10000 %

0 50 0 100 4 150 0 200 19 250 0 300 18 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 17-MAR-2008 20:14:06

Configuration : RDND06\$DKA100:[ALP113.SAMPLE]KF8NX3AD_170381653.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 17-MAR-2008 16:53:58
 Sample ID : KF8NX3AD Sample quantity : 0.00000E+00 GRAMS
 Sample type : disk Sample geometry :
 Detector name : ALP113 Detector geometry:
 Elapsed live time: 0 03:20:05.00 Elapsed real time: 0 03:20:05.00 0.0%
 Start energy : 2797.09 kev End energy : 6676.04 kev
 Sensitivity : 6.00 Sum Sensitivity : 0.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4011.19	254	0	38.12✓	162.26	144	24	2.12E-02	6.3	
2	0	5423.79	308	0	45.75✓	347.62	333	21	2.57E-02	5.7	

Error Report (Date: 17-Mar-08 08:14 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N43AD

Detector: ALP116 1

Report Date: 17-Mar-08 09:01 PM

Acquire Date: 17-MAR-2008 16:54:10.72

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

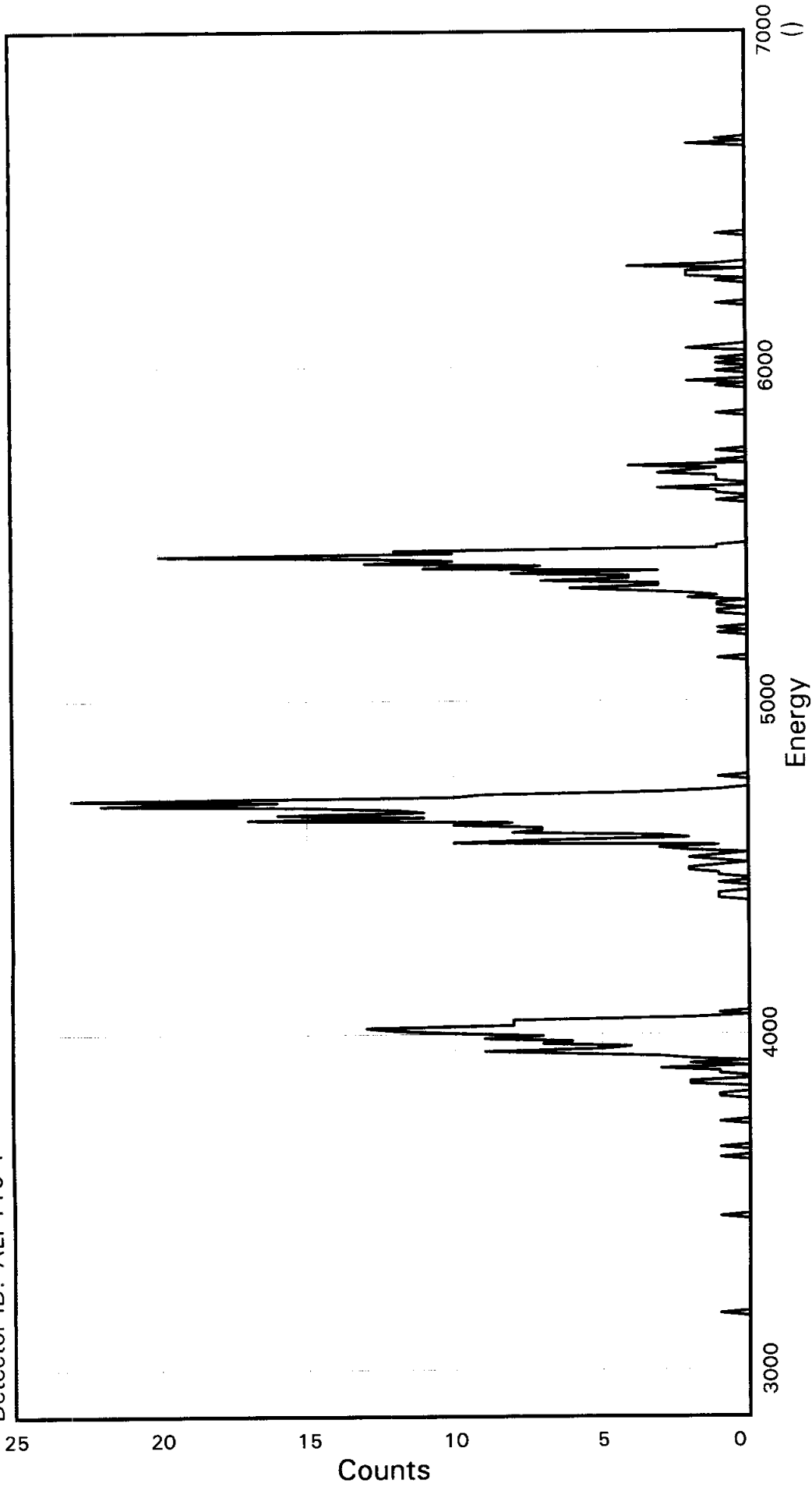
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	145	2	0.723	5423.2	164.9	325	347
TH-230	234	0	1.170	4687.7	180.9	226	250
TH-232	126	0	0.630	4013.0	174.4	138	161

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8065248

Sample ID: KF8N43AD
Detector ID: ALP116 1



Energy Coefficients:
Offset: 2.83756E + 03
Slope: 7.64998E + 00
Quadrature: -2.32078E-04

Acquisition Start: 17-MAR-2008 16:54:10.72
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:05.00

SAMPLE IDENTIITY: KF8N43AD

TITLE : TH BRCO

DETECTOR : ALP116 1
CONFIGURATION NAME : RDND06\$DKA100:[ALP116.SAMPLE] KF8N43AD_170381
654.CNF;1
ACQUIRE DATE of BACKGROUND: 15-MAR-2008 16:24:47

REPORT DATE : 17-Mar-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 17-MAR-2008 16:54:10 CALIB DATE : 14-MAR-2008 22:38:58

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:05

OFFSET : 2837.56 keV CONSTANT FWHM : 9.00000 Channels
SLOPE : 7.64998 keV/C SENSITIVITY : 6.00000 Std Dev's
QUAD COEFF : -.232078E-03 keV/C^2 SUM SENSITIVITY: 0.10000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_prn.cnts
 (Version: 1 Apr 07)

Sample Identity: KF8N43AL

Flags Key

Detector: ALP116 1

Report Date: 17 Mar 08 08:14 PM

Intersect Region: #

Acquire Date: 17 MAR 2008 16:54:10.72

Non Intersect Region: +

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
0		1	0		51	0		101	9		151	0		201	0		251
0		2	0		52	0		102	7		152	0		202	0		252
0		3	0		53	0		103	10		153	0		203	0		253
0		4	0		54	1		104	12		154	0		204	0		254
0		5	0		55	0		105	13		155	0		205	1		255
0		6	0		56	0		106	8		156	0		206	0		256
0		7	0		57	0		107	8		157	1		207	0		257
0		8	0		58	1		108	8		158	1		208	0		258
0		9	0		59	0		109	2		159	1		209	0		259
0		10	0		60	0		110	0		160	0		210	0		260
0		11	0		61	0		111	1		161	0		211	0		261
0		12	0		62	0		112	0		162	0		212	0		262
0		13	0		63	0		113	0		163	1		213	0		263
0		14	0		64	0		114	0		164	0		214	0		264
0		15	0		65	0		115	0		165	0		215	0		265
0		16	0		66	0		116	0		166	1		216	0		266
0		17	0		67	0		117	0		167	1		217	0		267
0		18	0		68	1		118	0		168	2		218	0		268
0		19	0		69	0		119	0		169	2		219	0		269
0		20	0		70	0		120	0		170	1		220	0		270
0		21	0		71	0		121	0		171	0		221	0		271
0		22	0		72	0		122	0		172	1		222	0		272
0		23	0		73	0		123	0		173	2		223	0		273
0		24	0		74	0		124	0		174	1		224	0		274
0		25	0		75	0		125	0		175	0		225	0		275
0		26	0		76	0		126	0		176	2		226	0		276
0		27	0		77	0		127	0		177	3		227	0		277
0		28	0		78	1		128	0		178	1		228	0		278
0		29	0		79	1		129	0		179	10		229	0		279
0		30	0		80	0		130	0		180	7		230	0		280
0		31	1		81	0		131	0		181	2		231	0		281
0		32	0		82	0		132	0		182	3		232	0		282
0		33	0		83	2		133	0		183	8		233	0		283
0		34	0		84	2		134	0		184	7		234	0		284
0		35	0		85	0		135	0		185	7		235	0		285
0		36	0		86	0		136	0		186	10		236	0		286
0		37	0		87	1		137	0		187	8		237	0		287
0		38	0		88	1		138	0		188	17		238	0		288
0		39	0		89	3		139	0		189	11		239	0		289
0		40	0		90	0		140	0		190	16		240	0		290
0		41	0		91	2		141	0		191	11		241	0		291
0		42	0		92	0		142	0		192	12		242	0		292
1		43	0		93	2		143	0		193	15		243	0		293
0		44	0		94	3		144	0		194	22		244	0		294
0		45	0		95	6		145	0		195	16		245	0		295
0		46	0		96	9		146	0		196	23		246	0		296
0		47	0		97	5		147	0		197	10		247	0		297
0		48	0		98	4		148	0		198	9		248	0		298
0		49	0		99	7		149	0		199	3		249	0		299

< 50 0 100 6 150 0 200 1 250 0 300 0 350 1 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 17-MAR-2008 20:14:18

Configuration : RDND06\$DKA100:[ALP116.SAMPLE]KF8N43AD_170381654.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRCO
Sample date : 28-JAN-2008 12:00:00 Acquisition date : 17-MAR-2008 16:54:10
Sample ID : KF8N43AD Sample quantity : 0.00000E+00 GRAMS
Sample type : disk Sample geometry :
Detector name : ALP116 Detector geometry:
Elapsed live time: 0 03:20:05.00 Elapsed real time: 0 03:20:05.00 0.0%
Start energy : 2860.51 End energy : 6693.52
Sensitivity : 6.00 Sum Sensitivity : 0.10
No peaks were found

Error Report (Date: 17-Mar-08 08:14 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N53AD

Detector: ALP117 1
Report Date: 17-Mar-08 09:02 PM
Acquire Date: 17-MAR-2008 16:54:23.16
Tracer Nuclide: TH-229
Sample Live Time: 200 minutes
Bkgrnd Live Time: 1000 minutes

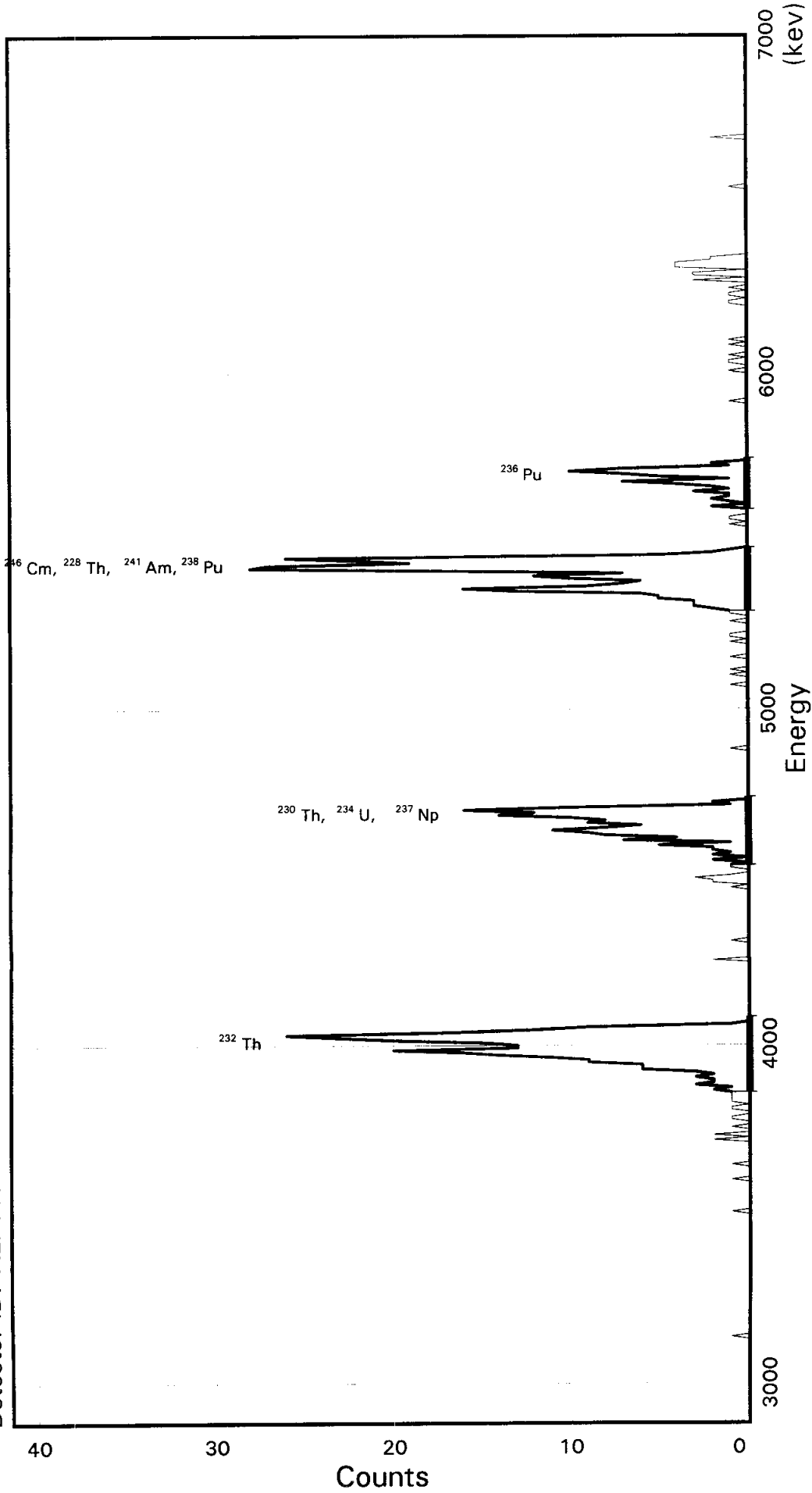
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Rght Chnl
TH-228	255	2	1.273	5423.2	182.0	327	351
TH-230	148	2	0.738	4687.7	172.4	230	253
TH-232	258	0	1.290	4013.0	178.1	140	164

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8065248

Sample ID: KF8N53AD
Detector ID: ALP117 1



Acquisition Start: 17-MAR-2008 16:54:23.16
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:04.00

Energy Coefficients:
Offset: 2.86067E + 03
Slope: 7.28661E + 00
Quadrature: 4.36126E-04

SAMPLE IDENTIITY: KF8N53AD

TITLE : TH BRCO

DETECTOR : ALP117 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP117.SAMPLE] KF8N53AD_170381
654.CNF;1
ACQUIRE DATE of BACKGROUND: 13-MAR-2008 08:35:57

REPORT DATE : 17-Mar-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 17-MAR-2008 16:54:23 CALIB DATE : 12-MAR-2008 22:59:21

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:04

OFFSET : 2860.67 keV CONSTANT FWHM : 8.33333 Channels
SLOPE : 7.28661 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 4.361260E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alprgn_cnts
(Version: 1 Apr 07)

Sample Identity: KF8N53AD

Flags Key

Detector: ALP117.1

Report Date: 17 Mar 08 08:14 PM

Intersect Region: -

Acquire Date: 17 MAR 2008 16:54:23.16

Non Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
0	1	0	51	1	101	14	151	0	201	1	251	0	301	1	351	0	401	1	451	0	501					
0	2	0	52	0	102	16	152	0	202	2	252	1	302	0	352	0	402	0	452	0	502					
0	3	0	53	0	103	20	153	0	203	0	253	0	303	0	353	0	403	1	453	0	503					
0	4	0	54	0	104	13	154	0	204	0	254	1	304	0	354	0	404	0	454	0	504					
0	5	0	55	0	105	13	155	0	205	0	255	0	305	0	355	0	405	0	455	0	505					
0	6	0	56	0	106	15	156	0	206	0	256	0	306	0	356	0	406	3	456	0	506					
0	7	0	57	1	107	20	157	0	207	0	257	0	307	0	357	0	407	0	457	0	507					
0	8	0	58	0	108	23	158	0	208	0	258	0	308	0	358	0	408	3	458	0	508					
0	9	0	59	0	109	26	159	0	209	0	259	1	309	0	359	1	409	3	459	0	509					
0	10	0	60	0	110	17	160	0	210	0	260	0	310	0	360	0	410	0	460	0	510					
0	11	0	61	0	111	12	161	0	211	0	261	0	311	1	361	0	411	4	461	2	511					
0	12	0	62	0	112	9	162	0	212	0	262	0	312	0	362	0	412	4	462	0	512					
0	13	0	63	0	113	1	163	0	213	0	263	0	313	1	363	0	413	4	463							
0	14	0	64	0	114	0	164	0	214	0	264	0	314	1	364	0	414	2	464							
0	15	0	65	0	115	0	165	0	215	0	265	1	315	0	365	0	415	2	465							
0	16	0	66	0	116	0	166	0	216	0	266	0	316	0	366	0	416	0	466							
0	17	0	67	2	117	0	167	0	217	0	267	1	317	0	367	0	417	0	467							
0	18	0	68	0	118	0	168	1	218	0	268	1	318	2	368	0	418	0	468							
0	19	0	69	2	119	0	169	0	219	0	269	0	319	0	369	0	419	0	469							
0	20	0	70	0	120	0	170	2	220	0	270	0	320	1	370	0	420	0	470							
0	21	0	71	0	121	0	171	2	221	0	271	0	321	2	371	1	421	0	471							
0	22	0	72	1	122	0	172	3	222	0	272	0	322	1	372	0	422	0	472							
0	23	0	73	0	123	0	173	1	223	1	273	1	323	1	373	0	423	0	473							
0	24	0	74	0	124	0	174	0	224	0	274	0	324	3	374	1	424	0	474							
0	25	0	75	1	125	0	175	0	225	0	275	0	325	1	375	1	425	0	475							
0	26	0	76	1	126	0	176	1	226	0	276	1	326	2	376	0	426	0	476							
0	27	0	77	0	127	0	177	1	227	0	277	1	327	4	377	1	427	0	477							
0	28	0	78	0	128	0	178	0	228	0	278	2	328	7	378	0	428	0	478							
0	29	0	79	1	129	0	179	2	229	0	279	3	329	1	379	0	429	0	479							
0	30	0	80	1	130	0	180	0	230	0	280	3	330	5	380	0	430	0	480							
0	31	0	81	0	131	0	181	2	231	0	281	3	331	7	381	1	431	0	481							
0	32	0	82	1	132	0	182	1	232	0	282	5	332	10	382	0	432	0	482							
0	33	0	83	1	133	0	183	2	233	0	283	5	333	7	383	1	433	0	483							
0	34	0	84	1	134	0	184	2	234	0	284	6	334	1	384	0	434	0	484							
0	35	0	85	1	135	0	185	5	235	0	285	13	335	2	385	0	435	0	485							
0	36	0	86	1	136	0	186	1	236	0	286	16	336	0	386	0	436	0	486							
0	37	0	87	2	137	0	187	7	237	0	287	9	337	0	387	0	437	0	487							
1	38	1	88	1	138	0	188	4	238	0	288	7	338	0	388	0	438	0	488							
0	39	0	89	3	139	2	189	8	239	0	289	6	339	0	389	0	439	0	489							
0	40	0	90	2	140	0	190	9	240	0	290	10	340	0	390	0	440	0	490							
0	41	0	91	2	141	0	191	11	241	0	291	12	341	0	391	0	441	0	491							
0	42	0	92	3	142	0	192	8	242	0	292	7	342	0	392	0	442	1	492							
0	43	0	93	2	143	0	193	6	243	0	293	17	343	0	393	0	443	0	493							
0	44	0	94	3	144	0	194	9	244	0	294	28	344	0	394	0	444	0	494							
0	45	0	95	6	145	0	195	8	245	0	295	27	345	0	395	0	445	0	495							
0	46	0	96	6	146	0	196	10	246	0	296	19	346	0	396	0	446	0	496							
0	47	0	97	6	147	1	197	14	247	0	297	22	347	0	397	1	447	0	497							
0	48	0	98	9	148	0	198	12	248	1	298	26	348	0	398	1	448	0	498							
0	49	0	99	9	149	0	199	16	249	0	299	5	349	0	399	0	449	0	499							

0 50 100 150 200 250 300 350 400 450 500

VMS Peak Search Report V1.9 Generated 17-MAR-2008 20:14:31

Configuration : RDND06\$DKA100:[ALP117.SAMPLE]KF8N53AD_170381654.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 17-MAR-2008 16:54:23
 Sample ID : KF8N53AD Sample quantity : 0.00000E+00 GRAMS
 Sample type : disk Sample geometry :
 Detector name : ALP117 Detector geometry:
 Elapsed live time: 0 03:20:04.00 Elapsed real time: 0 03:20:04.00 0.0%
 Start energy : 2882.54 kev End energy : 6705.75 kev
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4009.86	263	0	80.15	156.25	136	30	2.19E-02	6.2	
2	0	4691.25	154	0	43.72	247.56	227	27	1.28E-02	8.1	
3	0	5427.74	255	0	51.01	345.17	327	25	2.12E-02	6.3	
4	0	5699.06	56	0	43.72	380.85	367	20	4.67E-03	13.4	

Error Report (Date: 17-Mar-08 08:14 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N63AD

Detector: ALP118 1

Report Date: 17-Mar-08 09:05 PM

Acquire Date: 17-MAR-2008 16:54:36.48

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

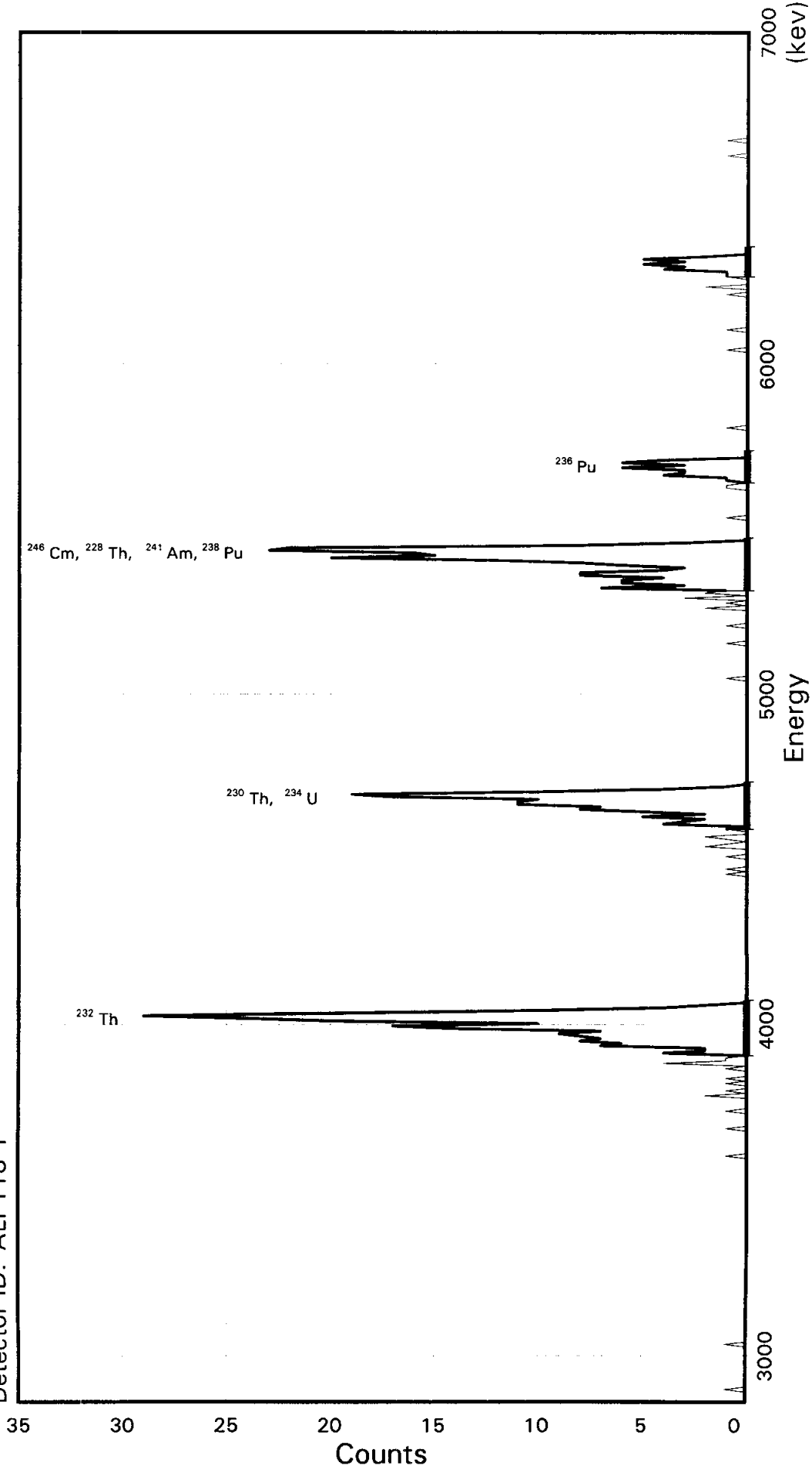
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	185	3	0.922	5423.2	166.9	325	347
TH-230	123	3	0.612	4687.7	166.7	228	250
TH-232	211	0	1.055	4013.0	174.0	139	162

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8065248

Sample ID: KF8N63AD
Detector ID: ALP118 1



Acquisition Start: 17-MAR-2008 16:54:36.48
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:03.00

Energy Coefficients:
Offset: 2.83909E + 03
Slope: 7.54454E + 00
Quadrature: 6.54352E-05

SAMPLE IDENTIITY: KF8N63AD

TITLE : TH BRCO

DETECTOR : ALP118 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP118.SAMPLE] KF8N63AD_170381
654.CNF;1
ACQUIRE DATE of BACKGROUND: 13-MAR-2008 10:55:30

REPORT DATE : 17-Mar-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 17-MAR-2008 16:54:36 CALIB DATE : 12-MAR-2008 22:59:17

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:03

OFFSET : 2839.09 keV CONSTANT FWHM : 7.50000 Channels
SLOPE : 7.54454 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 6.543520E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1 Apr 07)

Sample ID: KF8N63AD

Flags Key

Detector: ALP115.1

Report Date: 17 Mar-08 08:14 PM

Intersect Region: 0

Acquire Date: 17 MAR 2008 16:54:36.45

Non Intersect Region: 0

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn					
		1	0	51	1	101	7	151	0	201	0	251	0	301	0	351	0	401	0	451	0	501
		2	0	52	0	102	14	152	0	202	0	252	0	302	0	352	0	402	1	452	0	502
0		3	0	53	0	103	17	153	0	203	0	253	0	303	0	353	0	403	1	453	0	503
0		4	0	54	0	104	10	154	0	204	0	254	0	304	0	354	0	404	1	454	0	504
0		5	0	55	0	105	20	155	0	205	0	255	0	305	0	355	0	405	4	455	0	505
0		6	0	56	0	106	24	156	0	206	0	256	1	306	1	356	0	406	3	456	1	506
0		7	0	57	0	107	29	157	0	207	0	257	0	307	0	357	0	407	5	457	0	507
1		8	0	58	0	108	19	158	0	208	0	258	0	308	0	358	0	408	3	458	0	508
0		9	0	59	0	109	10	159	0	209	0	259	0	309	0	359	0	409	5	459	0	509
0		10	0	60	0	110	4	160	0	210	0	260	0	310	0	360	0	410	2	460	0	510
0		11	0	61	0	111	2	161	0	211	0	261	0	311	0	361	0	411	0	461	0	511
0		12	0	62	1	112	0	162	0	212	0	262	0	312	0	362	0	412	0	462	0	512
0		13	0	63	0	113	0	163	0	213	0	263	1	313	0	363	0	413	0	463		
0		14	0	64	0	114	0	164	1	214	0	264	0	314	0	364	0	414	0	464		
0		15	0	65	0	115	0	165	0	215	0	265	0	315	0	365	0	415	0	465		
0		16	0	66	0	116	0	166	1	216	0	266	0	316	0	366	0	416	0	466		
0		17	0	67	0	117	0	167	0	217	0	267	0	317	0	367	0	417	0	467		
0		18	0	68	0	118	0	168	0	218	0	268	0	318	1	368	0	418	0	468		
0		19	0	69	1	119	0	169	0	219	0	269	0	319	1	369	0	419	0	469		
0		20	0	70	0	120	0	170	0	220	0	270	2	320	0	370	0	420	0	470		
0		21	0	71	0	121	0	171	1	221	0	271	0	321	1	371	0	421	0	471		
0		22	0	72	0	122	0	172	0	222	0	272	1	322	1	372	0	422	0	472		
0		23	0	73	0	123	0	173	0	223	0	273	0	323	4	373	1	423	0	473		
0		24	0	74	0	124	0	174	0	224	0	274	3	324	3	374	0	424	0	474		
0		25	0	75	2	125	0	175	2	225	0	275	0	325	3	375	0	425	0	475		
1		26	0	76	0	126	0	176	1	226	0	276	2	326	6	376	0	426	0	476		
0		27	0	77	1	127	0	177	0	227	0	277	1	327	3	377	0	427	0	477		
0		28	0	78	0	128	0	178	1	228	0	278	7	328	6	378	0	428	0	478		
0		29	0	79	0	129	0	179	2	229	0	279	3	329	4	379	0	429	0	479		
0		30	0	80	1	130	0	180	0	230	0	280	6	330	0	380	0	430	0	480		
0		31	0	81	0	131	0	181	0	231	0	281	6	331	0	381	1	431	0	481		
0		32	0	82	1	132	0	182	1	232	0	282	4	332	0	382	0	432	0	482		
0		33	0	83	0	133	0	183	0	233	0	283	8	333	0	383	0	433	0	483		
0		34	0	84	0	134	0	184	4	234	0	284	8	334	0	384	0	434	0	484		
0		35	0	85	0	135	0	185	3	235	0	285	4	335	0	385	0	435	0	485		
0		36	0	86	1	136	0	186	2	236	0	286	3	336	0	386	0	436	0	486		
0		37	0	87	0	137	0	187	5	237	0	287	6	337	0	387	0	437	0	487		
0		38	0	88	4	138	0	188	2	238	0	288	8	338	0	388	0	438	0	488		
0		39	0	89	1	139	0	189	5	239	0	289	12	339	0	389	0	439	0	489		
0		40	0	90	1	140	0	190	8	240	0	290	20	340	0	390	0	440	0	490		
0		41	0	91	0	141	0	191	7	241	0	291	15	341	0	391	0	441	0	491		
0		42	0	92	4	142	0	192	11	242	1	292	16	342	1	392	0	442	0	492		
0		43	0	93	2	143	0	193	11	243	0	293	23	343	0	393	0	443	0	493		
0		44	0	94	2	144	0	194	10	244	0	294	22	344	0	394	0	444	0	494		
0		45	0	95	7	145	0	195	17	245	0	295	8	345	0	395	1	445	0	495		
0		46	0	96	6	146	0	196	19	246	0	296	3	346	0	396	0	446	0	496		
0		47	0	97	8	147	0	197	10	247	0	297	0	347	0	397	0	447	0	497		
0		48	0	98	7	148	0	198	4	248	0	298	0	348	0	398	2	448	0	498		
0		49	0	99	8	149	0	199	1	249	0	299	0	349	0	399	0	449	0	499		

0 50 0 100 0 150 0 200 0 250 0 300 0 350 0 400 0 450 1 500

VMS Peak Search Report V1.9 Generated 17-MAR-2008 20:14:42

Configuration : RDND06\$DKA100:[ALP118.SAMPLE]KF8N63AD_170381654.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 17-MAR-2008 16:54:36
 Sample ID : KF8N63AD Sample quantity : 0.000000E+00 GRAMS
 Sample type : disk Sample geometry :
 Detector name : ALP118 Detector geometry:
 Elapsed live time: 0 03:20:03.00 Elapsed real time: 0 03:20:03.00 0.0%
 Start energy : 2861.73 kev End energy : 6719.05 kev
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4015.82	210	0	45.27	155.76	141	22	1.75E-02	6.9	
2	0	4686.15	121	0	52.81	244.30	232	19	1.01E-02	9.1	
3	0	5427.25	182	0	52.81	342.04	327	21	1.52E-02	7.4	
4	0	5688.74	32	0	45.27	376.48	370	13	2.67E-03	17.7	
5	0	6299.17	25	0	45.27	456.81	452	12	2.08E-03	20.0	

Error Report (Date: 17-Mar-08 08:14 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N83AD

Detector: ALP119 1

Report Date: 17-Mar-08 09:06 PM

Acquire Date: 17-MAR-2008 16:55:09.50

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

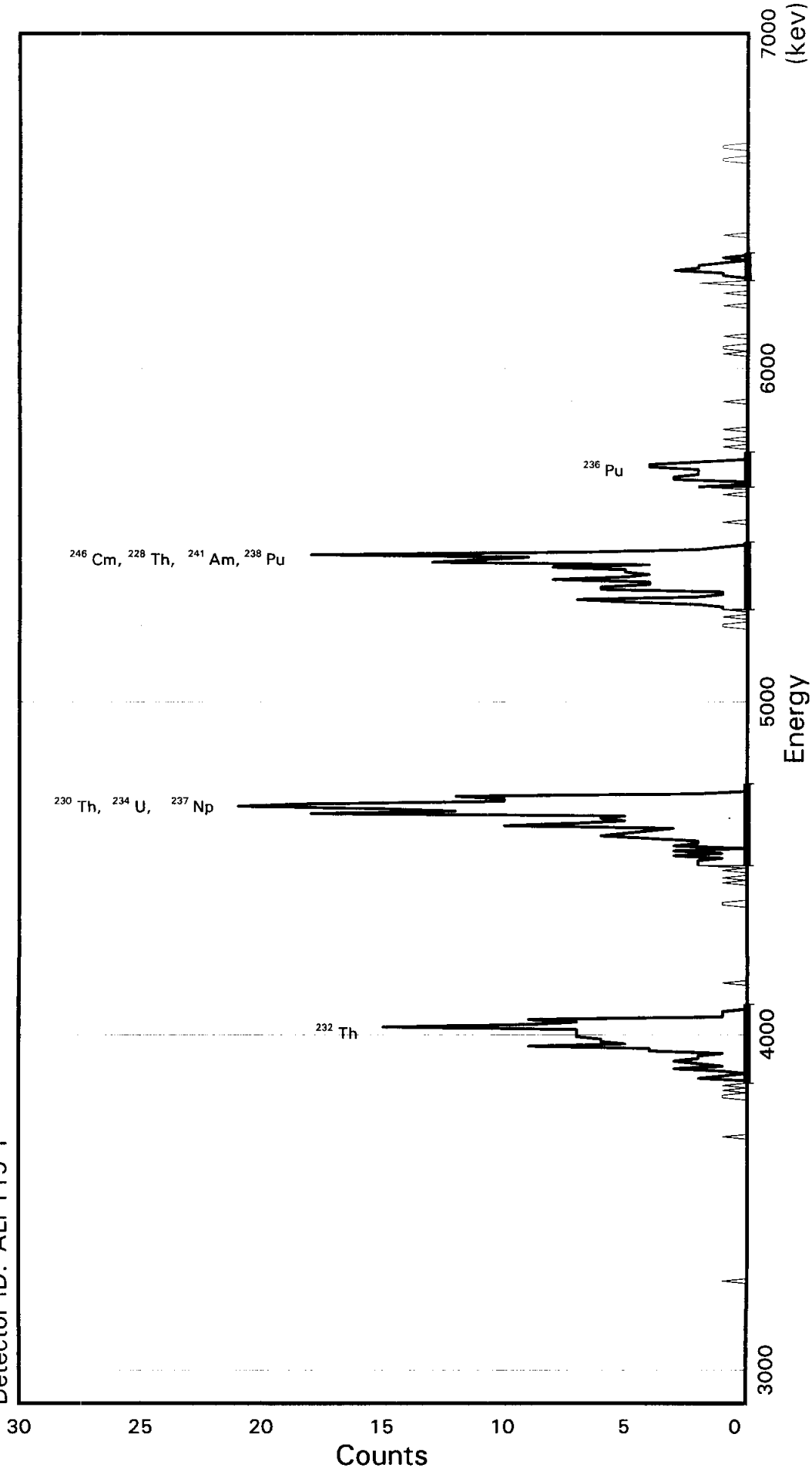
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	138	0	0.690	5423.2	179.7	328	352
TH-230	180	1	0.899	4687.7	177.9	230	254
TH-232	119	0	0.595	4013.0	176.3	138	162

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8065248

Sample ID: KF8N83AD
Detector ID: ALP119 1



Acquisition Start: 17-MAR-2008 16:55:09.50
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:02.00

Energy Coefficients:
Offset: 2.87864E + 03
Slope: 7.23334E + 00
Quadrature: 3.73649E-04

SAMPLE IDENTIITY: KF8N83AD

TITLE : TH BRCO

DETECTOR : ALP119 1
CONFIGURATION NAME : RDND06\$DKA100:[ALP119.SAMPLE]KF8N83AD_170381
655.CNF;1
ACQUIRE DATE of BACKGROUND: 13-MAR-2008 08:36:00

REPORT DATE : 17-Mar-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 17-MAR-2008 16:55:09 CALIB DATE : 12-MAR-2008 22:59:39

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:02

OFFSET : 2878.64 keV CONSTANT FWHM : 9.33333 Channels
SLOPE : 7.23334 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 3.736490E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

0 50 0 100 5 150 0 200 10 250 0 300 2 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 17-MAR-2008 20:15:14

```

Configuration      : RDND06$DKA100:[ALP119.SAMPLE]KF8N83AD_170381655.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 17-MAR-2008 16:55:09
Sample ID         : KF8N83AD Sample quantity : 0.00000E+00 GRAMS
Sample type       : disk Sample geometry :
Detector name     : ALP119 Detector geometry:
Elapsed live time: 0 03:20:02.00 Elapsed real time: 0 03:20:02.00 0.0%
Start energy      : 2900.35 kev End energy : 6680.06 kev
Sensitivity       : 3.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4005.39	125	0	94.03	154.54	134	32	1.04E-02	8.9	
2	0	4688.00	196	0	50.63	246.99	223	33	1.63E-02	7.1	
3	0	5427.56	142	0	50.63	346.19	326	27	1.18E-02	8.4	
4	0	5694.05	23	0	57.87	381.70	375	14	1.92E-03	20.9	
5	0	6292.62	11	0	43.40	461.00	457	11	9.17E-04	30.2	

Error Report (Date: 17-Mar-08 08:15 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N93AD

Detector: ALP120 1

Report Date: 17-Mar-08 09:08 PM

Acquire Date: 17-MAR-2008 16:55:19.14

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

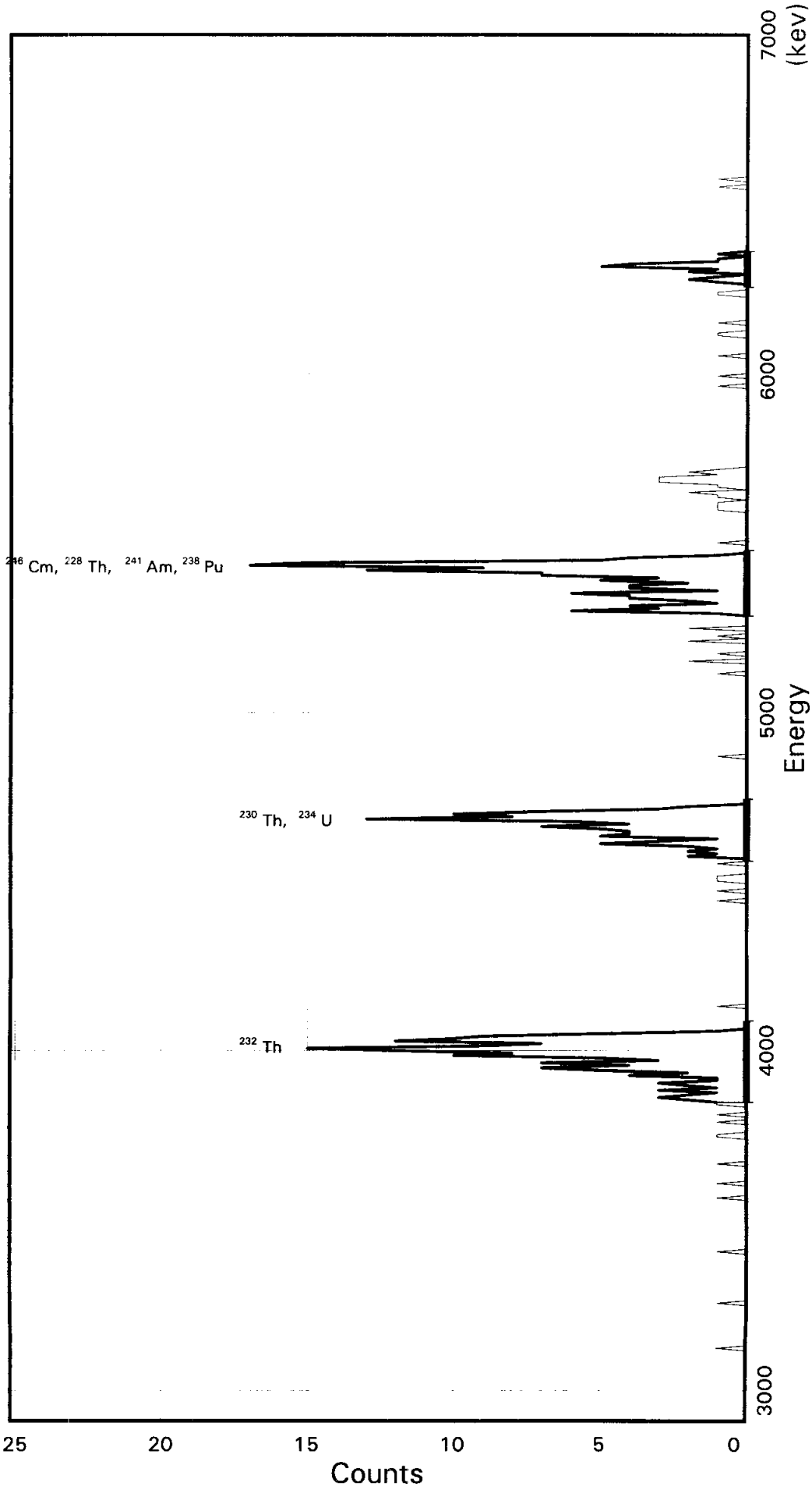
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	128	0	0.640	5423.2	178.4	330	354
TH-230	95	0	0.475	4687.7	169.1	232	255
TH-232	147	0	0.735	4013.0	189.1	137	163

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8N93AD
Detector ID: ALP120 1

Batch ID: 8065248



Acquisition Start: 17-MAR-2008 16:55:19.14
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:04.00

Energy Coefficients:
Offset: 2.88906E + 03
Slope: 7.14497E + 00
Quadrature: 4.22320E-04

SAMPLE IDENTIITY: KF8N93AD

TITLE : TH BRCO

DETECTOR : ALP120 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP120.SAMPLE]KF8N93AD_170381
655.CNF;1
ACQUIRE DATE of BACKGROUND: 14-MAR-2008 05:15:45

REPORT DATE : 17-Mar-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 17-MAR-2008 16:55:19 CALIB DATE : 14-MAR-2008 01:16:18

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:04

OFFSET : 2889.06 keV CONSTANT FWHM : 9.83333 Channels
SLOPE : 7.14497 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 4.223200E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 (Version: 1 Apr 07)

Sample Identity: KF8N93AD

Flags Key

Detector: ALP120 I

Report Date: 17 Mar 08 08:15 PM

Intersect Region: -

Acquire Date: 17 MAR 2008 16:55:19.14

Non Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
		1	1		51	0		101	5		151	0		201	7		251	0		301	5		351	0		401	0		451	1		501
		2	0		52	0		102	10		152	0		202	3		252	0		302	4		352	0		402	0		452	0		502
0		3	0		53	0		103	8		153	0		203	2		253	0		303	1		353	0		403	0		453	0		503
0		4	0		54	0		104	12		154	0		204	0		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	15		155	0		205	0		255	0		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	9		156	0		206	0		256	1		306	0		356	0		406	1		456	0		506
0		7	0		57	0		107	7		157	0		207	0		257	0		307	0		357	0		407	1		457	0		507
0		8	0		58	1		108	12		158	0		208	0		258	0		308	1		358	0		408	0		458	0		508
0		9	0		59	0		109	10		159	0		209	0		259	0		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	9		160	0		210	0		260	0		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	5		161	0		211	0		261	2		311	0		361	0		411	1		461	0		511
0		12	0		62	0		112	1		162	0		212	0		262	0		312	0		362	0		412	2		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	1		463			
0		14	0		64	0		114	0		164	0		214	0		264	1		314	0		364	0		414	0		464			
0		15	0		65	0		115	0		165	1		215	0		265	0		315	0		365	0		415	2		465			
0		16	0		66	0		116	0		166	0		216	0		266	0		316	0		366	0		416	1		466			
0		17	0		67	0		117	0		167	0		217	0		267	0		317	0		367	0		417	5		467			
0		18	0		68	0		118	0		168	0		218	0		268	0		318	0		368	0		418	4		468			
0		19	0		69	1		119	0		169	1		219	0		269	2		319	0		369	0		419	1		469			
0		20	0		70	1		120	0		170	0		220	0		270	0		320	0		370	1		420	1		470			
0		21	0		71	0		121	0		171	0		221	0		271	1		321	1		371	0		421	0		471			
0		22	1		72	0		122	1		172	0		222	0		272	0		322	1		372	0		422	1		472			
0		23	0		73	0		123	0		173	1		223	1		273	0		323	1		373	0		423	0		473			
0		24	0		74	0		124	0		174	1		224	0		274	2		324	1		374	1		424	0		474			
0		25	0		75	1		125	0		175	1		225	0		275	0		325	0		375	0		425	0		475			
0		26	0		76	0		126	0		176	0		226	0		276	0		326	1		376	0		426	0		476			
0		27	0		77	0		127	0		177	0		227	0		277	0		327	1		377	0		427	0		477			
0		28	0		78	1		128	0		178	0		228	0		278	0		328	2		378	0		428	0		478			
0		29	0		79	0		129	0		179	0		229	0		279	0		329	0		379	0		429	0		479			
0		30	0		80	0		130	0		180	1		230	0		280	1		330	1		380	0		430	0		480			
0		31	0		81	0		131	0		181	0		231	0		281	6		331	1		381	0		431	0		481			
0		32	0		82	1		132	0		182	0		232	0		282	3		332	3		382	1		432	0		482			
1		33	0		83	1		133	0		183	2		233	0		283	4		333	3		383	0		433	0		483			
0		34	0		84	2		134	0		184	1		234	0		284	1		334	3		384	0		434	0		484			
0		35	0		85	3		135	0		185	2		235	0		285	2		335	1		385	0		435	0		485			
0		36	0		86	2		136	0		186	1		236	0		286	4		336	2		386	0		436	0		486			
0		37	0		87	1		137	0		187	2		237	0		287	4		337	1		387	0		437	0		487			
0		38	0		88	3		138	0		188	5		238	0		288	6		338	0		388	0		438	0		488			
0		39	0		89	1		139	0		189	3		239	0		289	1		339	0		389	0		439	0		489			
0		40	0		90	2		140	0		190	1		240	0		290	4		340	0		390	1		440	0		490			
0		41	0		91	3		141	0		191	5		241	0		291	4		341	0		391	1		441	0		491			
0		42	0		92	1		142	0		192	4		242	0		292	2		342	0		392	0		442	0		492			
0		43	0		93	1		143	0		193	4		243	0		293	5		343	0		393	0		443	0		493			
0		44	1		94	4		144	0		194	5		244	0		294	3		344	0		394	0		444	0		494			
0		45	0		95	2		145	0		195	7		245	0		295	7		345	0		395	1		445	0		495			
0		46	0		96	5		146	0		196	4		246	0		296	7		346	0		396	0		446	0		496			
0		47	0		97	7		147	0		197	6		247	0		297	13		347	0		397	0		447	0		497			
0		48	0		98	4		148	0		198	13		248	0		298	9		348	0		398	0		448	1		498			
0		49	0		99	7		149	0		199	8		249	0		299	17		349	0		399	0		449	0		499			

0 50 1 100 3 150 0 200 10 250 0 300 15 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 17-MAR-2008 20:15:27

```

Configuration      : RDND06$DKA100:[ALP120.SAMPLE]KF8N93AD_170381655.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 17-MAR-2008 16:55:19
Sample ID         : KF8N93AD Sample quantity : 0.00000E+00 GRAMS
Sample type       : disk Sample geometry :
Detector name     : ALP120 Detector geometry:
Elapsed live time: 0 03:20:04.00 Elapsed real time: 0 03:20:04.00 0.0%
Start energy      : 2910.50 keV End energy : 6657.99 keV
Sensitivity       : 3.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4011.27	155	0	71.45	155.63	133	33	1.29E-02	8.0	
2	0	4683.08	95	0	64.30	247.47	231	25	7.91E-03	10.3	
3	0	5430.37	126	0	42.87	348.50	329	26	1.05E-02	8.9	
4	0	6321.63	19	0	42.87	467.50	459	14	1.58E-03	22.9	

Error Report (Date: 17-Mar-08 08:15 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

THORIUM ISOTOPIIC COUNTING REQUEST ²⁰¹⁴

C.R. Technician CP
 Date Counted 3/17/08
 C.R. Analyst CP
 Date Analyzed 3/17/08

Counting Time 200 Minutes
 Sample 200
 Operating: RICHRD008
 Background See Alpha Analysis Report
 Review: 1/28/08
12000
8065248

WorkOrder #	Th-229 (4845 KeV) Tracer			TOTAL COUNTS			Det #	Comment
	ID	Activity	ROI Cts	BKG	Th-228 (5423 KeV) (6)	Th-230 (4688 KeV) (8)		
KF8PD3AD		10		0	See Alpha Analysis Report for ROI Information		171	
KF8PE3AD		10		0	See Alpha Analysis Report for ROI Information		172	
KF8PG3AD		10		0	See Alpha Analysis Report for ROI Information		173	
KF8PG3AG		10		0	See Alpha Analysis Report for ROI Information		174	
KGHUL3AA		10		0	See Alpha Analysis Report for ROI Information		175	
KGHUL3AC		10		0	See Alpha Analysis Report for ROI Information		176	
		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:

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PD3AD

Detector: ALP171 1

Report Date: 17-Mar-08 09:12 PM

Acquire Date: 17-MAR-2008 16:57:33.18

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

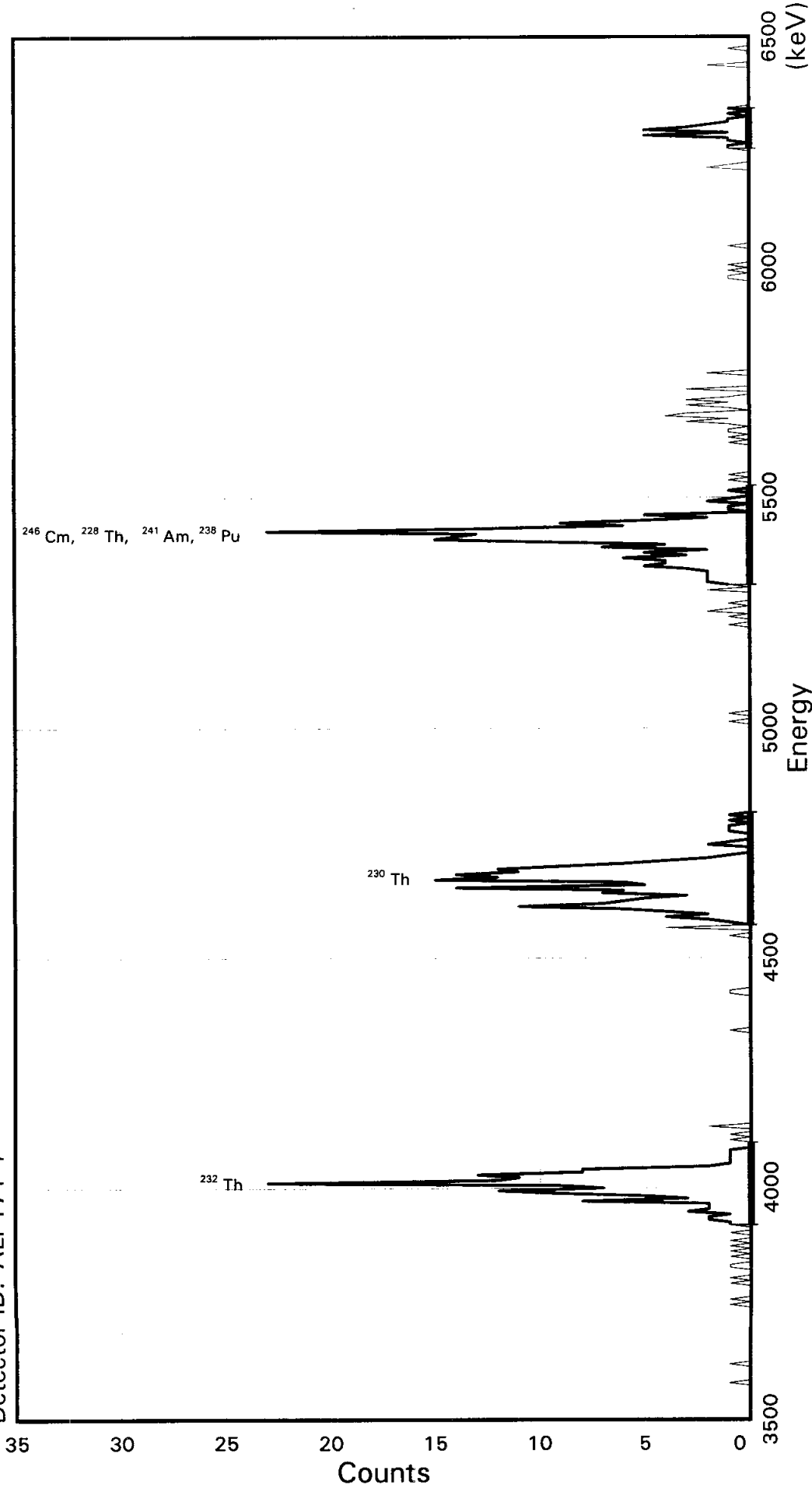
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl
TH-228	170	2	0.849	5423.2	163.1	312	340
TH-230	175	2	0.874	4687.7	150.8	186	212
TH-232	147	0	0.736	4013.0	132.8	73	96

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8PD3AD
Detector ID: ALP171 1

Batch ID: 8065248



Acquisition Start: 17-MAR-2008 16:57:33.18
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.50446E + 03
Slope: 5.75408E + 00
Quadrature: 1.10714E-04

SAMPLE IDENTIITY: KF8PD3AD

TITLE : TH BRCO

DETECTOR : ALP171 1
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8PD3AD_170381657A.CN
F;1

ACQUIRE DATE of BACKGROUND: 05-MAR-2008 07:46:05

REPORT DATE : 17-Mar-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 17-MAR-2008 16:57:33 CALIB DATE : 05-MAR-2008 00:41:20

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3504.46 keV CONSTANT FWHM : 9.16667 Channels
SLOPE : 5.75408 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 1.107140E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

1 50 1 100 0 150 5 200 0 250 1 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 17-MAR-2008 20:17:47

Configuration : \$DISK1:[ALP171.SAMPLE]KF8PD3AD_170381657A.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 17-MAR-2008 16:57:33
 Sample ID : KF8PD3AD Sample quantity : 0.00000E+00 GRAMS
 Sample type : disk Sample geometry :
 Detector name : ALP171 1 Detector geometry:
 Elapsed live time: 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
 Start energy : 3521.72 keV End energy : 6479.57 keV
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4010.78	155	0	57.54	87.85	72	31	1.29E-02	8.0	
2	0	4673.99	185	0	63.29	202.46	185	42	1.54E-02	7.4	
3	0	5419.63	177	0	46.03	330.73	312	37	1.48E-02	7.5	
4	0	6297.14	22	0	40.28	480.89	474	15	1.84E-03	21.3	

Error Report (Date: 17-Mar-08 08:17 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PE3AD

Detector: ALP171 2

Report Date: 17-Mar-08 09:21 PM

Acquire Date: 17-MAR-2008 16:57:33.18

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

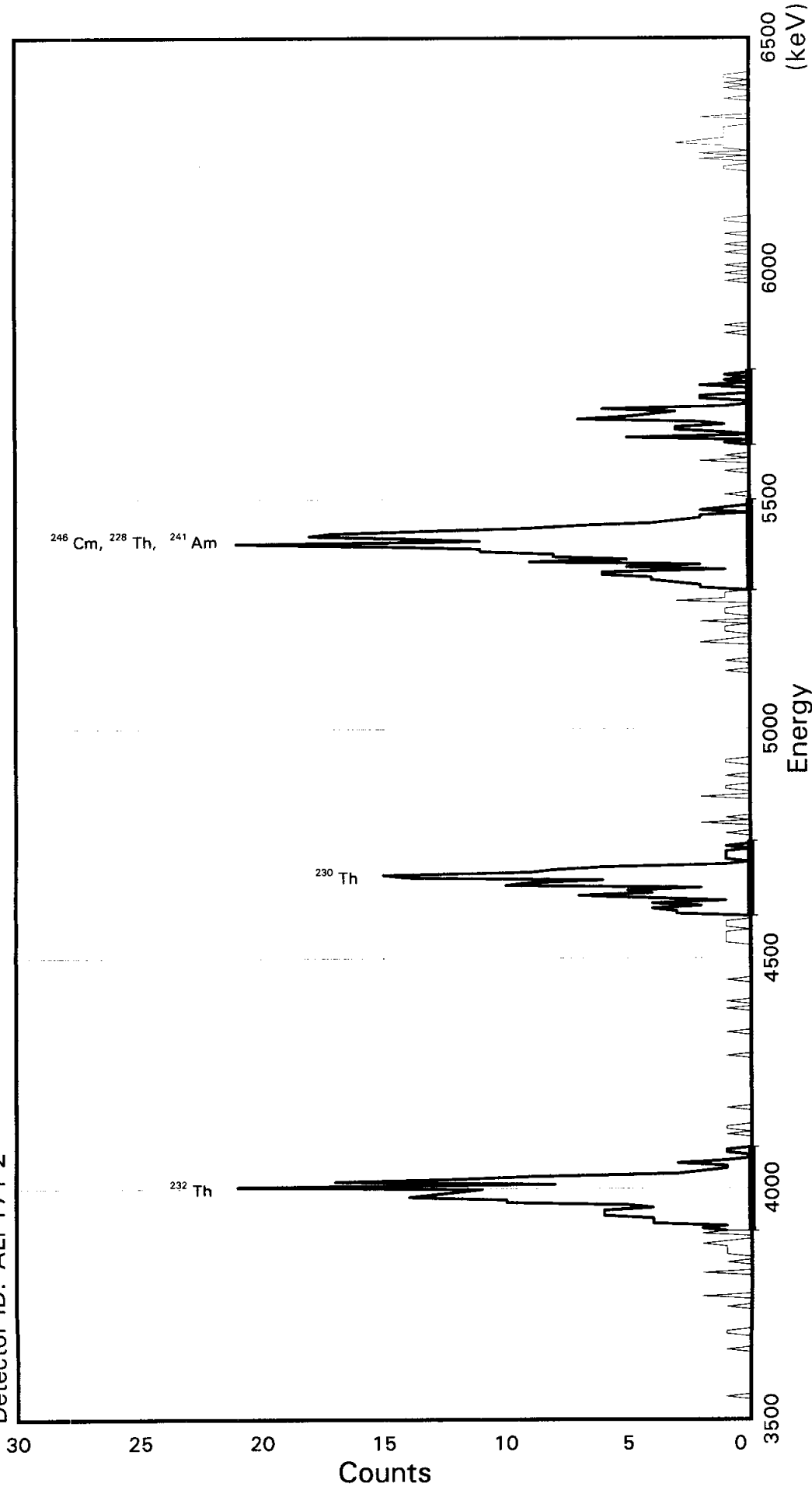
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl
TH-228	221	3	1.103	5423.2	152.7	315	342
TH-230	118	0	0.591	4687.7	124.6	188	210
TH-232	188	1	0.940	4013.0	141.8	66	91

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8PE3AD
Detector ID: ALP171 2

Batch ID: 8065248



Energy Coefficients:
Offset: 3.52713E+03
Slope: 5.67622E+00
Quadrature: -3.14390E-05

Acquisition Start: 17-MAR-2008 16:57:33.18
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

SAMPLE IDENTIITY: KF8PE3AD

TITLE : TH BRCO

DETECTOR : ALP171 2
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8PE3AD_170381657B.CN
F;1
ACQUIRE DATE of BACKGROUND: 05-MAR-2008 07:46:05

REPORT DATE : 17-Mar-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 17-MAR-2008 16:57:33 CALIB DATE : 05-MAR-2008 00:41:36

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3527.13 keV CONSTANT FWHM : 9.66667 Channels
SLOPE : 5.67622 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.314390E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

0 50 0 100 0 150 10 200 0 250 0 300 1 350 0 400 1 450 0 500

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF8PE3AD_170381657B.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 17-MAR-2008 16:57:33
Sample ID        : KF8PE3AD Sample quantity : 0.00000E+00 GRAMS
Sample type      : disk Sample geometry :
Detector name    : ALP171 1 Detector geometry:
Elapsed live time: 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
Start energy     : 3544.16 keV End energy : 6425.11 keV
Sensitivity      : 3.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3998.34	193	0	62.44	83.05	67	32	1.61E-02	7.2	
2	0	4678.94	121	0	39.73	203.15	188	29	1.01E-02	9.1	
3	0	5409.01	225	0	62.44	332.15	313	35	1.88E-02	6.7	
4	0	5679.76	51	0	39.73	380.04	369	29	4.25E-03	14.0	

Error Report (Date: 17-Mar-08 08:17 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PG3AD

Detector: ALP171 3
Report Date: 17-Mar-08 09:22 PM
Acquire Date: 17-MAR-2008 16:57:33.18
Tracer Nuclide: TH-229
Sample Live Time: 200 minutes
Bkgrnd Live Time: 999 minutes

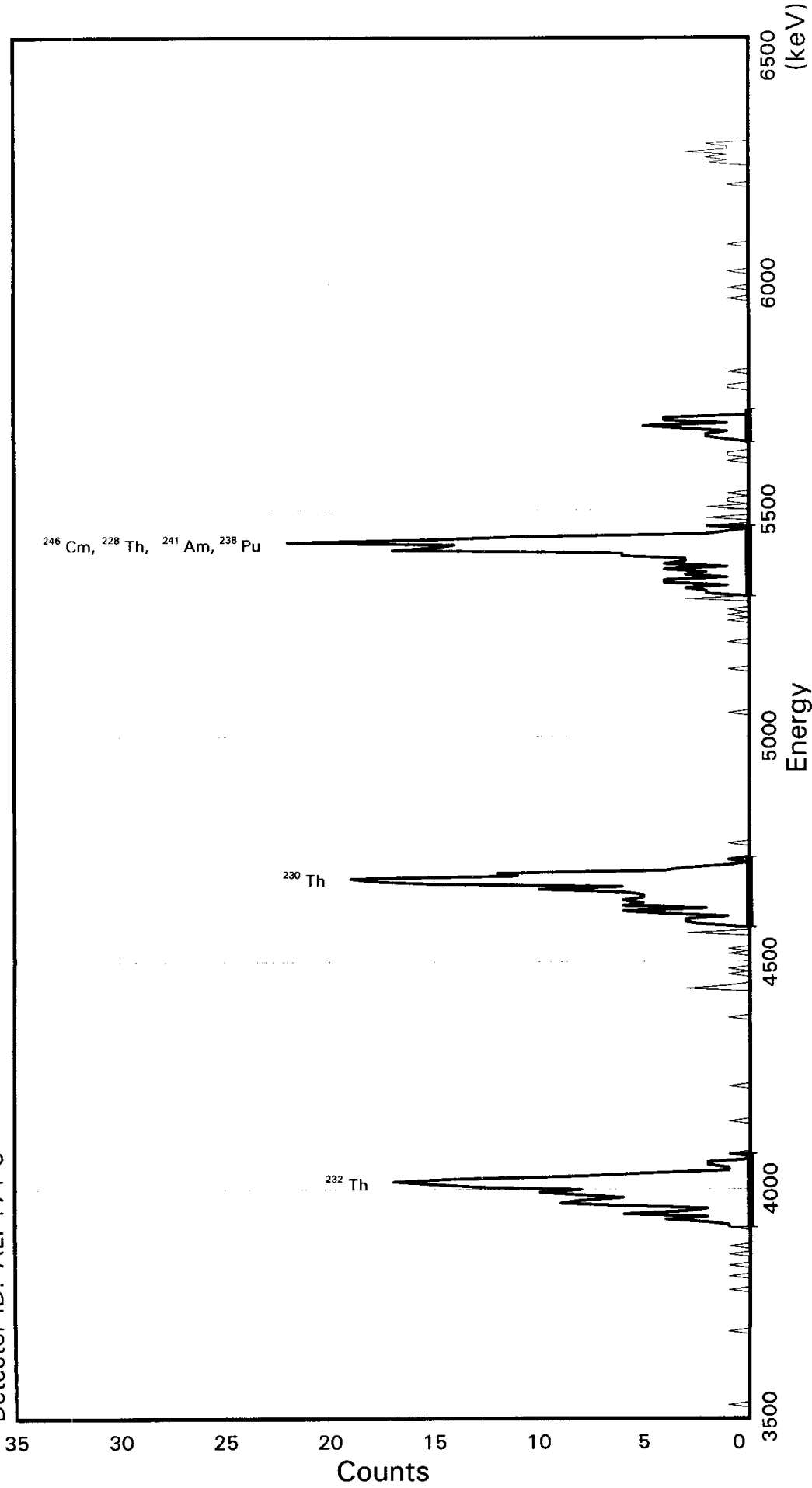
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Rght Chnl
TH-228	146	1	0.730	5423.2	143.5	308	332
TH-230	154	1	0.770	4687.7	143.5	185	209
TH-232	149	0	0.746	4013.0	131.5	72	94

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8PG3AD
Detector ID: ALP171 3

Batch ID: 8065248



Acquisition Start: 17-MAR-2008 16:57:33.18
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.47917E+03
Slope: 5.97909E+00
Quadrature: 1.256663E-06

SAMPLE IDENTIITY: KF8PG3AD

TITLE : TH BRCO

DETECTOR : ALP171 3

CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8PG3AD_170381657C.CN
F;1

ACQUIRE DATE of BACKGROUND: 05-MAR-2008 07:46:05

REPORT DATE : 17-Mar-08

SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 17-MAR-2008 16:57:33

CALIB DATE : 05-MAR-2008 00:41:53

PRESET LIVE TIME: 0 03:20:00

ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3479.17 keV

CONSTANT FWHM : 7.33333 Channels

SLOPE : 5.97909 keV/C

SENSITIVITY : 3.00000 Std Dev's

QUAD COEFF : 1.256630E-06 keV/C^2

SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
Version: 1 Apr-07

Sample ID: KF8PC3AD
Detector: ALP171.3

Flags Key

Report Date: 17 Mar 08 08:18 PM

Intersect Region: -

Acquire Date: 17 MAR 2008 16:57:33.18

Non Intersect Region: +

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
0	1	51	0	101	0	151	18	201	0	251	1	301	0	351	0	401	0	451	0	501						
0	2	52	0	102	0	152	19	202	0	252	0	302	0	352	0	402	0	452	0	502						
0	3	53	0	103	0	153	11	203	0	253	0	303	0	353	0	403	0	453	0	503						
0	4	54	0	104	0	154	12	204	0	254	0	304	0	354	0	404	0	454	0	504						
0	5	55	1	105	0	155	4	205	0	255	3	305	0	355	0	405	0	455	0	505						
0	6	56	0	106	0	156	3	206	0	256	0	306	1	356	0	406	0	456	0	506						
0	7	57	0	107	0	157	1	207	0	257	2	307	0	357	0	407	0	457	0	507						
1	8	58	0	108	0	158	0	208	0	258	2	308	1	358	0	408	1	458	0	508						
0	9	59	1	109	0	159	1	209	0	259	3	309	1	359	0	409	0	459	0	509						
0	10	60	0	110	0	160	0	210	0	260	1	310	0	360	0	410	0	460	0	510						
0	11	61	0	111	3	161	0	211	0	261	4	311	0	361	0	411	0	461	0	511						
0	12	62	1	112	1	162	0	212	0	262	4	312	0	362	0	412	0	462	0	512						
0	13	63	0	113	0	163	0	213	1	263	1	313	0	363	0	413	0	463								
0	14	64	0	114	0	164	0	214	0	264	3	314	1	364	0	414	0	464								
0	15	65	0	115	0	165	1	215	0	265	2	315	2	365	0	415	0	465								
0	16	66	1	116	1	166	0	216	0	266	4	316	2	366	1	416	2	466								
0	17	67	0	117	0	167	0	217	0	267	1	317	1	367	0	417	1	467								
0	18	68	0	118	1	168	0	218	0	268	4	318	3	368	0	418	2	468								
0	19	69	0	119	0	169	0	219	0	269	3	319	5	369	0	419	1	469								
0	20	70	0	120	0	170	0	220	0	270	3	320	1	370	1	420	3	470								
0	21	71	0	121	0	171	0	221	0	271	6	321	4	371	0	421	1	471								
0	22	72	0	122	0	172	0	222	0	272	6	322	4	372	0	422	1	472								
0	23	73	0	123	0	173	0	223	0	273	17	323	0	373	0	423	2	473								
0	24	74	0	124	1	174	0	224	0	274	15	324	0	374	0	424	0	474								
0	25	75	1	125	0	175	0	225	0	275	14	325	0	375	0	425	0	475								
0	26	76	0	126	1	176	0	226	0	276	22	326	0	376	1	426	0	476								
0	27	77	0	127	0	177	0	227	0	277	15	327	0	377	0	427	0	477								
0	28	78	0	128	0	178	0	228	0	278	11	328	0	378	0	428	0	478								
0	29	79	0	129	0	179	0	229	1	279	2	329	0	379	0	429	0	479								
0	30	80	0	130	0	180	0	230	0	280	1	330	0	380	0	430	0	480								
0	31	81	0	131	0	181	0	231	0	281	0	331	0	381	0	431	0	481								
0	32	82	0	132	3	182	0	232	0	282	2	332	0	382	0	432	0	482								
0	33	83	0	133	0	183	0	233	0	283	0	333	1	383	0	433	0	483								
0	34	84	0	134	0	184	0	234	0	284	0	334	1	384	0	434	0	484								
1	35	85	0	135	2	185	0	235	0	285	2	335	0	385	0	435	0	485								
0	36	86	0	136	3	186	0	236	0	286	0	336	0	386	1	436	0	486								
0	37	87	0	137	3	187	0	237	0	287	0	337	0	387	0	437	0	487								
0	38	88	0	138	1	188	0	238	0	288	0	338	0	388	0	438	0	488								
0	39	89	0	139	4	189	0	239	1	289	2	339	1	389	0	439	0	489								
0	40	90	0	140	6	190	0	240	0	290	0	340	0	390	0	440	0	490								
0	41	91	0	141	2	191	0	241	0	291	1	341	0	391	0	441	0	491								
0	42	92	0	142	6	192	0	242	0	292	1	342	0	392	0	442	0	492								
0	43	93	0	143	5	193	0	243	0	293	0	343	0	393	0	443	0	493								
0	44	94	0	144	6	194	0	244	0	294	1	344	0	394	0	444	0	494								
0	45	95	0	145	5	195	0	245	0	295	0	345	0	395	0	445	0	495								
0	46	96	0	146	5	196	0	246	0	296	0	346	0	396	0	446	0	496								
0	47	97	0	147	6	197	0	247	1	297	0	347	0	397	0	447	0	497								
0	48	98	0	148	10	198	0	248	0	298	0	348	0	398	0	448	0	498								
0	49	99	0	149	6	199	0	249	1	299	0	349	0	399	0	449	0	499								

1 50 1 100 1 150 15 200 0 250 0 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 17-MAR-2008 20:18:00

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF8PG3AD_170381657C.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 17-MAR-2008 16:57:33
Sample ID         : KF8PG3AD           Sample quantity  : 0.00000E+00 GRAMS
Sample type       : disk               Sample geometry   :
Detector name     : ALP171 1          Detector geometry :
Elapsed live time : 0 03:19:47.00     Elapsed real time: 0 03:19:47.00   0.0%
Start energy      : 3497.11 keV        End energy        : 6540.80 keV
Sensitivity       : 3.00               Sum Sensitivity   : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4012.17	154	0	41.85	89.14	73	27	1.28E-02	8.1	
2	0	4684.08	155	0	35.87	201.51	184	26	1.29E-02	8.0	
3	0	5422.99	149	0	41.85	325.08	306	26	1.24E-02	8.2	
4	0	5683.97	24	0	35.87	368.72	363	12	2.00E-03	20.4	

Error Report (Date: 17-Mar-08 08:18 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PG3AG

Detector: ALP171 4

Report Date: 17-Mar-08 09:28 PM

Acquire Date: 17-MAR-2008 16:57:33.18

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

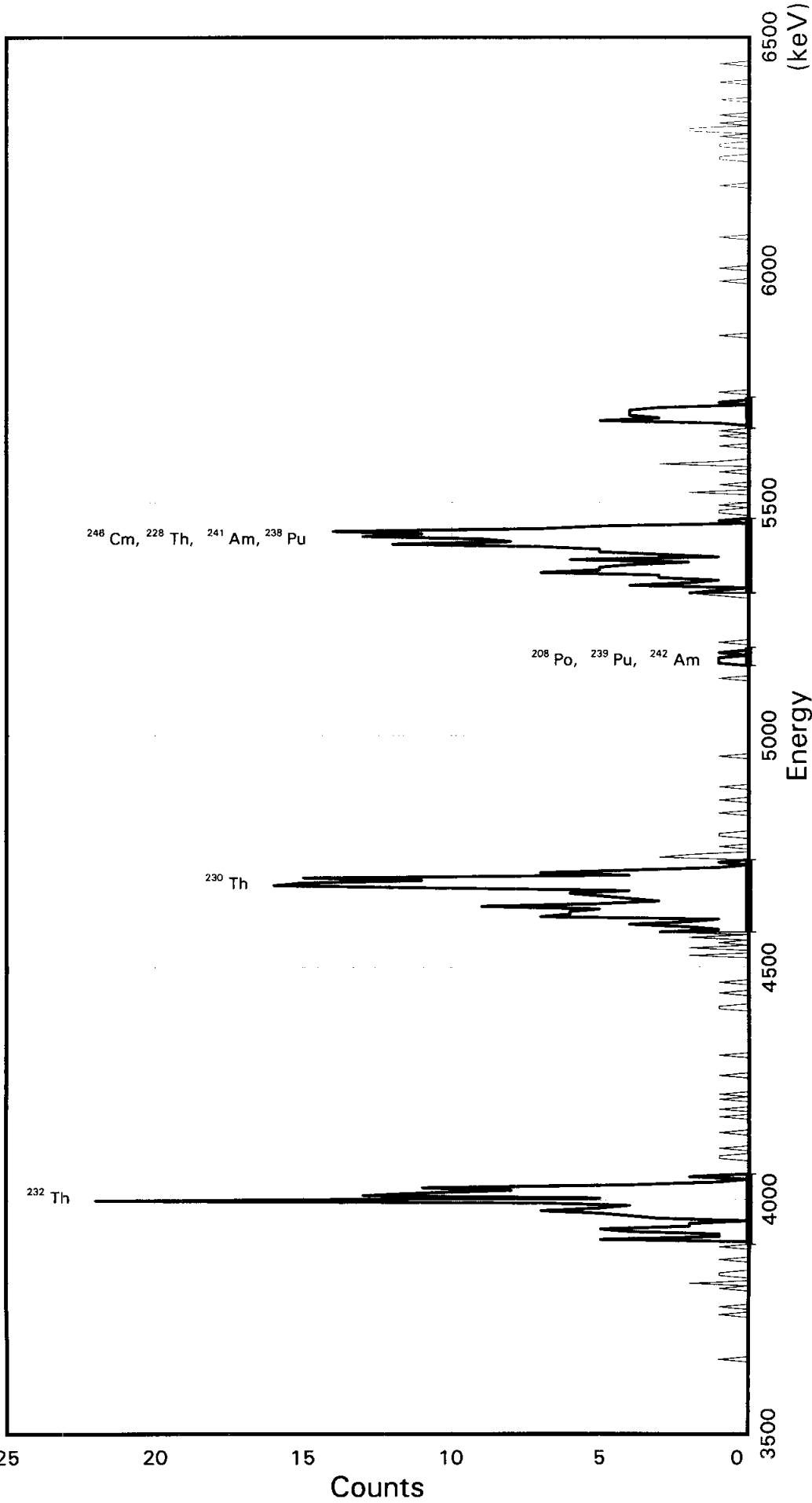
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Rght Chnl
TH-228	143	0	0.716	5423.2	144.3	307	333
TH-230	152	1	0.760	4687.7	127.9	176	199
TH-232	132	0	0.661	4013.0	144.7	54	80

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8PG3AG
Detector ID: ALP171 4

Batch ID: 8065248



Acquisition Start: 17-MAR-2008 16:57:33.18
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.60916E + 03
Slope: 5.57070E + 00
Quadrature: -3.02772E-05

SAMPLE IDENTIITY: KF8PG3AG

TITLE : TH BRCO

DETECTOR : ALP171 4

CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8PG3AG_170381657D.CN
F;1

ACQUIRE DATE of BACKGROUND: 05-MAR-2008 07:46:05

REPORT DATE : 17-Mar-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 17-MAR-2008 16:57:33 CALIB DATE : 05-MAR-2008 00:42:15

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3609.16 keV CONSTANT FWHM : 8.16667 Channels
SLOPE : 5.57070 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.302772E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1 Apr 07)

Sample Identity: KF8P33AG

Flags Key

Detector: ALP1V1.4

Report Date: 17 Mar 08 08:18 PM

Intersect Region: -

Acquire Date: 17 MAR 2008 16:57:33.18

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
0	1	0	51	0	101	0	151	1	201	0	251	0	301	0	351	0	401	0	451	0	501					
0	2	1	52	1	102	0	152	0	202	0	252	0	302	1	352	0	402	0	452	0	502					
0	3	0	53	0	103	0	153	3	203	0	253	0	303	0	353	0	403	0	453	1	503					
0	4	0	54	0	104	1	154	2	204	0	254	1	304	0	354	0	404	0	454	0	504					
0	5	5	55	1	105	0	155	0	205	0	255	2	305	3	355	1	405	0	455	0	505					
0	6	1	56	0	106	0	156	0	206	0	256	1	306	1	356	0	406	0	456	0	506					
0	7	1	57	0	107	0	157	1	207	0	257	0	307	0	357	0	407	0	457	0	507					
0	8	4	58	0	108	0	158	0	208	0	258	4	308	0	358	0	408	0	458	0	508					
1	9	5	59	1	109	0	159	0	209	0	259	2	309	0	359	0	409	0	459	0	509					
0	10	2	60	0	110	0	160	0	210	0	260	1	310	0	360	0	410	0	460	1	510					
0	11	2	61	1	111	0	161	1	211	0	261	3	311	0	361	0	411	0	461	0	511					
0	12	0	62	0	112	0	162	1	212	0	262	3	312	1	362	0	412	0	462	0	512					
0	13	3	63	0	113	0	163	0	213	0	263	7	313	0	363	0	413	1	463							
0	14	4	64	0	114	0	164	0	214	0	264	5	314	0	364	0	414	0	464							
0	15	5	65	0	115	2	165	0	215	0	265	5	315	0	365	0	415	0	465							
0	16	7	66	0	116	0	166	0	216	0	266	4	316	1	366	0	416	0	466							
0	17	5	67	0	117	0	167	0	217	0	267	2	317	0	367	0	417	0	467							
0	18	4	68	1	118	2	168	0	218	0	268	6	318	1	368	0	418	0	468							
0	19	7	69	0	119	0	169	0	219	0	269	1	319	0	369	0	419	0	469							
0	20	22	70	0	120	1	170	1	220	0	270	3	320	0	370	0	420	0	470							
0	21	5	71	0	121	0	171	0	221	0	271	5	321	1	371	0	421	0	471							
0	22	13	72	0	122	2	172	0	222	1	272	5	322	5	372	0	422	0	472							
0	23	11	73	0	123	0	173	0	223	0	273	7	323	3	373	0	423	1	473							
0	24	8	74	0	124	3	174	0	224	0	274	12	324	4	374	0	424	1	474							
0	25	11	75	0	125	1	175	1	225	0	275	8	325	4	375	0	425	0	475							
1	26	4	76	1	126	2	176	0	226	0	276	9	326	4	376	1	426	0	476							
0	27	1	77	0	127	4	177	0	227	0	277	13	327	3	377	0	427	0	477							
0	28	0	78	0	128	2	178	0	228	1	278	11	328	0	378	0	428	1	478							
1	29	2	79	0	129	1	179	0	229	1	279	14	329	1	379	0	429	1	479							
0	30	0	80	0	130	7	180	1	230	1	280	7	330	0	380	0	430	0	480							
0	31	0	81	0	131	6	181	0	231	0	281	5	331	0	381	1	431	0	481							
0	32	0	82	0	132	6	182	0	232	1	282	0	332	0	382	0	432	1	482							
0	33	0	83	0	133	5	183	0	233	0	283	1	333	1	383	0	433	0	483							
0	34	0	84	0	134	9	184	0	234	0	284	0	334	0	384	0	434	2	484							
0	35	0	85	0	135	5	185	0	235	0	285	0	335	0	385	0	435	2	485							
1	36	1	86	0	136	3	186	0	236	1	286	1	336	0	386	0	436	0	486							
0	37	1	87	0	137	4	187	0	237	0	287	1	337	0	387	0	437	1	487							
2	38	0	88	0	138	5	188	0	238	0	288	0	338	0	388	0	438	0	488							
0	39	0	89	0	139	6	189	0	239	0	289	1	339	0	389	0	439	0	489							
0	40	1	90	0	140	4	190	0	240	0	290	0	340	0	390	0	440	1	490							
1	41	0	91	0	141	10	191	0	241	0	291	0	341	0	391	0	441	0	491							
1	42	0	92	0	142	16	192	1	242	0	292	0	342	0	392	0	442	0	492							
0	43	0	93	0	143	15	193	0	243	0	293	0	343	0	393	1	443	0	493							
0	44	0	94	1	144	11	194	0	244	0	294	2	344	0	394	0	444	0	494							
0	45	0	95	1	145	15	195	0	245	0	295	0	345	0	395	0	445	0	495							
0	46	1	96	0	146	4	196	0	246	0	296	0	346	0	396	0	446	1	496							
1	47	0	97	0	147	7	197	0	247	0	297	1	347	0	397	0	447	0	497							
0	48	0	98	0	148	4	198	0	248	0	298	0	348	0	398	0	448	0	498							
0	49	0	99	0	149	1	199	0	249	0	299	0	349	0	399	0	449	0	499							

0 50 0 100 1 150 0 200 0 250 0 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 17-MAR-2008 20:18:04

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF8PG3AG_170381657D.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 17-MAR-2008 16:57:33
Sample ID         : KF8PG3AG Sample quantity : 0.00000E+00 GRAMS
Sample type       : disk Sample geometry :
Detector name     : ALP171 1 Detector geometry:
Elapsed live time : 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
Start energy      : 3625.87 keV End energy : 6453.42 keV
Sensitivity       : 3.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4007.28	133	0	44.57	71.49	53	27	1.11E-02	8.7	
2	0	4683.18	159	0	27.85	193.00	174	28	1.33E-02	7.9	
3	0	5163.81	4	0	22.28	279.50	277	7	3.34E-04	50.0	
4	0	5423.73	145	0	50.14	326.31	305	29	1.21E-02	8.3	
5	0	5687.31	25	0	33.42	373.81	369	12	2.09E-03	20.0	

Error Report (Date: 17-Mar-08 08:18 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KGH0L3AA

Detector: ALP171 5

Report Date: 17-Mar-08 09:31 PM

Acquire Date: 17-MAR-2008 16:57:33.18

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

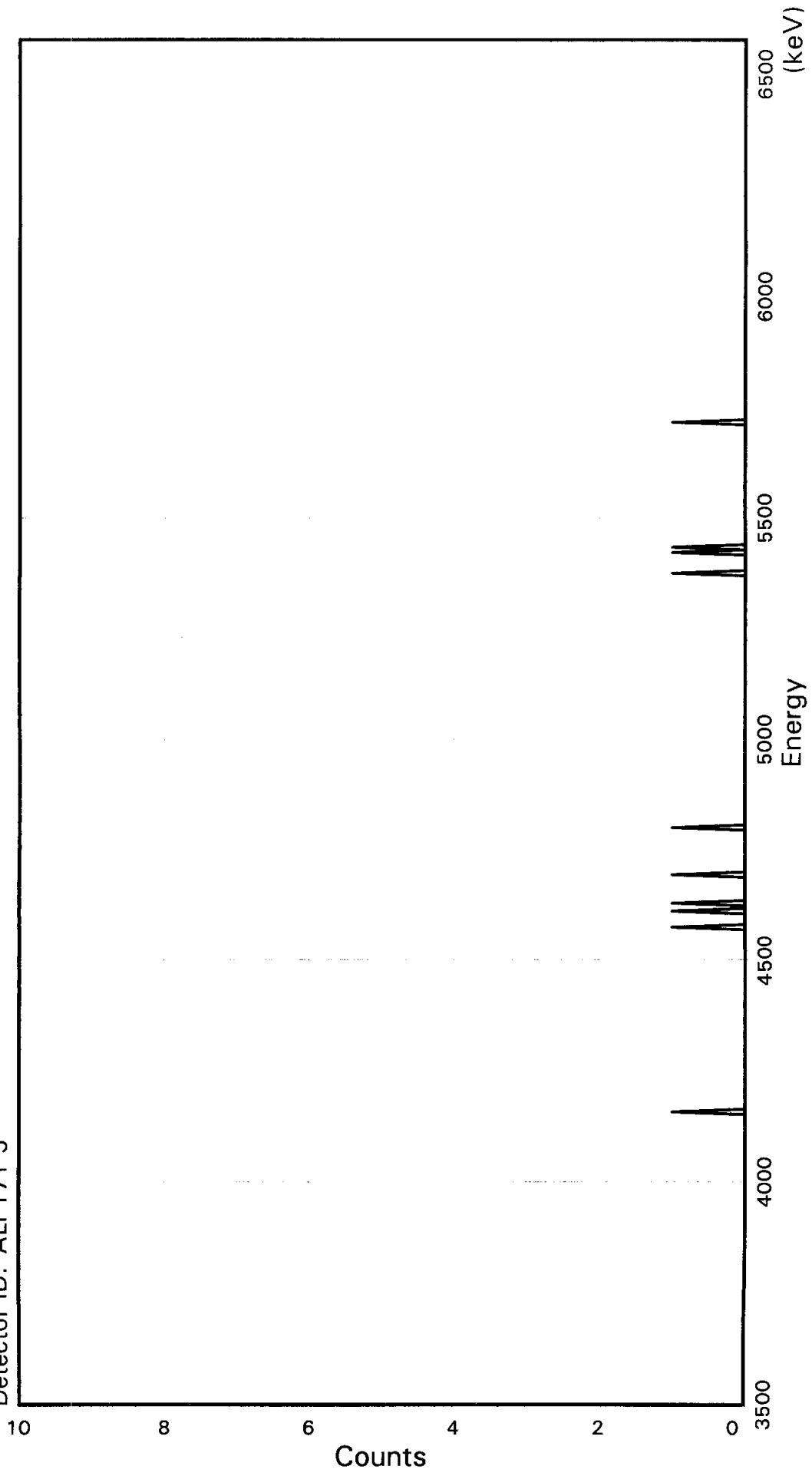
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl
TH-228	3	0	0.015	5423.2	118.0	301	321
TH-230	3	0	0.015	4687.7	118.1	177	197
TH-232	0	0	0.000	4013.0	118.2	62	82

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8065248

Sample ID: KGHOL3AA
Detector ID: ALP171 5



Acquisition Start: 17-MAR-2008 16:57:33.18
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.55525E + 03
Slope: 5.91059E + 00
Quadrature: -1.64900E-05

SAMPLE IDENTIITY: KGH0L3AA

TITLE : TH BRCO

DETECTOR : ALP171 5
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE] KGH0L3AA_170381657E.CN
F;1
ACQUIRE DATE of BACKGROUND: 05-MAR-2008 07:46:05

REPORT DATE : 17-Mar-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 17-MAR-2008 16:57:33 CALIB DATE : 05-MAR-2008 00:42:22

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3555.25 keV CONSTANT FWHM : 7.16667 Channels
SLOPE : 5.91059 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.164900E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
Version: 1 Apr 07

Sample Identity: KGH0L3AA

Flags Key

Detector: ALP171 5

Report Date: 17 Mar 08 08:18 PM

Intersect Region: +

Acquire Date: 17 MAR 2008 16:57:33.18

Non Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
0	1	0	51	0	101	0	151	0	201	0	251	0	301	0	351	0	401	0	451	0	501	0	551	0	601	
0	2	0	52	1	102	0	152	0	202	0	252	0	302	0	352	0	402	0	452	0	502	0	552	0	602	
0	3	0	53	0	103	0	153	0	203	0	253	0	303	0	353	0	403	0	453	0	503	0	553	0	603	
0	4	0	54	0	104	0	154	0	204	0	254	0	304	0	354	0	404	0	454	0	504	0	554	0	604	
0	5	0	55	0	105	0	155	0	205	0	255	0	305	0	355	0	405	0	455	0	505	0	555	0	605	
0	6	0	56	0	106	0	156	0	206	0	256	0	306	0	356	0	406	0	456	0	506	0	556	0	606	
0	7	0	57	0	107	0	157	0	207	0	257	0	307	0	357	0	407	0	457	0	507	0	557	0	607	
0	8	0	58	0	108	0	158	0	208	0	258	1	308	0	358	0	408	0	458	0	508	0	558	0	608	
0	9	0	59	0	109	0	159	0	209	0	259	0	309	0	359	0	409	0	459	0	509	0	559	0	609	
0	10	0	60	0	110	0	160	0	210	0	260	0	310	0	360	0	410	0	460	0	510	0	560	0	610	
0	11	0	61	0	111	0	161	1	211	0	261	0	311	0	361	0	411	0	461	0	511	0	561	0	611	
0	12	0	62	0	112	0	162	0	212	0	262	0	312	0	362	0	412	0	462	0	512	0	562	0	612	
0	13	0	63	0	113	0	163	0	213	0	263	0	313	0	363	0	413	0	463	0	513	0	563	0	613	
0	14	0	64	0	114	0	164	0	214	0	264	0	314	0	364	0	414	0	464	0	514	0	564	0	614	
0	15	0	65	0	115	0	165	0	215	0	265	0	315	0	365	0	415	0	465	0	515	0	565	0	615	
0	16	0	66	0	116	0	166	0	216	0	266	1	316	1	366	0	416	0	466	0	516	0	566	0	616	
0	17	0	67	0	117	0	167	0	217	0	267	0	317	0	367	0	417	0	467	0	517	0	567	0	617	
0	18	0	68	0	118	0	168	0	218	0	268	1	318	0	368	0	418	0	468	0	518	0	568	0	618	
0	19	0	69	0	119	0	169	0	219	0	269	0	319	0	369	0	419	0	469	0	519	0	569	0	619	
0	20	0	70	0	120	0	170	0	220	0	270	0	320	0	370	0	420	0	470	0	520	0	570	0	620	
0	21	0	71	0	121	0	171	0	221	0	271	0	321	0	371	0	421	0	471	0	521	0	571	0	621	
0	22	0	72	0	122	0	172	0	222	0	272	0	322	0	372	0	422	0	472	0	522	0	572	0	622	
0	23	0	73	0	123	1	173	0	223	0	273	0	323	0	373	0	423	0	473	0	523	0	573	0	623	
0	24	0	74	0	124	0	174	0	224	0	274	0	324	0	374	0	424	0	474	0	524	0	574	0	624	
0	25	0	75	0	125	0	175	0	225	0	275	0	325	0	375	0	425	0	475	0	525	0	575	0	625	
0	26	0	76	0	126	0	176	0	226	0	276	0	326	0	376	0	426	0	476	0	526	0	576	0	626	
0	27	0	77	0	127	0	177	0	227	0	277	0	327	0	377	0	427	0	477	0	527	0	577	0	627	
0	28	0	78	0	128	0	178	0	228	0	278	0	328	0	378	0	428	0	478	0	528	0	578	0	628	
0	29	0	79	0	129	1	179	0	229	0	279	0	329	0	379	0	429	0	479	0	529	0	579	0	629	
0	30	0	80	0	130	0	180	0	230	0	280	0	330	0	380	0	430	0	480	0	530	0	580	0	630	
0	31	0	81	0	131	0	181	0	231	0	281	0	331	0	381	0	431	0	481	0	531	0	581	0	631	
0	32	0	82	0	132	1	182	0	232	0	282	0	332	0	382	0	432	0	482	0	532	0	582	0	632	
0	33	0	83	0	133	0	183	0	233	0	283	0	333	0	383	0	433	0	483	0	533	0	583	0	633	
0	34	0	84	0	134	0	184	0	234	0	284	0	334	0	384	0	434	0	484	0	534	0	584	0	634	
0	35	0	85	0	135	0	185	0	235	0	285	0	335	0	385	0	435	0	485	0	535	0	585	0	635	
0	36	0	86	0	136	0	186	0	236	0	286	0	336	0	386	0	436	0	486	0	536	0	586	0	636	
0	37	0	87	0	137	0	187	0	237	0	287	0	337	0	387	0	437	0	487	0	537	0	587	0	637	
0	38	0	88	0	138	0	188	0	238	0	288	0	338	0	388	0	438	0	488	0	538	0	588	0	638	
0	39	0	89	0	139	0	189	0	239	0	289	0	339	0	389	0	439	0	489	0	539	0	589	0	639	
0	40	0	90	0	140	0	190	0	240	0	290	0	340	0	390	0	440	0	490	0	540	0	590	0	640	
0	41	0	91	0	141	0	191	0	241	0	291	0	341	0	391	0	441	0	491	0	541	0	591	0	641	
0	42	0	92	0	142	0	192	0	242	0	292	0	342	0	392	0	442	0	492	0	542	0	592	0	642	
0	43	0	93	0	143	1	193	0	243	0	293	0	343	0	393	0	443	0	493	0	543	0	593	0	643	
0	44	0	94	0	144	0	194	0	244	0	294	0	344	0	394	0	444	0	494	0	544	0	594	0	644	
0	45	0	95	0	145	0	195	0	245	0	295	0	345	0	395	0	445	0	495	0	545	0	595	0	645	
0	46	0	96	0	146	0	196	0	246	0	296	0	346	0	396	0	446	0	496	0	546	0	596	0	646	
0	47	0	97	0	147	0	197	0	247	0	297	0	347	0	397	0	447	0	497	0	547	0	597	0	647	
0	48	0	98	0	148	0	198	0	248	0	298	0	348	0	398	0	448	0	498	0	548	0	598	0	648	
0	49	0	99	0	149	0	199	0	249	0	299	0	349	0	399	0	449	0	499	0	549	0	599	0	649	

0 50 100 150 200 250 300 350 400 450 500

VMS Peak Search Report V1.9 Generated 17-MAR-2008 20:18:08

Configuration : \$DISK1:[ALP171.SAMPLE] KGH0L3AA_170381657E.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRCO
Sample date : 28-JAN-2008 12:00:00 Acquisition date : 17-MAR-2008 16:57:33
Sample ID : KGH0L3AA Sample quantity : 0.00000E+00 GRAMS
Sample type : disk Sample geometry :
Detector name : ALP171 1 Detector geometry:
Elapsed live time: 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
Start energy : 3572.98 keV End energy : 6577.15 keV
Sensitivity : 3.00 Sum Sensitivity : 1.00
No peaks were found

Error Report (Date: 17-Mar-08 08:18 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KGH0L3AC

Detector: ALP171 6
Report Date: 17-Mar-08 09:32 PM
Acquire Date: 17-MAR-2008 16:57:33.18
Tracer Nuclide: TH-229
Sample Live Time: 200 minutes
Bkgrnd Live Time: 999 minutes

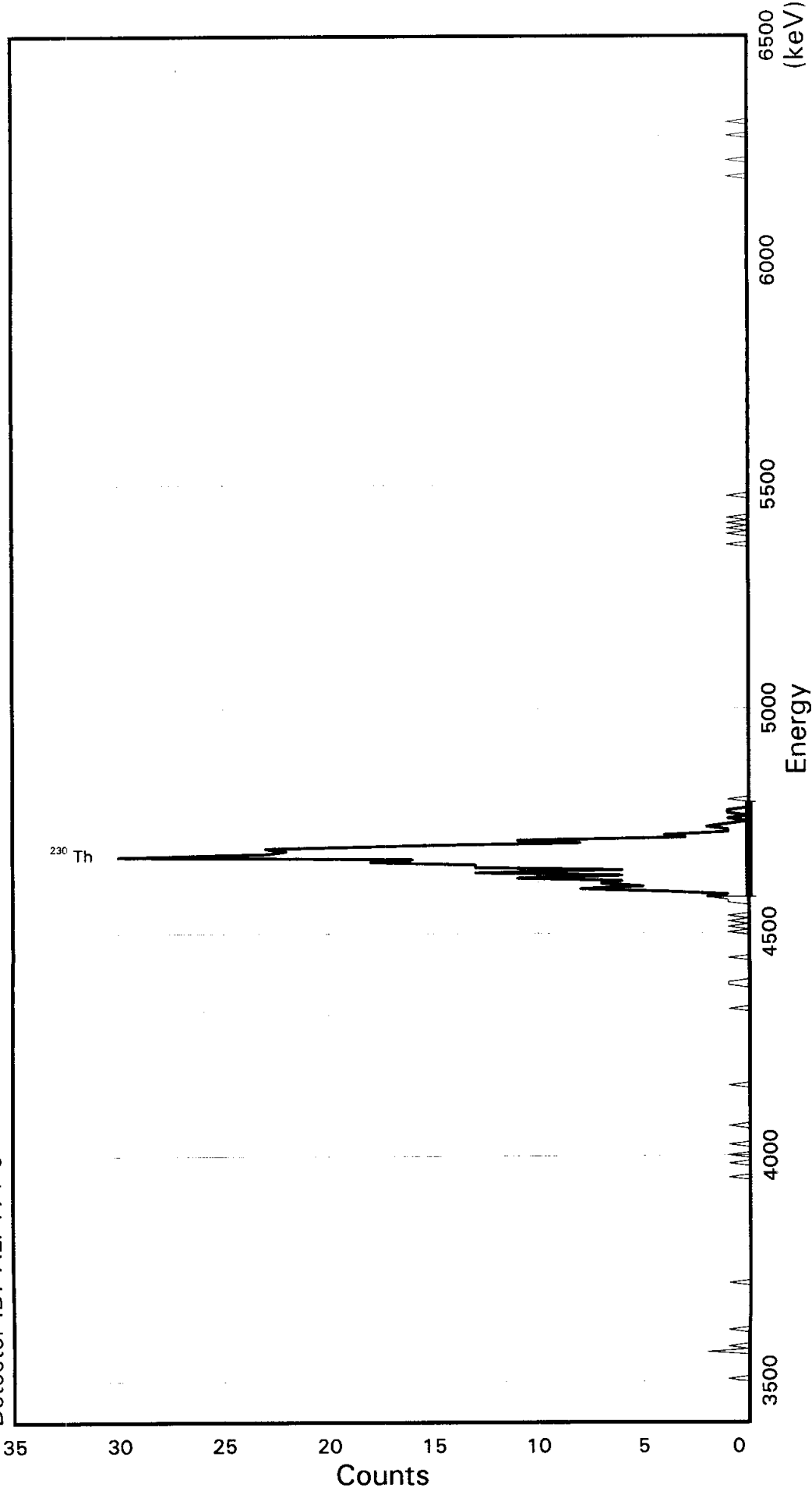
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	5	1	0.024	5423.2	120.8	321	341
TH-230	271	0	1.356	4687.7	145.0	197	221
TH-232	4	1	0.019	4013.0	120.8	88	108

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8065248

Sample ID: KGHOL3AC
Detector ID: ALP171 6



Energy Coefficients:
Offset: 3.39046E + 03
Slope: 6.04009E + 00
Quadrature: 3.21039E-06

Acquisition Start: 17-MAR-2008 16:57:33.18
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

SAMPLE IDENTIITY: KGH0L3AC

TITLE : TH BRCO

DETECTOR : ALP171 6
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE] KGH0L3AC_170381657F.CN
F;1

ACQUIRE DATE of BACKGROUND: 05-MAR-2008 07:46:05

REPORT DATE : 17-Mar-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 17-MAR-2008 16:57:33 CALIB DATE : 05-MAR-2008 00:42:38

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3390.46 keV CONSTANT FWHM : 8.16667 Channels
SLOPE : 6.04009 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 3.210390E-06 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 (Version: 1-Apr-07)

Sample Identity: RGH013AC

Detector: ALP171-6

Report Date: 17 Mar 08 08:18 PM

Acquire Date: 17 MAR 2008 16:57:35.18

Flags Key

Intersect Region: -

Non-Intersect Region: +

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn												
0		1	0		51	1		101	0		151	5		201	0		251	0		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	7		202	0		252	0		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	6		203	0		253	0		303	0		353	0		403	0		453	0		503
0		4	1		54	0		104	0		154	11		204	0		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	1		105	1		155	6		205	0		255	0		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	13		206	0		256	0		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	6		207	0		257	0		307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	0		158	13		208	0		258	0		308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	0		159	13		209	0		259	0		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	0		160	18		210	0		260	0		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	16		211	0		261	0		311	0		361	0		411	0		461	0		511
0		12	0		62	1		112	0		162	30		212	0		262	0		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	23		213	0		263	0		313	0		363	0		413	1		463			
0		14	0		64	0		114	1		164	22		214	0		264	0		314	0		364	0		414	0		464			
0		15	0		65	0		115	1		165	23		215	0		265	0		315	0		365	0		415	0		465			
0		16	0		66	0		116	0		166	17		216	0		266	0		316	0		366	0		416	0		466			
0		17	0		67	0		117	0		167	8		217	0		267	0		317	0		367	0		417	0		467			
0		18	0		68	0		118	0		168	11		218	0		268	0		318	0		368	0		418	0		468			
1		19	0		69	0		119	0		169	3		219	0		269	0		319	0		369	0		419	1		469			
0		20	0		70	0		120	0		170	4		220	0		270	0		320	0		370	0		420	0		470			
0		21	0		71	0		121	0		171	1		221	0		271	0		321	0		371	0		421	0		471			
0		22	0		72	0		122	0		172	1		222	0		272	0		322	0		372	0		422	0		472			
0		23	0		73	0		123	0		173	2		223	0		273	0		323	0		373	0		423	0		473			
0		24	0		74	0		124	1		174	1		224	0		274	0		324	0		374	0		424	0		474			
0		25	0		75	0		125	0		175	0		225	0		275	0		325	0		375	0		425	0		475			
0		26	0		76	0		126	0		176	1		226	0		276	0		326	0		376	0		426	0		476			
0		27	0		77	1		127	0		177	0		227	0		277	1		327	0		377	0		427	0		477			
0		28	0		78	0		128	0		178	1		228	0		278	0		328	0		378	0		428	1		478			
2		29	0		79	0		129	0		179	1		229	0		279	0		329	0		379	0		429	0		479			
0		30	0		80	0		130	0		180	0		230	0		280	0		330	0		380	0		430	0		480			
1		31	0		81	0		131	0		181	0		231	0		281	1		331	0		381	0		431	0		481			
0		32	0		82	0		132	0		182	0		232	0		282	0		332	0		382	0		432	0		482			
0		33	0		83	0		133	0		183	1		233	0		283	1		333	0		383	0		433	1		483			
0		34	0		84	0		134	1		184	0		234	0		284	0		334	0		384	0		434	0		484			
0		35	0		85	0		135	0		185	0		235	0		285	1		335	0		385	0		435	0		485			
0		36	0		86	0		136	1		186	0		236	0		286	0		336	0		386	0		436	0		486			
1		37	0		87	0		137	0		187	0		237	0		287	1		337	0		387	0		437	0		487			
0		38	0		88	0		138	1		188	0		238	0		288	0		338	0		388	0		438	0		488			
0		39	0		89	0		139	0		189	0		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	1		190	0		240	0		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	0		241	0		291	0		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	0		242	0		292	0		342	0		392	0		442	0		492			
0		43	1		93	0		143	0		193	0		243	0		293	0		343	0		393	0		443	0		493			
0		44	0		94	0		144	0		194	0		244	0		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	1		195	0		245	0		295	1		345	0		395	0		445	0		495			
0		46	0		96	0		146	1		196	0		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	2		197	0		247	0		297	0		347	0		397	0		447	0		497			
0		48	1		98	0		148	1		198	0		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	4		199	0		249	0		299	0		349	0		399	0		449	0		499			

0 50 0 100 0 150 8 200 0 250 0 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 17-MAR-2008 20:18:11

Configuration : \$DISK1:[ALP171.SAMPLE]KGH0L3AC_170381657F.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRCO
Sample date : 28-JAN-2008 12:00:00 Acquisition date : 17-MAR-2008 16:57:33
Sample ID : KGH0L3AC Sample quantity : 0.00000E+00 GRAMS
Sample type : disk Sample geometry :
Detector name : ALP171 1 Detector geometry:
Elapsed live time: 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
Start energy : 3408.58 keV End energy : 6483.83 keV
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4676.94	279	0	42.28	212.97	197	35	2.33E-02	6.0	

Error Report (Date: 17-Mar-08 08:18 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

2/21/2008 1:32:15 PM

Sample Preparation/Analysis

Balance Id:14 A

1418995, Landwell Company
Landwell Company

D2 Th PrpRC5013/5032, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Pipet #:

AnalyteDueDate: 02/25/2008

Sep1 DT/Tm Tech:

Batch: 8035234

PM, Quote: JAE, 78254

Sep2 DT/Tm Tech:

SEO Batch, Test: None All Tests: 8035233 KWSR, 8035234 D2S1, 8035236 AXT9, 8035239 7YSR, 8035240 9NS1, 8035242 BUTE, 8035244
BUTF, 8042383 D9TE, 8042385 D9TF.

Prep Tech: ,Barcotl

Work Order, Lot, Sample Date/Time	Total Amt/v/Unit	Initial Aliquot Amt/v/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 KF8NX-1-AD		1.02g.in	THTC12237							
F8A290183-1-SAMP		02/06/08.pd	11/29/07							
01/28/2008 07:00		Amt/Rec: 500SL	#Containers: 1							
2 KF8N4-1-AD		1.03g.in	THTC12238							
F8A290183-2-SAMP		02/06/08.pd	11/29/07							
01/28/2008 07:15		Amt/Rec: 500SL	#Containers: 1							
3 KF8N5-1-AD		1.00g.in	THTC12239							
F8A290183-3-SAMP		02/06/08.pd	11/29/07							
01/28/2008 07:55		Amt/Rec: 500SL	#Containers: 1							
4 KF8N6-1-AD		1.00g.in	THTC12240							
F8A290183-4-SAMP		02/06/08.pd	11/29/07							
01/28/2008 07:55		Amt/Rec: 500SL	#Containers: 1							
5 KF8N8-1-AD		1.03g.in	THTC12241							
F8A290183-5-SAMP		02/06/08.pd	11/29/07							
01/28/2008 08:11		Amt/Rec: 500SL	#Containers: 1							
6 KF8N9-1-AD		1.00g.in	THTC12242							
F8A290183-6-SAMP		02/06/08.pd	11/29/07							
01/28/2008 08:30		Amt/Rec: 500SL	#Containers: 1							
7 KF8PD-1-AD		1.01g.in	THTC12243							
F8A290183-7-SAMP		02/06/08.pd	11/29/07							
01/28/2008 08:40		Amt/Rec: 500SL	#Containers: 1							

200

2/21/2008 1:32:16 PM

Sample Preparation/Analysis

Balance Id: 14 A

1418995, Landwell Company
Landwell Company

D2 Th PrpRC5013/5032, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Pipet #:

Analyte Due Date: 02/25/2008

Sep1 DT/Tm Tech:

Batch: 8035234

PM, Quote: JAE, 78254

Sep2 DT/Tm Tech:

SEO Batch, Test: None

pCi/g

Prep Tech: Barcotti

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
8 KF8PE-1-AD F8A290183-8-SAMP 01/28/2008 09:00		1.00g.in	THTC12244 02/06/08.pd 11/29/07			200				
9 KF8PG-1-AD F8A290183-9-SAMP 01/28/2008 09:15		1.02g.in	THTC12245 02/06/08.pd 11/29/07							
10 KF8PG-1-AG-X F8A290183-9-DUP 01/28/2008 09:15		1.01g.in	THTC12246 02/06/08.pd 11/29/07							
11 KGH0L-1-AA-B J8B040000-234-BLK 01/28/2008 07:00		1.00g.in	THTC12247 02/06/08.pd 11/29/07							
12 KGH0L-1-AC-C J8B040000-234-LCS 01/28/2008 07:00		1.03g.in	THS1151 02/06/08.pd 11/29/07							

Comments:

All Clients for Batch:
1418995, Landwell Company

Landwell Company, JAE, 78254

KF8NX1AD-SAMP Constituent List:

TAL Richland
Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2
pd - Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

Page 2

ISV - Insufficient Volume for Analysis

WO Cnt: 12

Prep SamplePrep v4.8.32

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC	Trc	Yld	LCS	Yld
Thlso by ALP																
Richland Standard Alplso Wo Blk Subt. *CntU: 0+1, + *SystU, `MDCConst:2.71																
Calc	S1	SOLID	KF8NX1AD	TH-228	2.89E+00	(2.87E-01)		pCi/g	R	2.17E-02	7.15E-02			85%		
Calc	S1	SOLID	KF8NX1AD	TH-230	1.20E+00	(1.45E-01)		pCi/g	R	1.49E-02	5.72E-02			85%		
Calc	S1	SOLID	KF8NX1AD	TH-232	2.43E+00	(2.48E-01)		pCi/g	R	1.49E-02	5.72E-02			85%		
Calc	S1	SOLID	KF8N41AD	TH-228	1.72E+00	(2.24E-01)		pCi/g	R	3.79E-02	1.25E-01			49%		
Calc	S1	SOLID	KF8N41AD	TH-230	3.04E+00	(3.36E-01)		pCi/g	R	2.61E-02	1.00E-01			49%		
Calc	S1	SOLID	KF8N41AD	TH-232	1.98E+00	(2.45E-01)		pCi/g	R	1.84E-02	8.49E-02			49%		
Calc	S1	SOLID	KF8N51AD	TH-228	1.97E+00	(2.64E-01)		pCi/g	R	2.36E-02	1.09E-01			55%		
Calc	S1	SOLID	KF8N51AD	TH-230	1.63E+00	(2.30E-01)		pCi/g	R	2.30E-02	1.06E-01			55%		
Calc	S1	SOLID	KF8N51AD	TH-232	2.08E+00	(2.70E-01)		pCi/g	R	2.30E-02	1.06E-01			55%		
Calc	S1	SOLID	KF8N61AD	TH-228	1.92E+00	(2.20E-01)		pCi/g	R	1.39E-02	6.39E-02			92%		
Calc	S1	SOLID	KF8N61AD	TH-230	7.50E-01	(1.15E-01)		pCi/g	R	1.35E-02	6.21E-02			92%		
Calc	S1	SOLID	KF8N61AD	TH-232	1.71E+00	(2.01E-01)		pCi/g	R	1.35E-02	6.21E-02			92%		
Calc	S1	SOLID	KF8N81AD	TH-228	1.38E+00	(1.80E-01)		pCi/g	R	2.17E-02	8.33E-02			81%		
Calc	S1	SOLID	KF8N81AD	TH-230	2.38E+00	(2.63E-01)		pCi/g	R	1.49E-02	6.86E-02			81%		
Calc	S1	SOLID	KF8N81AD	TH-232	1.53E+00	(1.91E-01)		pCi/g	R	1.49E-02	6.86E-02			81%		
Calc	S1	SOLID	KF8N91AD	TH-228	1.29E+00	(1.65E-01)		pCi/g	R	1.37E-02	6.31E-02			83%		
Calc	S1	SOLID	KF8N91AD	TH-230	5.23E-01	(9.19E-02)		pCi/g	R	1.33E-02	6.14E-02			83%		
Calc	S1	SOLID	KF8N91AD	TH-232	1.17E+00	(1.53E-01)		pCi/g	R	1.33E-02	6.14E-02			83%		
Calc	S1	SOLID	KF8PD1AD	TH-228	2.13E+00	(2.47E-01)		pCi/g	R	1.57E-02	7.21E-02			55%		
Calc	S1	SOLID	KF8PD1AD	TH-230	2.22E+00	(2.52E-01)		pCi/g	R	1.52E-02	7.01E-02			55%		
Calc	S1	SOLID	KF8PD1AD	TH-232	2.17E+00	(2.48E-01)		pCi/g	R	1.52E-02	7.01E-02			55%		
Calc	S1	SOLID	KF8PE1AD	TH-228	2.22E+00	(2.69E-01)		pCi/g	R	2.71E-02	1.04E-01			44%		
Calc	S1	SOLID	KF8PE1AD	TH-230	1.32E+00	(1.87E-01)		pCi/g	R	1.86E-02	8.57E-02			44%		
Calc	S1	SOLID	KF8PE1AD	TH-232	2.18E+00	(2.64E-01)		pCi/g	R	1.86E-02	8.57E-02			44%		
Calc	S1	SOLID	KF8PG1AD	TH-228	1.68E+00	(2.26E-01)		pCi/g	R	2.92E-02	1.12E-01			52%		
Calc	S1	SOLID	KF8PG1AD	TH-230	2.14E+00	(2.65E-01)		pCi/g	R	2.01E-02	9.24E-02			52%		
Calc	S1	SOLID	KF8PG1AD	TH-232	1.50E+00	(2.08E-01)		pCi/g	R	2.01E-02	9.24E-02			52%		
Calc	S1	SOLID	KF8PG1AG	TH-228	1.05E+00	(1.35E-01)		pCi/g	R	1.57E-02	6.04E-02	R		59%		
Calc	S1	SOLID	KF8PG1AG	TH-230	1.27E+00	(1.52E-01)		pCi/g	R	1.08E-02	4.98E-02	R		59%		
Calc	S1	SOLID	KF8PG1AG	TH-232	7.69E-01	(1.08E-01)		pCi/g	R	1.08E-02	4.98E-02	R		59%		
Calc	S1	SOLID	KGH0L1AA	TH-228	5.37E-02	(2.21E-02)		pCi/g	R	1.20E-02	4.60E-02	B		80%		
Calc	S1	SOLID	KGH0L1AA	TH-230	1.50E-01	(3.65E-02)		pCi/g	R	8.24E-03	3.79E-02	B		80%		
Calc	S1	SOLID	KGH0L1AA	TH-232	7.92E-02	(2.59E-02)		pCi/g	R	8.24E-03	3.79E-02	B		80%		
Calc	S1	SOLID	KGH0L1AC	TH-228	1.61E-01	(5.80E-02)		pCi/g	R	2.76E-02	1.06E-01	S		54%	7%	
Calc	S1	SOLID	KGH0L1AC	TH-230	2.44E+00	(2.87E-01)		pCi/g	R	1.90E-02	8.74E-02	S		54%	111%	

() - (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

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC	Trc	Yld	LCS	Yld
Calc	S1	SOLID	KGH0L1AC	TH-232	1.46E-01	(5.30E-02)		pCi/g	R	1.90E-02	8.74E-02	S		54%		7%
Calc	S1	SOLID	KF8NX2AD	TH-228	2.67E+00	(2.75E-01)		pCi/g	R	2.82E-02	8.92E-02			86%		
Calc	S1	SOLID	KF8NX2AD	TH-230	1.48E+00	(1.76E-01)		pCi/g	R	1.22E-02	5.64E-02			86%		
Calc	S1	SOLID	KF8NX2AD	TH-232	2.30E+00	(2.43E-01)		pCi/g	R	1.22E-02	5.64E-02			86%		
Calc	S1	SOLID	KF8N42AD	TH-228	1.74E+00	(1.99E-01)		pCi/g	R	1.26E-02	5.78E-02			52%		
Calc	S1	SOLID	KF8N42AD	TH-230	2.14E+00	(2.31E-01)		pCi/g	R	1.22E-02	5.62E-02			52%		
Calc	S1	SOLID	KF8N42AD	TH-232	1.61E+00	(1.86E-01)		pCi/g	R	1.22E-02	5.62E-02			52%		
Calc	S1	SOLID	KF8N52AD	TH-228	2.03E+00	(2.22E-01)		pCi/g	R	2.15E-02	7.51E-02			55%		
Calc	S1	SOLID	KF8N52AD	TH-230	1.41E+00	(1.69E-01)		pCi/g	R	1.20E-02	5.54E-02			55%		
Calc	S1	SOLID	KF8N52AD	TH-232	2.25E+00	(2.39E-01)		pCi/g	R	1.20E-02	5.54E-02			55%		
Calc	S1	SOLID	KF8N62AD	TH-228	1.93E+00	(2.13E-01)		pCi/g	R	1.73E-02	6.63E-02			89%		
Calc	S1	SOLID	KF8N62AD	TH-230	9.22E-01	(1.25E-01)		pCi/g	R	1.19E-02	5.46E-02			89%		
Calc	S1	SOLID	KF8N62AD	TH-232	1.56E+00	(1.80E-01)		pCi/g	R	1.19E-02	5.46E-02			89%		
Calc	S1	SOLID	KF8N82AD	TH-228	1.18E+00	(1.57E-01)		pCi/g	R	3.15E-02	9.95E-02			78%		
Calc	S1	SOLID	KF8N82AD	TH-230	9.59E-01	(1.35E-01)		pCi/g	R	1.37E-02	6.29E-02			78%		
Calc	S1	SOLID	KF8N82AD	TH-232	1.12E+00	(1.49E-01)		pCi/g	R	1.37E-02	6.29E-02			78%		
Calc	S1	SOLID	KF8N92AD	TH-228	1.00E+00	(1.30E-01)		pCi/g	R	1.93E-02	6.76E-02			84%		
Calc	S1	SOLID	KF8N92AD	TH-230	1.51E+00	(1.72E-01)		pCi/g	R	1.53E-02	5.88E-02			84%		
Calc	S1	SOLID	KF8N92AD	TH-232	1.01E+00	(1.29E-01)		pCi/g	R	1.08E-02	4.99E-02			84%		
Calc	S1	SOLID	KF8PD2AD	TH-228	2.21E+00	(2.62E-01)		pCi/g	R	3.62E-02	1.20E-01			53%		
Calc	S1	SOLID	KF8PD2AD	TH-230	1.32E+00	(1.81E-01)		pCi/g	R	1.76E-02	8.10E-02			53%		
Calc	S1	SOLID	KF8PD2AD	TH-232	2.06E+00	(2.47E-01)		pCi/g	R	1.76E-02	8.10E-02			53%		
Calc	S1	SOLID	KF8PE2AD	TH-228	3.06E+00	(3.87E-01)		pCi/g	R	3.12E-02	1.44E-01			42%		
Calc	S1	SOLID	KF8PE2AD	TH-230	4.43E+00	(5.00E-01)		pCi/g	R	3.04E-02	1.40E-01			42%		
Calc	S1	SOLID	KF8PE2AD	TH-232	3.21E+00	(3.96E-01)		pCi/g	R	3.04E-02	1.40E-01			42%		
Calc	S1	SOLID	KF8PG2AD	TH-228	1.58E+00	(2.27E-01)		pCi/g	R	2.38E-02	1.10E-01			52%		
Calc	S1	SOLID	KF8PG2AD	TH-230	1.82E+00	(2.47E-01)		pCi/g	R	2.32E-02	1.07E-01			52%		
Calc	S1	SOLID	KF8PG2AD	TH-232	1.73E+00	(2.39E-01)		pCi/g	R	2.32E-02	1.07E-01			52%		
Calc	S1	SOLID	KF8PG2AG	TH-228	1.86E+00	(2.42E-01)		pCi/g	R	2.95E-02	1.13E-01	R		60%		
Calc	S1	SOLID	KF8PG2AG	TH-230	1.99E+00	(2.51E-01)		pCi/g	R	2.03E-02	9.33E-02	R		60%		
Calc	S1	SOLID	KF8PG2AG	TH-232	1.70E+00	(2.25E-01)		pCi/g	R	2.03E-02	9.33E-02	R		60%		
Calc	S1	SOLID	KGH0L2AA	TH-228	1.30E-01	(4.45E-02)		pCi/g	R	1.50E-02	6.90E-02	B		76%		
Calc	S1	SOLID	KGH0L2AA	TH-230	1.93E-01	(5.45E-02)		pCi/g	R	1.46E-02	6.70E-02	B		76%		
Calc	S1	SOLID	KGH0L2AA	TH-232	5.60E-02	(2.85E-02)		pCi/g	R	1.46E-02	6.70E-02	B		76%		
Calc	S1	SOLID	KGH0L2AC	TH-228	1.50E-01	(5.00E-02)		pCi/g	R	1.59E-02	7.34E-02	S		53%		7%
Calc	S1	SOLID	KGH0L2AC	TH-230	2.65E+00	(2.87E-01)		pCi/g	R	1.55E-02	7.13E-02	S		53%		121%

() - (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

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC Trc	Yld	LCS	Yld
Calc	S1	SOLID	KGH0L2AC	TH-232	1.79E-01	(5.35E-02)		pCi/g	R	1.55E-02	7.13E-02	S	53%		8%

Th 228 - 0.8439
 Th 230 - 0.4828
 Th 232 - 0.09139

OK

UNFA

2/27/08

(t) - (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 Significant
 Date/Time - mm/dd/yy hh:mm, 24hr Time

2/26/2008 9:11:06 AM

418995, Landwell Company
Landwell Company

Sample Preparation/Analysis

D2 Th PrpRC5013/5032, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Balance Id: I4 A
Pipet #:

Analyte Due Date: 02/25/2008

Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:

PM, Quote: JAE, 78254

pCi/g

Batch: 8035234

SEQ Batch, Test: None

Prep Tech: ,Barcott

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 KF8NX-1-AD		1.02g.in	THTC12237							
F8A290183-1-SAMP			02/06/08.pd							
01/28/2008 07:00			1129.07							
F8A290183-1-SAMP		1.02	THTC							
01/28/2008 07:00			12237							
3 KF8N4-1-AD		1.03g.in	THTC12238							
F8A290183-2-SAMP			02/06/08.pd							
01/28/2008 07:15			1129.07							
F8A290183-2-SAMP		1.03g	THTC							
01/28/2008 07:15			12238							
5 KF8N5-1-AD		1.00g.in	THTC12239							
F8A290183-3-SAMP			02/06/08.pd							
01/28/2008 07:55			1129.07							
F8A290183-3-SAMP		1.00g	THTC							
01/28/2008 07:55			12239							
7 KF8N6-1-AD		1.00g.in	THTC12240							
F8A290183-4-SAMP			02/06/08.pd							
01/28/2008 07:55			1129.07							

2/26/2008 9:11:06 AM
 1418995, Landwell Company
 Landwell Company
Sample Preparation/Analysis
 D2 Th PrpRC5013/5032, SepRC5084(5003)
 S1 Thorium-228,230,232 by Alpha Spec
 01 STANDARD TEST SET
 Balance Id:
 Pipet #:
 Sep1 DT/Tm Tech:
 Sep2 DT/Tm Tech:
 Prep Tech:

Batch: 8035234
 SEQ Batch, Test: None
 PM, Quote: JAE, 78254
 pCi/g
 AnalytDueDate: 02/25/2008

Work Order, Lot, Sample Date Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
F8A290183-4-SAMP 01/28/2008 07:55		1.003	THTC 12240							Beta
9 KF8N8-1-AD		1.03g.in	THTC12241							Beta
F8A290183-5-SAMP 01/28/2008 08:11			02:06:08.pd 11:29:07							Beta
F8A290183-5-SAMP 01/28/2008 08:11		1.033	THTC 12241							Beta
11 KF8N9-1-AD		1.00g.in	THTC12242							Beta
F8A290183-6-SAMP 01/28/2008 08:30			02:06:08.pd 11:29:07							Beta
F8A290183-6-SAMP 01/28/2008 08:30		1.003	THTC 12242							Beta
13 KF8PD-1-AD		1.01g.in	THTC12243							Beta
F8A290183-7-SAMP 01/28/2008 08:40			02:06:08.pd 11:29:07							Beta
F8A290183-7-SAMP 01/28/2008 08:40		1.015	THTC 12243							Beta

Sample Preparation/Analysis

Balance Id: 14 A

D2 Th PipRC5013/5032, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 02/25/2008

Sep1 DT/Tm Tech:

Batch: 8035234

pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: , Barcotl

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
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22 KGH0L-1-AC-C 1.03g.in THS11151
 J8B040000-234-LCS 02/06/08,pd
 01/28/2008 07:00 11/20/07
 AmtRec: 1 #Containers: 1

J8B040000-234-BLK
 01/28/2008 07:00
 AmtRec: 1 #Containers: 1
 THTC
 12207

J8B040000-234-LCS
 01/28/2008 07:00
 AmtRec: 1 #Containers: 1
 THTF
 1151

Comments:

Beta: Beta: Beta: Beta: Beta: Beta:
 Alpha: Alpha: Alpha: Alpha: Alpha: Alpha:
 Scr: Scr: Scr: Scr: Scr: Scr:

All Clients for Batch: 1418995, Landwell Company
 Landwell Company, JAE, 78254

KF8NX1AD-SAMP Constituent List:

Constituent	RDL	UCL	UCL	RPD	RPD	Th-230	Th-232	Th-234	Th-230	Th-232	Th-234	UCL	UCL	RPD	RPD	UCL	UCL	RPD	RPD	
KGH0L1AA-BLK:																				
TH-228	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	230	232	234	230	232	234	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
KGH0L1AC-LCS:																				
TH-230	0.1	70	130	35	35															
KGH0L2AA-BLK:																				
KGH0L2AC-LCS:																				
KF8NX1AD-SAMP Calc Info:																				

2/26/2008 9:11:06 AM

Sample Preparation/Analysis

Balance Id:14 A

1418995, Landwell Company
Landwell Company

D2 Th PrpRC5013/5032, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Pipet #:

AnalyteDueDate: 02/25/2008

Sep1 DT/Tm Tech:

Batch: 8035234

PM, Quote: JAE, 78254

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

pCi/g

Prep Tech: ,Barcottl

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
15 KF8PE-1-AD		1.00g.in	THTC12244							
F8A290183-8-SAMP		02:06:08.pd								
01/28/2008 09:00		11:29:07								
		AmtRec: 500SL								
		#Containers: 1								
F8A290183-8-SAMP		100S	THTC							
01/28/2008 09:00		12244								
		AmtRec: 500SL								
		#Containers: 1								
17 KF8PG-1-AD		1.02g.in	THTC12245							
F8A290183-9-SAMP		02:06:08.pd								
01/28/2008 09:15		11:29:07								
		AmtRec: 2X500SL								
		#Containers: 2								
F8A290183-9-DUP		1.01g.in	THTC12246							
01/28/2008 09:15		02:06:08.pd								
		11:29:07								
		AmtRec: 2X500SL								
		#Containers: 2								
F8A290183-9-SAMP		102S	THTC							
01/28/2008 09:15		12244								
		AmtRec: 2X500SL								
		#Containers: 2								
F8A290183-9-DUP		101S	THTC							
01/28/2008 09:15		12244								
		AmtRec: 2X500SL								
		#Containers: 2								
21 KGH0L-1-AA-B		1.00g.in	THTC12247							
J8B040000-234-BLK		02:06:08.pd								
01/28/2008 07:00		11:29:07								
		AmtRec:								
		#Containers: 1								

Sample Preparation/Analysis

D2 Th PpRC5013/5032, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
01 STANDARD TEST SET

Balance Id:
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:

AnalyDueDate: 02/25/2008

pCi/g

Batch: 8035234

SEQ Batch, Test: None

Prep Tech:

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
Uncert Level (#s): 4 KGH01LAA-BLK:	4	Decay to SaDt: N	Blk Subt.: N	Sci. Not.: N	N	ODRs: B				
Uncert Level (#s): 4 KGH01LAC-LCS:	4	Decay to SaDt: N	Blk Subt.: N	Sci. Not.: N	N	ODRs: B				
Uncert Level (#s): 4 KGH012AA-BLK:	4	Decay to SaDt: N	Blk Subt.: N	Sci. Not.: N	N	ODRs: B				
Uncert Level (#s): 4 KGH012AC-LCS:	4	Decay to SaDt: N	Blk Subt.: N	Sci. Not.: N	N	ODRs: B				
Uncert Level (#s): 4	4	Decay to SaDt: N	Blk Subt.: N	Sci. Not.: N	N	ODRs: B				

Approved By _____ Date: _____

Alpha Spec, Thlso by ALP , Results

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC Trc	Yld	LCS Yld
Thlso by ALP														
Richland Standard Alplso Wo Blk Subt. *CntU: 0+1, + *SystU, `MDCConst:2.71														
Calc	S1	SOLID	KF8NX1AD	TH-228	2.89E+00	(2.87E-01)		pCi/g	R	2.17E-02	7.15E-02		85%	
Calc	S1	SOLID	KF8NX1AD	TH-230	1.20E+00	(1.45E-01)		pCi/g	R	1.49E-02	5.72E-02		85%	
Calc	S1	SOLID	KF8NX1AD	TH-232	2.43E+00	(2.48E-01)		pCi/g	R	1.49E-02	5.72E-02		85%	
Calc	S1	SOLID	KF8N41AD	TH-228	1.72E+00	(2.24E-01)		pCi/g	R	3.79E-02	1.25E-01		49%	
Calc	S1	SOLID	KF8N41AD	TH-230	3.04E+00	(3.36E-01)		pCi/g	R	2.61E-02	1.00E-01		49%	
Calc	S1	SOLID	KF8N41AD	TH-232	1.98E+00	(2.45E-01)		pCi/g	R	1.84E-02	8.49E-02		49%	
Calc	S1	SOLID	KF8N51AD	TH-228	1.97E+00	(2.64E-01)		pCi/g	R	2.36E-02	1.09E-01		55%	
Calc	S1	SOLID	KF8N51AD	TH-230	1.63E+00	(2.30E-01)		pCi/g	R	2.30E-02	1.06E-01		55%	
Calc	S1	SOLID	KF8N51AD	TH-232	2.08E+00	(2.70E-01)		pCi/g	R	2.30E-02	1.06E-01		55%	
Calc	S1	SOLID	KF8N61AD	TH-228	1.92E+00	(2.20E-01)		pCi/g	R	1.39E-02	6.39E-02		92%	
Calc	S1	SOLID	KF8N61AD	TH-230	7.50E-01	(1.15E-01)		pCi/g	R	1.35E-02	6.21E-02		92%	
Calc	S1	SOLID	KF8N61AD	TH-232	1.71E+00	(2.01E-01)		pCi/g	R	1.35E-02	6.21E-02		92%	
Calc	S1	SOLID	KF8N81AD	TH-228	1.38E+00	(1.80E-01)		pCi/g	R	2.17E-02	8.33E-02		81%	
Calc	S1	SOLID	KF8N81AD	TH-230	2.38E+00	(2.63E-01)		pCi/g	R	1.49E-02	6.86E-02		81%	
Calc	S1	SOLID	KF8N81AD	TH-232	1.53E+00	(1.91E-01)		pCi/g	R	1.49E-02	6.86E-02		81%	
Calc	S1	SOLID	KF8N91AD	TH-228	1.29E+00	(1.65E-01)		pCi/g	R	1.37E-02	6.31E-02		83%	
Calc	S1	SOLID	KF8N91AD	TH-230	5.23E-01	(9.19E-02)		pCi/g	R	1.33E-02	6.14E-02		83%	
Calc	S1	SOLID	KF8N91AD	TH-232	1.17E+00	(1.53E-01)		pCi/g	R	1.33E-02	6.14E-02		83%	
Calc	S1	SOLID	KF8PD1AD	TH-228	2.13E+00	(2.47E-01)		pCi/g	R	1.57E-02	7.21E-02		55%	
Calc	S1	SOLID	KF8PD1AD	TH-230	2.22E+00	(2.52E-01)		pCi/g	R	1.52E-02	7.01E-02		55%	
Calc	S1	SOLID	KF8PD1AD	TH-232	2.17E+00	(2.48E-01)		pCi/g	R	1.52E-02	7.01E-02		55%	
Calc	S1	SOLID	KF8PE1AD	TH-228	2.22E+00	(2.69E-01)		pCi/g	R	2.71E-02	1.04E-01		44%	
Calc	S1	SOLID	KF8PE1AD	TH-230	1.32E+00	(1.87E-01)		pCi/g	R	1.86E-02	8.57E-02		44%	
Calc	S1	SOLID	KF8PE1AD	TH-232	2.18E+00	(2.64E-01)		pCi/g	R	1.86E-02	8.57E-02		44%	
Calc	S1	SOLID	KF8PG1AD	TH-228	1.68E+00	(2.26E-01)		pCi/g	R	2.92E-02	1.12E-01		52%	
Calc	S1	SOLID	KF8PG1AD	TH-230	2.14E+00	(2.65E-01)		pCi/g	R	2.01E-02	9.24E-02		52%	
Calc	S1	SOLID	KF8PG1AD	TH-232	1.50E+00	(2.08E-01)		pCi/g	R	2.01E-02	9.24E-02		52%	
Calc	S1	SOLID	KF8PG1AG	TH-228	1.05E+00	(1.35E-01)		pCi/g	R	1.57E-02	6.04E-02	R	59%	
Calc	S1	SOLID	KF8PG1AG	TH-230	1.27E+00	(1.52E-01)		pCi/g	R	1.08E-02	4.98E-02	R	59%	
Calc	S1	SOLID	KF8PG1AG	TH-232	7.69E-01	(1.08E-01)		pCi/g	R	1.08E-02	4.98E-02	R	59%	
Calc	S1	SOLID	KGH0L1AA	TH-228	5.37E-02	(2.21E-02)		pCi/g	R	1.20E-02	4.60E-02	B	80%	
Calc	S1	SOLID	KGH0L1AA	TH-230	1.50E-01	(3.65E-02)		pCi/g	R	8.24E-03	3.79E-02	B	80%	
Calc	S1	SOLID	KGH0L1AA	TH-232	7.92E-02	(2.59E-02)		pCi/g	R	8.24E-03	3.79E-02	B	80%	
Calc	S1	SOLID	KGH0L1AC	TH-228	1.61E-01	(5.80E-02)		pCi/g	R	2.76E-02	1.06E-01	S	54%	7%
Calc	S1	SOLID	KGH0L1AC	TH-230	2.44E+00	(2.87E-01)		pCi/g	R	1.90E-02	8.74E-02	S	54%	111%

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

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC Trc	Yld	LCS Yld
Calc	S1	SOLID	KGH0L1AC	TH-232	1.46E-01	(5.30E-02)		pCi/g	R	1.90E-02	8.74E-02	S	54%	7%

REF =

Th 228 = 2.3931
 Th 230 = 2.8478
 Th 232 = 3.119

Alpha Spec, Thlso by ALP , Calculated Results Detailed Report

Sq	Calc	S1	SOLID	STLE	AlpIsoWoBS	KF8NX1AD	pCi/g	SOLID	QC/BB	Sa/On	Date	AnalysisDate/PptWt	Sep1/Sep2	Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy	Vol	Final/Count	Vol
1	1418995	TSB-HJ-10-10'	199.7833333	998.95	4	ALP171	COP	N	N	2.5767E-01	01/28/08	07:00	02/25/08	08:48	673.24	Alq	1	g	1.02	g	
Sq	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Bik Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn				
0	TH-228	279	4	ALP171	COP	N	N	2.5767E-01	4%	N	85%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0282E+00					
1	TH-230	119	2	ALP171	COP	N	N	2.5767E-01	4%	N	85%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00					
2	TH-232	241	2	ALP171	COP	N	N	2.5767E-01	4%	N	85%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00					
3	Th-234	5135	730	GPC30A	COP	Y	N	4.4730E-01	100%	N	100%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00					
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total	U	Q	Net Cnt	Rt	Dpm	Wo	Bik	Dpm-Bik	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BIKlC/MDC	StdDv/MdC/LcC			
02/25/08	TH-228	R	2.894814	(0.28663)		1.39251E+00	6.374997	6.374997	1.02 G	(0.0102)	85%	0.071476									
02/25/08	TH-230	R	1.200202	(0.145333)		5.93643E-01	2.717738	2.717738	1.02 G	(0.0102)	85%	0.021651									
02/25/08	TH-232	R	2.434809	(0.247844)		1.20430E+00	5.513387	5.513387	1.02 G	(0.0102)	85%	0.057185									
02/25/08	Th-234	R	252.044907	(16.713106)		2.55290E+02	570.731057	570.731057	1.02 G	(0.0102)	85%	0.014889									

Sq	Calc	S1	SOLID	STLE	AlpIsoWoBS	KF8N41AD	pCi/g	SOLID	QC/BB	Sa/On	Date	AnalysisDate/PptWt	Sep1/Sep2	Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy	Vol	Final/Count	Vol
2	1418995	TSB-HJ-10-10'	199.7833333	998.95	4	ALP172	COP	N	N	2.4969E-01	01/28/08	07:15	02/25/08	08:48	673.61	Alq	1	g	1.03	g	
Sq	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Bik Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn				
0	TH-228	95	4	ALP172	COP	N	N	2.4969E-01	3%	N	49%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0282E+00					
1	TH-230	172	2	ALP172	COP	N	N	2.4969E-01	3%	N	49%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00					
2	TH-232	112	1	ALP172	COP	N	N	2.4969E-01	3%	N	49%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00					
3	Th-234	2978	825	GPC30B	COP	Y	N	4.4197E-01	100%	N	100%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00					
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total	U	Q	Net Cnt	Rt	Dpm	Wo	Bik	Dpm-Bik	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BIKlC/MDC	StdDv/MdC/LcC			
02/25/08	TH-228	R	2.894814	(0.28663)		1.39251E+00	6.374997	6.374997	1.02 G	(0.0102)	85%	0.071476									
02/25/08	TH-230	R	1.200202	(0.145333)		5.93643E-01	2.717738	2.717738	1.02 G	(0.0102)	85%	0.021651									
02/25/08	TH-232	R	2.434809	(0.247844)		1.20430E+00	5.513387	5.513387	1.02 G	(0.0102)	85%	0.057185									
02/25/08	Th-234	R	252.044907	(16.713106)		2.55290E+02	570.731057	570.731057	1.02 G	(0.0102)	85%	0.014889									

() - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

Alpha Spec, Thlso by ALP , Calculated Results

Batch Nbr: 6035234

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKLC/MDC	StdDvMdc/LcC
02/25/08	TH-228	R	1.716896	4.71511E-01		3.818079	3.818079	3.818079	1.03 G	49%		0.125195		
2.946E+02			(0.224299)	(4.8828E-02)		(0.459241)	(0.459241)	(0.459241)	(0.0103)			0.037924		
02/25/08	TH-230	R	3.041732	8.58931E-01		6.955226	6.955226	6.955226	1.03 G	49%		0.100166		
2.946E+02			(0.335796)	(6.5661E-02)		(0.68102)	(0.68102)	(0.68102)	(0.0103)			0.02608		
02/25/08	TH-232	R	1.981733	5.59606E-01		4.531435	4.531435	4.531435	1.03 G	49%		0.084897		
2.946E+02			(0.245185)	(5.2982E-02)		(0.510813)	(0.510813)	(0.510813)	(0.0103)			0.018441		
02/25/08	Th-234	R	145.702583	1.47250E+02		333.16386	333.16386	333.16386	1.03 G	49%				
2.946E+02			(9.821171)	(2.7292E+00)		(14.687636)	(14.687636)	(14.687636)	(0.0103)					

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
3	Calc	S1	SOLID	*STLE	AlpisoWoBS	KF8N51AD	pCi/g	01/28/08 07:55	02/25/08 08:48			674.37	Alq	1	g
															1.00 g

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 07:08	TH-228	87	1	ALP173	COP	N	N	1.8556E-01		N	55%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0282E+00	
			199.7833333	998.95			Y	Y	(5.567E-03)			3%		(0.000E+00)	1.00			
1	02/25/08 07:08	TH-230	74	1	ALP173	COP	N	N	1.8556E-01		N	55%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y	Y	(5.567E-03)			3%		(0.000E+00)	1.00			
2	02/25/08 07:08	TH-232	94	0	ALP173	COP	N	N	1.8556E-01		N	55%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y	Y	(5.567E-03)			3%		(0.000E+00)	1.00			
3	02/25/08 06:00	Th-234	3378	719	GPC30C	COP	Y	N	4.5171E-01		N	100%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			20	500			Y	Y	(1.807E-02)					(0.000E+00)	1.00			

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKLC/MDC	StdDvMdc/LcC
02/25/08	TH-228	R	1.972593	4.34471E-01		4.259054	4.259054	4.259054	1.00 G	55%		0.108845		
3.038E+02			(0.263574)	(4.6698E-02)		(0.52602)	(0.52602)	(0.52602)	(0.01)			0.023643		
02/25/08	TH-230	R	1.63116	3.69400E-01		3.621177	3.621177	3.621177	1.00 G	55%		0.10586		
3.038E+02			(0.230077)	(4.3070E-02)		(0.476229)	(0.476229)	(0.476229)	(0.01)			0.022995		
02/25/08	TH-232	R	2.077628	4.70510E-01		4.612339	4.612339	4.612339	1.00 G	55%		0.10586		
3.038E+02			(0.270444)	(4.8540E-02)		(0.552405)	(0.552405)	(0.552405)	(0.01)			0.022995		
02/25/08	Th-234	R	166.99381	1.67462E+02		370.72663	370.72663	370.72663	1.00 G	55%				
3.038E+02			(11.203831)	(2.9065E+00)		(16.164878)	(16.164878)	(16.164878)	(0.01)					

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
4	Calc	S1	SOLID	*STLE	AlpisoWoBS	KF8N61AD	pCi/g	01/28/08 07:55	02/25/08 08:48						

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 07:08	TH-228	144	0	ALP174	COP	N	N	1.8950E-01		N	92%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0282E+00	
			199.7833333	998.95			Y	Y	(5.685E-03)			5%		(0.000E+00)	1.00			

() - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

RecCnt:4
 RADCALC v4.8.29
 TA Richland

Alpha Spec, Thlso by ALP , Calculated Results

2/25/2008 4:08:39 PM

Batch Nbr: 8035234

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC
1	02/25/08 07:08	TH-230	58	1	1	ALP174 COP	N N 1.8950E-01 (5.685E-03)	N N 1.8950E-01 (5.685E-03)	N	92%	N	1.0000E+00 (0.000E+00)	4.5045E-01 1.00	1.0000E+00 1.0000E+00
2	02/25/08 07:08	TH-232	132	1	1	ALP174 COP	N N 1.8950E-01 (5.685E-03)	N N 1.8950E-01 (5.685E-03)	N	92%	N	1.0000E+00 (0.000E+00)	4.5045E-01 1.00	1.0000E+00 1.0000E+00
3	02/25/08 06:00	Th-234	5548	570	570	GPC30D COP	Y N 4.4500E-01 (1.780E-02)	Y N 4.4500E-01 (1.780E-02)	N	100%	N	1.0000E+00 (0.000E+00)	4.5045E-01 1.00	1.0000E+00 1.0000E+00

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC
02/25/08	TH-228	R	1.920712	7.20781E-01	4.147036	4.147036	1.00 G	92%	0.063884	0.013877	0.062132	0.013496	0.062132	0.013496
02/25/08	TH-230	R	0.749808	2.89313E-01	1.664574	1.664574	1.00 G	92%	0.062132	0.013496	0.062132	0.013496	0.062132	0.013496
02/25/08	TH-232	R	1.709769	6.59715E-01	3.79569	3.79569	1.00 G	92%	0.062132	0.013496	0.062132	0.013496	0.062132	0.013496
02/25/08	Th-234	R	279.643268	2.76260E+02	620.808675	620.808675	1.00 G	92%	0.062132	0.013496	0.062132	0.013496	0.062132	0.013496
02/25/08	Th-234	R	18.51096	3.7246E+00	26.204934	26.204934	1.00 G	92%	0.062132	0.013496	0.062132	0.013496	0.062132	0.013496

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
5	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8N81AD	pCi/g	01/28/08 08:11	02/25/08 08:48	672.48	Alq	1	1.03 g	1.03 g		

Sq	Cnt Date	Parameter	Sample Cnt	Bkgmd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 07:08	TH-228	94	2	ALP175 COP	N N	1.8939E-01	N	81%	N	81%	N	1.0000E+00	4.5045E-01	1.0000E+00	4.5045E-01	1.0282E+00	
1	02/25/08 07:08	TH-230	166	0	ALP175 COP	N N	1.8939E-01	N	81%	N	81%	N	1.0000E+00	4.5045E-01	1.0000E+00	4.5045E-01	1.0000E+00	
2	02/25/08 07:08	TH-232	107	0	ALP175 COP	N N	1.8939E-01	N	81%	N	81%	N	1.0000E+00	4.5045E-01	1.0000E+00	4.5045E-01	1.0000E+00	
3	02/25/08 06:26	Th-234	4881	730	GPC30A COP	Y N	4.4730E-01	N	100%	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	4.5045E-01	1.0000E+00	

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC
02/25/08	TH-228	R	1.379246	4.68508E-01	3.067322	3.067322	1.03 G	81%	0.083269	0.021681	0.068641	0.01491	0.068641	0.01491
02/25/08	TH-230	R	2.379037	8.30900E-01	5.439908	5.439908	1.03 G	81%	0.083269	0.021681	0.068641	0.01491	0.068641	0.01491
02/25/08	TH-232	R	1.533475	5.35580E-01	3.506447	3.506447	1.03 G	81%	0.083269	0.021681	0.068641	0.01491	0.068641	0.01491
02/25/08	Th-234	R	237.181037	2.42590E+02	542.338702	542.338702	1.03 G	81%	0.083269	0.021681	0.068641	0.01491	0.068641	0.01491
02/25/08	Th-234	R	15.746033	3.4936E+00	23.056726	23.056726	1.03 G	81%	0.083269	0.021681	0.068641	0.01491	0.068641	0.01491

() - (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 Significant, Date/Time - mm/dd/yyyy hh:mm, 24hr Time

RecCnt:6
RADCALC v4.8.29
TA Richland

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol	
6	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8N91AD	pCi/g			01/28/08 08:30	02/25/08 08:48			1		g		
1418995,TSB-HJ-08-0'								.FBA290183-6						673.16	Alq	1.00	g	
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 07:08	TH-228	98	0	ALP177	COP	N	N	2.1088E-01	N	N	83%	N		1.0000E+00	4.5045E-01	1.0282E+00	
			199.7833333	998.95			Y		(6.326E-03)			4%			(0.000E+00)	1.00		
1	02/25/08 07:08	TH-230	41	1	ALP177	COP	N	N	2.1088E-01	N	N	83%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(6.326E-03)			4%			(0.000E+00)	1.00		
2	02/25/08 07:08	TH-232	91	0	ALP177	COP	N	N	2.1088E-01	N	N	83%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(6.326E-03)			4%			(0.000E+00)	1.00		
3	02/25/08 06:48	Th-234	4996	825	GPC30B	COP	Y	N	4.4197E-01	N	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			20	500			Y		(1.768E-02)						(0.000E+00)	1.00		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rtt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnrFct	LCSYld,EFctU	IDC/ILcC	BIK/LcC/MDC	StdvMdc/LcC				
02/25/08	TH-228		R	1.291647		4.90531E-01	2.78888	2.78888	1.00 G	83%	0.063126							
				(0.165468)		(4.9561E-02)	(0.327751)	(0.327751)	(0.01)		0.013712							
02/25/08	TH-230		R	0.523011		2.04221E-01	1.161085	1.161085	1.00 G	83%	0.061396							
				(0.091873)		(3.2066E-02)	(0.195176)	(0.195176)	(0.01)		0.013336							
02/25/08	TH-232		R	1.166519		4.55493E-01	2.589674	2.589674	1.00 G	83%	0.061396							
				(0.152973)		(4.7759E-02)	(0.312876)	(0.312876)	(0.01)		0.013336							
02/25/08	Th-234		R	252.908515		2.48150E+02	561.457466	561.457466	1.00 G	83%								
				(16.781551)		(3.5346E+00)	(23.839701)	(23.839701)	(0.01)									
Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol	
7	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8PD1AD	pCi/g			01/28/08 08:40	02/25/08 08:48			1		g		
1418995,TSB-HJ-08-10'								.FBA290183-7						673.77	Alq	1.01	g	
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 07:08	TH-228	142	1	ALP178	COP	N	N	2.7579E-01	N	N	55%	N		1.0000E+00	4.5045E-01	1.0282E+00	
			199.7833333	998.95			Y		(8.274E-03)			3%			(0.000E+00)	0.990099		
1	02/25/08 07:08	TH-230	152	1	ALP178	COP	N	N	2.7579E-01	N	N	55%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(8.274E-03)			3%			(0.000E+00)	0.990099		
2	02/25/08 07:08	TH-232	148	0	ALP178	COP	N	N	2.7579E-01	N	N	55%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(8.274E-03)			3%			(0.000E+00)	0.990099		
3	02/25/08 06:26	Th-234	3394	719	GPC30C	COP	Y	N	4.5171E-01	N	N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
			20	500			Y		(1.807E-02)						(0.000E+00)	0.990099		

Alpha Spec, Thlso by ALP , Calculated Results

Batch Nbr: 8035234

2/25/2008 4:08:40 PM

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Trc Yld,EnFct	LCSYld,EFctU	IDC/LcC	BIK/LcMDC	StdDvMdc/LcC
02/25/08	R	TH-228	2.134629	7.09799E-01	4.655142	4.655142	(0.482968)	1.01 G	55%	0.0721	0.015662			
3.005E+02			(0.246768)	(5.9655E-02)	(0.482968)			(0.0101)						
02/25/08	R	TH-230	2.222562	7.59823E-01	4.983431	4.983431	(0.50571)	1.01 G	55%	0.07125	0.015232			
3.005E+02			(0.252413)	(6.1719E-02)	(0.50571)			(0.0101)						
02/25/08	R	TH-232	2.166924	7.40803E-01	4.858681	4.858681	(0.496879)	1.01 G	55%	0.070125	0.015232			
3.005E+02			(0.247621)	(6.0902E-02)	(0.496879)			(0.0101)						
02/25/08	R	Th-234	166.130271	1.68262E+02	372.497666	372.497666	(16.235928)	1.01 G	55%	0.070125	0.015232			
3.005E+02			(11.144106)	(2.9134E+00)	(16.235928)			(0.0101)						

Protocol Equation Set Wk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Mult/EntYld Total/Analy Vol Final/Count Vol

Sq	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8PE1AD	pCi/g	SOLID	673.54	Alq	1	g	1.00	g		
8	1418995,TSB-HR-05-0'															
0	02/25/08	07:08	TH-228	121	2	ALP113	COP	N	N	2.8313E-01	N	44%	N	1.0000E+00	4.5045E-01	1.0282E+00
								Y		(8.494E-03)		2%		(0.000E+00)	1.00	
1	02/25/08	07:08	TH-230	74	0	ALP113	COP	N	N	2.8313E-01	N	44%	N	1.0000E+00	4.5045E-01	1.0000E+00
								Y		(8.494E-03)		2%		(0.000E+00)	1.00	
2	02/25/08	07:08	TH-232	122	0	ALP113	COP	N	N	2.8313E-01	N	44%	N	1.0000E+00	4.5045E-01	1.0000E+00
								Y		(8.494E-03)		2%		(0.000E+00)	1.00	
3	02/25/08	06:26	Th-234	2687	570	GPC30D	COP	Y	N	4.4500E-01	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
								Y		(1.780E-02)				(0.000E+00)	1.00	

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Trc Yld,EnFct	LCSYld,EFctU	IDC/LcC	BIK/LcMDC	StdDvMdc/LcC
02/25/08	R	TH-228	2.218629	6.02799E-01	4.790487	4.790487	(0.527032)	1.00 G	44%	0.103965	0.027071			
3.034E+02			(0.269027)	(5.5000E-02)	(0.527032)			(0.01)						
02/25/08	R	TH-230	1.324071	3.69877E-01	2.939439	2.939439	(0.386617)	1.00 G	44%	0.085704	0.018618			
3.034E+02			(0.186781)	(4.3009E-02)	(0.386617)			(0.01)						
02/25/08	R	TH-232	2.182927	6.09797E-01	4.846102	4.846102	(0.530379)	1.00 G	44%	0.085704	0.018618			
3.034E+02			(0.263566)	(5.5217E-02)	(0.530379)			(0.01)						
02/25/08	R	Th-234	134.84138	1.33210E+02	299.348163	299.348163	(13.315738)	1.00 G	44%	0.085704	0.018618			
3.034E+02			(9.124177)	(2.5923E+00)	(13.315738)			(0.01)						

Protocol Equation Set Wk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Mult/EntYld Total/Analy Vol Final/Count Vol

Sq	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8PG1AD	pCi/g	SOLID	676.04	Alq	1	g	1.02	g		
9	1418995,TSB-HR-05-10'															
0	02/25/08	07:08	TH-228	85	2	ALP116	COP	N	N	2.1858E-01	N	52%	N	1.0000E+00	4.5045E-01	1.0281E+00
								Y		(6.557E-03)		3%		(0.000E+00)	0.980392	
200.1833333																

Protocol Equation Set Wk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Mult/EntYld Total/Analy Vol Final/Count Vol

0 - (1-s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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/yyyy hh:mm, 24hr Time

RecCnt:9 RADCALC v4: 8.29
TA Richland

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlcC/MDC	StdDvMdc/LcC
1	02/25/08 07:08	TH-230	111	0	ALP116 COP	N N	2.1858E-01	N	52%	N	4.5045E-01	1.0000E+00	4.5045E-01	1.0000E+00
			200.1833333	1000.05		Y	(6.557E-03)		3%		(0.000E+00)	0.980392		
2	02/25/08 07:08	TH-232	78	0	ALP116 COP	N N	2.1858E-01	N	52%	N	4.5045E-01	1.0000E+00	4.5045E-01	1.0000E+00
			200.1833333	1000.05		Y	(6.557E-03)		3%		(0.000E+00)	0.980392		
3	02/25/08 06:48	Th-234	3194	730	GPC30A COP	Y N	4.4730E-01	N	100%	N	4.5045E-01	1.0000E+00	4.5045E-01	1.0000E+00
			20	500		Y	(1.789E-02)				(0.000E+00)	0.980392		

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlcC/MDC	StdDvMdc/LcC
0	02/25/08 07:54	TH-228	99	2	ALP117 COP	N N	3.6088E-01	N	59%	N	4.5045E+00	1.0000E+00	4.5045E-01	1.0282E+00
			200.1166666	1000.0666		Y	(1.083E-02)		3%		(0.000E+00)	0.990099		
1	02/25/08 07:54	TH-230	122	1	ALP117 COP	N N	3.6088E-01	N	59%	N	4.5045E+00	1.0000E+00	4.5045E-01	1.0000E+00
			200.1166666	1000.0666		Y	(1.083E-02)		3%		(0.000E+00)	0.990099		
2	02/25/08 07:54	TH-232	74	0	ALP117 COP	N N	3.6088E-01	N	59%	N	4.5045E+00	1.0000E+00	4.5045E-01	1.0000E+00
			200.1166666	1000.0666		Y	(1.083E-02)		3%		(0.000E+00)	0.990099		
3	02/25/08 06:48	Th-234	3659	719	GPC30C COP	Y N	4.5171E-01	N	100%	N	4.5045E+00	1.0000E+00	4.5045E-01	1.0000E+00
			20	500		Y	(1.807E-02)				(0.000E+00)	0.990099		

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlcC/MDC	StdDvMdc/LcC
0	02/25/08	TH-228	R	1.053066		4.92712E-01	2.296479	2.296479	1.01 G	59%	0.060361			
				(0.135142)		(4.9740E-02)	(0.27045)	(0.27045)	(0.0101)		0.015718			
0	02/25/08	TH-230	R	1.265199		6.08644E-01	2.83683	2.83683	1.01 G	59%	0.049757			
				(0.152372)		(5.5204E-02)	(0.309515)	(0.309515)	(0.0101)		0.01081			
0	02/25/08	TH-232	R	0.768676		3.69784E-01	1.723527	1.723527	1.01 G	59%	0.049757			
				(0.108158)		(4.2998E-02)	(0.226029)	(0.226029)	(0.0101)		0.01081			
0	02/25/08	Th-234	R	179.212405		1.81512E+02	401.830457	401.830457	1.01 G	59%	0.049757			
				(11.992154)		(3.0250E+00)	(17.412448)	(17.412448)	(0.0101)		0.01081			

Alpha Spec, Thiso by ALP, Calculated Results

Batch Nbr: 8035234

2/25/2008 4:08:40 PM

Sq	Calc	S1	SOLID	STLE	AlpIsoWoBS	KGH0L1AA	pCi/g	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol	
11	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KGH0L1AA	pCi/g	B	01/28/08 07:00	02/25/08 12:26	673.16	Alq	1	g	1.00 g		
0,INTRA-LAB BLANK ,J8B040000-234																	
Sq	CalcDate,TrcAct	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Ingr Fct	Conv Fct/Vol/Adj	Decay	Abn
0	02/25/08 10:46	TH-228	7	2	ALP118	COP	N	N	3.5511E-01	N	N	80%	N	1.0000E+00	4.5045E-01	1.0284E+00	
			200.03333333	1000.0166			Y		(1.065E-02)			4%		(0.000E+00)	1.00		
1	02/25/08 10:46	TH-230	19	0	ALP118	COP	N	N	3.5511E-01	N	N	80%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.03333333	1000.0166			Y		(1.065E-02)			4%		(0.000E+00)	1.00		
2	02/25/08 10:46	TH-232	10	0	ALP118	COP	N	N	3.5511E-01	N	N	80%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.03333333	1000.0166			Y		(1.065E-02)			4%		(0.000E+00)	1.00		
3	02/25/08 06:48	Th-234	4821	570	GPC30D	COP	Y	N	4.4500E-01	N	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			20	500			Y		(1.780E-02)					(0.000E+00)	1.00		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EntFct	LCSYld,EFctU	IDC/ILcC	BIK/LcC/MDC	StdDvMdc/LcC			
02/25/08	3.032E+02	TH-228	R	0.053741		3.29942E-02	0.116011	0.116011	1.00 G	80%		0.046015					
				(0.022076)		(1.3302E-02)	(0.047288)	(0.047288)	(0.01)			0.011981					
02/25/08	3.032E+02	TH-230	R	0.150439		9.49842E-02	0.333975	0.333975	1.00 G	80%		0.037924					
				(0.036527)		(2.1814E-02)	(0.079281)	(0.079281)	(0.01)			0.008238					
02/25/08	3.032E+02	TH-232	R	0.079178		4.99917E-02	0.175776	0.175776	1.00 G	80%		0.037924					
				(0.025853)		(1.5840E-02)	(0.056689)	(0.056689)	(0.01)			0.008238					
02/25/08	3.032E+02	Th-234	R	242.848101		2.39910E+02	539.123323	539.123323	1.00 G	80%							
				(16.125994)		(3.4720E+00)	(22.932974)	(22.932974)	(0.01)								

12 Calc S1 SOLID *STLE AlpIsoWoBS KGH0L1AC pCi/g Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol

0,INTRA-LAB CHECK ,J8B040000-234

5.0144 1 g

674.22 Alq 1.03 g

Sq CalcDate,TrcAct Parameter Sample Cnt Bkgrnd Cnt Instr Geom Trc/Av Ent Efficiency1 Efficiency2 Ent Trc Yld Fct Ent Ingr Fct Conv Fct/Vol/Adj Decay Abn

0 02/25/08 07:54 TH-228 9 2 1000.2166 2 2.2282E-01 N 54% N 1.0000E+00 4.5045E-01 1.0283E+00

200.1 1000.2166 Y (6.684E-03) 3% (0.000E+00) 0.970874

1 02/25/08 07:54 TH-230 134 0 1000.2166 2 2.2282E-01 N 54% N 1.0000E+00 4.5045E-01 1.0000E+00

200.1 1000.2166 Y (6.684E-03) 3% (0.000E+00) 0.970874

2 02/25/08 07:54 TH-232 8 0 1000.2166 2 2.2282E-01 N 54% N 1.0000E+00 4.5045E-01 1.0000E+00

200.1 1000.2166 Y (6.684E-03) 3% (0.000E+00) 0.970874

3 02/25/08 07:10 Th-234 3272 730 1000.2166 2 2.2282E-01 N 100% N 1.0000E+00 4.5045E-01 1.0000E+00

20 500 Y (1.789E-02) (0.000E+00) 0.970874

RecCnt:12 RADCALC v4.8.29 TA Richland

Alpha Spec, Thiso by ALP , Calculated Results

Batch Nbr: 8035234

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKLCc/MDC	StdDvMidC/LcC
02/25/08	2.949E+02	TH-228	R	0.161335 (0.057965)		4.29779E-02 (1.5059E-02)	0.358767 (0.127594)	0.358767 (0.127594)	1.03 G (0.0103)	54%	7%	0.10602 0.027606		
02/25/08	2.949E+02	TH-230	R	2.444747 (0.286945)		6.69665E-01 (5.7859E-02)	5.590161 (0.590978)	5.590161 (0.590978)	1.03 G (0.0103)	54%	111%	0.087388 0.018984		
02/25/08	2.949E+02	TH-232	R	0.145955 (0.053015)		3.99800E-02 (1.4170E-02)	0.333741 (0.120025)	0.333741 (0.120025)	1.03 G (0.0103)	54%	7%	0.087388 0.018984		
02/25/08	2.949E+02	Th-234	R	158.524809 (10.647468)		1.62140E+02 (2.8606E+00)	362.48319 (15.847039)	362.48319 (15.847039)	1.03 G (0.0103)	54%				

Page 8
 (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 Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:12
 RADCALC v4.8.29
 TA Richland

Detailed Report

Sq	Status Method	Matrix	Protocol	Equation Set	Wk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PtWt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol			
1	Calc	S1	SOLID	*STLE	ALPISO	WOBBS	KF8NX1AD	pci/g		01/28/08 07:00	02/25/08 08:48	673.24	Alq	1	9			
1418995																		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 07:08	TH-228	279	4	ALP171	COP	N	N	2.5767E-01		N	85%	N	1.0000E+00	4.5045E-01	1.0282E+00		
			199.78333333	998.95			Y		(7.730E-03)			4%		(0.000E+00)	0.980392			
1	02/25/08 07:08	TH-230	119	2	ALP171	COP	N	N	2.5767E-01		N	85%	N	1.0000E+00	4.5045E-01	1.0000E+00		
			199.78333333	998.95			Y		(7.730E-03)			4%		(0.000E+00)	0.980392			
2	02/25/08 07:08	TH-232	241	2	ALP171	COP	N	N	2.5767E-01		N	85%	N	1.0000E+00	4.5045E-01	1.0000E+00		
			199.78333333	998.95			Y		(7.730E-03)			4%		(0.000E+00)	0.980392			
3	02/25/08 06:00	TH-234	5135	730	GPC30A	COP	Y	N	4.4730E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00		
			20	500			Y		(1.789E-02)					(0.000E+00)	0.980392			
Sq	CalcDate/TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rr	Dpm	Wt	Blk	Dpm-Blk	Vol Used	TrcYld	EntFct	LCSYld	EffctU	IDC/LC	BlkLC/MDC	StdDvm/CLC
	02/26/08	TH-228	R	2.894814		1.39251E+00	6.374997		6.374997		1.02 G	85%			0.071476			
				(0.28663)		(8.3631E-02)	(0.541085)		(0.541085)		(0.0102)				0.021651			
	02/26/08	TH-230	R	1.200202		5.93643E-01	2.717738		2.717738		1.02 G	85%			0.057185			
				(0.145333)		(5.4621E-02)	(0.298492)		(0.298492)		(0.0102)				0.014889			
	02/26/08	TH-232	R	2.434809		1.20430E+00	5.513387		5.513387		1.02 G	85%			0.057185			
				(0.247844)		(7.7718E-02)	(0.485729)		(0.485729)		(0.0102)				0.014889			
	02/26/08	TH-234	R	252.044907		2.55290E+02	570.731057		570.731057		1.02 G	85%						
				(16.713106)		(3.5834E+00)	(24.19402)		(24.19402)		(0.0102)							
Sq	Status Method	Matrix	Protocol	Equation Set	Wk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PtWt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol			
2	Calc	S1	SOLID	*STLE	ALPISO	WOBBS	KF8NX1AD	pci/g		01/28/08 07:15	02/25/08 08:48	673.61	Alq	1	9			
1418995																		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 07:08	TH-228	95	4	ALP172	COP	N	N	2.4969E-01		N	49%	N	1.0000E+00	4.5045E-01	1.0282E+00		
			199.78333333	998.95			Y		(7.491E-03)			3%		(0.000E+00)	0.970874			
1	02/25/08 07:08	TH-230	172	2	ALP172	COP	N	N	2.4969E-01		N	49%	N	1.0000E+00	4.5045E-01	1.0000E+00		
			199.78333333	998.95			Y		(7.491E-03)			3%		(0.000E+00)	0.970874			
2	02/25/08 07:08	TH-232	112	1	ALP172	COP	N	N	2.4969E-01		N	49%	N	1.0000E+00	4.5045E-01	1.0000E+00		
			199.78333333	998.95			Y		(7.491E-03)			3%		(0.000E+00)	0.970874			
3	02/25/08 06:00	TH-234	2978	825	GPC30B	COP	Y	N	4.4197E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00		
			20	500			Y		(1.768E-02)					(0.000E+00)	0.970874			

(1) - (1s Uncertainty), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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
 Page 1
 RecCnt:2 RADCALC v4.8.29
 TA Richland

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlCc/MDC	StdDVmDc/LcC
02/26/08	TH-228	R	1.716896	(0.224299)	4.71511E-01	3.818079	3.818079	(0.459241)	1.03 G	49%	0.125195			
2.946E+02					(4.8828E-02)	(0.459241)			(0.0103)		0.037924			
02/26/08	TH-230	R	3.041732	(0.335796)	8.58931E-01	6.955226	6.955226	(0.68102)	1.03 G	49%	0.100166			
2.946E+02					(6.5661E-02)	(0.68102)			(0.0103)		0.02608			
02/26/08	TH-232	R	1.981733	(0.245185)	5.59608E-01	4.531435	4.531435	(0.510813)	1.03 G	49%	0.084897			
2.946E+02					(5.2982E-02)	(0.510813)			(0.0103)		0.018441			
02/26/08	Th-234	R	145.702583	(9.821171)	1.47250E+02	333.16386	333.16386	(14.687636)	1.03 G	49%				
2.946E+02					(2.7292E+00)	(14.687636)			(0.0103)					

Sq	Status Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol			
3	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8N51AD	pCi/g	01/28/08 07:55	02/25/08 08:48		674.37	Alq	1	g			
1418995,TSB-HR-06-0'							SOLID							1.00 g			
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 07:08	TH-228	87	1	ALP173	COP	N	N	1.8556E-01		N	55%	N	1.0000E+00	4.5045E-01	1.0282E+00	
			199.7833333	998.95			Y	Y	(5.567E-03)			3%		(0.000E+00)	1.00		
1	02/25/08 07:08	TH-230	74	1	ALP173	COP	N	N	1.8556E-01		N	55%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y	Y	(5.567E-03)			3%		(0.000E+00)	1.00		
2	02/25/08 07:08	TH-232	94	0	ALP173	COP	N	N	1.8556E-01		N	55%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y	Y	(5.567E-03)			3%		(0.000E+00)	1.00		
3	02/25/08 06:00	Th-234	3378	719	GPC30C	COP	Y	N	4.5171E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			20	500			Y	Y	(1.807E-02)					(0.000E+00)	1.00		

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlCc/MDC	StdDVmDc/LcC
02/26/08	TH-228	R	1.972593	(0.263574)	4.34471E-01	4.259054	4.259054	(0.52602)	1.00 G	55%	0.108845			
3.038E+02					(4.6698E-02)	(0.52602)			(0.01)		0.023643			
02/26/08	TH-230	R	1.63116	(0.230077)	3.69400E-01	3.621177	3.621177	(0.476229)	1.00 G	55%	0.10586			
3.038E+02					(4.3070E-02)	(0.476229)			(0.01)		0.022995			
02/26/08	TH-232	R	2.077628	(0.270444)	4.70510E-01	4.612339	4.612339	(0.552405)	1.00 G	55%	0.10586			
3.038E+02					(4.8540E-02)	(0.552405)			(0.01)		0.022995			
02/26/08	Th-234	R	166.99381	(11.203831)	1.67462E+02	370.72663	370.72663	(16.164878)	1.00 G	55%				
3.038E+02					(2.9065E+00)	(16.164878)			(0.01)					

Sq	Status Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol			
4	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8N61AD	pCi/g	01/28/08 07:55	02/25/08 08:48		676.87	Alq	1	g			
1418995,TSB-HR-06-0' FD							SOLID							1.00 g			
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 07:08	TH-228	144	0	ALP174	COP	N	N	1.8950E-01		N	92%	N	1.0000E+00	4.5045E-01	1.0282E+00	
			199.7833333	998.95			Y	Y	(5.685E-03)			5%		(0.000E+00)	1.00		

() - (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 Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time
 RecCnt:4
 RADCALC v4.8.29
 TA Richland

Alpha Spec, Thlso by ALP, Calculated Results

2/26/2008 8:20:37 PM

Batch Nbr: 8035234

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFcTU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC
1	02/25/08 07:08	TH-230	58	1	ALP174 COP	N	N	1.8950E-01 (5.685E-03)	N	92%	N	1.0000E+00 (0.0000E+00)	4.5045E-01 1.00	1.0000E+00 1.0000E+00
			199.7833333	998.95						5%				
2	02/25/08 07:08	TH-232	132	1	ALP174 COP	N	N	1.8950E-01 (5.685E-03)	N	92%	N	1.0000E+00 (0.0000E+00)	4.5045E-01 1.00	1.0000E+00 1.0000E+00
			199.7833333	998.95						5%				
3	02/25/08 06:00	Th-234	5548	570	GPC30D COP	Y	N	4.4500E-01 (1.780E-02)	N	100%	N	1.0000E+00 (0.0000E+00)	4.5045E-01 1.00	1.0000E+00 1.0000E+00
			20	500										
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFcTU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC
	02/26/08	TH-228	R	1.920712	7.20781E-01	4.147036	4.147036	4.147036	1.00 G	92%		0.063884		
	3.049E+02			(0.220071)	(6.0073E-02)	(0.425514)	(0.425514)		(0.01)			0.013877		
	02/26/08	TH-230	R	0.749808	2.89313E-01	1.664574	1.664574	1.664574	1.00 G	92%		0.062132		
	3.049E+02			(0.115077)	(3.8133E-02)	(0.240959)	(0.240959)		(0.01)			0.013496		
	02/26/08	TH-232	R	1.709769	6.59715E-01	3.79569	3.79569	3.79569	1.00 G	92%		0.062132		
	3.049E+02			(0.200727)	(5.7517E-02)	(0.40139)	(0.40139)		(0.01)			0.013496		
	02/26/08	Th-234	R	279.643268	2.76260E+02	620.808675	620.808675	620.808675	1.00 G	92%				
	3.049E+02			(18.51096)	(3.7246E+00)	(26.204934)	(26.204934)		(0.01)					

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

Sq	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8N81AD	pCi/g	SOLID	672.48	Alq	g							
5	1418995	TSB-HR-06-10'							01/28/08 08:11	02/25/08 08:48	1.03 g							
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 07:08	TH-228	94	2	ALP175 COP	N	N	1.8939E-01	(5.682E-03)		N	81%	N	1.0000E+00	4.5045E-01	1.0282E+00		
			199.7833333	998.95								4%		(0.0000E+00)	0.970874			
1	02/25/08 07:08	TH-230	166	0	ALP175 COP	N	N	1.8939E-01	(5.682E-03)		N	81%	N	1.0000E+00	4.5045E-01	1.0000E+00		
			199.7833333	998.95								4%		(0.0000E+00)	0.970874			
2	02/25/08 07:08	TH-232	107	0	ALP175 COP	N	N	1.8939E-01	(5.682E-03)		N	81%	N	1.0000E+00	4.5045E-01	1.0000E+00		
			199.7833333	998.95								4%		(0.0000E+00)	0.970874			
3	02/25/08 06:26	Th-234	4881	730	GPC30A COP	Y	N	4.4730E-01	(1.789E-02)		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00		
			20	500										(0.0000E+00)	0.970874			

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFcTU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC
	02/26/08	TH-228	R	1.379246	4.68508E-01	3.067322	3.067322	3.067322	1.03 G	81%		0.083269		
	2.941E+02			(0.179546)	(4.8550E-02)	(0.367387)	(0.367387)		(0.0103)			0.021681		
	02/26/08	TH-230	R	2.379037	8.30900E-01	5.439908	5.439908	5.439908	1.03 G	81%		0.068641		
	2.941E+02			(0.263128)	(6.4498E-02)	(0.533914)	(0.533914)		(0.0103)			0.01491		
	02/26/08	TH-232	R	1.533475	5.35580E-01	3.506447	3.506447	3.506447	1.03 G	81%		0.068641		
	2.941E+02			(0.191265)	(5.1786E-02)	(0.39913)	(0.39913)		(0.0103)			0.01491		
	02/26/08	Th-234	R	237.181037	2.42590E+02	542.338702	542.338702	542.338702	1.03 G	81%				
	2.941E+02			(15.746033)	(3.4936E+00)	(23.056726)	(23.056726)		(0.0103)					

0 - (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 Significant, Date/Time - mm/dd/yy hr:mm, 24hr Time

RecCnt:6

RADCALC v4.8.29
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Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol		
6	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8N91AD	pci/g		01/28/08 08:30	02/25/08 08:48		673.16	Alq	1	9		
							SOLID								1.00 g		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 07:08	TH-228	98	0	ALP177	COP	N	N	2.1088E-01		N	83%	N	1.0000E+00	4.5045E-01	1.0282E+00	
			199.7833333	998.95			Y		(6.326E-03)			4%		(0.000E+00)	1.00		
1	02/25/08 07:08	TH-230	41	1	ALP177	COP	N	N	2.1088E-01		N	83%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(6.326E-03)			4%		(0.000E+00)	1.00		
2	02/25/08 07:08	TH-232	91	0	ALP177	COP	N	N	2.1088E-01		N	83%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(6.326E-03)			4%		(0.000E+00)	1.00		
3	02/25/08 06:48	Th-234	4996	825	GPC30B	COP	Y	N	4.4197E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			20	500			Y		(1.768E-02)					(0.000E+00)	1.00		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	IDC/LcC	BkLcC/MDC	StdDvMdc/LcC				
02/26/08	TH-228	R	1.291647			4.90531E-01	2.78888	2.78888	1.00 G	83%	0.063126						
3.032E+02			(0.165468)			(4.9561E-02)	(0.327751)	(0.327751)	(0.01)		0.013712						
02/26/08	TH-230	R	0.523011			2.04221E-01	1.161085	1.161085	1.00 G	83%	0.061396						
3.032E+02			(0.091873)			(3.2066E-02)	(0.195176)	(0.195176)	(0.01)		0.013336						
02/26/08	TH-232	R	1.166519			4.55493E-01	2.589674	2.589674	1.00 G	83%	0.061396						
3.032E+02			(0.152973)			(4.7759E-02)	(0.312876)	(0.312876)	(0.01)		0.013336						
02/26/08	Th-234	R	252.908515			2.48150E+02	561.457466	561.457466	1.00 G	83%							
3.032E+02			(16.781551)			(3.5346E+00)	(23.839701)	(23.839701)	(0.01)								

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol		
7	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8PD1AD	pci/g		01/28/08 08:40	02/25/08 08:48		673.77	Alq	1	9		
							SOLID								1.01 g		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 07:08	TH-228	142	1	ALP178	COP	N	N	2.7579E-01		N	55%	N	1.0000E+00	4.5045E-01	1.0282E+00	
			199.7833333	998.95			Y		(8.274E-03)			3%		(0.000E+00)	0.990099		
1	02/25/08 07:08	TH-230	152	1	ALP178	COP	N	N	2.7579E-01		N	55%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(8.274E-03)			3%		(0.000E+00)	0.990099		
2	02/25/08 07:08	TH-232	148	0	ALP178	COP	N	N	2.7579E-01		N	55%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(8.274E-03)			3%		(0.000E+00)	0.990099		
3	02/25/08 06:26	Th-234	3394	719	GPC30C	COP	Y	N	4.5171E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			20	500			Y		(1.807E-02)					(0.000E+00)	0.990099		

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIkLcC/MDC	StdDvMdc/LcC
02/26/08	TH-228	R	2.134629	7.09769E-01	4.655142	4.655142	55%	1.01 G	0.0721					
3.005E+02			(0.246768)	(5.9655E-02)	(0.482968)	(0.482968)		(0.0101)	0.015662					
02/26/08	TH-230	R	2.222562	7.59823E-01	4.983431	4.983431	55%	1.01 G	0.070125					
3.005E+02			(0.252413)	(6.1719E-02)	(0.50571)	(0.50571)		(0.0101)	0.015232					
02/26/08	TH-232	R	2.166924	7.40803E-01	4.858681	4.858681	55%	1.01 G	0.070125					
3.005E+02			(0.247621)	(6.0902E-02)	(0.496879)	(0.496879)		(0.0101)	0.015232					
02/26/08	Th-234	R	166.130271	1.68262E+02	372.497666	372.497666	55%	1.01 G						
3.005E+02			(11.144106)	(2.9134E+00)	(16.235928)	(16.235928)		(0.0101)						

Sq	Status Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol
8	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8PE1AD	pci/g	01/28/08 09:00	02/25/08 08:48		673.54	Alq	1.00 g	
							SOLID							

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIkLcC/MDC	StdDvMdc/LcC
02/26/08	TH-228	R	2.218629	6.02799E-01	4.790487	4.790487	44%	1.00 G	0.103965					
3.034E+02			(0.269027)	(5.5000E-02)	(0.527032)	(0.527032)		(0.01)	0.027071					
02/26/08	TH-230	R	1.324071	3.69877E-01	2.939439	2.939439	44%	1.00 G	0.085704					
3.034E+02			(0.186781)	(4.3009E-02)	(0.386617)	(0.386617)		(0.01)	0.018618					
02/26/08	TH-232	R	2.182927	6.09797E-01	4.846102	4.846102	44%	1.00 G	0.085704					
3.034E+02			(0.263566)	(5.5217E-02)	(0.530379)	(0.530379)		(0.01)	0.018618					
02/26/08	Th-234	R	134.84138	1.33210E+02	299.348163	299.348163	44%	1.00 G						
3.034E+02			(9.124177)	(2.5923E+00)	(13.315738)	(13.315738)		(0.01)						

Sq	Status Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol
9	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8PG1AD	pci/g	01/28/08 09:15	02/25/08 08:48		676.04	Alq	1.02 g	
							SOLID							

0 - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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
 RecCnt:9
 RADCALC v4.8.29
 TA Richland

Alpha Spec, Thlso by ALP, Calculated Results

2/26/2008 8:20:37 PM

Batch Nbr: 8035234

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC
1	02/25/08 07:08	TH-230	111	0	ALP116 COP	N	N	2.1858E-01 (6.557E-03)	N	52%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00
			200.1833333	1000.05		Y				3%				
2	02/25/08 07:08	TH-232	78	0	ALP116 COP	N	N	2.1858E-01 (6.557E-03)	N	52%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00
			200.1833333	1000.05		Y				3%				
3	02/25/08 06:48	Th-234	3194	730	GPC30A COP	Y	N	4.4730E-01 (1.789E-02)	N	100%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00
			20	500		Y								

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC
02/26/08	TH-228	R	1.677608		4.22611E-01 (4.6077E-02)	3.694794 (0.461576)	3.694794 (0.461576)	1.02 G (0.0102)	52%			0.112083		
2.986E+02			(0.226362)									0.029189		
02/26/08	TH-230	R	2.140875		5.54492E-01 (5.2640E-02)	4.847799 (0.546991)	4.847799 (0.546991)	1.02 G (0.0102)	52%			0.092394		
2.986E+02			(0.265082)									0.020075		
02/26/08	TH-232	R	1.504398		3.89643E-01 (4.4130E-02)	3.406561 (0.438192)	3.406561 (0.438192)	1.02 G (0.0102)	52%			0.092394		
2.986E+02			(0.208163)									0.020075		
02/26/08	Th-234	R	156.228548		1.58240E+02 (2.8263E+00)	353.764278 (15.497168)	353.764278 (15.497168)	1.02 G (0.0102)	52%					
2.986E+02			(10.50224)											

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC
02/26/08	TH-228	R	1.053066		4.92712E-01 (4.9740E-02)	2.296479 (0.27045)	2.296479 (0.27045)	1.01 G (0.0101)	59%			0.060361		
3.014E+02			(0.135142)									0.015718		
02/26/08	TH-230	R	1.265199		6.08644E-01 (5.5204E-02)	2.83683 (0.309515)	2.83683 (0.309515)	1.01 G (0.0101)	59%			0.049757		
3.014E+02			(0.152372)									0.01081		
02/26/08	TH-232	R	0.768676		3.69784E-01 (4.2998E-02)	1.723527 (0.226029)	1.723527 (0.226029)	1.01 G (0.0101)	59%			0.049757		
3.014E+02			(0.108158)									0.01081		
02/26/08	Th-234	R	179.212405		1.81512E+02 (3.0250E+00)	401.830457 (17.412448)	401.830457 (17.412448)	1.01 G (0.0101)	59%					
3.014E+02			(11.992154)											

10 Calc S1 SOLID *STLE AlpIsoWoBS KF8PGIAG pCi/g R 01/28/08 09:15 02/25/08 09:34
 1418995,TSB-HR-05-10' DUP ,F8A290183-9 SOLID

Sq Cnt Date Parameter Sample Cnt Bkgrnd Cnt Instr Geom Trc/Av Ent Efficiency1 Efficiency 2 Ent Trc Yld Fct Ent Trc Yld Fct Decay Abn
 0 02/25/08 07:54 TH-228 99 2 ALP117 COP N N 3.6088E-01 (1.083E-02) N 59% 3% 1.0000E+00 (0.000E+00) 4.5045E-01 1.0282E+00
 1 02/25/08 07:54 TH-230 122 1 ALP117 COP N N 3.6088E-01 (1.083E-02) N 59% 3% 1.0000E+00 (0.000E+00) 4.5045E-01 1.0000E+00
 2 02/25/08 07:54 TH-232 74 0 ALP117 COP N N 3.6088E-01 (1.083E-02) N 59% 3% 1.0000E+00 (0.000E+00) 4.5045E-01 1.0000E+00
 3 02/25/08 06:48 Th-234 3659 719 GPC30C COP Y N 4.5171E-01 (1.807E-02) N 100% N 1.0000E+00 (0.000E+00) 4.5045E-01 1.0000E+00

Sq CalcDate,TrcAct Parameter Avg Sa Act, Total U Q Net Cnt Rt Dpm Wo Blk Dpm-Blk Vol Used TrcYld,EnFct LCSYld,EFctU IDC/ILcC BikLcC/MDC StdDvMdc/LcC
 02/26/08 TH-228 R 1.053066 (0.135142) 4.92712E-01 (4.9740E-02) 2.296479 (0.27045) 2.296479 (0.27045) 1.01 G (0.0101) 59% 0.060361 0.015718
 02/26/08 TH-230 R 1.265199 (0.152372) 6.08644E-01 (5.5204E-02) 2.83683 (0.309515) 2.83683 (0.309515) 1.01 G (0.0101) 59% 0.049757 0.01081
 02/26/08 TH-232 R 0.768676 (0.108158) 3.69784E-01 (4.2998E-02) 1.723527 (0.226029) 1.723527 (0.226029) 1.01 G (0.0101) 59% 0.049757 0.01081
 02/26/08 Th-234 R 179.212405 (11.992154) 1.81512E+02 (3.0250E+00) 401.830457 (17.412448) 401.830457 (17.412448) 1.01 G (0.0101) 59%

0 (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

RecCnt:11 RADCALC v4.8.29
 TA Richland

Alpha Spec, Thiso by ALP , Calculated Results

Sq	Calc	S1	SOLID	STLE	AlpIsoWoBS	KGH0L1AA	pCi/g	SOLID	QC/BB	Sa/On Date	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Bik Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08	10:46	TH-228	7	2	ALP118	COP	N	N	3.5511E-01	(1.065E-02)	N	80%	N	673.16	Alq	1.0000E+00	4.5045E-01	1.0284E+00	
1	02/25/08	10:46	TH-230	19	0	ALP118	COP	N	N	3.5511E-01	(1.065E-02)	N	80%	N			1.0000E+00	4.5045E-01	1.0000E+00	
2	02/25/08	10:46	TH-232	10	0	ALP118	COP	N	N	3.5511E-01	(1.065E-02)	N	80%	N			1.0000E+00	4.5045E-01	1.0000E+00	
3	02/25/08	06:48	Th-234	4821	570	GPC30D	COP	Y	N	4.4500E-01	(1.780E-02)	N	100%	N			1.0000E+00	4.5045E-01	1.0000E+00	

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Rt	Dpm	Wo	Bik	Dpm-Bik	Vol Used	TrcYld,EntFct	LCSYld,EFctU	IDC/LcC	BikLcC/MDC	StdDWMdC/LcC
02/26/08	TH-228	R	0.053741			3.29942E-02	0.116011	0.116011	0.116011	(0.047288)	1.00 G	80%	0.046015			
3.032E+02			(0.022076)			(1.3302E-02)	(0.047288)	(0.047288)	(0.047288)	(0.047288)	(0.01)		0.0111981			
02/26/08	TH-230	R	0.150439			9.49842E-02	0.333975	0.333975	0.333975	(0.079281)	1.00 G	80%	0.037924			
3.032E+02			(0.036527)			(2.1814E-02)	(0.079281)	(0.079281)	(0.079281)	(0.079281)	(0.01)		0.008238			
02/26/08	TH-232	R	0.079178			4.99917E-02	0.175776	0.175776	0.175776	(0.056689)	1.00 G	80%	0.037924			
3.032E+02			(0.025853)			(1.5840E-02)	(0.056689)	(0.056689)	(0.056689)	(0.056689)	(0.01)		0.008238			
02/26/08	Th-234	R	242.848101			2.39910E+02	539.123323	539.123323	539.123323	(22.932974)	1.00 G	80%				
3.032E+02			(16.125994)			(3.4720E+00)	(22.932974)	(22.932974)	(22.932974)	(22.932974)	(0.01)					

Sq	Calc	S1	SOLID	STLE	AlpIsoWoBS	KGH0L1AC	pCi/g	SOLID	QC/BB	Sa/On Date	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Bik Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08	07:54	TH-228	9	2	ALP119	COP	N	N	2.2282E-01	(6.684E-03)	N	54%	N	5.0144	Alq	1.0000E+00	4.5045E-01	1.0283E+00	
1	02/25/08	07:54	TH-230	134	0	ALP119	COP	N	N	2.2282E-01	(6.684E-03)	N	54%	N			1.0000E+00	4.5045E-01	1.0000E+00	
2	02/25/08	07:54	TH-232	8	0	ALP119	COP	N	N	2.2282E-01	(6.684E-03)	N	54%	N			1.0000E+00	4.5045E-01	1.0000E+00	
3	02/25/08	07:10	Th-234	3272	730	GPC30A	COP	Y	N	4.4730E-01	(1.789E-02)	N	100%	N			1.0000E+00	4.5045E-01	1.0000E+00	

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 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

Alpha Spec, Thisso by ALP, Calculated Results

Batch Nbr: 8035234

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BKLCc/MDC	StdDvMdc/LcC
0	02/26/08	TH-228	R	0.161335		4.29779E-02	0.358767	0.358767	1.03 G	54%	7%	0.10602		
	2.949E+02			(0.057965)		(1.5059E-02)	(0.127594)	(0.127594)	(0.0103)			0.027606		
0	02/26/08	TH-230	R	2.444747		6.69665E-01	5.590161	5.590161	1.03 G	54%	111%	0.087388		
	2.949E+02			(0.286945)		(5.7859E-02)	(0.590978)	(0.590978)	(0.0103)			0.018984		
0	02/26/08	TH-232	R	0.145955		3.99800E-02	0.333741	0.333741	1.03 G	54%	7%	0.087388		
	2.949E+02			(0.053015)		(1.4170E-02)	(0.120025)	(0.120025)	(0.0103)			0.018984		
0	02/26/08	Th-234	R	158.524809		1.62140E+02	362.48319	362.48319	1.03 G	54%				
	2.949E+02			(10.647468)		(2.8606E+00)	(15.847039)	(15.847039)	(0.0103)					

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol		
13	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8NX2AD		pCi/g		01/28/08 07:00	02/26/08 13:47	655.24	Alq	1	9	1.02 g		
							F8A290183-1	SOLID										
0	02/26/08	12:07	TH-228	221	-	5	ALP116	COP	N	N	2.1858E-01	Efficiency 2	N	86%	N	1.0000E+00	4.5045E-01	1.0295E+00
				200		1000.05			Y		(6.557E-03)	Efficiency 1	Y	4%		(0.000E+00)	0.980392	
1	02/26/08	12:07	TH-230	126	-	0	ALP116	COP	N	N	2.1858E-01	Efficiency 2	N	86%	N	1.0000E+00	4.5045E-01	1.0000E+00
				200		1000.05			Y		(6.557E-03)	Efficiency 1	Y	4%		(0.000E+00)	0.980392	
2	02/26/08	12:07	TH-232	195	-	0	ALP116	COP	N	N	2.1858E-01	Efficiency 2	N	86%	N	1.0000E+00	4.5045E-01	1.0000E+00
				200		1000.05			Y		(6.557E-03)	Efficiency 1	Y	4%		(0.000E+00)	0.980392	
3	02/26/08	10:00	Th-234	12655		800	GPC30A	COP	Y	N	4.4730E-01	Efficiency 2	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
				50		500			Y		(1.789E-02)	Efficiency 1	Y			(0.000E+00)	0.980392	

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BKLCc/MDC	StdDvMdc/LcC
0	02/26/08	TH-228	R	2.666303		1.10000E+00	5.864738	5.864738	1.02 G	86%		0.089199		
	2.894E+02			(0.275164)		(7.4364E-02)	(0.526205)	(0.526205)	(0.0102)			0.028194		
0	02/26/08	TH-230	R	1.483348		6.30000E-01	3.358894	3.358894	1.02 G	86%		0.056385		
	2.894E+02			(0.175632)		(5.6134E-02)	(0.358932)	(0.358932)	(0.0102)			0.012248		
0	02/26/08	TH-232	R	2.295656		9.75000E-01	5.198289	5.198289	1.02 G	86%		0.056385		
	2.894E+02			(0.243051)		(6.9828E-02)	(0.482331)	(0.482331)	(0.0102)			0.012248		
0	02/26/08	Th-234	R	248.303083		2.51500E+02	562.258063	562.258063	1.02 G	86%				
	2.894E+02			(16.244563)		(2.2506E+00)	(23.046267)	(23.046267)	(0.0102)					

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol		
14	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8N42AD		pCi/g		01/28/08 07:15	02/26/08 13:47	655.61	Alq	1	9	1.03 g		
							F8A290183-2	SOLID										
0	02/26/08	12:07	TH-228	144	1	1	ALP117	COP	N	N	3.6088E-01	Efficiency 2	N	52%	N	1.0000E+00	4.5045E-01	1.0295E+00
				200.183333		1000.0666			Y		(1.083E-02)	Efficiency 1	Y	3%		(0.000E+00)	0.970874	

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

Alpha Spec, Thiso by ALP , Calculated Results

Batch Nbr: 6035234

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bik	Dpm-Bik	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BIK/LcC/MDC	StdDvMdc/LcC
1	02/26/08 12:07	TH-230	183	1	ALP117 COP	N	N	3.6088E-01 (1.083E-02)	N	52%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.970874	1.0000E+00
			200.1833333	1000.0666						3%				
2	02/26/08 12:07	TH-232	137	0	ALP117 COP	N	N	3.6088E-01 (1.083E-02)	N	52%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.970874	1.0000E+00
			200.1833333	1000.0666						3%				
3	02/26/08 10:00	Th-234	7558	768	GPC30B COP	Y	N	4.4197E-01 (1.768E-02)	N	100%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.970874	1.0000E+00
			50	500										

Sq	Status Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BBSa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
15	Calc	S1	SOLID	*STLE AlpiswoBS	KF8N52AD	pCi/g	01/28/08 07:55	02/26/08 13:47			1	g	
										656.35 Alq		1.00 g	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	BIK Value	ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/26/08 12:07	TH-228	171	3	ALP118 COP	N	N	3.5511E-01 (1.065E-02)	N	55%	N	55%	N	1.0000E+00 (0.000E+00)	1.00	4.5045E-01	1.0294E+00	
			200.1833333	1000.0166								3%						
1	02/26/08 12:07	TH-230	122	0	ALP118 COP	N	N	3.5511E-01 (1.065E-02)	N	55%	N	55%	N	1.0000E+00 (0.000E+00)	1.00	4.5045E-01	1.0000E+00	
			200.1833333	1000.0166								3%						
2	02/26/08 12:07	TH-232	195	0	ALP118 COP	N	N	3.5511E-01 (1.065E-02)	N	55%	N	55%	N	1.0000E+00 (0.000E+00)	1.00	4.5045E-01	1.0000E+00	
			200.1833333	1000.0166								3%						
3	02/26/08 10:00	Th-234	8194	700	GPC30C COP	Y	N	4.5171E-01 (1.807E-02)	N	100%	N	100%	N	1.0000E+00 (0.000E+00)	1.00	4.5045E-01	1.0000E+00	
			50	500														

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bik	Dpm-Bik	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BIK/LcC/MDC	StdDvMdc/LcC
02/26/08	TH-228		R	2.028224		8.51217E-01 (6.5347E-02)	4.373922 (0.424465)	4.373922 (0.424465)	1.00 G (0.01)	55%		0.075148 0.021459		
2.957E+02				(0.222344)										
02/26/08	TH-230		R	1.410618		6.09441E-01 (5.5185E-02)	3.131574 (0.339074)	3.131574 (0.339074)	1.00 G (0.01)	55%		0.05539 0.012035		
2.957E+02				(0.168825)										
02/26/08	TH-232		R	2.254675		9.74107E-01 (6.9764E-02)	5.005384 (0.465622)	5.005384 (0.465622)	1.00 G (0.01)	55%		0.05539 0.012035		
2.957E+02				(0.239182)										
02/26/08	Th-234		R	162.025739		1.62480E+02 (1.8112E+00)	359.697501 (14.936149)	359.697501 (14.936149)	1.00 G (0.01)	55%				
2.957E+02				(10.654666)										

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 RecCnt:16 RADCALC v4.8.29
 TA Richland

Alpha Spec, Thiso by ALP, Calculated Results

Batch Nbr: 8035234

Sq	Calc	Method	Matrix	Protocol	Equation Set	Wk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol		
16	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8N62AD	pCi/g		01/28/08 07:55	02/26/08 13:47		658.78	Alq	1.00 g	9		
1418995	TSB-HR-06-0'	FD					SOLID										
Sq <th>Cnt Date</th> <th>Parameter</th> <th>Sample Cnt</th> <th>Bkgrnd Cnt</th> <th>Instr</th> <th>Geom</th> <th>Trc/Av</th> <th>Ent</th> <th>Efficiency1</th> <th>Efficiency2</th> <th>Ent</th> <th>Trc Yld Fct</th> <th>Ent</th> <th>Ingr Fct</th> <th>Conv Fct/VolAdj</th> <th>Decay</th> <th>Abn</th>	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/26/08 12:07	TH-228	165	2	ALP119	COP	N	N	2.2282E-01		N	89%	N	1.0000E+00	4.5045E-01	1.0294E+00	
			200.1	1000.2166			Y		(6.684E-03)			5%		(0.000E+00)	1.00		
1	02/26/08 12:07	TH-230	81	0	ALP119	COP	N	N	2.2282E-01		N	89%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.1	1000.2166			Y		(6.684E-03)			5%		(0.000E+00)	1.00		
2	02/26/08 12:07	TH-232	137	0	ALP119	COP	N	N	2.2282E-01		N	89%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.1	1000.2166			Y		(6.684E-03)			5%		(0.000E+00)	1.00		
3	02/26/08 10:00	Th-234	13061	579	GPC30D	COP	Y	N	4.4500E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			50	500			Y		(1.780E-02)					(0.000E+00)	1.00		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BikLcC/MDC	StdDyMdC/LcC			
02/26/08	TH-228	R	1.929763			8.22588E-01	4.161587	4.161587	1.00 G	89%		0.066256					
2.967E+02			(0.21289)			(6.4210E-02)	(0.40712)	(0.40712)	(0.01)			0.017252					
02/26/08	TH-230	R	0.922489			4.04798E-01	2.047927	2.047927	1.00 G	89%		0.05455					
2.967E+02			(0.125231)			(4.4989E-02)	(0.257657)	(0.257657)	(0.01)			0.01185					
02/26/08	TH-232	R	1.560259			6.84658E-01	3.463778	3.463778	1.00 G	89%		0.05455					
2.967E+02			(0.180469)			(5.8503E-02)	(0.359611)	(0.359611)	(0.01)			0.01185					
02/26/08	Th-234	R	263.246996			2.60062E+02	584.408693	584.408693	1.00 G	89%							
2.967E+02			(17.216591)			(2.2862E+00)	(23.93424)	(23.93424)	(0.01)								

Sq	Calc	Method	Matrix	Protocol	Equation Set	Wk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol		
17	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8N82AD	pCi/g		01/28/08 08:11	02/26/08 13:48		654.50	Alq	1.03 g	9		
1418995	TSB-HR-06-10'						SOLID										
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/26/08 12:08	TH-228	88	5	ALP120	COP	N	N	2.1268E-01		N	78%	N	1.0000E+00	4.5045E-01	1.0294E+00	
			200.3333333	1000.1833			Y		(6.380E-03)			4%		(0.000E+00)	0.970874		
1	02/26/08 12:08	TH-230	73	0	ALP120	COP	N	N	2.1268E-01		N	78%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.3333333	1000.1833			Y		(6.380E-03)			4%		(0.000E+00)	0.970874		
2	02/26/08 12:08	TH-232	85	0	ALP120	COP	N	N	2.1268E-01		N	78%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.3333333	1000.1833			Y		(6.380E-03)			4%		(0.000E+00)	0.970874		
3	02/26/08 10:55	Th-234	11522	800	GPC30A	COP	Y	N	4.4730E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			50	500			Y		(1.789E-02)					(0.000E+00)	0.970874		

Sq	CalcDate	TrcAct	Parameter	Avg	Sa Act	Total U	Q	Net Cnt	Rt	Dpm	Wo Blk	Dpm-Blk	Vol Used	TrcYld	EnFct	LCSYld	EFctU	IDC/ILcC	BkLcC/MDC	StdDvMdc/LcC			
02/26/08	2.862E+02	TH-228	R	1.176046	4.34269E-01	2.612289	2.612289	2.612289	0.321443	2.612289	0.321443	2.612289	1.03 G	78%	0.099539	0.031471	0.062915	0.013672	0.062915	0.013672	0.062915	0.013672	
02/26/08	2.862E+02	TH-230	R	0.95861	3.64393E-01	2.191958	2.191958	2.191958	0.287424	2.191958	0.287424	2.191958	1.03 G	78%	0.062915	0.013672	0.062915	0.013672	0.062915	0.013672	0.062915	0.013672	0.062915
02/26/08	2.862E+02	TH-232	R	1.116189	4.24293E-01	2.55228	2.55228	2.55228	0.315269	2.55228	0.315269	2.55228	1.03 G	78%	0.062915	0.013672	0.062915	0.013672	0.062915	0.013672	0.062915	0.013672	0.062915
02/26/08	2.862E+02	Th-234	R	223.737617	2.28840E+02	511.598947	511.598947	511.598947	21.019617	511.598947	21.019617	511.598947	1.03 G	78%	0.062915	0.013672	0.062915	0.013672	0.062915	0.013672	0.062915	0.013672	0.062915
02/26/08	2.862E+02	Th-234	R	14.651089	2.1476E+00	21.019617	21.019617	21.019617	0.0103	21.019617	0.0103	21.019617	1.03 G	78%	0.062915	0.013672	0.062915	0.013672	0.062915	0.013672	0.062915	0.013672	0.062915

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
18	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8N92AD	1418995,TSB-HJ-08-0	1418995,TSB-HJ-08-0	pCi/g	01/28/08 08:30	02/26/08 13:48	01/28/08 08:30	02/26/08 13:48	655.17	Alq	1	1.00 g

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/26/08 12:09	TH-228	94	3	ALP171	COP	N	N	2.5767E-01	N	84%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0294E+00		
1	02/26/08 12:09	TH-230	145	2	ALP171	COP	N	N	2.5767E-01	N	84%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00		
2	02/26/08 12:09	TH-232	97	1	ALP171	COP	N	N	2.5767E-01	N	84%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00		
3	02/26/08 10:55	Th-234	12249	768	GPC30B	COP	Y	N	4.4197E-01	N	100%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00		
50			50				Y		1.768E-02									

Sq	CalcDate	TrcAct	Parameter	Avg	Sa Act	Total U	Q	Net Cnt	Rt	Dpm	Wo Blk	Dpm-Blk	Vol Used	TrcYld	EnFct	LCSYld	EFctU	IDC/ILcC	BkLcC/MDC	StdDvMdc/LcC			
02/26/08	2.951E+02	TH-228	R	1.000734	4.67507E-01	2.15816	2.15816	2.15816	0.257825	2.15816	0.257825	2.15816	1.00 G	84%	0.067628	0.019307	0.058816	0.015314	0.049851	0.010829	0.058816	0.015314	0.049851
02/26/08	2.951E+02	TH-230	R	1.505054	7.23784E-01	3.34122	3.34122	3.34122	0.341088	3.34122	0.341088	3.34122	1.00 G	84%	0.067628	0.019307	0.058816	0.015314	0.049851	0.010829	0.058816	0.015314	0.049851
02/26/08	2.951E+02	TH-232	R	1.007532	4.84525E-01	2.236723	2.236723	2.236723	0.263126	2.236723	0.263126	2.236723	1.00 G	84%	0.067628	0.019307	0.058816	0.015314	0.049851	0.010829	0.058816	0.015314	0.049851
02/26/08	2.951E+02	Th-234	R	248.112273	2.43444E+02	550.809798	550.809798	550.809798	22.594783	550.809798	22.594783	550.809798	1.00 G	84%	0.067628	0.019307	0.058816	0.015314	0.049851	0.010829	0.058816	0.015314	0.049851
02/26/08	2.951E+02	Th-234	R	16.237095	2.2142E+00	22.594783	22.594783	22.594783	0.01	22.594783	0.01	22.594783	1.00 G	84%	0.067628	0.019307	0.058816	0.015314	0.049851	0.010829	0.058816	0.015314	0.049851

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
19	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8PD2AD	1418995,TSB-HJ-08-10	1418995,TSB-HJ-08-10	pCi/g	01/28/08 08:40	02/26/08 13:48	01/28/08 08:40	02/26/08 13:48	655.76	Alq	1	1.01 g

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/26/08 12:09	TH-228	128	4	ALP172	COP	N	N	2.4969E-01	N	53%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0294E+00		
199.7833333			199.7833333				Y		7.491E-03		3%							

Alpha Spec, Thiso by ALP, Calculated Results

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnrFct	LCSYld,EFctU	IDC/ILcC	BKlCc/MDC	StdDvMdc/LcC
1	02/26/08 12:09	TH-230	78	1	199.7833333	998.95	ALP172 COP	N N 2.4969E-01 (7.491E-03)	N	53%	1.0000E+00 (0.0000E+00)	4.5045E-01 0.990099	1.0000E+00	1.0000E+00
2	02/26/08 12:09	TH-232	122	1	199.7833333	998.95	ALP172 COP	N N 2.4969E-01 (7.491E-03)	N	53%	1.0000E+00 (0.0000E+00)	4.5045E-01 0.990099	1.0000E+00	1.0000E+00
3	02/26/08 10:55	Th-234	7901	700	50	154.635765 (10.174226)	GPC30C COP	Y N 4.5171E-01 (1.807E-02)	N	100%	1.0000E+00 (0.0000E+00)	4.5045E-01 0.990099	1.0000E+00	1.0000E+00

Sq	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8PEZAD	pci/g	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
20	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF8PEZAD	pci/g	1418995,TSB-HR-05-0	FBA290183-8	SOLID	01/28/08 09:00	02/26/08 13:48	02/26/08 13:48	655.53	Alg	1	g
0	02/26/08 12:09	TH-228	102	1	199.7833333	998.95	ALP173 COP	N N 1.8556E-01 (5.567E-03)	Y	42%	1.0000E+00 (0.0000E+00)	4.5045E-01 1.00	1.0000E+00	1.0294E+00	Abn		
1	02/26/08 12:09	TH-230	152	1	199.7833333	998.95	ALP173 COP	N N 1.8556E-01 (5.567E-03)	Y	42%	1.0000E+00 (0.0000E+00)	4.5045E-01 1.00	1.0000E+00	1.0000E+00	Abn		
2	02/26/08 12:09	TH-232	110	0	199.7833333	998.95	ALP173 COP	N N 1.8556E-01 (5.567E-03)	Y	42%	1.0000E+00 (0.0000E+00)	4.5045E-01 1.00	1.0000E+00	1.0000E+00	Abn		
3	02/26/08 10:55	Th-234	6132	579	50	122.969751 (8.125649)	GPC30D COP	Y N 4.4500E-01 (1.780E-02)	Y	100%	1.0000E+00 (0.0000E+00)	4.5045E-01 1.00	1.0000E+00	1.0000E+00			

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnrFct	LCSYld,EFctU	IDC/ILcC	BKlCc/MDC	StdDvMdc/LcC
02/26/08	TH-228	2.953E+02	R	3.057478 (0.386897)	5.09552E-01 (5.0562E-02)	6.593828 (0.763652)	6.593828 (0.763652)	1.00 G (0.01)	42%	0.143849	0.031247	0.143849		
02/26/08	TH-230	2.953E+02	R	4.429029 (0.50039)	7.59823E-01 (6.1719E-02)	9.832446 (0.991293)	9.832446 (0.991293)	1.00 G (0.01)	42%	0.139742	0.030355	0.139742		
02/26/08	TH-232	2.953E+02	R	3.209439 (0.396474)	5.50596E-01 (5.2507E-02)	7.124961 (0.801695)	7.124961 (0.801695)	1.00 G (0.01)	42%	0.139742	0.030355	0.139742		
02/26/08	Th-234	2.953E+02	R	122.969751 (8.125649)	1.21482E+02 (1.5669E+00)	272.99312 (11.473377)	272.99312 (11.473377)	1.00 G (0.01)	42%	0.139742	0.030355	0.139742		

Sq	Calc	S1	SOLID	STLE	AlpIsoWoBS	KF8PG2AD	pCi/g	Units/Matrix	QC/BB	Sa/On Date	01/28/08 09:15	02/26/08 13:48	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol			
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn	
0	02/26/08 12:09	TH-228	69	1	ALP174	COP	N	N	1.8950E-01	N	N	52%	N	1.0000E+00	4.5045E-01	1.0294E+00			
			199.7833333	998.95			Y	(5.685E-03)				3%		(0.000E+00)	0.980392				
1	02/26/08 12:09	TH-230	82	1	ALP174	COP	N	N	1.8950E-01	N	N	52%	N	1.0000E+00	4.5045E-01	1.0000E+00			
			199.7833333	998.95			Y	(5.685E-03)				3%		(0.000E+00)	0.980392				
2	02/26/08 12:09	TH-232	78	1	ALP174	COP	N	N	1.8950E-01	N	N	52%	N	1.0000E+00	4.5045E-01	1.0000E+00			
			199.7833333	998.95			Y	(5.685E-03)				3%		(0.000E+00)	0.980392				
3	02/26/08 11:54	Th-234	7789	800	GPC30A	COP	Y	N	4.4730E-01	N	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00			
			50	500			Y	(1.789E-02)						(0.000E+00)	0.980392				
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EntFct	LCSYld,EFctU	IDC/LcC	BIK/LcC/MDC	StdDyWdC/LcC					
	02/26/08	TH-228	R	1.576949		3.44373E-01	3.468939	3.468939	1.02 G	52%		0.109779							
	2.906E+02			(0.226975)		(4.1590E-02)	(0.466914)	(0.466914)	(0.0102)			0.023846							
	02/26/08	TH-230	R	1.821412		4.09444E-01	4.124407	4.124407	1.02 G	52%		0.106646							
	2.906E+02			(0.247015)		(4.5337E-02)	(0.518299)	(0.518299)	(0.0102)			0.023166							
	02/26/08	TH-232	R	1.732344		3.89422E-01	3.922725	3.922725	1.02 G	52%		0.106646							
	2.906E+02			(0.23894)		(4.4218E-02)	(0.502726)	(0.502726)	(0.0102)			0.023166							
	02/26/08	Th-234	R	152.220156		1.54180E+02	344.687667	344.687667	1.02 G	52%									
	2.906E+02			(10.01789)		(1.7660E+00)	(14.341655)	(14.341655)	(0.0102)										

Sq	Calc	S1	SOLID	STLE	AlpIsoWoBS	KF8PG2AG	pCi/g	Units/Matrix	QC/BB	Sa/On Date	01/28/08 09:15	02/26/08 13:48	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/26/08 12:09	TH-228	93	2	ALP175	COP	N	N	1.8939E-01	N	N	60%	N	1.0000E+00	4.5045E-01	1.0294E+00		
			199.7833333	998.95			Y	(5.682E-03)				3%		(0.000E+00)	0.990099			
1	02/26/08 12:09	TH-230	102	0	ALP175	COP	N	N	1.8939E-01	N	N	60%	N	1.0000E+00	4.5045E-01	1.0000E+00		
			199.7833333	998.95			Y	(5.682E-03)				3%		(0.000E+00)	0.990099			
2	02/26/08 12:09	TH-232	87	0	ALP175	COP	N	N	1.8939E-01	N	N	60%	N	1.0000E+00	4.5045E-01	1.0000E+00		
			199.7833333	998.95			Y	(5.682E-03)				3%		(0.000E+00)	0.990099			
3	02/26/08 11:54	Th-234	8870	768	GPC30B	COP	Y	N	4.4197E-01	N	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00		
			50	500			Y	(1.768E-02)						(0.000E+00)	0.990099			

() - (1s Uncertainties). Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

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RecCnt:22 RADCALC v4.8.29
 TA Richland

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BkLcC/MDC	StdDvMdc/LcC
02/26/08	2.934E+02	TH-228	R	1.857433 (0.241965)	0	4.63502E-01 (4.8291E-02)	4.045882 (0.484999)	4.045882 (0.484999)	1.01 G (0.0101)	60%	0.113349			
02/26/08	2.934E+02	TH-230	R	1.987595 (0.250804)	1	5.10553E-01 (5.0562E-02)	4.456587 (0.514395)	4.456587 (0.514395)	1.01 G (0.0101)	60%	0.093329			
02/26/08	2.934E+02	TH-232	R	1.6953 (0.224999)	0	4.35472E-01 (4.6698E-02)	3.801207 (0.465774)	3.801207 (0.465774)	1.01 G (0.0101)	60%	0.093329			
02/26/08	2.934E+02	Th-234	R	177.461744 (11.656977)	1	1.75864E+02 (1.8844E+00)	397.905121 (16.477389)	397.905121 (16.477389)	1.01 G (0.0101)	60%	0.020273			

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
23	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KGH0L2AA	pCi/g	01/28/08 07:00	02/26/08 13:48		655.17	Alq	1.00 g	
0							SOLID							
0														
1														
2														
3														

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BkLcC/MDC	StdDvMdc/LcC
02/26/08	2.951E+02	TH-228	R	0.129608 (0.044464)	0	4.50488E-02 (1.5050E-02)	0.279492 (0.094819)	0.279492 (0.094819)	1.00 G (0.01)	76%	0.068973			
02/26/08	2.951E+02	TH-230	R	0.193042 (0.054537)	1	6.90749E-02 (1.8755E-02)	0.428554 (0.119083)	0.428554 (0.119083)	1.00 G (0.01)	76%	0.066998			
02/26/08	2.951E+02	TH-232	R	0.055954 (0.028454)	0	2.00217E-02 (1.0061E-02)	0.124218 (0.062849)	0.124218 (0.062849)	1.00 G (0.01)	76%	0.014553			
02/26/08	2.951E+02	Th-234	R	225.567591 (14.772558)	1	2.26200E+02 (2.1342E+00)	500.760553 (20.580097)	500.760553 (20.580097)	1.00 G (0.01)	76%	0.066998			

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
24	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KGH0L2AC	pCi/g	01/28/08 07:00	02/26/08 13:48		5.0144		1.03 g	
0							SOLID							
0														
0														

Alpha Spec, Thiso by ALP, Calculated Results

2/26/2008 8:20:38 PM

Batch Nbr: 8035234

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BkLcC/MDC	StdDvMdc/LcC
1	02/26/08 12:09	TH-230	178	1	ALP178 COP	N	N	2.7579E-01 (8.274E-03)	N	53%	N	1.0000E+00 (0.0000E+00)	4.5045E-01 0.970874	1.0000E+00
			199.7833333	998.95		Y				3%				
2	02/26/08 12:09	TH-232	12	0	ALP178 COP	N	N	2.7579E-01 (8.274E-03)	N	53%	N	1.0000E+00 (0.0000E+00)	4.5045E-01 0.970874	1.0000E+00
			199.7833333	998.95		Y				3%				
3	02/26/08 11:54	Th-234	7842	579	GPC30D COP	Y	N	4.4500E-01 (1.780E-02)	N	100%	N	1.0000E+00 (0.0000E+00)	4.5045E-01 0.970874	1.0000E+00
			50	500		Y								
			R	0.150203	4.90532E-02	0.333621	0.333621	0.333621	1.03 G	53%	7%	0.073408		
			R	(0.0499668)	(1.5860E-02)	(0.109674)	(0.109674)	(0.109674)	(0.0103)			0.015946		
			R	2.647086	8.89964E-01	6.052829	6.052829	6.052829	1.03 G	53%	121%	0.071306		
			R	(0.287077)	(6.6788E-02)	(0.579348)	(0.579348)	(0.579348)	(0.0103)			0.015489		
			R	0.178656	6.00651E-02	0.408515	0.408515	0.408515	1.03 G	53%	8%	0.071306		
			R	(0.053519)	(1.7368E-02)	(0.120592)	(0.120592)	(0.120592)	(0.0103)			0.015489		
			R	152.998629	1.55682E+02	349.847014	349.847014	349.847014	1.03 G	53%				
			R	(10.067168)	(1.7718E+00)	(14.549254)	(14.549254)	(14.549254)	(0.0103)					

0 - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

RecCnt:24

RADCALC v4.8.29
 TA Richland

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 09:05:04.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6537	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
26-FEB-2008 09:05:04.00	18750	50.00	800	500.00	30A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
9	47	1620	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 09:05:04.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6538	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
26-FEB-2008 09:05:04.00	19181	50.00	768	500.00	30B

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
6	17	1620	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 09:05:04.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
CAL6539	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
26-FEB-2008 09:05:04.00	19724	50.00	700	500.00	30C

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
2	20	1620	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 09:05:04.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6540	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
26-FEB-2008 09:05:04.00	18104	50.00	579	500.00	30D

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
6	18	1620	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 10:00:59.00

LBPRINT - Rev#: 2.5

KF8NX2AD

Sample ID	Isotope	Geometry
KF8NX1AD <i>2/26/08 020</i>	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
26-FEB-2008 10:00:59.00	12655	50.00	800	500.00	30A

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
38	47	1597	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report
26-FEB-2008 10:00:59.00

LBPRINT - Rev#: 2.5

KF8N42AD

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
<i>KF8N41AD</i> <i>2/26/0802</i>	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
26-FEB-2008 10:00:59.00	7558	50.00	768	500.00	30B

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
14	17	1597	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 10:00:59.00

LBPRINT - Rev#: 2.5

KF8N52AD

Sample ID	Isotope	Geometry
KF8N51AD 2/26/08 020	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
26-FEB-2008 10:00:59.00	8194	50.00	700	500.00	30C

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
18	20	1597	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 10:00:59.00

LBPRINT - Rev#: 2.5

KF8N62AD

Sample ID	Isotope	Geometry
KF8N61AD 2/26/08 020	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
26-FEB-2008 10:00:59.00	13061	50.00	579	500.00	30D

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
7	18	1597	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 10:55:42.00

LBPRINT - Rev#: 2.5

KF8N82AD

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8N81AD <i>2/26/080K</i>	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
26-FEB-2008 10:55:42.00	11522	50.00	800	500.00	30A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
16	47	1607	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 10:55:42.00

LBPRINT - Rev#: 2.5

KF8N92AD

Sample ID	Isotope	Geometry
KF8N91AD 2/26/08 ad	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
26-FEB-2008 10:55:42.00	12249	50.00	768	500.00	30B

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
196	17	1607	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 10:55:42.00

LBPRINT - Rev#: 2.5

KF8PD2AD
Sample ID **Isotope** **Geometry**
~~KF8PD1AD~~ *2/26/08 gw* COP COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
26-FEB-2008 10:55:42.00	7901	50.00	700	500.00	30C

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
19	20	1607	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 10:55:42.00

LBPRINT - Rev#: 2.5

KF8 PEAD

Sample ID	Isotope	Geometry
KF8PE1AD <i>2/26/0802</i>	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
26-FEB-2008 10:55:42.00	6132	50.00	579	500.00	30D

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
11	18	1607	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 11:54:51.00

LBPRINT - Rev#: 2.5

KF8PG2AD

Sample ID	Isotope	Geometry
<i>KF8PG1AD</i> <i>2/26/08 op</i>	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
26-FEB-2008 11:54:51.00	7789	50.00	800	500.00	30A

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
14	47	1624	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 11:54:51.00

LBPRINT - Rev#: 2.5

KF8PG2AG

Sample ID	Isotope	Geometry
KF8PG1AG <i>2/26/08</i>	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
26-FEB-2008 11:54:51.00	8870	50.00	768	500.00	30B

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
14	17	1624	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 11:54:51.00

LBPRINT - Rev#: 2.5

KGH0L2AA *2/26/08*
Sample ID **Isotope** **Geometry**
~~KGH0L1AA~~ COP COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
26-FEB-2008 11:54:51.00	11380	50.00	700	500.00	30C

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
3	20	1624	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

26-FEB-2008 11:54:51.00

LBPRINT - Rev#: 2.5

KGHOLZAC

Sample ID	Isotope	Geometry
KGHOLZAC 2 <i>2/26/0800</i>	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
26-FEB-2008 11:54:51.00	7842	50.00	579	500.00	30D

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
2	18	1624	1492	26-FEB-2008 05:22:19.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

THORIUM ISOTOPIIC COUNTING REQUEST

C.R. Technician AS
Date Counted 1/14/06
C.R. Analyst AS
Date Analyzed 1/14/06

Counting Time 200 Minutes
Sample RICHRD008
SOP's RICHRD0016
Operating: RICHRD0016
Review: AS
Background See Alpha Analysis Report

WorkOrder #	Th-229 (4845 KeV) Tracer			TOTAL COUNTS			Det #	Comment
	ID	Activity	ROI Cts	BKG	Th-230 (5423 KeV) (6)	Th-232 (4688 KeV) (8)		
KF8P61A6		10		0			117	Rechecked
K6H0L1AA		10		0			118	
K6H0L1AC		10		0			119	
		10		0				
		10		0				
		10		0				
		10		0				
		10		0				
		10		0				
		10		0				

Comments:

Approved by: AS Date: 2/25/08

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PG1AG

Detector: ALP117 1

Report Date: 25-Feb-08 11:36 AM

Acquire Date: 25-FEB-2008 07:54:23.14

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

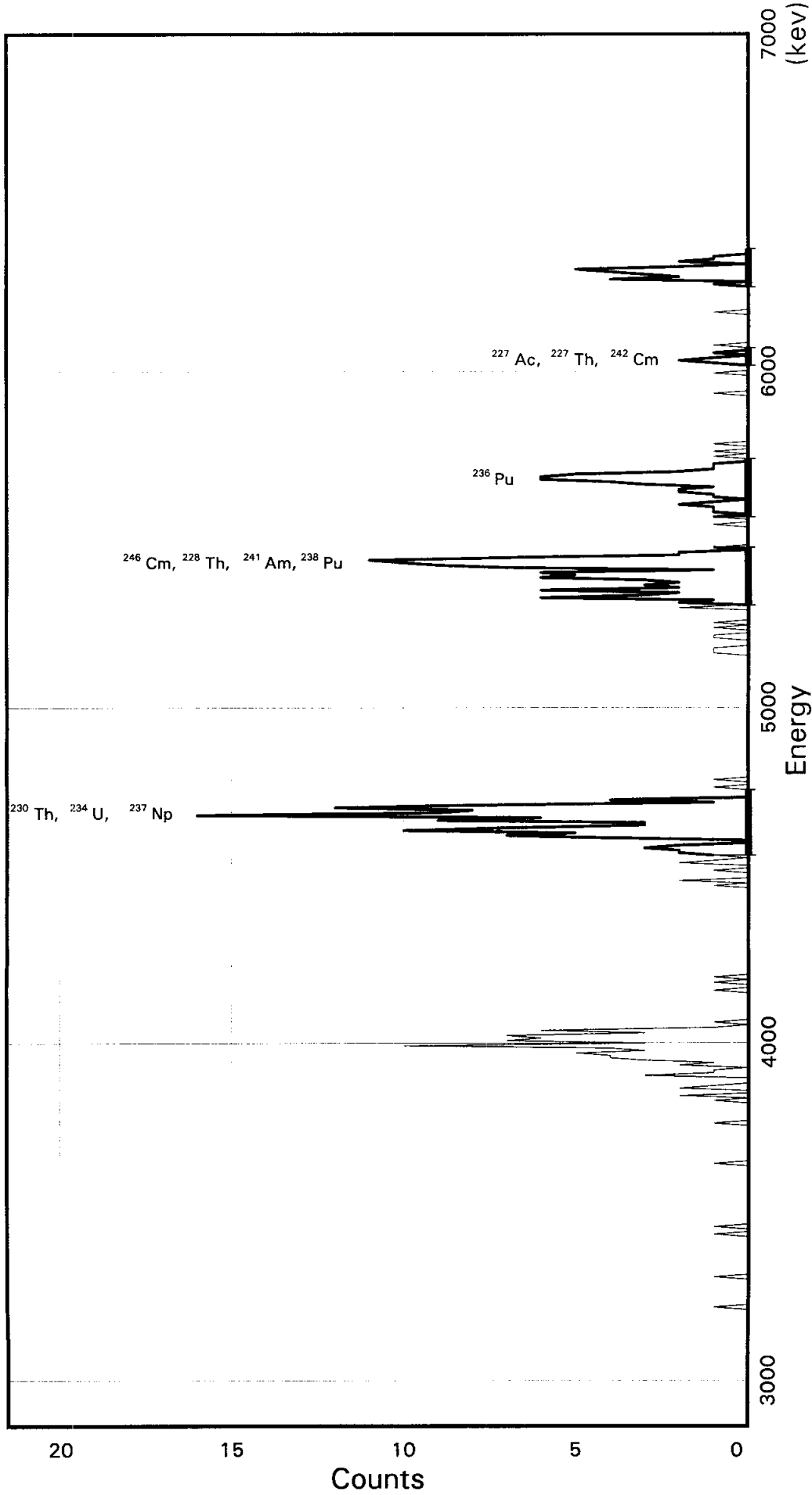
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	99	2	0.493	5423.2	195.2	327	353
TH-230	122	1	0.609	4687.7	187.3	229	254
TH-232	74	0	0.370	4013.0	157.1	141	162

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8PG1AG
Detector ID: ALP117 1

Batch ID: 8035234



Acquisition Start: 25-FEB-2008 07:54:23.14
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:07.00

Energy Coefficients:
Offset: 2.84243E + 03
Slope: 7.45584E + 00
Quadrature: 7.76019E-05

SAMPLE IDENTIITY: KF8PG1AG

TITLE : TH BRCO

DETECTOR : ALP117 1
CONFIGURATION NAME : RDND06\$DKA100:[ALP117.SAMPLE]KF8PG1AG_250280
754.CNF;1
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:18

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 25-FEB-2008 07:54:23 CALIB DATE : 11-FEB-2008 02:49:42

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:07

OFFSET : 2842.43 keV CONSTANT FWHM : 8.00000 Channels
SLOPE : 7.45584 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 7.760190E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1 Apr 07)

Sample Identity: KF8PG1AG
Detector: ALP117 1
Report Date: 25-Feb 08 11:14 AM
Acquire Date: 25-FEB-2008 07:54:23.14

Flags Key
Intersect Region: 0
Non Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
0		1	0		51	0		101	5		151	0		201	1		251	0		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	3		152	0		202	4		252	0		302	1		352	0		402	0		452	0		502
0		3	0		53	0		103	4		153	0		203	0		253	0		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	10		154	0		204	0		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	3		155	0		205	0		255	0		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	7		156	0		206	0		256	0		306	0		356	0		406	1		456	0		506
0		7	0		57	1		107	6		157	0		207	1		257	0		307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	7		158	0		208	0		258	0		308	0		358	0		408	4		458	0		508
0		9	0		59	0		109	3		159	0		209	0		259	0		309	0		359	0		409	2		459	0		509
0		10	0		60	0		110	6		160	0		210	1		260	1		310	0		360	0		410	3		460	0		510
0		11	0		61	0		111	1		161	0		211	0		261	1		311	1		361	0		411	4		461	0		511
0		12	1		62	0		112	0		162	0		212	0		262	1		312	0		362	0		412	5		462	0		512
0		13	0		63	0		113	1		163	0		213	0		263	0		313	0		363	1		413	2		463			
0		14	0		64	0		114	0		164	0		214	0		264	0		314	1		364	0		414	0		464			
0		15	0		65	0		115	0		165	0		215	0		265	0		315	0		365	0		415	2		465			
0		16	0		66	0		116	0		166	0		216	0		266	1		316	1		366	0		416	1		466			
0		17	0		67	0		117	0		167	0		217	0		267	1		317	1		367	0		417	1		467			
0		18	0		68	0		118	0		168	1		218	0		268	0		318	1		368	0		418	0		468			
0		19	0		69	0		119	0		169	0		219	0		269	0		319	2		369	0		419	0		469			
0		20	0		70	0		120	0		170	2		220	0		270	1		320	1		370	0		420	0		470			
0		21	0		71	0		121	0		171	0		221	0		271	0		321	0		371	1		421	0		471			
0		22	0		72	0		122	0		172	0		222	0		272	1		322	1		372	0		422	0		472			
0		23	0		73	1		123	0		173	0		223	0		273	0		323	1		373	0		423	0		473			
0		24	0		74	0		124	0		174	1		224	0		274	0		324	2		374	0		424	0		474			
0		25	0		75	0		125	0		175	0		225	0		275	0		325	2		375	1		425	0		475			
0		26	0		76	0		126	1		176	0		226	0		276	0		326	1		376	2		426	0		476			
0		27	0		77	0		127	0		177	2		227	0		277	0		327	3		377	1		427	0		477			
0		28	0		78	0		128	0		178	1		228	0		278	2		328	4		378	0		428	0		478			
0		29	1		79	0		129	1		179	0		229	0		279	0		329	6		379	1		429	0		479			
0		30	0		80	0		130	0		180	1		230	0		280	2		330	6		380	0		430	0		480			
0		31	0		81	0		131	1		181	2		231	0		281	1		331	5		381	0		431	0		481			
0		32	1		82	1		132	0		182	2		232	0		282	6		332	2		382	1		432	0		482			
0		33	0		83	0		133	0		183	3		233	0		283	3		333	1		383	0		433	0		483			
0		34	0		84	2		134	0		184	2		234	0		284	2		334	1		384	0		434	0		484			
0		35	0		85	0		135	0		185	0		235	0		285	6		335	1		385	0		435	0		485			
0		36	0		86	0		136	0		186	0		236	0		286	2		336	0		386	0		436	0		486			
0		37	0		87	2		137	0		187	4		237	0		287	3		337	0		387	0		437	0		487			
0		38	0		88	1		138	0		188	7		238	0		288	2		338	1		388	0		438	0		488			
0		39	0		89	0		139	0		189	5		239	0		289	3		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	10		240	0		290	6		340	1		390	0		440	0		490			
0		41	0		91	0		141	0		191	7		241	0		291	5		341	0		391	0		441	0		491			
0		42	0		92	3		142	0		192	3		242	0		292	6		342	0		392	0		442	0		492			
0		43	0		93	1		143	0		193	3		243	0		293	1		343	1		393	0		443	0		493			
0		44	0		94	1		144	0		194	9		244	0		294	7		344	0		394	0		444	0		494			
0		45	0		95	0		145	0		195	6		245	0		295	9		345	0		395	1		445	0		495			
0		46	0		96	2		146	0		196	16		246	0		296	10		346	0		396	0		446	0		496			
0		47	0		97	1		147	0		197	9		247	0		297	11		347	0		397	0		447	0		497			
0		48	0		98	3		148	0		198	8		248	0		298	7		348	0		398	0		448	0		498			
0		49	0		99	4		149	0		199	12		249	0		299	2		349	0		399	0		449	0		499			

1 50 0 100 4 150 0 200 8 250 0 300 2 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 25-FEB-2008 11:14:31

```

Configuration      : RDND06$DKA100:[ALP117.SAMPLE]KF8PG1AG_250280754.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 07:54:23
Sample ID        : KF8PG1AG           Sample quantity  : 0.000000E+00 LITER
Sample type      : disk              Sample geometry   :
Detector name    : ALP117           Detector geometry:
Elapsed live time: 0 03:20:07.00    Elapsed real time: 0 03:20:07.00    0.0%
Start energy     : 2864.79 keV      End energy       : 6680.16 keV
Sensitivity      : 3.00             Sum Sensitivity  : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4688.29	126	0	52.19	246.94	230	26	1.05E-02	8.9	
2	0	5431.99	97	0	37.28	346.07	329	23	8.08E-03	10.2	
3	0	5680.64	43	0	37.28	379.17	364	23	3.58E-03	15.2	
4	0	6036.46	4	0	29.82	426.50	424	7	3.33E-04	50.0	
5	0	6293.29	26	0	44.74	460.63	455	15	2.17E-03	19.6	

Error Report (Date: 25-Feb-08 11:14 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KGH0L1AA

Detector: ALP118 1

Report Date: 25-Feb-08 03:14 PM

Acquire Date: 25-FEB-2008 10:46:13.76

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

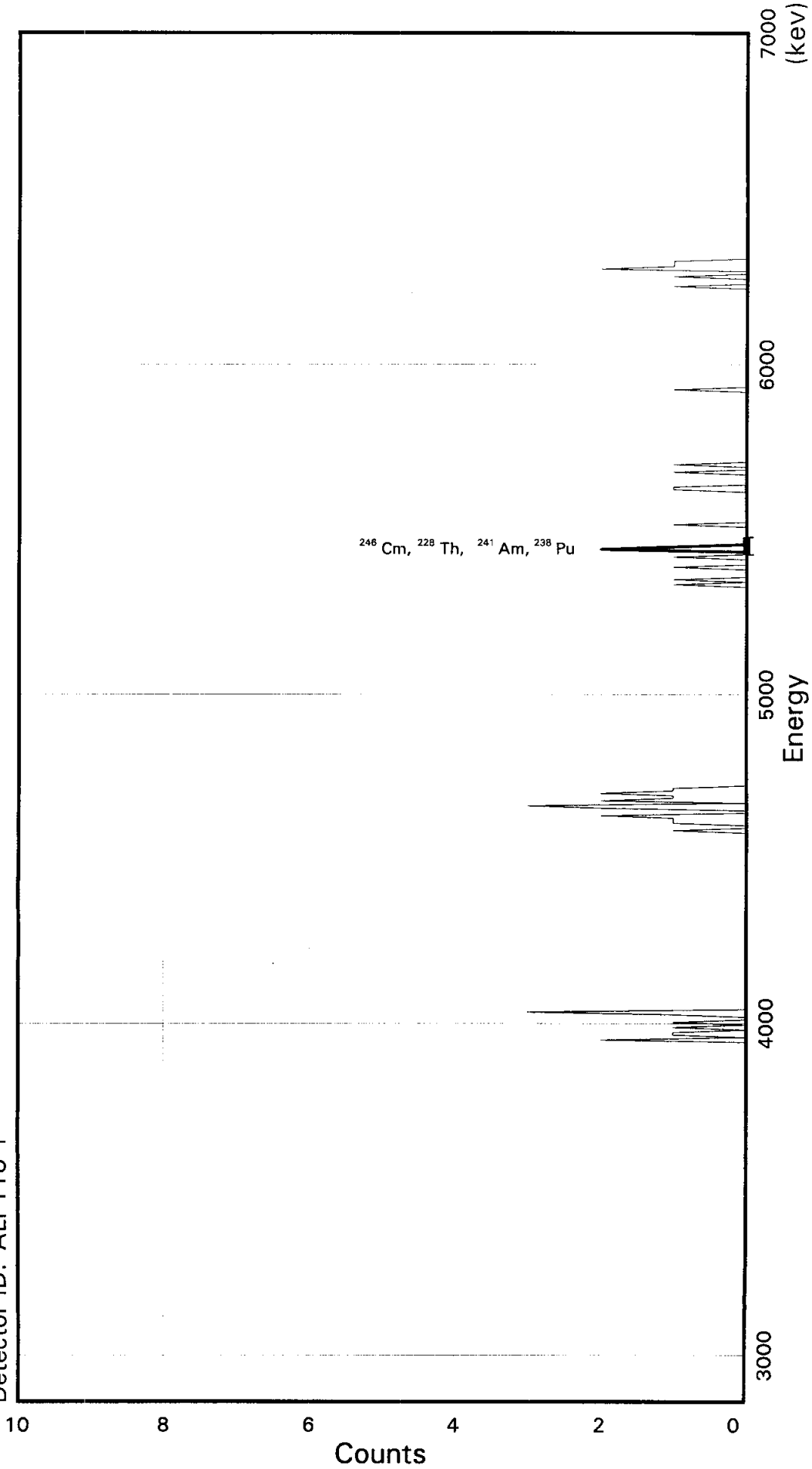
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	7	2	0.033	5423.2	151.8	326	346
TH-230	19	0	0.095	4687.7	151.7	229	249
TH-232	10	0	0.050	4013.0	151.6	140	160

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8035234

Sample ID: KGH011AA
Detector ID: ALP118 1



Acquisition Start: 25-FEB-2008 10:46:13.76
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:02.00

Energy Coefficients:
Offset: 2.83734E+03
Slope: 7.57265E+00
Quadrature: 2.67660E-05

SAMPLE IDENTIITY: KGH0L1AA

TITLE : TH BRCO

DETECTOR : ALP118 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP118.SAMPLE] KGH0L1AA_250281
046.CNF;1
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:22

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 25-FEB-2008 10:46:13 CALIB DATE : 11-FEB-2008 02:49:46

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:02

OFFSET : 2837.34 keV CONSTANT FWHM : 7.66667 Channels
SLOPE : 7.57265 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 2.676600E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1-Apr-07)

Sample Identity: KGH0L1AA

Flags Key

Detector: ALP118 1

Report Date: 25 Feb 08 02:06 PM

Intersect Region: -

Acquire Date: 25 FEB 2008 10:46:13.76

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn			
0		1	0		51	0		101	0		151	0		201	0		251	0		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	1		152	0		202	0		252	0		302	0		352	0		402	1		452	0		502
0		3	0		53	0		103	0		153	0		203	0		253	0		303	1		353	0		403	0		453	0		503
0		4	0		54	0		104	1		154	0		204	0		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0		205	0		255	0		305	0		355	0		405	2		455	0		505
0		6	0		56	0		106	0		156	0		206	0		256	0		306	0		356	0		406	1		456	0		506
0		7	0		57	0		107	1		157	0		207	0		257	0		307	0		357	0		407	1		457	1		507
0		8	0		58	0		108	3		158	0		208	0		258	0		308	0		358	0		408	1		458	0		508
0		9	0		59	0		109	0		159	0		209	0		259	0		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	0		160	0		210	0		260	0		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	0		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	0		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	0		463			
0		14	0		64	0		114	0		164	0		214	0		264	0		314	0		364	0		414	0		464			
0		15	0		65	0		115	0		165	0		215	0		265	0		315	0		365	0		415	0		465			
0		16	0		66	0		116	0		166	0		216	0		266	0		316	0		366	0		416	0		466			
0		17	0		67	0		117	0		167	0		217	0		267	0		317	1		367	0		417	0		467			
0		18	0		68	0		118	0		168	0		218	0		268	0		318	1		368	0		418	0		468			
0		19	0		69	0		119	0		169	0		219	0		269	0		319	0		369	0		419	0		469			
0		20	0		70	0		120	0		170	0		220	0		270	0		320	0		370	0		420	0		470			
0		21	0		71	0		121	0		171	0		221	0		271	0		321	0		371	0		421	0		471			
0		22	0		72	0		122	0		172	0		222	0		272	0		322	0		372	0		422	0		472			
0		23	0		73	0		123	0		173	0		223	0		273	0		323	0		373	0		423	0		473			
0		24	0		74	0		124	0		174	0		224	0		274	0		324	1		374	0		424	0		474			
0		25	0		75	0		125	0		175	0		225	0		275	0		325	0		375	0		425	0		475			
0		26	0		76	0		126	0		176	0		226	0		276	0		326	0		376	0		426	0		476			
0		27	0		77	0		127	0		177	0		227	0		277	0		327	1		377	0		427	0		477			
0		28	0		78	0		128	0		178	0		228	0		278	0		328	0		378	0		428	0		478			
0		29	0		79	0		129	0		179	0		229	0		279	1		329	0		379	0		429	0		479			
0		30	0		80	0		130	0		180	0		230	0		280	0		330	0		380	0		430	0		480			
0		31	0		81	0		131	0		181	1		231	0		281	1		331	0		381	0		431	0		481			
0		32	0		82	0		132	0		182	0		232	0		282	0		332	0		382	0		432	0		482			
0		33	0		83	0		133	0		183	0		233	0		283	0		333	0		383	0		433	0		483			
0		34	0		84	0		134	0		184	1		234	0		284	0		334	0		384	0		434	0		484			
0		35	0		85	0		135	0		185	1		235	0		285	0		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	1		236	0		286	1		336	0		386	0		436	0		486			
0		37	0		87	0		137	0		187	2		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	0		188	0		238	0		288	0		338	0		388	0		438	0		488			
0		39	0		89	0		139	0		189	0		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	2		240	0		290	1		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	3		241	0		291	0		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	0		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	2		243	0		293	2		343	0		393	0		443	0		493			
0		44	0		94	0		144	0		194	1		244	0		294	1		344	0		394	0		444	0		494			
0		45	0		95	0		145	0		195	1		245	0		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	0		196	2		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	2		147	0		197	1		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0		198	1		248	0		298	0		348	0		398	1		448	0		498			
0		49	0		99	1		149	0		199	0		249	0		299	0		349	0		399	0		449	0		499			

0 50 0 100 1 150 0 200 0 250 0 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 25-FEB-2008 14:06:19

Configuration : RDND06\$DKA100:[ALP118.SAMPLE]KGH0L1AA_250281046.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 10:46:13
 Sample ID : KGH0L1AA Sample quantity : 0.000000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP118 Detector geometry:
 Elapsed live time: 0 03:20:02.00 Elapsed real time: 0 03:20:02.00 0.0%
 Start energy : 2860.06 kev End energy : 6721.55 kev
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	5441.70	4	0	30.29	343.50	341	7	3.33E-04	50.0	

Error Report (Date: 25-Feb-08 02:06 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KGH0L1AC

Detector: ALP119 1

Report Date: 25-Feb-08 11:36 AM

Acquire Date: 25-FEB-2008 07:54:36.78

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

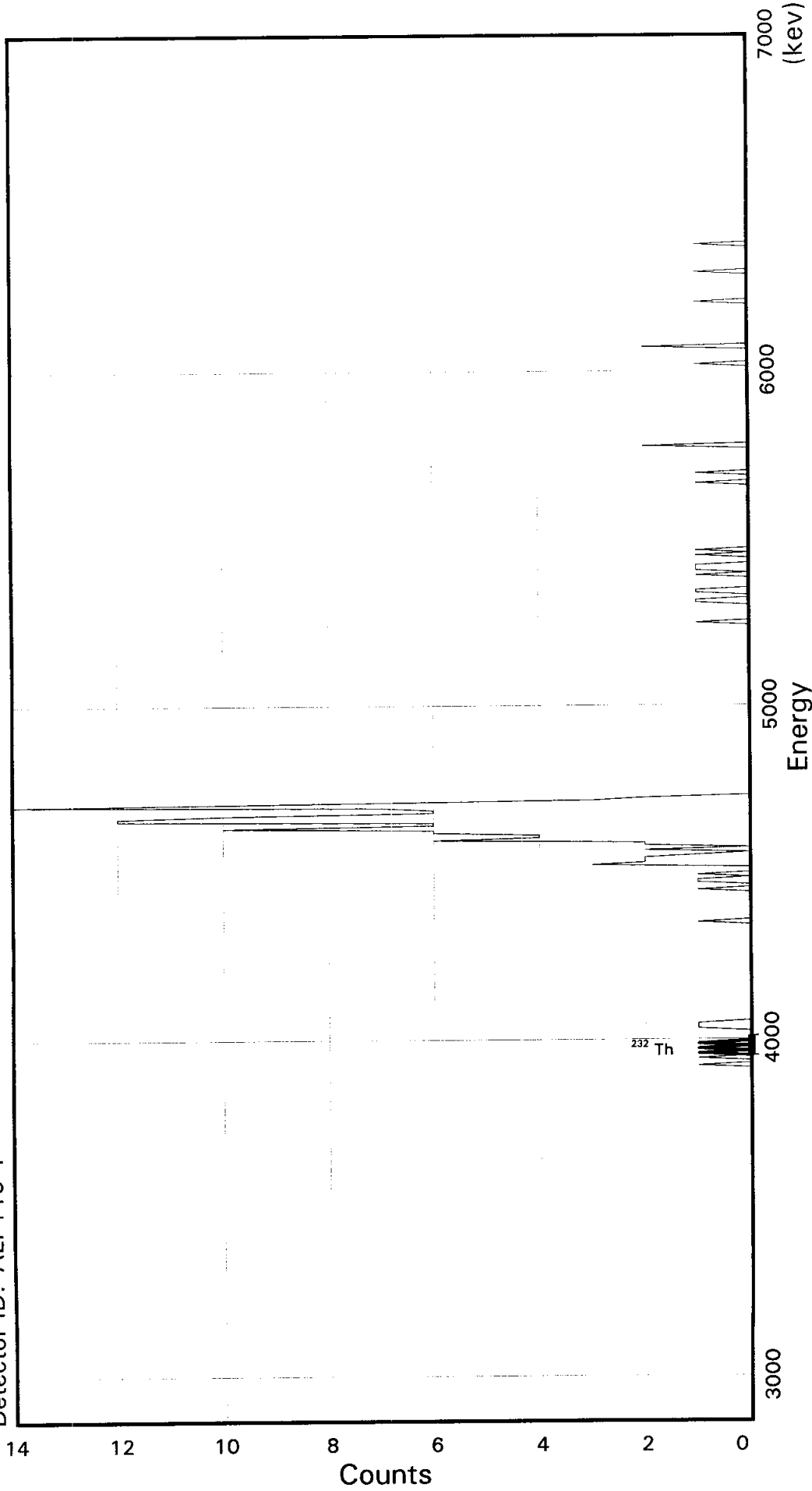
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	9	2	0.043	5423.2	148.8	331	351
TH-230	134	0	0.670	4687.7	186.3	230	255
TH-232	8	0	0.040	4013.0	149.3	141	161

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8035234

Sample ID: KGH011AC
Detector ID: ALP119 1



Energy Coefficients:
Offset: 2.84343E + 03
Slope: 7.48673E + 00
Quadrature: -7.11708E-05

Acquisition Start: 25-FEB-2008 07:54:36.78
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:06.00

SAMPLE IDENTIITY: KGH0L1AC

TITLE : TH BRCO

DETECTOR : ALP119 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP119.SAMPLE] KGH0L1AC_250280
754.CNF;1
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:25

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 25-FEB-2008 07:54:36 CALIB DATE : 11-FEB-2008 02:49:55

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:06

OFFSET : 2843.43 keV CONSTANT FWHM : 8.50000 Channels
SLOPE : 7.48673 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.711708E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 (Version: 1-Apr-07)

Sample Identity: KGH011AC

Detector: ALP119 1

Report Date: 25 Feb 08 11:14 AM

Acquire Date: 25 FEB 2008 07:54:36.78

Flags Key

Intersect Region: @

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
0		1	0		51	0		101	1		151	0		201	3		251	0		301	1		351	0		401	1		451	0		501
0		2	0		52	0		102	0		152	1		202	2		252	0		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	1		153	0		203	0		253	0		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	0		204	0		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0		205	0		255	0		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	0		206	0		256	0		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	0		207	0		257	0		307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	0		158	0		208	0		258	0		308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	1		159	0		209	0		259	0		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	1		160	0		210	0		260	0		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	1		161	0		211	0		261	0		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	0		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	1		463			
0		14	0		64	0		114	0		164	0		214	0		264	0		314	0		364	0		414	0		464			
0		15	0		65	0		115	0		165	1		215	0		265	0		315	0		365	0		415	0		465			
0		16	0		66	0		116	0		166	0		216	0		266	0		316	0		366	0		416	0		466			
0		17	0		67	0		117	0		167	0		217	0		267	0		317	0		367	0		417	0		467			
0		18	0		68	0		118	0		168	1		218	0		268	0		318	0		368	0		418	0		468			
0		19	0		69	0		119	0		169	1		219	0		269	0		319	0		369	0		419	0		469			
0		20	0		70	0		120	0		170	0		220	0		270	0		320	0		370	0		420	0		470			
0		21	0		71	0		121	0		171	1		221	0		271	0		321	0		371	0		421	0		471			
0		22	0		72	0		122	0		172	0		222	0		272	1		322	0		372	0		422	0		472			
0		23	0		73	0		123	0		173	0		223	0		273	0		323	0		373	0		423	0		473			
0		24	0		74	0		124	0		174	0		224	0		274	0		324	0		374	0		424	1		474			
0		25	0		75	0		125	0		175	3		225	0		275	0		325	0		375	0		425	0		475			
0		26	0		76	0		126	0		176	2		226	0		276	0		326	0		376	1		426	0		476			
0		27	0		77	0		127	0		177	2		227	0		277	0		327	0		377	0		427	0		477			
0		28	0		78	0		128	0		178	2		228	0		278	0		328	1		378	0		428	0		478			
0		29	0		79	0		129	0		179	1		229	0		279	0		329	0		379	0		429	0		479			
0		30	0		80	0		130	0		180	0		230	0		280	1		330	0		380	0		430	0		480			
0		31	0		81	0		131	0		181	2		231	0		281	1		331	0		381	0		431	0		481			
0		32	0		82	0		132	0		182	0		232	0		282	0		332	1		382	0		432	0		482			
0		33	0		83	0		133	0		183	2		233	0		283	0		333	0		383	2		433	0		483			
0		34	0		84	0		134	0		184	2		234	0		284	1		334	0		384	0		434	0		484			
0		35	0		85	0		135	0		185	6		235	0		285	1		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	4		236	0		286	0		336	0		386	0		436	0		486			
0		37	0		87	0		137	0		187	4		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	0		188	6		238	0		288	0		338	0		388	0		438	0		488			
0		39	0		89	0		139	0		189	6		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	10		240	0		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	6		241	0		291	1		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	6		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	12		243	0		293	1		343	2		393	0		443	0		493			
0		44	0		94	1		144	0		194	12		244	0		294	1		344	0		394	0		444	0		494			
0		45	0		95	0		145	0		195	10		245	0		295	1		345	0		395	0		445	0		495			
0		46	0		96	0		146	0		196	6		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	1		147	0		197	6		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0		198	7		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	1		149	0		199	14		249	0		299	1		349	0		399	0		449	0		499			

0 50 0 100 0 150 0 200 8 250 0 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 25-FEB-2008 11:14:43

Configuration : RDND06\$DKA100:[ALP119.SAMPLE]KGH0L1AC_250280754.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 07:54:36
 Sample ID : KGH0L1AC Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP119 Detector geometry:
 Elapsed live time: 0 03:20:06.00 Elapsed real time: 0 03:20:06.00 0.0%
 Start energy : 2865.89 kev End energy : 6657.98 kev
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3968.57	4	0	29.95	150.50	148	8	3.33E-04	50.0	

Error Report (Date: 25-Feb-08 11:14 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NNAME-W-NOMSG, Message number 00000000

THORIUM ISOTOPIC COUNTING REQUEST

152V

C.R. Technician APB
Date Counted 2/26/08
C.R. Analyst BD
Date Analyzed 2/26/08

Counting Time 70 Minutes
Sample 70
SOP's RICHRD008
Operating: RICHRD008
Background See Alpha Analysis Report
Review: RICHRD0016
12V
8035234

WorkOrder #	Th-229 (4845 KeV) Tracer		TOTAL COUNTS				Det #	Comment
	ID	Activity	ROI Cts	BKG	Th-228 (5423 KeV) (6)	Th-230 (4688 KeV) (8)		
KF8N72AD		10		0			116	
KF8N42AD		10		0			117	
KF8N52AD		10		0			114	
KF8N62AD		10		0			119	
KF8N82AD		10		0			120	
		10		0				
		10		0				
		10		0				
		10		0				
		10		0				

Comments:

Approved by: BD Date: 2/26/08

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8NX2AD

Detector: ALP116 1
Report Date: 26-Feb-08 05:53 PM
Acquire Date: 26-FEB-2008 12:07:15.61
Tracer Nuclide: TH-229
Sample Live Time: 200 minutes
Bkgrnd Live Time: 1000 minutes

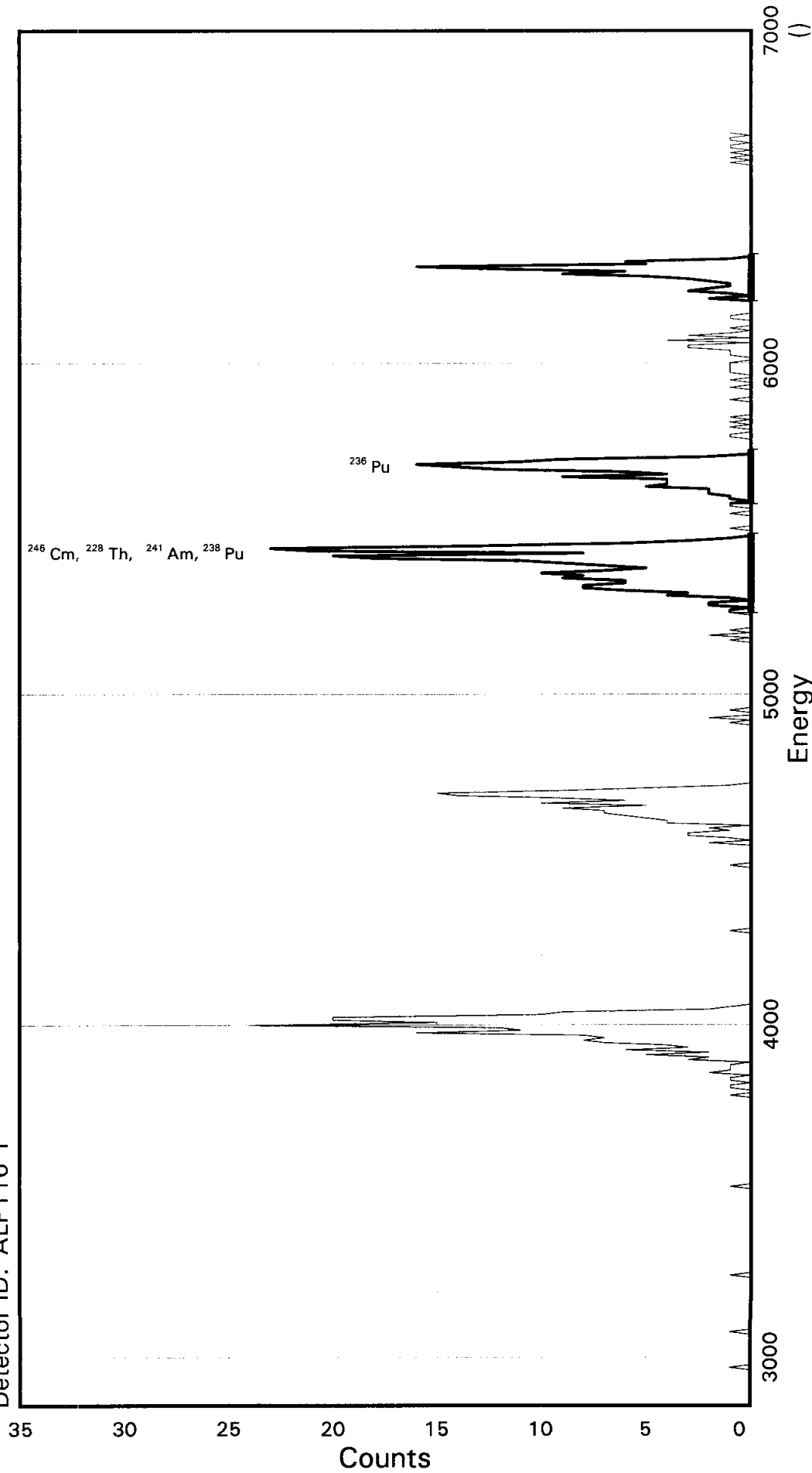
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl
TH-228	221	5	1.100	5423.2	180.0	324	348
TH-230	126	0	0.630	4687.7	181.2	227	251
TH-232	195	0	0.975	4013.0	174.7	138	161

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8035234

Sample ID: KF8NX2AD
Detector ID: ALP116 1



Energy Coefficients:
Offset: 2.83183E + 03
Slope: 7.67107E + 00
Quadrature: -2.55555E-04

Acquisition Start: 26-FEB-2008 12:07:15.61
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:00.00

SAMPLE IDENTIITY: KF8NX2AD

TITLE : TH BRCO

DETECTOR : ALP116 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP116.SAMPLE]KF8NX2AD_260281
207.CNF;1
ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:06:37

REPORT DATE : 26-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 26-FEB-2008 12:07:15 CALIB DATE : 11-FEB-2008 02:49:29

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:00

OFFSET : 2831.83 keV CONSTANT FWHM : 9.00000 Channels
SLOPE : 7.67107 keV/C SENSITIVITY : 6.00000 Std Dev's
QUAD COEFF : -.255555E-03 keV/C^2 SUM SENSITIVITY: 0.10000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1-Apr 07)

Sample Identity: KF8NX2AD
Detector: ALP116 1
Report Date: 26 Feb-08 03:27 PM
Acquire Date: 26 FEB-2008 12:07:15.61

Flags Key
Intersect Region: *
Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn									
0		1	0		51	0		101	11		151	0		201	0		251	0		301	0		351	0		401	1		451	0		501
		2	0		52	0		102	12		152	0		202	0		252	0		302	1		352	0		402	2		452	1		502
0		3	0		53	0		103	24		153	0		203	0		253	0		303	0		353	0		403	3		453	0		503
0		4	1		54	0		104	15		154	0		204	0		254	0		304	0		354	1		404	5		454	1		504
0		5	0		55	0		105	20		155	0		205	0		255	0		305	0		355	0		405	9		455	0		505
0		6	0		56	0		106	20		156	0		206	0		256	0		306	0		356	0		406	6		456	1		506
0		7	0		57	0		107	10		157	0		207	0		257	1		307	0		357	0		407	12		457	1		507
0		8	0		58	0		108	9		158	0		208	0		258	0		308	1		358	0		408	16		458	0		508
0		9	0		59	0		109	2		159	0		209	0		259	2		309	0		359	1		409	5		459	1		509
0		10	0		60	0		110	1		160	0		210	0		260	0		310	0		360	0		410	6		460	1		510
0		11	0		61	0		111	0		161	0		211	0		261	1		311	1		361	0		411	1		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	0		312	1		362	1		412	0		462	1		512
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	0		463			
0		14	0		64	0		114	0		164	0		214	0		264	0		314	1		364	0		414	0		464			
0		15	0		65	0		115	0		165	0		215	0		265	0		315	1		365	1		415	0		465			
0		16	0		66	0		116	0		166	0		216	0		266	0		316	2		366	1		416	0		466			
0		17	0		67	0		117	0		167	1		217	0		267	0		317	2		367	1		417	0		467			
1		18	0		68	0		118	0		168	0		218	0		268	1		318	2		368	1		418	0		468			
0		19	0		69	0		119	0		169	0		219	0		269	1		319	5		369	1		419	0		469			
0		20	0		70	0		120	0		170	0		220	0		270	0		320	4		370	0		420	0		470			
0		21	0		71	0		121	0		171	0		221	0		271	2		321	4		371	0		421	0		471			
0		22	0		72	0		122	0		172	0		222	0		272	2		322	4		372	1		422	0		472			
0		23	0		73	0		123	0		173	0		223	0		273	0		323	9		373	1		423	0		473			
0		24	0		74	0		124	0		174	0		224	1		274	1		324	4		374	1		424	0		474			
0		25	0		75	1		125	0		175	0		225	0		275	4		325	6		375	3		425	0		475			
0		26	0		76	0		126	0		176	2		226	2		276	3		326	12		376	3		426	0		476			
0		27	0		77	0		127	0		177	0		227	0		277	6		327	14		377	0		427	0		477			
0		28	0		78	1		128	0		178	1		228	0		278	8		328	16		378	4		428	0		478			
0		29	0		79	1		129	0		179	3		229	1		279	8		329	11		379	0		429	0		479			
0		30	0		80	0		130	0		180	3		230	0		280	6		330	9		380	3		430	0		480			
0		31	0		81	1		131	0		181	1		231	0		281	6		331	2		381	1		431	0		481			
1		32	0		82	1		132	0		182	2		232	0		282	9		332	0		382	0		432	0		482			
0		33	0		83	0		133	0		183	0		233	0		283	8		333	0		383	1		433	0		483			
0		34	0		84	2		134	0		184	4		234	0		284	10		334	0		384	0		434	0		484			
0		35	0		85	1		135	0		185	4		235	0		285	7		335	0		385	0		435	0		485			
0		36	0		86	1		136	0		186	5		236	0		286	5		336	0		386	0		436	0		486			
0		37	0		87	1		137	0		187	6		237	0		287	7		337	0		387	1		437	0		487			
0		38	0		88	0		138	0		188	7		238	0		288	9		338	0		388	1		438	0		488			
0		39	1		89	3		139	0		189	7		239	0		289	11		339	1		389	0		439	0		489			
0		40	0		90	2		140	0		190	9		240	0		290	18		340	1		390	0		440	0		490			
0		41	0		91	5		141	1		191	5		241	0		291	20		341	0		391	0		441	0		491			
0		42	0		92	2		142	0		192	10		242	0		292	8		342	0		392	0		442	0		492			
0		43	0		93	6		143	0		193	6		243	0		293	21		343	1		393	0		443	0		493			
0		44	0		94	3		144	0		194	9		244	0		294	23		344	0		394	0		444	0		494			
0		45	0		95	4		145	0		195	14		245	0		295	13		345	1		395	2		445	0		495			
0		46	0		96	7		146	0		196	15		246	0		296	6		346	0		396	0		446	0		496			
0		47	0		97	8		147	0		197	9		247	0		297	3		347	1		397	1		447	0		497			
0		48	0		98	7		148	0		198	5		248	0		298	1		348	0		398	3		448	0		498			
0		49	0		99	8		149	0		199	1		249	0		299	0		349	0		399	2		449	0		499			

0 50 0 100 16 150 0 200 0 250 0 300 0 350 0 400 1 450 1 500

VMS Peak Search Report V1.9 Generated 26-FEB-2008 15:27:17

```

Configuration      : RDND06$DKA100:[ALP116.SAMPLE]KF8NX2AD_260281207.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 12:07:15
Sample ID         : KF8NX2AD Sample quantity : 0.00000E+00 LITER
Sample type       : disk Sample geometry :
Detector name     : ALP116 Detector geometry:
Elapsed live time: 0 03:20:00.00 Elapsed real time: 0 03:20:00.00 0.0%
Start energy      : 2854.84 End energy : 6692.43
Sensitivity       : 6.00 Sum Sensitivity : 0.10
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	5425.91	227	0	69.04	342.06	318	32	1.89E-02	6.6	
2	0	5688.72	111	0	53.70	377.16	362	22	9.25E-03	9.5	
3	0	6286.67	75	0	46.03	457.34	444	19	6.25E-03	11.5	

Error Report (Date: 26-Feb-08 03:27 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N42AD

Detector: ALP117 1
Report Date: 26-Feb-08 05:56 PM
Acquire Date: 26-FEB-2008 12:07:26.98
Tracer Nuclide: TH-229
Sample Live Time: 200 minutes
Bkgrnd Live Time: 1000 minutes

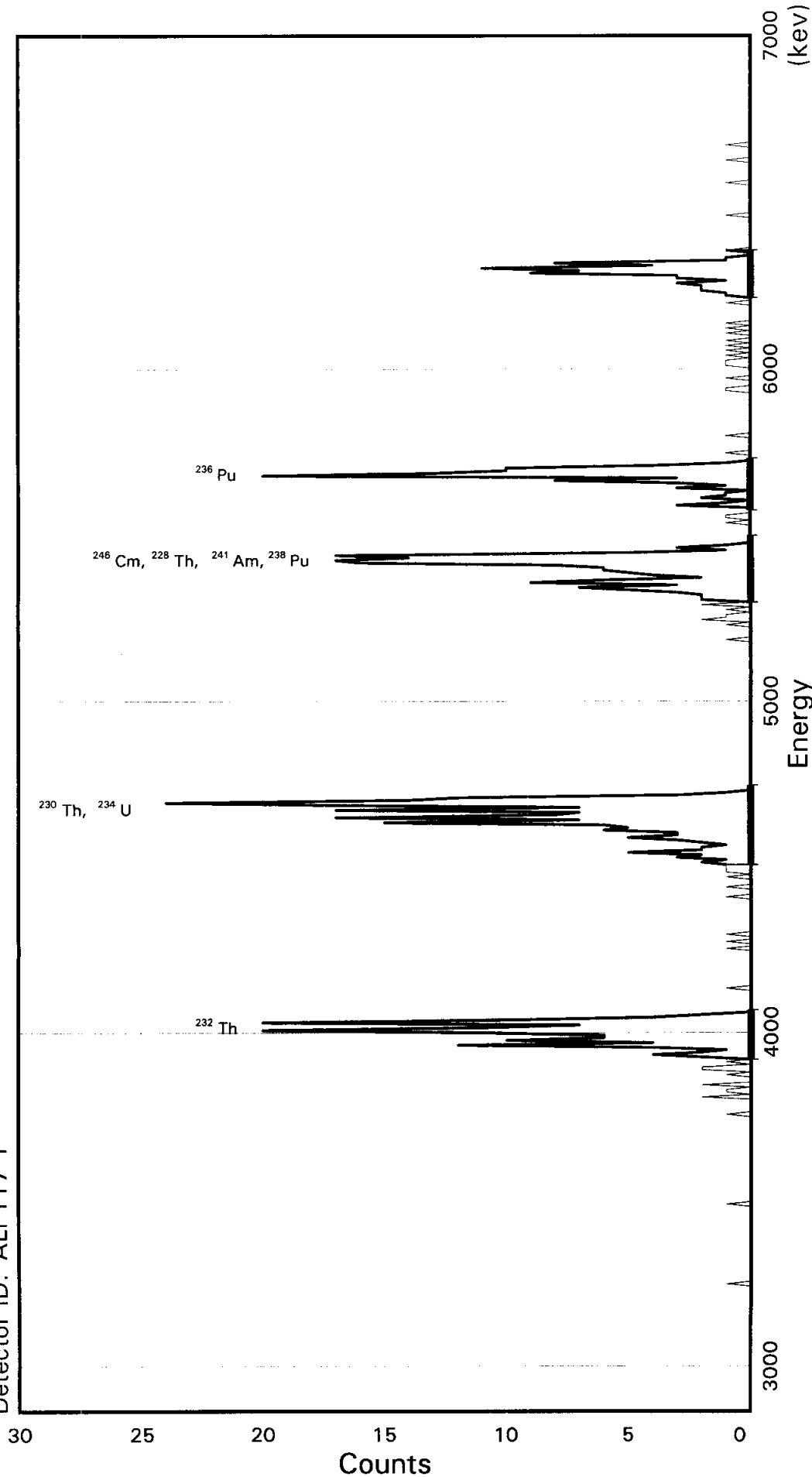
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Rght Chnl
TH-228	144	1	0.718	5423.2	180.2	328	352
TH-230	183	1	0.913	4687.7	172.3	231	254
TH-232	137	0	0.684	4013.0	164.6	142	164

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8035234

Sample ID: KF8N42AD
Detector ID: ALP117 1



Acquisition Start: 26-FEB-2008 12:07:26.98
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:11.00

Energy Coefficients:
Offset: 2.84243E + 03
Slope: 7.45584E + 00
Quadrature: 7.76019E-05

SAMPLE IDENTIITY: KF8N42AD

TITLE : TH BRCO

DETECTOR : ALP117 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP117.SAMPLE] KF8N42AD_260281
207.CNF;1
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:18

REPORT DATE : 26-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 26-FEB-2008 12:07:26 CALIB DATE : 11-FEB-2008 02:49:42

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:11

OFFSET : 2842.43 keV CONSTANT FWHM : 8.00000 Channels
SLOPE : 7.45584 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 7.760190E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rcn_cnts
 (Version: 1-Apr 07)

Sample Identity: KF8N42AD

Flags Key

Detector: ALP117 1

Report Date: 26-Feb-08 03:27 PM

Intersect Region: 0

Acquire Date: 26 FEB 2008 12:07:26.98

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
0		1	0		51	0		101	4		151	0		201	3		251	0		301	1		351	0		401	1		451	0		501
		2	0		52	0		102	10		152	0		202	1		252	0		302	0		352	0		402	1		452	0		502
0		3	0		53	0		103	6		153	0		203	0		253	0		303	0		353	0		403	2		453	0		503
0		4	1		54	0		104	6		154	0		204	0		254	0		304	0		354	0		404	2		454	0		504
0		5	0		55	0		105	11		155	0		205	0		255	0		305	0		355	0		405	2		455	1		505
0		6	0		56	0		106	20		156	0		206	0		256	0		306	0		356	0		406	3		456	0		506
0		7	0		57	0		107	11		157	0		207	0		257	0		307	0		357	0		407	1		457	0		507
0		8	0		58	0		108	7		158	0		208	0		258	0		308	0		358	0		408	3		458	0		508
0		9	0		59	0		109	20		159	0		209	0		259	0		309	0		359	0		409	3		459	0		509
0		10	0		60	0		110	10		160	1		210	0		260	0		310	1		360	0		410	9		460	0		510
0		11	0		61	0		111	4		161	0		211	0		261	0		311	0		361	0		411	7		461	1		511
0		12	0		62	0		112	2		162	0		212	0		262	0		312	1		362	0		412	11		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	1		313	1		363	1		413	4		463			
0		14	0		64	0		114	0		164	1		214	0		264	0		314	0		364	1		414	8		464			
0		15	0		65	0		115	0		165	0		215	0		265	0		315	0		365	0		415	1		465			
0		16	0		66	0		116	0		166	0		216	0		266	0		316	0		366	0		416	1		466			
0		17	0		67	0		117	0		167	0		217	0		267	0		317	3		367	0		417	0		467			
0		18	0		68	0		118	0		168	1		218	0		268	0		318	1		368	1		418	0		468			
0		19	0		69	0		119	0		169	0		219	0		269	1		319	0		369	0		419	1		469			
0		20	0		70	0		120	0		170	1		220	0		270	0		320	2		370	0		420	0		470			
0		21	0		71	0		121	0		171	1		221	0		271	2		321	1		371	0		421	0		471			
0		22	0		72	1		122	0		172	1		222	0		272	1		322	1		372	0		422	0		472			
0		23	0		73	0		123	1		173	1		223	0		273	1		323	0		373	1		423	0		473			
0		24	0		74	0		124	0		174	2		224	0		274	0		324	3		374	1		424	0		474			
0		25	0		75	0		125	0		175	1		225	0		275	1		325	1		375	1		425	0		475			
0		26	0		76	0		126	0		176	3		226	0		276	0		326	3		376	0		426	0		476			
0		27	0		77	0		127	0		177	2		227	0		277	2		327	8		377	1		427	0		477			
0		28	0		78	0		128	0		178	5		228	0		278	0		328	3		378	0		428	0		478			
0		29	0		79	2		129	0		179	2		229	0		279	2		329	20		379	1		429	0		479			
0		30	0		80	0		130	0		180	2		230	0		280	2		330	13		380	0		430	0		480			
0		31	0		81	1		131	0		181	1		231	0		281	2		331	10		381	1		431	0		481			
0		32	0		82	1		132	0		182	2		232	0		282	3		332	10		382	0		432	0		482			
0		33	0		83	0		133	0		183	3		233	0		283	5		333	4		383	1		433	1		483			
0		34	0		84	2		134	0		184	5		234	0		284	7		334	1		384	0		434	0		484			
0		35	0		85	0		135	0		185	3		235	0		285	3		335	0		385	0		435	0		485			
0		36	1		86	0		136	0		186	3		236	0		286	9		336	0		386	1		436	0		486			
0		37	0		87	0		137	0		187	6		237	0		287	6		337	0		387	0		437	0		487			
0		38	0		88	1		138	0		188	5		238	0		288	2		338	1		388	1		438	0		488			
0		39	0		89	0		139	1		189	6		239	0		289	4		339	0		389	0		439	0		489			
0		40	0		90	2		140	0		190	15		240	0		290	5		340	0		390	1		440	0		490			
0		41	0		91	2		141	0		191	7		241	0		291	6		341	0		391	0		441	0		491			
0		42	0		92	0		142	1		192	17		242	0		292	6		342	0		392	0		442	0		492			
0		43	0		93	1		143	0		193	8		243	0		293	8		343	0		393	0		443	0		493			
0		44	0		94	0		144	0		194	7		244	0		294	16		344	0		394	0		444	0		494			
0		45	0		95	2		145	1		195	17		245	0		295	17		345	1		395	0		445	0		495			
0		46	0		96	4		146	0		196	7		246	0		296	14		346	0		396	0		446	1		496			
0		47	0		97	2		147	0		197	17		247	0		297	17		347	0		397	0		447	0		497			
0		48	0		98	1		148	0		198	24		248	0		298	5		348	0		398	1		448	0		498			
0		49	0		99	4		149	0		199	14		249	0		299	1		349	0		399	0		449	0		499			

0 50 0 100 12 150 0 200 12 250 0 300 3 350 0 400 0 450 0 500


```

Configuration      : RDND06$DKA100:[ALP117.SAMPLE]KF8N42AD_260281207.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 12:07:26
Sample ID        : KF8N42AD Sample quantity : 0.000000E+00 LITER
Sample type      : disk Sample geometry :
Detector name    : ALP117 Detector geometry:
Elapsed live time: 0 03:20:11.00 Elapsed real time: 0 03:20:11.00 0.0%
Start energy     : 2864.79 kev End energy : 6680.16 kev
Sensitivity      : 3.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4015.08	136	0	52.19	157.02	144	20	1.13E-02	8.6	
2	0	4676.72	203	0	82.01	245.39	223	32	1.69E-02	7.0	
3	0	5424.80	148	0	37.28	345.12	328	27	1.23E-02	8.2	
4	0	5683.85	85	0	29.82	379.60	365	21	7.08E-03	10.8	
5	0	6302.54	58	0	37.28	461.86	450	19	4.83E-03	13.1	

Error Report (Date: 26-Feb-08 03:27 PM)

Program: Alp_rgn_cnts

subroutine: Main

Message: No trace pk or nucl

Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N52AD

Detector: ALP118 1
Report Date: 26-Feb-08 05:59 PM
Acquire Date: 26-FEB-2008 12:07:49.14
Tracer Nuclide: TH-229
Sample Live Time: 200 minutes
Bkgrnd Live Time: 1000 minutes

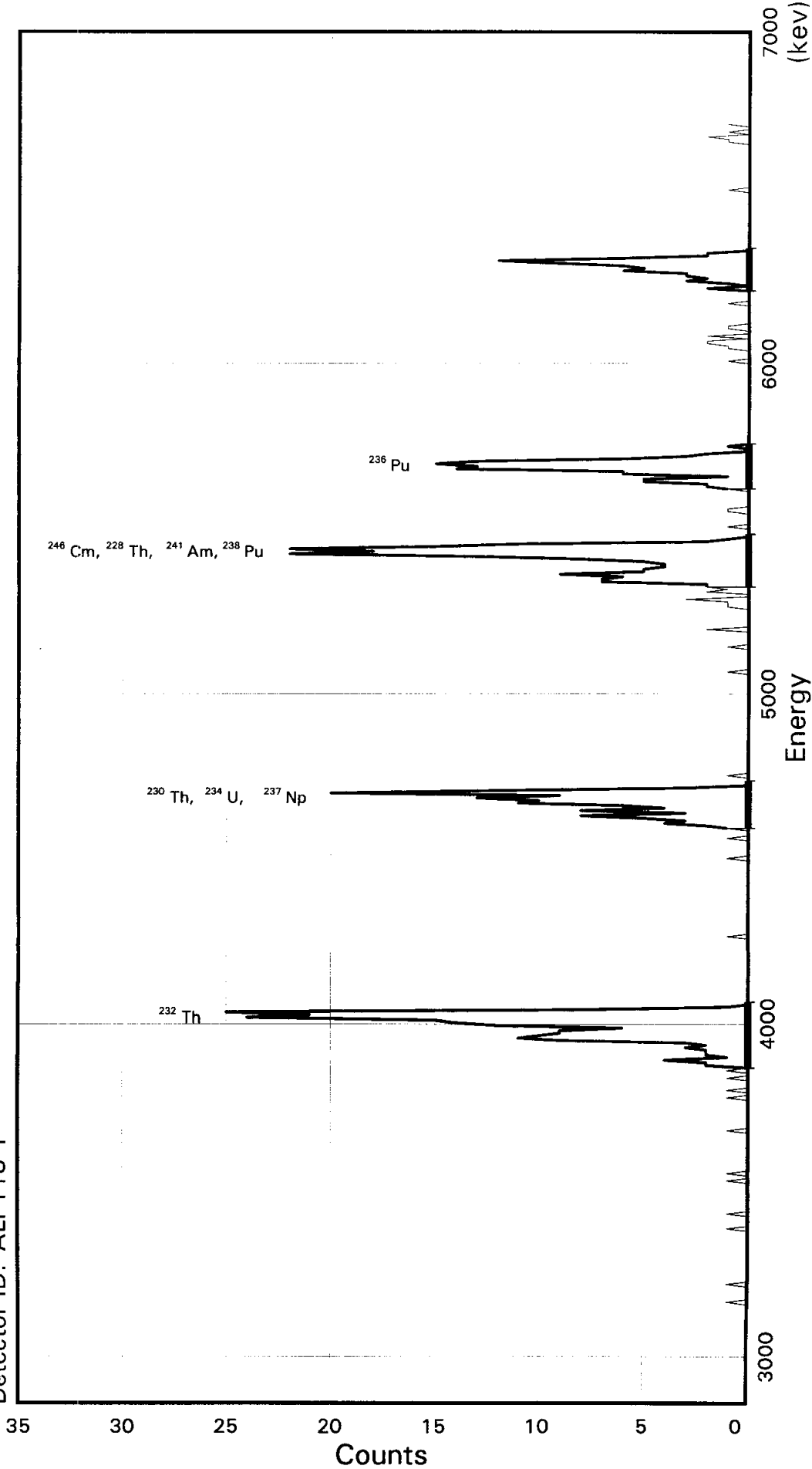
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Rght
			C/Min	keV	keV	Chnl	Chnl
TH-228	171	3	0.851	5423.2	182.2	324	348
TH-230	122	0	0.609	4687.7	151.7	229	249
TH-232	195	0	0.974	4013.0	174.4	138	161

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8035234

Sample ID: KF8N52AD
Detector ID: ALP118 1



Acquisition Start: 26-FEB-2008 12:07:49.14
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:11.00

Energy Coefficients:
Offset: 2.83734E + 03
Slope: 7.57265E + 00
Quadrature: 2.67660E-05

SAMPLE IDENTIITY: KF8N52AD

TITLE : TH BRCO

DETECTOR : ALP118 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP118.SAMPLE] KF8N52AD_260281
207.CNF;1
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:22

REPORT DATE : 26-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 26-FEB-2008 12:07:49 CALIB DATE : 11-FEB-2008 02:49:46

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:11

OFFSET : 2837.34 keV CONSTANT FWHM : 7.66667 Channels
SLOPE : 7.57265 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 2.676600E-05 keV/C² SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1-Apr-07)

Sample Identity: KF8N52AD

Flags Key

Detector: ALP118 1

Report Date: 26-Feb-08 04:25 PM

Intersect Region: #

Acquire Date: 26-FEB-2008 12:07:49.14

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
		1	0		51	0		101	9		151	0		201	0		251	0		301	0		351	0		401	2		451	0		501
		2	0		52	0		102	6		152	0		202	0		252	0		302	1		352	0		402	3		452	0		502
0		3	0		53	0		103	12		153	0		203	1		253	0		303	0		353	0		403	3		453	0		503
0		4	0		54	0		104	14		154	0		204	0		254	1		304	0		354	0		404	6		454	0		504
0		5	0		55	0		105	15		155	0		205	0		255	0		305	0		355	0		405	5		455	1		505
0		6	0		56	0		106	24		156	0		206	0		256	0		306	0		356	0		406	6		456	1		506
0		7	0		57	0		107	21		157	0		207	0		257	0		307	0		357	0		407	9		457	2		507
0		8	0		58	0		108	25		158	0		208	0		258	0		308	1		358	0		408	12		458	0		508
0		9	0		59	0		109	8		159	0		209	0		259	0		309	1		359	0		409	6		459	1		509
0		10	0		60	0		110	1		160	0		210	0		260	0		310	0		360	0		410	2		460	0		510
0		11	0		61	1		111	0		161	0		211	0		261	2		311	0		361	0		411	2		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	0		312	0		362	0		412	0		462	1		512
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	0		463			
0		14	0		64	0		114	0		164	0		214	0		264	0		314	0		364	0		414	0		464			
0		15	0		65	0		115	0		165	0		215	0		265	0		315	0		365	0		415	0		465			
0		16	0		66	0		116	0		166	0		216	0		266	0		316	0		366	0		416	0		466			
0		17	0		67	0		117	0		167	0		217	0		267	0		317	1		367	0		417	0		467			
0		18	0		68	0		118	0		168	0		218	0		268	0		318	2		368	1		418	0		468			
0		19	0		69	0		119	0		169	0		219	0		269	0		319	2		369	0		419	0		469			
0		20	0		70	0		120	0		170	1		220	0		270	1		320	5		370	0		420	0		470			
0		21	0		71	0		121	0		171	0		221	0		271	1		321	5		371	0		421	0		471			
0		22	1		72	0		122	0		172	0		222	0		272	1		322	1		372	0		422	0		472			
0		23	0		73	0		123	0		173	0		223	0		273	3		323	6		373	1		423	0		473			
0		24	0		74	1		124	0		174	0		224	0		274	0		324	6		374	1		424	0		474			
0		25	0		75	0		125	0		175	0		225	0		275	0		325	14		375	2		425	0		475			
0		26	0		76	0		126	0		176	0		226	0		276	2		326	13		376	2		426	0		476			
0		27	0		77	1		127	0		177	0		227	0		277	1		327	15		377	0		427	0		477			
0		28	1		78	0		128	0		178	1		228	0		278	2		328	13		378	2		428	0		478			
0		29	0		79	0		129	0		179	0		229	0		279	2		329	6		379	0		429	0		479			
0		30	0		80	0		130	0		180	0		230	0		280	7		330	3		380	0		430	0		480			
0		31	0		81	0		131	0		181	0		231	0		281	7		331	2		381	1		431	0		481			
0		32	0		82	1		132	0		182	1		232	0		282	6		332	0		382	1		432	0		482			
0		33	0		83	0		133	0		183	2		233	0		283	9		333	0		383	0		433	0		483			
0		34	0		84	0		134	0		184	4		234	0		284	5		334	1		384	0		434	0		484			
0		35	0		85	1		135	0		185	3		235	0		285	5		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	5		236	0		286	4		336	0		386	0		436	1		486			
0		37	0		87	2		137	0		187	8		237	0		287	4		337	0		387	0		437	0		487			
0		38	0		88	2		138	0		188	3		238	0		288	5		338	0		388	0		438	0		488			
0		39	0		89	4		139	1		189	8		239	0		289	8		339	0		389	0		439	0		489			
0		40	0		90	1		140	0		190	4		240	0		290	13		340	0		390	0		440	0		490			
0		41	1		91	2		141	0		191	6		241	0		291	22		341	0		391	1		441	0		491			
0		42	0		92	2		142	0		192	11		242	0		292	18		342	0		392	0		442	0		492			
1		43	0		93	2		143	0		193	10		243	0		293	22		343	0		393	0		443	0		493			
0		44	1		94	3		144	0		194	13		244	1		294	15		344	0		394	0		444	0		494			
0		45	0		95	2		145	0		195	9		245	0		295	11		345	0		395	0		445	0		495			
0		46	0		96	3		146	0		196	20		246	0		296	2		346	0		396	0		446	0		496			
0		47	0		97	9		147	0		197	12		247	0		297	1		347	0		397	2		447	0		497			
0		48	0		98	11		148	0		198	3		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	10		149	0		199	0		249	0		299	0		349	0		399	1		449	0		499			

1 50 0 100 9 150 0 200 0 250 0 300 0 350 0 400 3 450 0 500

VMS Peak Search Report V1.9 Generated 26-FEB-2008 16:25:05

```

Configuration      : RDND06$DKA100:[ALP118.SAMPLE]KF8N52AD_260281207.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 12:07:49
Sample ID         : KF8N52AD Sample quantity : 0.00000E+00 LITER
Sample type       : disk Sample geometry :
Detector name     : ALP118 Detector geometry:
Elapsed live time: 0 03:20:11.00 Elapsed real time: 0 03:20:11.00 0.0%
Start energy      : 2860.06 keV End energy : 6721.55 keV
Sensitivity       : 3.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4020.51	202	0	37.86	156.16	136	26	1.68E-02	7.0	
2	0	4689.22	123	0	53.01	244.34	232	19	1.02E-02	9.0	
3	0	5430.57	170	0	37.86	342.03	328	21	1.42E-02	7.7	
4	0	5692.07	95	0	45.44	376.48	367	18	7.91E-03	10.3	
5	0	6301.86	62	0	45.44	456.77	446	17	5.16E-03	12.7	

Error Report (Date: 26-Feb-08 04:25 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N62AD

Detector: ALP119 1

Report Date: 26-Feb-08 06:01 PM

Acquire Date: 26-FEB-2008 12:07:54.51

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

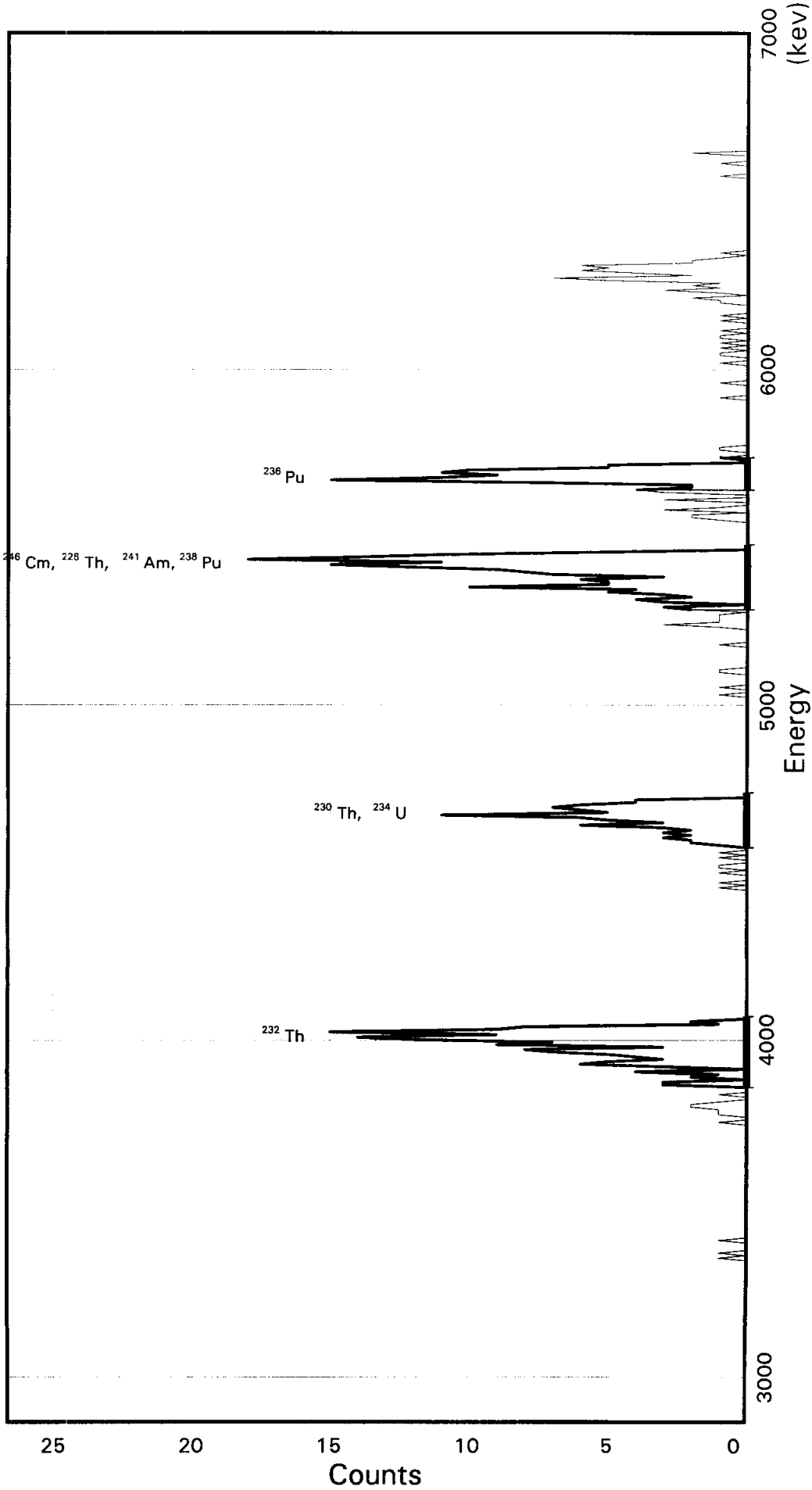
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	165	2	0.823	5423.2	186.0	326	351
TH-230	81	0	0.405	4687.7	141.6	233	252
TH-232	137	0	0.685	4013.0	179.2	139	163

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8N62AD
Detector ID: ALP119 1

Batch ID: 8035234



Acquisition Start: 26-FEB-2008 12:07:54.51
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:06.00

Energy Coefficients:
Offset: 2.84343E + 03
Slope: 7.48673E + 00
Quadrature: -7.11708E-05

SAMPLE IDENTIITY: KF8N62AD

TITLE : TH BRCO

DETECTOR : ALP119 1
CONFIGURATION NAME : RDND06\$DKA100:[ALP119.SAMPLE] KF8N62AD_260281
207.CNF;1
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:25

REPORT DATE : 26-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 26-FEB-2008 12:07:54 CALIB DATE : 11-FEB-2008 02:49:55

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:06

OFFSET : 2843.43 keV CONSTANT FWHM : 8.50000 Channels
SLOPE : 7.48673 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.711708E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 (Version: 1 Apr-07)

Sample Identity: KF8N62AD

Flags Key

Detector: ALP119 1

Report Date: 26-Feb-08 03:28 PM

Intersect Region: *

Acquire Date: 26-FEB-2008 12:07:54.51

Non Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	
0	1	0	51	0	101	8	151	0	201	4	251	0	301	0	351	0	401	1	451	1	501			
0	2	0	52	0	102	3	152	0	202	0	252	1	302	0	352	0	402	2	452	0	502			
0	3	0	53	0	103	9	153	0	203	0	253	1	303	0	353	0	403	0	453	0	503			
0	4	0	54	0	104	7	154	0	204	0	254	0	304	0	354	0	404	1	454	0	504			
0	5	0	55	0	105	12	155	0	205	0	255	0	305	0	355	0	405	3	455	0	505			
0	6	0	56	0	106	14	156	0	206	0	256	0	306	0	356	0	406	1	456	1	506			
0	7	0	57	0	107	9	157	0	207	0	257	0	307	0	357	0	407	2	457	0	507			
0	8	0	58	0	108	15	158	0	208	0	258	0	308	0	358	0	408	1	458	0	508			
0	9	0	59	0	109	9	159	0	209	0	259	0	309	0	359	0	409	5	459	0	509			
0	10	0	60	0	110	8	160	0	210	0	260	0	310	0	360	0	410	7	460	2	510			
0	11	0	61	0	111	1	161	0	211	0	261	0	311	0	361	0	411	2	461	0	511			
0	12	0	62	0	112	2	162	0	212	0	262	0	312	0	362	1	412	4	462	0	512			
0	13	0	63	0	113	0	163	0	213	0	263	1	313	1	363	0	413	6	463					
0	14	0	64	0	114	0	164	0	214	0	264	0	314	2	364	0	414	5	464					
0	15	0	65	0	115	0	165	0	215	0	265	0	315	2	365	0	415	6	465					
0	16	0	66	0	116	0	166	1	216	0	266	0	316	0	366	0	416	2	466					
0	17	0	67	0	117	0	167	0	217	0	267	0	317	3	367	0	417	2	467					
0	18	1	68	0	118	0	168	1	218	0	268	0	318	1	368	1	418	1	468					
0	19	0	69	0	119	0	169	0	219	0	269	0	319	0	369	0	419	0	469					
0	20	1	70	0	120	0	170	0	220	0	270	1	320	0	370	0	420	1	470					
0	21	0	71	0	121	0	171	0	221	0	271	3	321	3	371	0	421	0	471					
0	22	0	72	1	122	0	172	1	222	0	272	1	322	0	372	0	422	0	472					
0	23	0	73	0	123	0	173	0	223	0	273	1	323	0	373	0	423	0	473					
0	24	0	74	0	124	0	174	1	224	0	274	1	324	3	374	0	424	0	474					
0	25	1	75	1	125	0	175	1	225	0	275	1	325	4	375	0	425	0	475					
0	26	0	76	1	126	0	176	0	226	0	276	0	326	2	376	1	426	0	476					
0	27	0	77	1	127	0	177	0	227	0	277	2	327	2	377	0	427	0	477					
0	28	0	78	2	128	0	178	1	228	0	278	3	328	8	378	0	428	0	478					
0	29	0	79	2	129	0	179	0	229	0	279	0	329	15	379	1	429	0	479					
0	30	0	80	1	130	0	180	1	230	0	280	3	330	11	380	1	430	0	480					
0	31	0	81	0	131	0	181	0	231	0	281	4	331	9	381	0	431	0	481					
0	32	0	82	0	132	0	182	0	232	0	282	2	332	11	382	1	432	0	482					
0	33	0	83	1	133	0	183	1	233	0	283	3	333	10	383	0	433	0	483					
0	34	0	84	0	134	0	184	2	234	0	284	5	334	5	384	1	434	0	484					
0	35	0	85	0	135	0	185	2	235	0	285	4	335	5	385	0	435	0	485					
0	36	0	86	0	136	0	186	3	236	0	286	10	336	0	386	1	436	0	486					
0	37	0	87	3	137	0	187	2	237	0	287	5	337	0	387	1	437	0	487					
0	38	0	88	3	138	0	188	3	238	0	288	5	338	1	388	0	438	0	488					
0	39	0	89	0	139	0	189	2	239	0	289	6	339	0	389	1	439	0	489					
0	40	0	90	2	140	0	190	3	240	0	290	3	340	0	390	0	440	0	490					
0	41	0	91	1	141	0	191	6	241	0	291	7	341	1	391	0	441	0	491					
0	42	0	92	4	142	0	192	3	242	0	292	8	342	1	392	0	442	0	492					
0	43	0	93	0	143	0	193	5	243	1	293	9	343	0	393	1	443	0	493					
0	44	0	94	3	144	0	194	6	244	0	294	12	344	0	394	0	444	0	494					
0	45	0	95	6	145	0	195	11	245	0	295	15	345	0	395	1	445	0	495					
0	46	0	96	5	146	0	196	5	246	1	296	11	346	0	396	0	446	0	496					
0	47	0	97	3	147	0	197	6	247	0	297	18	347	0	397	0	447	0	497					
0	48	0	98	4	148	0	198	7	248	0	298	14	348	0	398	0	448	0	498					
0	49	0	99	5	149	0	199	6	249	0	299	11	349	0	399	0	449	0	499					

0 50 0 100 7 150 0 200 4 250 0 300 5 350 0 400 1 450 0 500

VMS Peak Search Report V1.9 Generated 26-FEB-2008 15:28:03

Configuration : RDND06\$DKA100:[ALP119.SAMPLE]KF8N62AD_260281207.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 12:07:54
 Sample ID : KF8N62AD Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP119 Detector geometry:
 Elapsed live time: 0 03:20:06.00 Elapsed real time: 0 03:20:06.00 0.0%
 Start energy : 2865.89 kev End energy : 6657.98 kev
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4013.22	144	0	59.89	156.48	136	28	1.20E-02	8.3	
2	0	4679.87	77	0	67.38	245.87	232	22	6.41E-03	11.4	
3	0	5423.36	164	0	59.89	345.74	327	26	1.37E-02	7.8	
4	0	5679.46	83	0	52.41	380.18	375	13	6.91E-03	11.0	

Error Report (Date: 26-Feb-08 03:28 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N82AD

Detector: ALP120 1

Report Date: 26-Feb-08 06:03 PM

Acquire Date: 26-FEB-2008 12:08:00.96

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

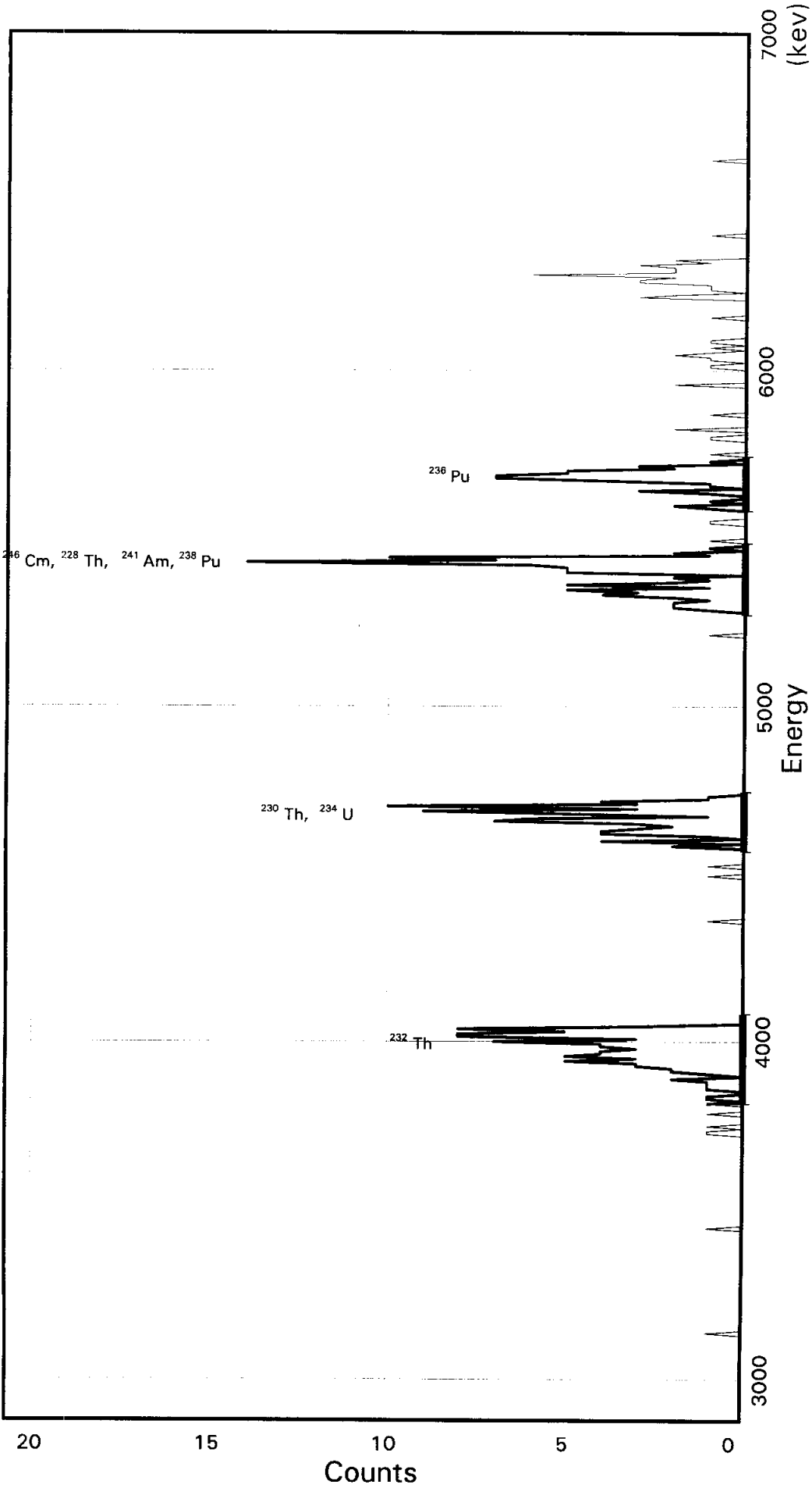
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	88	5	0.434	5423.2	177.3	329	353
TH-230	73	0	0.364	4687.7	169.9	233	256
TH-232	85	0	0.424	4013.0	155.1	141	162

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8035234

Sample ID: KF8N82AD
Detector ID: ALP120 1



Acquisition Start: 26-FEB-2008 12:08:00.96
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:20.00

Energy Coefficients:
Offset: 2.85646E + 03
Slope: 7.38113E + 00
Quadrature: 1.04953E-05

SAMPLE IDENTIITY: KF8N82AD

TITLE : TH BRCO

DETECTOR : ALP120 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP120.SAMPLE] KF8N82AD_260281
208.CNF;1
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:27

REPORT DATE : 26-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 26-FEB-2008 12:08:00 CALIB DATE : 11-FEB-2008 02:50:06

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:20

OFFSET : 2856.46 keV CONSTANT FWHM : 9.50000 Channels
SLOPE : 7.38113 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 1.049530E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 (Version: 1 Apr 07)

Sample Identity: KF8N82AD

Flags Key

Detector: ALP120 1

Report Date: 26-Feb 08 03:28 PM

Intersect Region: @

Acquire Date: 26-FEB 2008 12:08:00.96

Non-Intersect Region: +.

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn			
		1	0		51	0		101	4		151	0		201	3		251	0		301	1		351	0		401	0		451	0		501
		2	0		52	0		102	3		152	0		202	4		252	0		302	2		352	2		402	0		452	0		502
0		3	0		53	0		103	4		153	0		203	1		253	0		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	4		154	1		204	1		254	0		304	1		354	0		404	0		454	0		504
0		5	0		55	0		105	7		155	0		205	0		255	0		305	0		355	0		405	3		455	0		505
0		6	0		56	0		106	3		156	0		206	0		256	0		306	0		356	0		406	2		456	0		506
0		7	0		57	0		107	8		157	0		207	0		257	0		307	1		357	0		407	0		457	0		507
0		8	0		58	0		108	8		158	0		208	0		258	0		308	0		358	1		408	1		458	0		508
0		9	0		59	0		109	5		159	0		209	0		259	0		309	0		359	0		409	1		459	0		509
0		10	0		60	0		110	8		160	0		210	0		260	0		310	0		360	0		410	1		460	1		510
0		11	0		61	0		111	3		161	0		211	0		261	0		311	0		361	0		411	3		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	0		312	0		362	0		412	3		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	2		463			
0		14	0		64	0		114	0		164	0		214	0		264	0		314	1		364	0		414	6		464			
0		15	0		65	0		115	0		165	0		215	0		265	0		315	1		365	0		415	2		465			
0		16	0		66	0		116	0		166	0		216	0		266	0		316	0		366	0		416	2		466			
0		17	0		67	0		117	0		167	0		217	0		267	0		317	0		367	0		417	2		467			
0		18	0		68	1		118	0		168	0		218	0		268	0		318	0		368	0		418	3		468			
0		19	0		69	1		119	0		169	0		219	0		269	1		319	0		369	0		419	1		469			
0		20	0		70	0		120	0		170	0		220	0		270	0		320	1		370	2		420	2		470			
0		21	0		71	1		121	0		171	0		221	0		271	0		321	2		371	0		421	0		471			
0		22	0		72	0		122	0		172	1		222	0		272	0		322	0		372	0		422	0		472			
0		23	0		73	0		123	0		173	0		223	0		273	0		323	1		373	0		423	0		473			
0		24	0		74	0		124	0		174	0		224	0		274	0		324	0		374	0		424	0		474			
0		25	0		75	0		125	0		175	0		225	0		275	0		325	0		375	0		425	0		475			
0		26	0		76	1		126	0		176	1		226	0		276	0		326	1		376	0		426	0		476			
0		27	0		77	0		127	0		177	0		227	0		277	0		327	3		377	1		427	0		477			
0		28	0		78	0		128	0		178	0		228	0		278	0		328	0		378	1		428	0		478			
0		29	0		79	0		129	0		179	0		229	0		279	1		329	1		379	0		429	0		479			
0		30	1		80	1		130	0		180	0		230	0		280	2		330	1		380	1		430	1		480			
0		31	0		81	0		131	0		181	0		231	0		281	2		331	4		381	1		431	0		481			
0		32	0		82	1		132	0		182	0		232	0		282	2		332	7		382	2		432	0		482			
0		33	0		83	1		133	0		183	0		233	0		283	1		333	7		383	1		433	0		483			
0		34	0		84	0		134	0		184	2		234	0		284	2		334	5		384	0		434	0		484			
0		35	0		85	0		135	0		185	0		235	0		285	4		335	5		385	1		435	0		485			
0		36	0		86	1		136	0		186	4		236	0		286	3		336	2		386	0		436	0		486			
0		37	0		87	1		137	0		187	0		237	0		287	5		337	3		387	1		437	0		487			
1		38	0		88	1		138	0		188	1		238	0		288	1		338	0		388	1		438	0		488			
0		39	0		89	1		139	0		189	4		239	0		289	5		339	1		389	0		439	0		489			
0		40	0		90	2		140	0		190	4		240	0		290	2		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	3		241	0		291	1		341	0		391	0		441	0		491			
0		42	0		92	1		142	0		192	2		242	0		292	2		342	1		392	0		442	0		492			
0		43	0		93	2		143	0		193	3		243	0		293	0		343	0		393	0		443	0		493			
0		44	0		94	2		144	0		194	7		244	0		294	5		344	0		394	0		444	0		494			
0		45	0		95	3		145	0		195	6		245	0		295	5		345	0		395	0		445	0		495			
0		46	0		96	3		146	0		196	1		246	0		296	5		346	0		396	0		446	0		496			
0		47	0		97	5		147	0		197	5		247	0		297	6		347	0		397	1		447	0		497			
0		48	0		98	3		148	0		198	9		248	0		298	14		348	1		398	0		448	0		498			
0		49	0		99	5		149	0		199	3		249	0		299	7		349	1		399	0		449	0		499			

0 50 0 100 4 150 0 200 10 250 0 300 10 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 26-FEB-2008 15:28:24

```

Configuration      : RDND06$DKA100:[ALP120.SAMPLE]KF8N82AD_260281208.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 12:08:00
Sample ID        : KF8N82AD           Sample quantity  : 0.000000E+00 LITER
Sample type      : disk              Sample geometry   :
Detector name    : ALP120           Detector geometry:
Elapsed live time: 0 03:20:20.00    Elapsed real time: 0 03:20:20.00  0.0%
Start energy     : 2878.60 keV      End energy        : 6638.35 keV
Sensitivity      : 3.00             Sum Sensitivity   : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3994.92	94	0103.34	154.21	130	36	7.82E-03	10.3		
2	0	4676.82	72	0 81.19	246.54	232	24	5.99E-03	11.8		
3	0	5426.66	91	0 51.67	348.04	327	29	7.57E-03	10.5		
4	0	5683.25	46	0 44.29	382.77	369	22	3.83E-03	14.7		

Error Report (Date: 26-Feb-08 03:28 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 05:37:56.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6537	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
25-FEB-2008 05:37:56.00	7738	20.00	730	500.00	30A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
3	29	661	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 05:37:56.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
CAL6538	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
25-FEB-2008 05:37:56.00	7857	20.00	825	500.00	30B

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
0	24	661	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 05:37:56.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
CAL6539	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
25-FEB-2008 05:37:56.00	7891	20.00	719	500.00	30C

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
2	13	661	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
 Richland, WA

GPC Report

25-FEB-2008 05:37:56.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6540	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
25-FEB-2008 05:37:56.00	7614	20.00	570	500.00	30D

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
3	17	661	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 06:00:53.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8NX1AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
25-FEB-2008 06:00:53.00	5135	20.00	730	500.00	30A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
13	29	650	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 06:00:53.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8N41AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
25-FEB-2008 06:00:53.00	2978	20.00	825	500.00	30B

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
1	24	650	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 06:00:53.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8N51AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
25-FEB-2008 06:00:53.00	3378	20.00	719	500.00	30C

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
4	13	650	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 06:00:53.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8N61AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
25-FEB-2008 06:00:53.00	5548	20.00	570	500.00	30D

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
1	17	650	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 06:26:01.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8N81AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
25-FEB-2008 06:26:01.00	4881	20.00	730	500.00	30A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
5	29	651	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 06:48:23.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8PG1AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
25-FEB-2008 06:48:23.00	3194	20.00	730	500.00	30A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
9	29	667	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 06:26:01.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8PD1AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
25-FEB-2008 06:26:01.00	3394	20.00	719	500.00	30C

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
4	13	651	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 06:26:01.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8PE1AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
25-FEB-2008 06:26:01.00	2687	20.00	570	500.00	30D

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
4	17	651	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 06:48:23.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8N91AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
25-FEB-2008 06:48:23.00	4996	20.00	825	500.00	30B

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
63	24	667	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 06:48:23.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
KF8PG1AG	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
25-FEB-2008 06:48:23.00	3659	20.00	719	500.00	30C

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
2	13	667	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 06:48:23.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
KGH0L1AA	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
25-FEB-2008 06:48:23.00	4821	20.00	570	500.00	30D

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
4	17	667	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

25-FEB-2008 07:10:17.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KGH0L1AC	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
25-FEB-2008 07:10:17.00	3272	20.00	730	500.00	30A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
1	29	644	1492	24-FEB-2008 20:23:23.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

THORIUM ISOTOPICT COUNTING REQUEST

C.R. Technician ASL
 Date Counted 10/2/02
 C.R. Analyst ASL
 Date Analyzed 10/2/02

Counting Time 200 Minutes
 Sample 200
 Operating: RICHRD008
 Review: 10/2/02
 Background See Alpha Analysis Report
 SOPs 10/2/02
 RICH RD0016 8035034

WorkOrder #	Th-229 (4845 KeV) Tracer		TOTAL COUNTS			Det #	Comment
	ID	Activity	ROI Cts	BKG	from Th-234 Beta Count (7)		
KF8N41AD		10		0	Th-228 (5423 KeV) (6)	171	See Alpha Analysis Report for ROI Information
KF8N41AD		10		0	Th-230 (4688 KeV) (8)	172	See Alpha Analysis Report for ROI Information
KF8N51AD		10		0	Th-232 (4010 KeV) (9)	173	See Alpha Analysis Report for ROI Information
KF8N61AD		10		0		174	See Alpha Analysis Report for ROI Information
KF8N81AD		10		0		175	See Alpha Analysis Report for ROI Information
KF8N91AD		10		0		177	See Alpha Analysis Report for ROI Information
KF8PD1AD		10		0		178	See Alpha Analysis Report for ROI Information
KF8PE1AD		10		0		113	See Alpha Analysis Report for ROI Information
KF8PL1AD		10		0		116	See Alpha Analysis Report for ROI Information

Comments:

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8NX1AD

Detector: ALP171 1

Report Date: 25-Feb-08 10:34 AM

Acquire Date: 25-FEB-2008 07:08:06.74

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

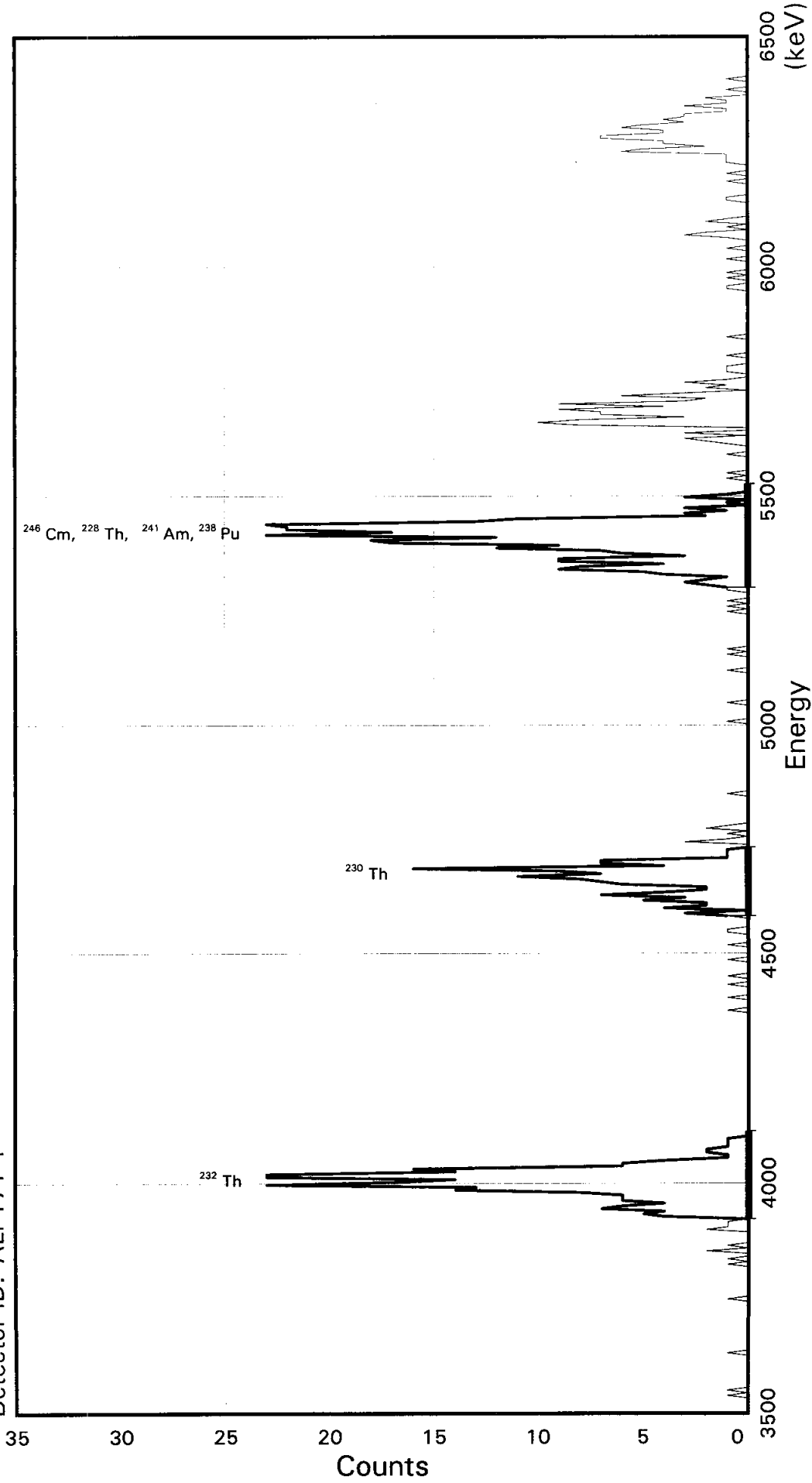
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Rght
			C/Min	keV	keV	Chnl	Chnl
TH-228	279	4	1.393	5423.2	174.8	309	339
TH-230	119	2	0.594	4687.7	145.3	185	210
TH-232	241	2	1.204	4013.0	185.6	68	100

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8NX1AD
Detector ID: ALP171 1

Batch ID: 8035234



Acquisition Start: 25-FEB-2008 07:08:06.74
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.49866E + 03
Slope: 5.79205E + 00
Quadrature: 5.30073E-05

SAMPLE IDENTIITY: KF8NX1AD

TITLE : TH BRCO

DETECTOR : ALP171 1

CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8NX1AD_250280708A.CN

F;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 07:08:06 CALIB DATE : 09-FEB-2008 06:26:03

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3498.66 keV CONSTANT FWHM : 9.00000 Channels

SLOPE : 5.79205 keV/C SENSITIVITY : 3.00000 Std Dev's

QUAD COEFF : 5.300730E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1-Apr-07)

Sample Identity: KF8NX1AD

Flags Key

Detector: ALP171 1

Report Date: 25-Feb 08 10:28 AM

Intersect Region: %

Acquire Date: 25-FEB-2008 07:08:06.74

Non-Intersect Region: %,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
		1	0		51	1	101	1	151	8	201	0	251	1	301	1	351	0	401	0	451	0	501
		2	0		52	1	102	0	152	11	202	0	252	0	302	0	352	0	402	0	452	0	502
0		3	0		53	1	103	0	153	7	203	0	253	1	303	1	353	0	403	0	453	0	503
0		4	0		54	0	104	0	154	9	204	0	254	0	304	0	354	1	404	0	454	0	504
0		5	0		55	0	105	0	155	16	205	0	255	1	305	0	355	0	405	1	455	0	505
0		6	1		56	0	106	1	156	4	206	0	256	0	306	0	356	0	406	1	456	0	506
1		7	0		57	0	107	0	157	7	207	0	257	0	307	0	357	0	407	0	457	0	507
0		8	1		58	0	108	0	158	7	208	0	258	0	308	0	358	0	408	0	458	0	508
1		9	0		59	0	109	0	159	1	209	0	259	1	309	0	359	0	409	0	459	0	509
0		10	0		60	0	110	0	160	1	210	1	260	1	310	1	360	0	410	0	460	0	510
0		11	2		61	0	111	1	161	1	211	0	261	2	311	0	361	0	411	0	461	0	511
0		12	0		62	0	112	0	162	1	212	0	262	3	312	0	362	0	412	1	462	0	512
0		13	1		63	0	113	0	163	0	213	0	263	2	313	0	363	0	413	0	463		
0		14	0		64	0	114	1	164	0	214	0	264	1	314	1	364	0	414	0	464		
0		15	0		65	0	115	0	165	3	215	0	265	4	315	2	365	0	415	1	465		
0		16	0		66	0	116	0	166	1	216	0	266	5	316	3	366	0	416	0	466		
0		17	0		67	0	117	0	167	0	217	1	267	9	317	0	367	0	417	0	467		
0		18	0		68	0	118	0	168	1	218	0	268	8	318	3	368	0	418	0	468		
0		19	2		69	0	119	0	169	0	219	0	269	4	319	0	369	0	419	1	469		
0		20	1		70	0	120	1	170	2	220	0	270	9	320	0	370	0	420	1	470		
0		21	1		71	0	121	0	171	1	221	0	271	9	321	8	371	0	421	1	471		
0		22	1		72	0	122	0	172	0	222	0	272	3	322	10	372	1	422	1	472		
1		23	0		73	0	123	0	173	0	223	0	273	6	323	8	373	1	423	6	473		
0		24	4		74	0	124	0	174	0	224	0	274	7	324	3	374	0	424	5	474		
0		25	5		75	0	125	0	175	0	225	0	275	12	325	7	375	0	425	2	475		
0		26	4		76	0	126	1	176	0	226	0	276	9	326	7	376	1	426	4	476		
0		27	7		77	0	127	0	177	0	227	0	277	17	327	9	377	0	427	4	477		
0		28	6		78	0	128	0	178	0	228	0	278	18	328	4	378	1	428	7	478		
0		29	4		79	0	129	0	179	0	229	1	279	12	329	9	379	0	429	7	479		
0		30	6		80	0	130	0	180	0	230	0	280	23	330	3	380	0	430	4	480		
0		31	6		81	0	131	1	181	0	231	0	281	17	331	2	381	0	431	4	481		
0		32	6		82	0	132	1	182	0	232	0	282	22	332	6	382	0	432	6	482		
0		33	8		83	0	133	0	183	1	233	0	283	22	333	3	383	1	433	5	483		
0		34	14		84	0	134	0	184	0	234	0	284	23	334	0	384	0	434	3	484		
0		35	13		85	0	135	0	185	0	235	1	285	13	335	2	385	0	435	4	485		
0		36	23		86	0	136	0	186	0	236	0	286	11	336	1	386	0	436	3	486		
0		37	17		87	0	137	1	187	0	237	1	287	2	337	3	387	1	437	3	487		
0		38	14		88	0	138	3	188	0	238	0	288	3	338	1	388	0	438	1	488		
0		39	23		89	0	139	0	189	0	239	0	289	1	339	0	389	0	439	1	489		
0		40	23		90	0	140	4	190	0	240	0	290	3	340	0	390	0	440	3	490		
0		41	14		91	0	141	2	191	0	241	0	291	0	341	1	391	1	441	1	491		
0		42	16		92	0	142	2	192	0	242	0	292	1	342	1	392	3	442	1	492		
1		43	6		93	0	143	5	193	0	243	0	293	0	343	1	393	2	443	2	493		
0		44	6		94	0	144	3	194	0	244	0	294	3	344	0	394	0	444	0	494		
0		45	4		95	0	145	7	195	0	245	0	295	1	345	0	395	1	445	0	495		
0		46	1		96	0	146	4	196	0	246	0	296	0	346	0	396	0	446	1	496		
0		47	1		97	0	147	2	197	0	247	0	297	0	347	1	397	2	447	0	497		
0		48	2		98	0	148	2	198	0	248	0	298	0	348	0	398	1	448	0	498		
0		49	2		99	0	149	6	199	0	249	0	299	0	349	0	399	0	449	0	499		

0 50 1 100 0 150 7 200 0 250 0 300 0 350 0 400 0 450 1 500

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF8NX1AD_250280708A.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 07:08:06
Sample ID         : KF8NX1AD           Sample quantity  : 0.00000E+00 LITER
Sample type       : disk               Sample geometry   :
Detector name     : ALP171 1          Detector geometry:
Elapsed live time : 0 03:19:47.00     Elapsed real time: 0 03:19:47.00   0.0%
Start energy      : 3516.03 keV        End energy        : 6478.08 keV
Sensitivity       : 3.00                Sum Sensitivity   : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4007.45	239	0	57.92/	87.77	73	33	1.99E-02	6.5	
2	0	4677.96	119	0	52.13/	203.23	187	26	9.93E-03	9.2	
3	0	5420.36	285	0	57.92/	330.78	310	39	2.38E-02	5.9	

Error Report (Date: 25-Feb-08 10:28 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N41AD

Detector: ALP171 2

Report Date: 25-Feb-08 10:35 AM

Acquire Date: 25-FEB-2008 07:08:06.74

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

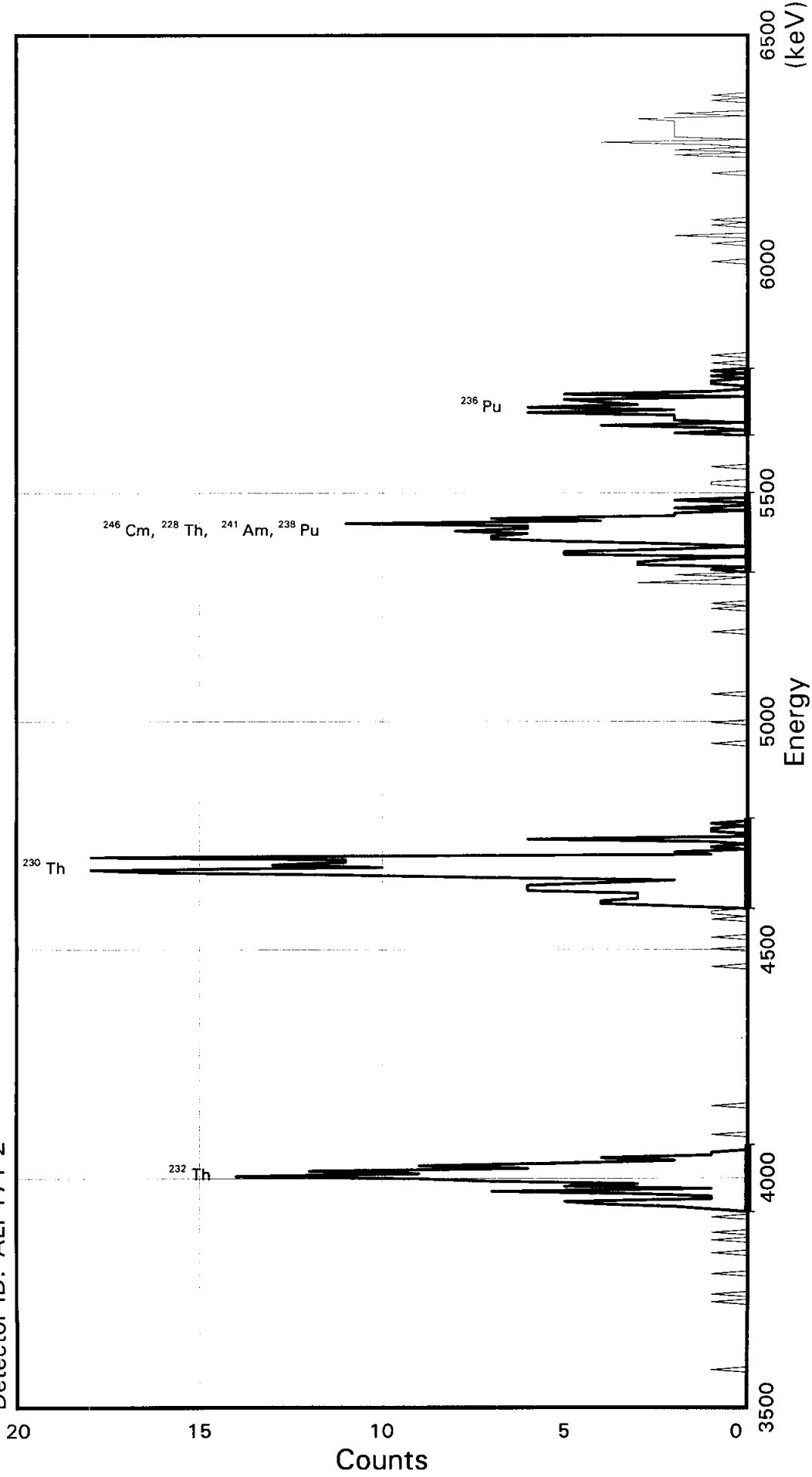
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	95	4	0.472	5423.2	135.9	320	344
TH-230	172	2	0.859	4687.7	186.3	183	216
TH-232	112	1	0.560	4013.0	140.8	70	95

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8N41AD
Detector ID: ALP171 2

Batch ID: 8035234



Acquisition Start: 25-FEB-2008 07:08:06.74
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.53220E+03
Slope: 5.62160E+00
Quadrature: 5.87552E-05

SAMPLE IDENTIITY: KF8N41AD

TITLE : TH BRCO

DETECTOR : ALP171 2

CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8N41AD_250280708B.CN
F;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 07:08:06 CALIB DATE : 09-FEB-2008 06:31:06

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3532.20 keV CONSTANT FWHM : 9.66667 Channels

SLOPE : 5.62160 keV/C SENSITIVITY : 3.00000 Std Dev's

QUAD COEFF : 5.875520E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgr_cnts
(Version: 1 Apr 07)

Sample Identity: KF8N41AD

Flags Key

Detector: ALP171 2

Report Date: 25 Feb 08 10:28 AM

Intersect Region: X

Acquire Date: 25-FEB 2008 07:08:06.74

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	
		1	0	51	0	101	0	151	11	201	0	251	0	301	0	351	0	401	0	451	0	501		
		2	0	52	0	102	0	152	16	202	1	252	0	302	1	352	1	402	1	452	1	502		
0		3	0	53	0	103	0	153	18	203	0	253	0	303	1	353	0	403	0	453	0	503		
0		4	1	54	0	104	0	154	10	204	0	254	1	304	0	354	0	404	1	454	0	504		
0		5	0	55	0	105	0	155	13	205	0	255	0	305	0	355	0	405	0	455	0	505		
0		6	0	56	0	106	0	156	11	206	0	256	1	306	0	356	0	406	0	456	0	506		
0		7	0	57	0	107	0	157	11	207	0	257	0	307	0	357	0	407	0	457	0	507		
0		8	0	58	0	108	0	158	18	208	0	258	0	308	0	358	0	408	0	458	0	508		
1		9	1	59	0	109	0	159	1	209	0	259	0	309	1	359	0	409	0	459	0	509		
0		10	0	60	0	110	0	160	2	210	1	260	0	310	0	360	0	410	0	460	0	510		
0		11	0	61	1	111	0	161	0	211	0	261	0	311	0	361	0	411	0	461	0	511		
0		12	1	62	0	112	0	162	1	212	0	262	0	312	0	362	0	412	0	462	0	512		
0		13	0	63	0	113	0	163	0	213	0	263	0	313	0	363	0	413	0	463				
0		14	0	64	0	114	0	164	1	214	0	264	3	314	0	364	0	414	0	464				
0		15	0	65	0	115	1	165	6	215	0	265	1	315	0	365	0	415	0	465				
0		16	0	66	0	116	0	166	0	216	0	266	0	316	0	366	0	416	0	466				
0		17	0	67	0	117	0	167	0	217	0	267	2	317	0	367	0	417	0	467				
0		18	1	68	0	118	0	168	1	218	0	268	0	318	0	368	0	418	0	468				
0		19	0	69	0	119	0	169	1	219	0	269	1	319	0	369	0	419	0	469				
0		20	0	70	0	120	0	170	0	220	0	270	0	320	0	370	0	420	0	470				
0		21	1	71	0	121	0	171	1	221	1	271	3	321	0	371	0	421	0	471				
0		22	2	72	0	122	1	172	0	222	0	272	3	322	2	372	0	422	1	472				
0		23	4	73	0	123	0	173	0	223	0	273	2	323	0	373	0	423	0	473				
0		24	5	74	0	124	0	174	0	224	0	274	0	324	1	374	0	424	0	474				
0		25	1	75	0	125	0	175	0	225	0	275	5	325	4	375	0	425	0	475				
0		26	1	76	0	126	0	176	0	226	0	276	5	326	0	376	0	426	0	476				
0		27	3	77	0	127	1	177	0	227	0	277	2	327	2	377	0	427	0	477				
0		28	7	78	0	128	0	178	0	228	0	278	0	328	2	378	0	428	0	478				
0		29	1	79	0	129	0	179	0	229	0	279	2	329	2	379	0	429	2	479				
0		30	5	80	0	130	0	180	0	230	0	280	5	330	6	380	0	430	0	480				
0		31	3	81	0	131	0	181	0	231	0	281	7	331	2	381	0	431	2	481				
0		32	7	82	0	132	0	182	0	232	0	282	7	332	6	382	0	432	0	482				
0		33	9	83	0	133	0	183	0	233	0	283	6	333	3	383	0	433	1	483				
0		34	14	84	0	134	1	184	0	234	0	284	8	334	4	384	0	434	4	484				
1		35	9	85	0	135	0	185	0	235	0	285	6	335	5	385	0	435	0	485				
0		36	12	86	0	136	1	186	0	236	0	286	6	336	0	386	0	436	2	486				
0		37	6	87	0	137	1	187	0	237	0	287	11	337	5	387	0	437	2	487				
1		38	9	88	0	138	0	188	0	238	0	288	4	338	1	388	1	438	2	488				
0		39	5	89	0	139	2	189	0	239	0	289	7	339	0	389	0	439	2	489				
0		40	2	90	0	140	4	190	0	240	0	290	2	340	0	390	0	440	2	490				
0		41	4	91	0	141	4	191	0	241	0	291	2	341	1	391	0	441	2	491				
0		42	1	92	0	142	3	192	0	242	0	292	0	342	1	392	0	442	2	492				
0		43	1	93	0	143	3	193	0	243	0	293	2	343	0	393	0	443	3	493				
0		44	0	94	0	144	3	194	0	244	0	294	0	344	1	394	0	444	0	494				
0		45	0	95	0	145	6	195	0	245	1	295	0	345	0	395	1	445	2	495				
1		46	0	96	0	146	6	196	0	246	0	296	2	346	1	396	0	446	0	496				
0		47	0	97	0	147	6	197	0	247	0	297	0	347	0	397	0	447	0	497				
0		48	0	98	0	148	4	198	0	248	0	298	0	348	0	398	2	448	0	498				
0		49	0	99	0	149	2	199	0	249	0	299	0	349	1	399	0	449	0	499				

0 50 1 100 0 150 7 200 0 250 0 300 0 350 0 400 0 450 1 500

Configuration : \$DISK1:[ALP171.SAMPLE]KF8N41AD_250280708B.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 07:08:06
 Sample ID : KF8N41AD Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP171 1 Detector geometry:
 Elapsed live time: 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
 Start energy : 3549.07 keV End energy : 6425.86 keV
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4010.29	114	0	39.35	84.97	70	26	9.51E-03	9.4	
2	0	4681.61	173	0	50.59	204.03	188	35	1.44E-02	7.6	
3	0	5419.73	99	0	56.22	334.59	318	31	8.26E-03	10.1	
4	0	5690.97	48	0	44.97	382.48	371	26	4.00E-03	14.4	

Error Report (Date: 25-Feb-08 10:28 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N51AD

Detector: ALP171 3

Report Date: 25-Feb-08 10:35 AM

Acquire Date: 25-FEB-2008 07:08:06.74

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

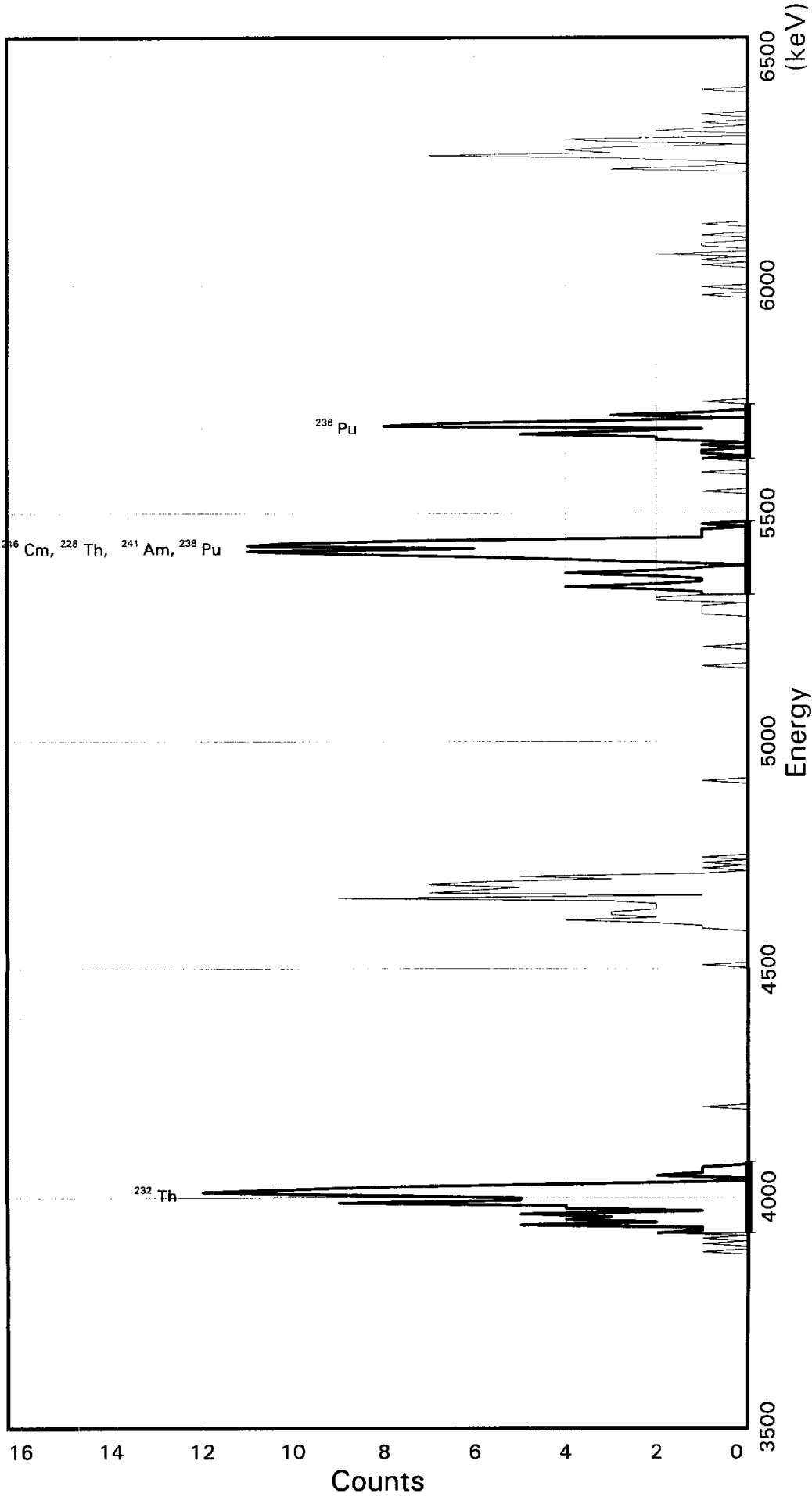
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl
TH-228	87	1	0.434	5423.2	119.6	310	330
TH-230	74	1	0.369	4687.7	119.6	187	207
TH-232	94	0	0.471	4013.0	125.5	73	94

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8N51AD
Detector ID: ALP171 3

Batch ID: 8035234



Acquisition Start: 25-FEB-2008 07:08:06.74
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.47964E+03
Slope: 5.97692E+00
Quadrature: 5.57270E-06

SAMPLE IDENTITY: KF8N51AD

TITLE : TH BRCO

DETECTOR : ALP171 3

CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8N51AD_250280708C.CNF;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 07:08:06 CALIB DATE : 09-FEB-2008 06:26:32

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3479.64 keV CONSTANT FWHM : 7.33333 Channels

SLOPE : 5.97692 keV/C SENSITIVITY : 3.00000 Std Dev's

QUAD COEFF : 5.572700E-06 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1 Apr-07)

Sample Identity: KP8N51AD

Flags Key

Detector: ALP171 3

Report Date: 25 Feb-08 10:28 AM

Intersect Region: F

Acquire Date: 25-FEB-2008 07:08:06.74

Non Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
		1	0		51	0		101	0		151	5		201	0		251	1		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	7		202	0		252	1		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	6		203	0		253	1		303	1		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	3		204	0		254	1		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	5		205	0		255	0		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	1		206	0		256	2		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	0		207	0		257	2		307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	0		158	1		208	0		258	1		308	1		358	0		408	0		458	0		508
0		9	0		59	0		109	0		159	0		209	0		259	1		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	0		160	1		210	0		260	2		310	1		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	4		311	1		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	1		212	0		262	2		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	1		313	1		363	0		413	0		463			
0		14	0		64	0		114	0		164	0		214	0		264	1		314	0		364	0		414	3		464			
0		15	0		65	0		115	0		165	0		215	0		265	2		315	2		365	0		415	1		465			
0		16	0		66	0		116	0		166	0		216	0		266	4		316	2		366	0		416	0		466			
0		17	1		67	0		117	0		167	0		217	0		267	2		317	5		367	0		417	1		467			
0		18	0		68	0		118	0		168	0		218	0		268	1		318	3		368	1		418	3		468			
0		19	0		69	0		119	0		169	0		219	0		269	0		319	1		369	0		419	7		469			
0		20	1		70	1		120	0		170	0		220	0		270	2		320	8		370	0		420	3		470			
0		21	0		71	0		121	0		171	0		221	0		271	4		321	7		371	1		421	4		471			
0		22	1		72	0		122	1		172	0		222	0		272	6		322	3		372	0		422	3		472			
0		23	0		73	0		123	0		173	0		223	0		273	9		323	0		373	0		423	0		473			
0		24	2		74	0		124	0		174	0		224	0		274	11		324	3		374	0		424	3		474			
0		25	1		75	0		125	0		175	0		225	0		275	6		325	1		375	0		425	4		475			
0		26	1		76	0		126	0		176	0		226	0		276	11		326	0		376	0		426	0		476			
0		27	5		77	0		127	0		177	0		227	0		277	10		327	0		377	0		427	0		477			
0		28	2		78	0		128	0		178	0		228	0		278	7		328	0		378	0		428	2		478			
0		29	4		79	0		129	0		179	0		229	0		279	1		329	1		379	1		429	1		479			
0		30	3		80	0		130	0		180	0		230	0		280	1		330	0		380	0		430	0		480			
0		31	5		81	0		131	0		181	0		231	0		281	1		331	0		381	1		431	1		481			
0		32	1		82	0		132	0		182	0		232	1		282	1		332	0		382	0		432	0		482			
0		33	4		83	0		133	0		183	0		233	0		283	0		333	0		383	2		433	0		483			
0		34	4		84	0		134	0		184	0		234	0		284	1		334	0		384	0		434	1		484			
0		35	9		85	0		135	0		185	0		235	0		285	0		335	0		385	0		435	0		485			
0		36	5		86	0		136	1		186	0		236	0		286	0		336	0		386	1		436	0		486			
0		37	5		87	0		137	1		187	0		237	0		287	0		337	0		387	1		437	0		487			
0		38	9		88	0		138	2		188	0		238	0		288	0		338	0		388	0		438	0		488			
0		39	12		89	0		139	4		189	0		239	1		289	0		339	0		389	0		439	0		489			
0		40	10		90	0		140	2		190	1		240	0		290	0		340	0		390	1		440	0		490			
0		41	8		91	0		141	3		191	0		241	0		291	0		341	0		391	0		441	0		491			
0		42	4		92	0		142	3		192	0		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	2		193	0		243	0		293	0		343	0		393	0		443	1		493			
0		44	0		94	0		144	2		194	0		244	0		294	0		344	0		394	1		444	0		494			
0		45	2		95	0		145	2		195	0		245	0		295	0		345	0		395	0		445	0		495			
0		46	1		96	0		146	3		196	0		246	0		296	1		346	0		396	0		446	0		496			
0		47	1		97	0		147	9		197	0		247	0		297	0		347	0		397	0		447	0		497			
0		48	1		98	0		148	1		198	0		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	7		199	0		249	0		299	0		349	0		399	0		449	0		499			

0 50 0 100 0 150 6 200 0 250 0 300 0 350 0 400 0 450 0 500

Configuration : \$DISK1:[ALP171.SAMPLE]KF8N51AD_250280708C.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 07:08:06
 Sample ID : KF8N51AD Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP171 1 Detector geometry:
 Elapsed live time: 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
 Start energy : 3497.57 keV End energy : 6541.28 keV
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4005.35	98	0	47.82	87.95	74	26	8.18E-03	10.1	
2	0	5422.82	92	0	41.84	325.02	308	27	7.67E-03	10.4	
3	0	5687.80	40	0	41.84	369.32	358	20	3.34E-03	15.8	

Error Report (Date: 25-Feb-08 10:28 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N61AD

Detector: ALP171 4

Report Date: 25-Feb-08 10:35 AM

Acquire Date: 25-FEB-2008 07:08:06.74

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

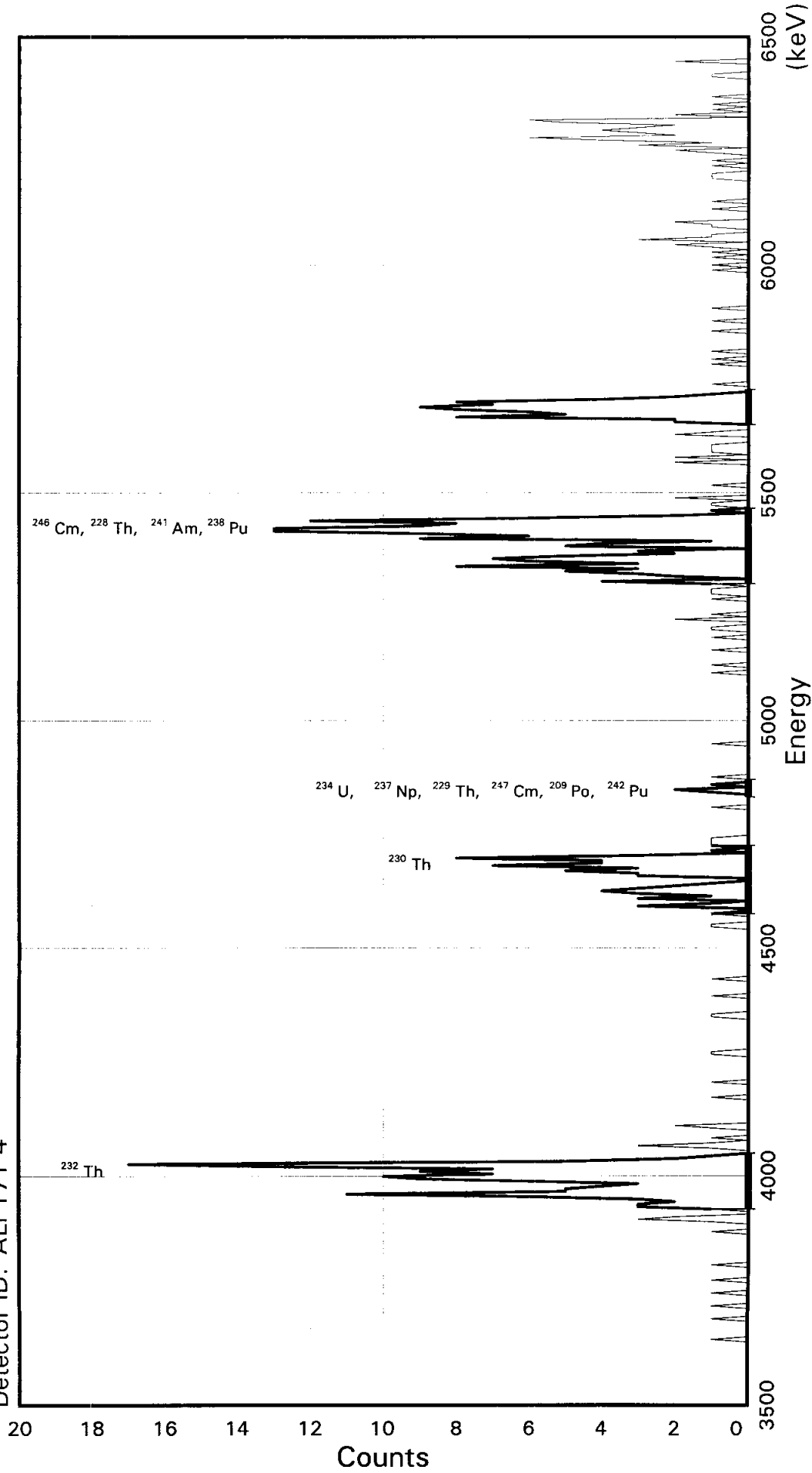
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	144	0	0.721	5423.2	139.0	306	331
TH-230	58	1	0.289	4687.7	111.1	179	199
TH-232	132	1	0.660	4013.0	138.8	55	80

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8N61AD
Detector ID: ALP171 4

Batch ID: 8035234



Acquisition Start: 25-FEB-2008 07:08:06.74
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.61090E+03
Slope: 5.54825E+00
Quadrature: 2.13419E-05

SAMPLE IDENTIITY: KF8N61AD

TITLE : TH BRCO

DETECTOR : ALP171 4
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8N61AD_250280708D.CN
F;1
ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 25-FEB-2008 07:08:06 CALIB DATE : 09-FEB-2008 06:26:58

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3610.90 keV CONSTANT FWHM : 8.33333 Channels
SLOPE : 5.54825 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 2.134190E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KF8N61AD

Flags Key

Detector: ALP171 4
 Report Date: 25-Feb-08 10:28 AM P: Peak Identified
 Acquire Date: 25-FEB-2008 07:08:06.74 I: Peak Intersect
 Tracer Nuclide: TH-229 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgrnd Live Time: 999 minutes A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrsc Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Rght Chnl	Left Wdth Mult	Rght Wdth Mult	Flags
PO-208	2	0	0	0.010	5116.0	33.4	269	275	0.00	0.00	
PO-209	4	0	0	0.020	4884.3	38.9	220	227	0.00	0.00	P
PO-210	-9999	-9999	0	-40.040	5305.5	38.9	303	310	0.00	0.00	M I
AC-227	8	1	0	0.039	6039.2	39.0	434	441	0.00	0.00	
TH-227	8	1	0	0.039	6039.2	39.0	434	441	0.00	0.00	
TH-228	147	0	0	0.736	5424.3	166.9	304	334	0.00	0.00	P
TH-229	4	0	0	0.020	4846.4	38.9	220	227	0.00	0.00	P
TH-230	62	1	0	0.309	4688.8	150.0	174	201	0.00	0.00	P
TH-232	130	1	0	0.650	4014.1	122.1	57	79	0.00	0.00	P
U-232	-9999	-9999	0	-40.040	5321.3	38.9	305	312	0.00	0.00	S I
U-234	4	0	0	0.020	4775.7	38.9	220	227	0.00	0.00	P
U-235	1	0	0	0.005	4398.9	38.9	139	146	0.00	0.00	
PU-236	2	0	0	0.010	5768.8	39.0	386	393	0.00	0.00	
NP-237	4	0	0	0.020	4789.1	38.9	220	227	0.00	0.00	P
PU-238	147	0	0	0.736	5500.2	166.9	304	334	0.00	0.00	P
U-238	1	0	0	0.005	4199.1	38.9	103	110	0.00	0.00	
PU-239	2	0	0	0.010	5157.7	38.9	276	283	0.00	0.00	
AM-241	147	0	0	0.736	5486.7	166.9	304	334	0.00	0.00	P
AM-242M	5	0	0	0.025	5207.9	38.9	285	292	0.00	0.00	
CM-242	2	2	0	0.008	6113.9	39.0	448	455	0.00	0.00	
PU-242	4	0	0	0.020	4901.6	38.9	220	227	0.00	0.00	P
AM-243	5	0	1	0.023	5276.4	38.9	297	304	0.00	0.00	S
CM-244	2	1	0	0.009	5806.0	39.0	393	400	0.00	0.00	
CM-246	147	0	0	0.736	5387.6	166.9	304	334	0.00	0.00	P
CM-247	4	0	0	0.020	4871.5	38.9	220	227	0.00	0.00	P
CM-248	1	0	0	0.005	5079.7	38.9	262	269	0.00	0.00	

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 10:28:37

Configuration : \$DISK1:[ALP171.SAMPLE]KF8N61AD_250280708D.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 07:08:06
 Sample ID : KF8N61AD Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP171 1 Detector geometry:
 Elapsed live time: 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
 Start energy : 3627.54 keV End energy : 6457.20 keV
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4012.27	130	0	49.93	72.32	57	22	1.08E-02	8.8	
2	0	4686.06	62	0	44.39	193.64	174	27	5.17E-03	12.7	
3	0	4846.44	4	0	22.19	222.50	220	7	3.34E-04	50.0	
4	0	5423.51	147	0	44.39	326.29	304	30	1.23E-02	8.2	
5	0	5682.83	62	0	44.39	372.90	367	14	5.17E-03	12.7	

Alpha Spectrum Listing

(Version: 1-Apr-07)

Sample Identity: KF8N61AD

Flags Key

Detector: ALP171 4

Report Date: 25-Feb-08 10:28 AM

Intersect Region: @

Acquire Date: 25-FEB-2008 07:08:06.74

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn					
		1	0	51	1	101	0	151	1	201	0	251	1+	301	0	351	0	401	0+	451	0	501
		2	1	52	0	102	0	152	1	202	0	252	1+	302	2	352	0	402	1+	452	0	502
0		3	3	53	0+	103	0	153	1	203	0	253	0@	303	0	353	0	403	0+	453	0	503
0		4	2	54	0+	104	0	154	1	204	0	254	1-	304	2	354	1	404	0+	454	1	504
0		5	0	55	0+	105	0	155	0	205	0	255	4@	305	0	355	0	405	1+	455	1	505
1		6	0	56	0+	106	0	156	0	206	0	256	0@	306	1	356	0	406	0	456	0	506
0		7	1+	57	1+	107	0	157	0	207	0	257	2@	307	1	357	0	407	0	457	0	507
0		8	3+	58	0+	108	0	158	0	208	0	258	3@	308	1	358	1	408	0	458	0	508
0		9	3+	59	0+	109	0	159	0	209	0	259	5@	309	1	359	0	409	0	459	0	509
0		10	2+	60	0+	110	0	160	0	210	0	260	3@	310	0	360	0	410	0	460	2	510
0		11	3+	61	0	111	0	161	0	211	0	261	8@	311	0	361	0	411	0	461	0	511
0		12	6+	62	0	112	0	162	0	212	0+	262	3@	312	0	362	0	412	0	462	0	512
0		13	11+	63	0	113	0	163	0	213	0+	263	6@	313	2	363	1	413	0	463		
1		14	5+	64	0	114	0	164	0	214	0+	264	7@	314	1	364	0	414	1	464		
0		15	5+	65	0	115	0	165	0	215	0+	265	5@	315	0	365	0	415	1	465		
0		16	4+	66	0	116	0	166	1	216	0+	266	2@	316	0	366	0	416	1	466		
0		17	3+	67	0	117	0	167	0	217	0+	267	3@	317	0	367	0	417	0	467		
0		18	6+	68	1	118	0	168	0	218	0+	268	0@	318	2	368	0	418	0	468		
1		19	9+	69	1	119	1	169	0	219	1@	269	5@	319	2	369	0	419	1	469		
0		20	10+	70	0	120	1	170	0@	220	0+	270	4@	320	8	370	0	420	0	470		
0		21	7+	71	0	121	0	171	0@	221	0+	271	1@	321	5	371	0	421	1	471		
0		22	9+	72	0	122	0	172	1@	222	1+	272	9@	322	6	372	0	422	0	472		
0		23	7+	73	0	123	0	173	2@	223	0+	273	6@	323	8	373	0	423	0	473		
1		24	13+	74	0	124	1+	174	0@	224	0+	274	9@	324	9	374	0	424	1	474		
0		25	17+	75	0	125	0+	175	1@	225	0+	275	13@	325	7	375	0	425	2	475		
0		26	5+	76	0	126	0+	176	0@	226	0-	276	13@	326	8	376	0	426	0	476		
0		27	2+	77	0	127	3+	177	0	227	0-	277	9@	327	4	377	0	427	3	477		
0		28	1+	78	0	128	1+	178	1	228	1-	278	8@	328	2	378	1	428	1	478		
1		29	0	79	0	129	0+	179	0	229	0-	279	12@	329	1	379	0	429	4	479		
0		30	0	80	0	130	3+	180	0	230	0-	280	6@	330	0	380	1	430	6	480		
0		31	1	81	0	131	1+	181	0	231	0-	281	2@	331	0	381	0	431	2	481		
0		32	3	82	0	132	3+	182	0	232	0-	282	0@	332	0	382	0	432	3	482		
0		33	1	83	1	133	4+	183	0	233	1-	283	1@	333	1	383	1	433	4	483		
0		34	0	84	1	134	3+	184	0	234	0	284	0	334	0	384	0@	434	3	484		
1		35	1	85	0	135	2+	185	0	235	0+	285	1	335	0	385	1@	435	2	485		
0		36	0	86	0	136	1+	186	0	236	1+	286	1	336	0+	386	0@	436	5	486		
0		37	0	87	0	137	0+	187	0	237	1+	287	0	337	0+	387	1@	437	6	487		
0		38	0	88	0	138	0+	188	0	238	0+	288	2	338	0+	388	2@	438	0	488		
0		39	1	89	0+	139	3+	189	0	239	0+	289	0	339	0+	389	0@	439	2	489		
0		40	2	90	0+	140	3+	190	0	240	2+	290	0	340	0+	390	3@	440	0	490		
0		41	0	91	1+	141	5+	191	1	241	0+	291	0	341	1+	391	1@	441	1	491		
0		42	0	92	0+	142	3+	192	0	242	1+	292	0	342	0+	392	1	442	0	492		
0		43	0	93	0+	143	7+	193	0	243	0	293	1	343	1@	393	0	443	1	493		
0		44	0	94	0+	144	4+	194	0	244	0	294	0	344	0+	394	0	444	0	494		
0		45	0	95	0+	145	4+	195	0	245	0	295	0	345	0+	395	1	445	0	495		
0		46	0	96	0+	146	8+	196	0	246	0	296	0	346	1+	396	1	446	1	496		
0		47	0	97	0	147	3+	197	0	247	0+	297	0	347	0+	397	2	447	0	497		
1		48	0	98	1	148	0+	198	0	248	1+	298	0	348	0+	398	0+	448	0	498		
0		49	0	99	0	149	1+	199	0	249	0+	299	0	349	0+	399	0+	449	0	499		
0		50	0	100	0	150	0+	200	0	250	1+	300	0	350	0+	400	0+	450	0	500		

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP171.SAMPLE]KF8N61AD_250280708D.CNF;1

Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/ StDev	Overlap Counts	Multiplet Diff/StDev
4012.26	57	79	130	132	-0.18		
4686.05	174	201	62	64	-0.25		
4846.44	220	227	4	4	0.00		
5423.50	304	334	147	150	-0.25		
5682.83	367	381	62	62	0.00		

End of Report

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N81AD

Detector: ALP171 5
Report Date: 25-Feb-08 10:36 AM
Acquire Date: 25-FEB-2008 07:08:06.74
Tracer Nuclide: TH-229
Sample Live Time: 200 minutes
Bkgrnd Live Time: 999 minutes

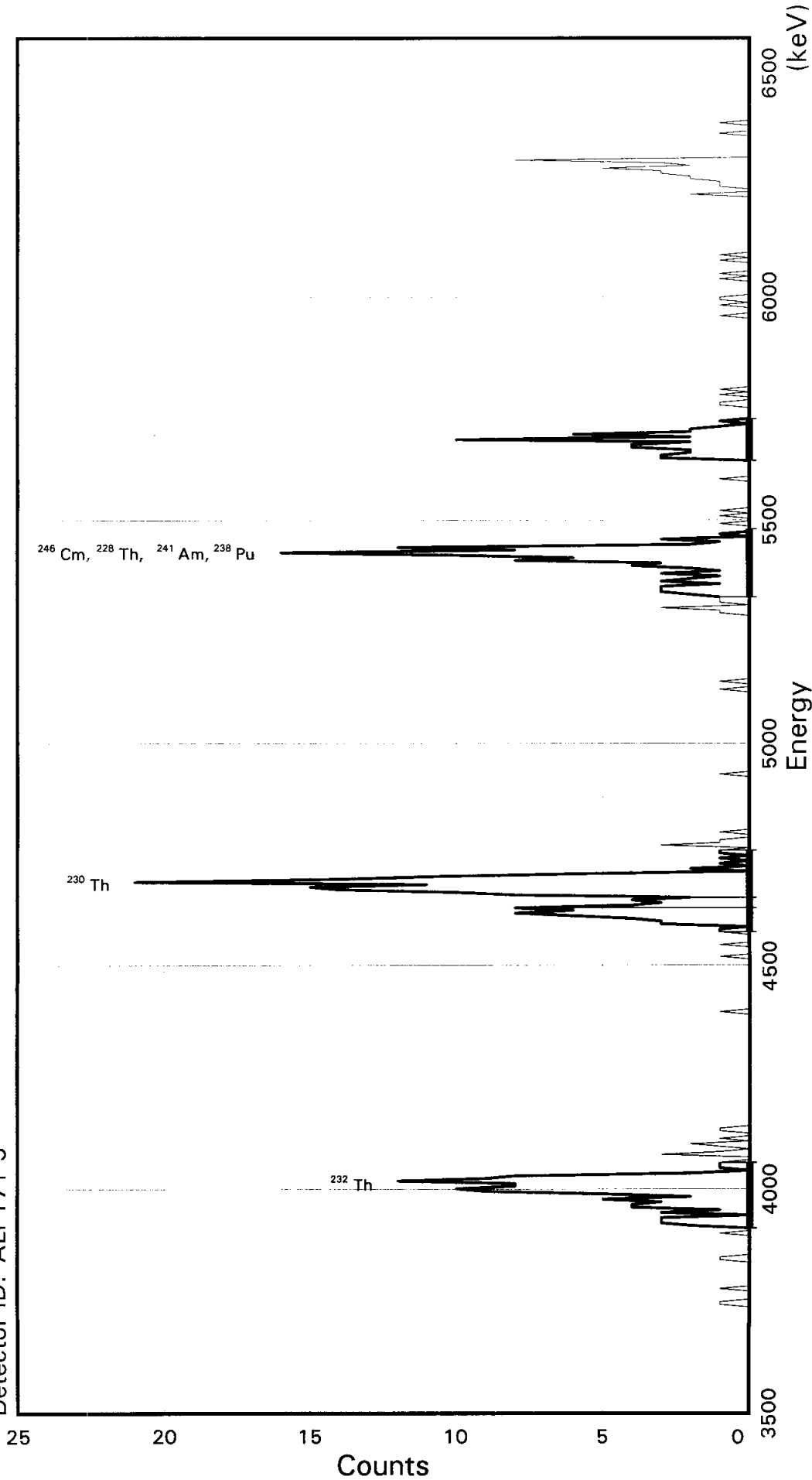
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Rght Chnl
TH-228	94	2	0.469	5423.2	118.0	301	321
TH-230	166	0	0.831	4687.7	164.9	172	200
TH-232	107	0	0.536	4013.0	153.0	60	86

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8N81AD
Detector ID: ALP171 5

Batch ID: 8035234



Acquisition Start: 25-FEB-2008 07:08:06.74
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.56014E+03
Slope: 5.87973E+00
Quadrature: 3.04036E-05

SAMPLE IDENTIITY: KF8N81AD

TITLE : TH BRCO

DETECTOR : ALP171 5

CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8N81AD_250280708E.CN
F;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 07:08:06 CALIB DATE : 08-FEB-2008 22:00:18

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3560.14 keV CONSTANT FWHM : 7.33333 Channels

SLOPE : 5.87973 keV/C SENSITIVITY : 3.00000 Std Dev's

QUAD COEFF : 3.040360E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 (Version: 1 Apr 07)

Sample Identity: KF8N81AD

Flags Key

Detector: ALP171 5

Report Date: 25 Feb 08 10:28 AM

Intersect Region: *

Acquire Date: 25 FEB 2008 07:08:06.74

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn									
		1	0		51	0		101	0		151	1		201	0		251	2		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0		202	0		252	3		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	1		203	0		253	3		303	3		353	0		403	2		453	0		503
0		4	0		54	0		104	0		154	1		204	0		254	3		304	3		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0		205	0		255	1		305	2		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	3		206	0		256	3		306	2		356	0		406	1		456	0		506
0		7	0		57	0		107	0		157	1		207	0		257	2		307	4		357	1		407	1		457	0		507
0		8	1		58	0		108	0		158	1		208	0		258	1		308	4		358	0		408	1		458	0		508
0		9	0		59	0		109	0		159	0		209	0		259	3		309	2		359	0		409	2		459	0		509
0		10	0		60	0		110	0		160	0		210	0		260	1		310	10		360	0		410	2		460	0		510
0		11	2		61	0		111	0		161	1		211	0		261	2		311	2		361	1		411	3		461	0		511
0		12	3		62	0		112	0		162	0		212	0		262	4		312	6		362	0		412	3		462	0		512
0		13	3		63	0		113	1		163	0		213	0		263	3		313	2		363	1		413	5		463			
0		14	3		64	0		114	0		164	0		214	0		264	8		314	2		364	1		414	2		464			
0		15	0		65	0		115	0		165	0		215	1		265	6		315	1		365	0		415	3		465			
0		16	3		66	0		116	0		166	0		216	0		266	10		316	0		366	0		416	8		466			
0		17	1		67	0		117	0		167	0		217	0		267	16		317	1		367	0		417	0		467			
0		18	4		68	0		118	1		168	0		218	1		268	8		318	0		368	0		418	0		468			
0		19	4		69	0		119	0		169	0		219	0		269	12		319	0		369	0		419	0		469			
0		20	3		70	0		120	0		170	0		220	0		270	2		320	0		370	0		420	0		470			
0		21	5		71	0		121	0		171	0		221	0		271	1		321	0		371	1		421	0		471			
0		22	2		72	0		122	0		172	0		222	0		272	3		322	0		372	0		422	0		472			
0		23	5		73	0		123	1		173	0		223	0		273	0		323	1		373	1		423	0		473			
0		24	9		74	0		124	1		174	0		224	0		274	1		324	1		374	0		424	0		474			
0		25	10		75	0		125	0		175	0		225	0		275	0		325	0		375	0		425	0		475			
0		26	8		76	0		126	3		176	0		226	0		276	0		326	0		376	0		426	1		476			
0		27	8		77	0		127	3		177	0		227	0		277	0		327	1		377	0		427	0		477			
0		28	12		78	0		128	4		178	0		228	0		278	1		328	0		378	1		428	0		478			
0		29	9		79	0		129	6		179	0		229	0		279	0		329	1		379	0		429	0		479			
0		30	8		80	0		130	8		180	0		230	0		280	0		330	0		380	1		430	1		480			
1		31	2		81	0		131	6		181	0		231	0		281	1		331	0		381	0		431	0		481			
1		32	0		82	0		132	8		182	0		232	0		282	0		332	0		382	0		432	0		482			
0		33	1		83	0		133	4		183	1		233	0		283	1		333	0		383	0		433	0		483			
0		34	1		84	0		134	3		184	0		234	0		284	0		334	0		384	0		434	0		484			
0		35	1		85	0		135	4		185	0		235	0		285	0		335	0		385	0		435	0		485			
0		36	0		86	0		136	2		186	0		236	0		286	0		336	0		386	0		436	0		486			
1		37	0		87	0		137	8		187	0		237	0		287	0		337	0		387	0		437	0		487			
0		38	3		88	0		138	10		188	0		238	0		288	0		338	0		388	0		438	0		488			
0		39	1		89	0		139	14		189	0		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	15		190	0		240	0		290	0		340	0		390	0		440	0		490			
0		41	1		91	0		141	11		191	0		241	0		291	0		341	0		391	0		441	0		491			
0		42	2		92	1		142	21		192	0		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	14		193	0		243	0		293	0		343	0		393	0		443	0		493			
0		44	1		94	0		144	11		194	0		244	1		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	6		195	0		245	1		295	1		345	0		395	0		445	0		495			
0		46	0		96	0		146	0		196	0		246	3		296	0		346	0		396	0		446	0		496			
0		47	1		97	0		147	2		197	0		247	0		297	0		347	0		397	0		447	0		497			
1		48	1		98	0		148	0		198	0		248	1		298	0		348	0		398	0		448	0		498			
1		49	0		99	0		149	1		199	0		249	1		299	0		349	0		399	0		449	0		499			

0 50 0 100 0 150 0 200 0 250 1 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 25-FEB-2008 10:28:42

Configuration : \$DISK1:[ALP171.SAMPLE]KF8N81AD_250280708E.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 07:08:06
 Sample ID : KF8N81AD Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP171 1 Detector geometry:
 Elapsed live time: 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
 Start energy : 3577.78 keV End energy : 6578.53 keV
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4011.00	106	0	47.04✓	76.65	60	25	8.84E-03	9.7	
2	0	4621.73	48	0	35.28	180.38	173	13	4.00E-03	14.4	
3	0	4684.77	118	0	41.16✓	191.08	182	22	9.84E-03	9.2	
4	0	5425.20	100	0	35.28✓	316.68	300	26	8.34E-03	10.0	
5	0	5681.27	43	0	29.40	360.08	352	16	3.59E-03	15.2	

Error Report (Date: 25-Feb-08 10:28 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N91AD

Detector: ALP171 7

Report Date: 25-Feb-08 10:36 AM

Acquire Date: 25-FEB-2008 07:08:06.74

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

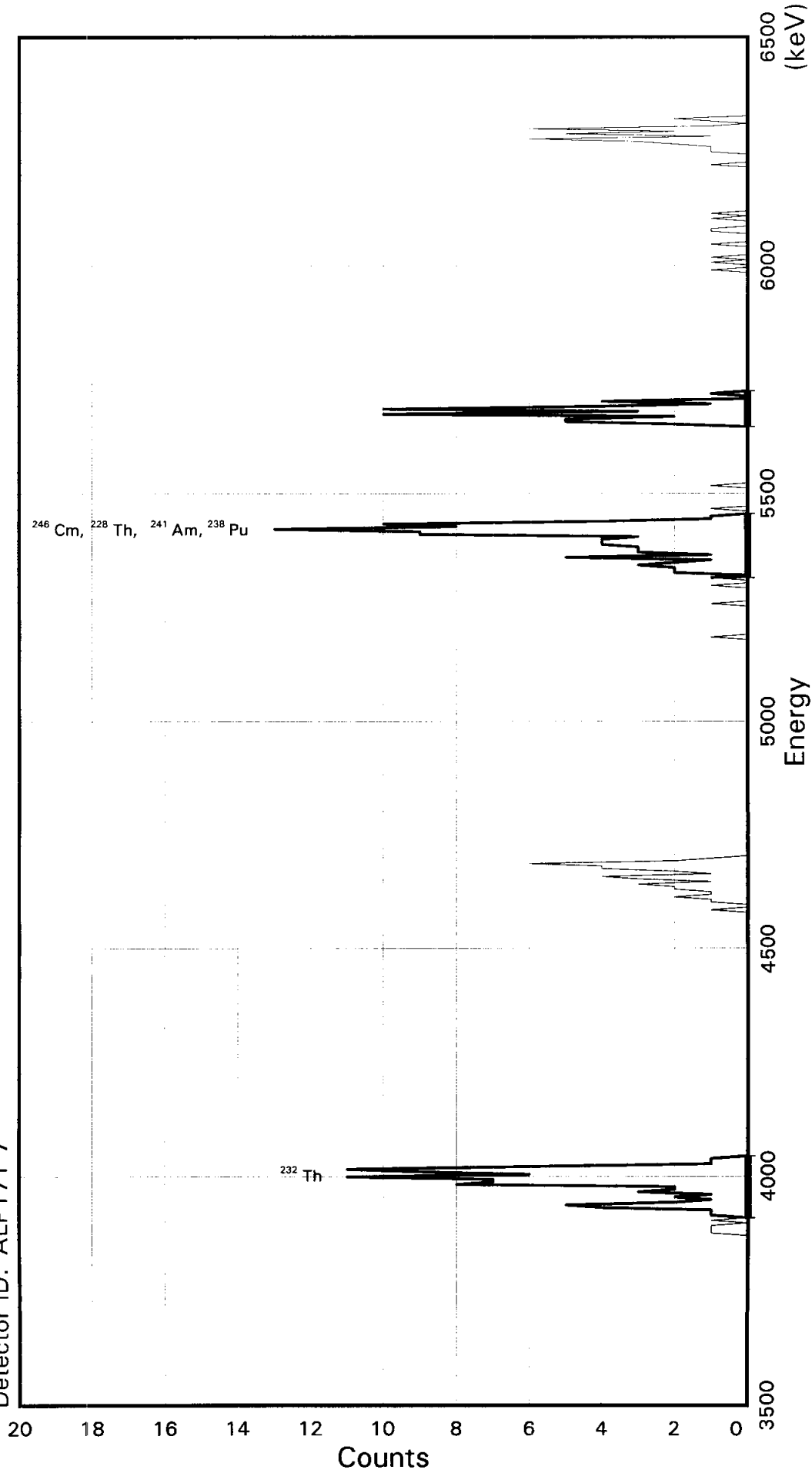
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	98	0	0.491	5423.2	146.5	304	330
TH-230	41	1	0.204	4687.7	112.9	180	200
TH-232	91	0	0.455	4013.0	113.0	60	80

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8N91AD
Detector ID: ALP171 7

Batch ID: 8035234



Acquisition Start: 25-FEB-2008 07:08:06.74
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.58678E + 03
Slope: 5.65524E + 00
Quadrature: -3.13946E-05

SAMPLE IDENTIITY: KF8N91AD

TITLE : TH BRCO

DETECTOR : ALP171 7

CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8N91AD_250280708G.CN
F;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 07:08:06 CALIB DATE : 09-FEB-2008 06:32:02

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3586.78 keV CONSTANT FWHM : 6.66667 Channels

SLOPE : 5.65524 keV/C SENSITIVITY : 3.00000 Std Dev's

QUAD COEFF : -.313946E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1 Apr 07)

Sample Identity: KF8N91AD

Flags Key

Detector: ALP171 7

Report Date: 25-Feb 08 10:28 AM

Intersect Region: *

Acquire Date: 25 FEB 2008 07:08:06.74

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn			
		1	1		51	0		101	0		151	0		201	0		251	0		301	0		351	0		401	0		451	0		501
		2	1		52	0		102	0		152	0		202	0		252	0		302	0		352	0		402	0		452	0		502
0		3	1		53	0		103	0		153	0		203	0		253	1		303	0		353	0		403	0		453	0		503
0		4	1		54	0		104	0		154	0		204	0		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0		205	0		255	0		305	0		355	0		405	0		455	0		505
0		6	1		56	0		106	0		156	0		206	0		256	1		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	0		207	0		257	0		307	0		357	0		407	0		457	0		507
0		8	1		58	0		108	0		158	0		208	0		258	2		308	0		358	0		408	0		458	0		508
0		9	1		59	0		109	0		159	0		209	0		259	2		309	0		359	0		409	0		459	0		509
0		10	1		60	0		110	0		160	0		210	0		260	2		310	0		360	0		410	0		460	0		510
0		11	4		61	0		111	0		161	0		211	0		261	3		311	0		361	0		411	0		461	0		511
0		12	5		62	0		112	0		162	0		212	0		262	2		312	0		362	0		412	0		462	0		512
0		13	2		63	0		113	0		163	0		213	0		263	1		313	0		363	0		413	0		463			
0		14	1		64	0		114	0		164	0		214	0		264	5		314	0		364	0		414	0		464			
0		15	2		65	0		115	0		165	0		215	0		265	1		315	0		365	0		415	0		465			
0		16	1		66	0		116	0		166	0		216	0		266	3		316	2		366	0		416	0		466			
0		17	3		67	0		117	0		167	0		217	0		267	3		317	5		367	0		417	1		467			
0		18	2		68	0		118	0		168	0		218	0		268	3		318	5		368	0		418	0		468			
0		19	2		69	0		119	0		169	0		219	0		269	4		319	2		369	0		419	0		469			
0		20	8		70	0		120	0		170	0		220	0		270	4		320	10		370	0		420	0		470			
0		21	7		71	0		121	0		171	0		221	0		271	4		321	3		371	0		421	0		471			
0		22	7		72	0		122	0		172	0		222	0		272	3		322	10		372	0		422	1		472			
0		23	11		73	0		123	0		173	0		223	0		273	9		323	4		373	0		423	1		473			
0		24	6		74	0		124	0		174	0		224	0		274	9		324	1		374	0		424	1		474			
0		25	9		75	0		125	0		175	0		225	0		275	13		325	4		375	0		425	2		475			
0		26	11		76	0		126	0		176	0		226	0		276	8		326	0		376	1		426	3		476			
0		27	6		77	0		127	1		177	0		227	0		277	10		327	0		377	0		427	6		477			
0		28	1		78	0		128	0		178	0		228	0		278	4		328	1		378	0		428	1		478			
0		29	1		79	0		129	0		179	0		229	0		279	1		329	0		379	1		429	5		479			
0		30	1		80	0		130	1		180	0		230	0		280	1		330	0		380	0		430	2		480			
0		31	0		81	0		131	1		181	0		231	0		281	0		331	0		381	1		431	6		481			
0		32	0		82	0		132	2		182	0		232	0		282	0		332	0		382	0		432	1		482			
0		33	0		83	0		133	1		183	0		233	1		283	1		333	0		383	0		433	0		483			
0		34	0		84	0		134	1		184	0		234	0		284	0		334	0		384	0		434	1		484			
0		35	0		85	0		135	2		185	0		235	0		285	0		335	0		385	0		435	2		485			
0		36	0		86	0		136	2		186	0		236	0		286	0		336	0		386	1		436	0		486			
0		37	0		87	0		137	3		187	0		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	1		188	0		238	0		288	0		338	0		388	0		438	0		488			
0		39	0		89	0		139	3		189	0		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	4		190	0		240	0		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	1		191	0		241	0		291	0		341	0		391	1		441	0		491			
0		42	0		92	0		142	2		192	0		242	0		292	1		342	0		392	1		442	0		492			
0		43	0		93	0		143	4		193	0		243	0		293	0		343	0		393	0		443	0		493			
0		44	0		94	0		144	4		194	0		244	0		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	6		195	0		245	0		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	2		196	0		246	1		296	0		346	0		396	1		446	0		496			
0		47	0		97	0		147	1		197	0		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0		198	0		248	0		298	0		348	0		398	1		448	0		498			
0		49	0		99	0		149	0		199	0		249	0		299	0		349	0		399	0		449	0		499			

0 50 0 100 0 150 0 200 0 250 0 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 25-FEB-2008 10:28:46

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF8N91AD_250280708G.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 07:08:06
Sample ID        : KF8N91AD           Sample quantity  : 0.000000E+00 LITER
Sample type      : disk              Sample geometry   :
Detector name    : ALP171 1         Detector geometry:
Elapsed live time: 0 03:19:47.00    Elapsed real time: 0 03:19:47.00    0.0%
Start energy     : 3603.75 keV       End energy        : 6474.04 keV
Sensitivity      : 3.00              Sum Sensitivity   : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4002.91	94	0	45.24	73.61	57	24	7.84E-03	10.3	
2	0	5421.42	99	0	28.28	325.00	306	25	8.26E-03	10.1	
3	0	5680.11	48	0	39.59	370.92	365	14	4.00E-03	14.4	

Error Report (Date: 25-Feb-08 10:28 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NNAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PD1AD

Detector: ALP171 8
Report Date: 25-Feb-08 10:36 AM
Acquire Date: 25-FEB-2008 07:08:06.74
Tracer Nuclide: TH-229
Sample Live Time: 200 minutes
Bkgrnd Live Time: 999 minutes

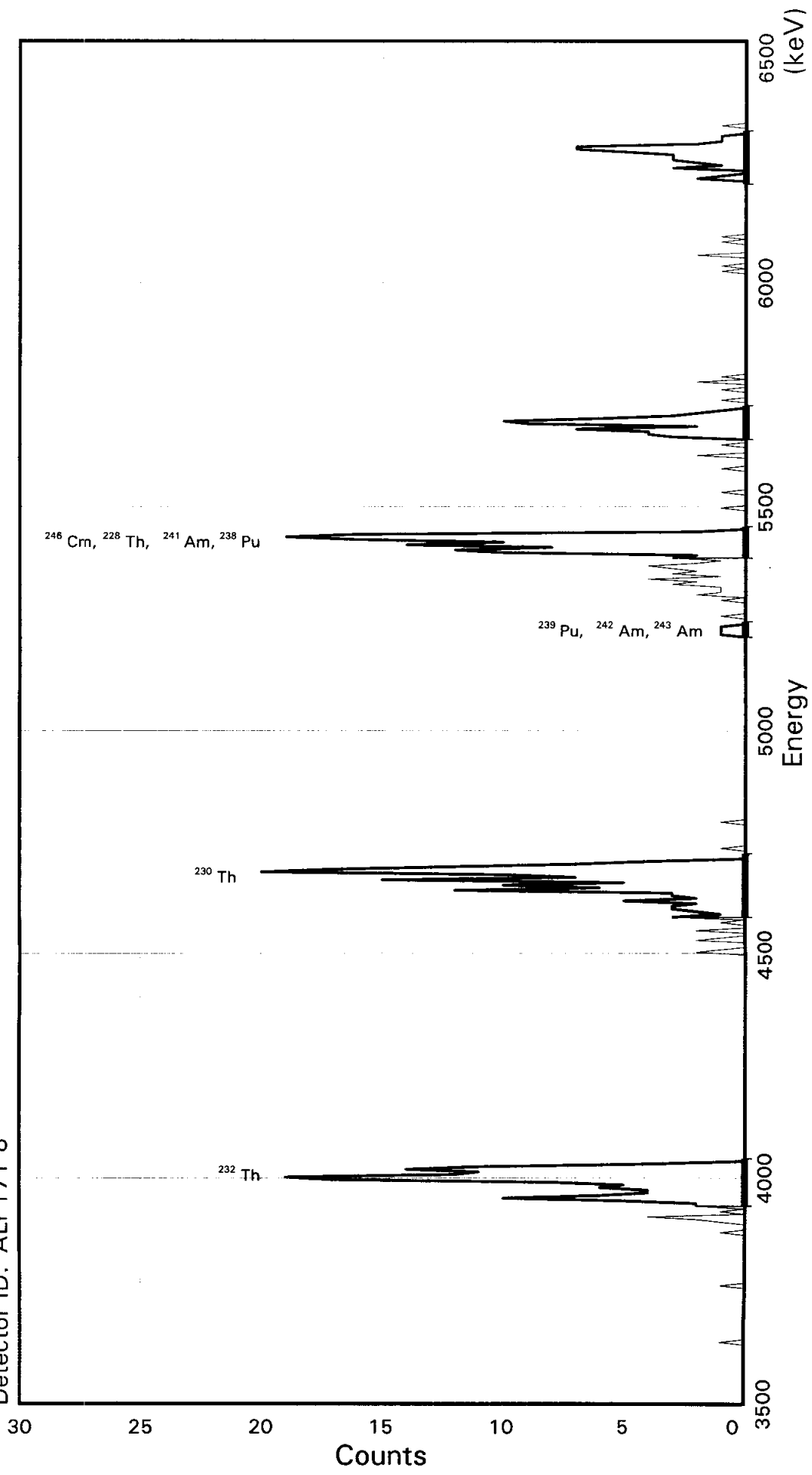
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl
TH-228	142	1	0.710	5423.2	152.9	301	327
TH-230	152	1	0.760	4687.7	135.3	179	202
TH-232	148	0	0.741	4013.0	141.3	64	88

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8PD1AD
Detector ID: ALP171 8

Batch ID: 8035234



Energy Coefficients:
Offset: 3.52587E + 03
Slope: 5.88729E + 00
Quadrature: -1.05536E-05

Acquisition Start: 25-FEB-2008 07:08:06.74
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

SAMPLE IDENTIITY: KF8PD1AD

TITLE : TH BRCO

DETECTOR : ALP171 8
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8PD1AD_250280708H.CN
F;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 25-FEB-2008 07:08:06 CALIB DATE : 08-FEB-2008 22:00:28

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3525.87 keV CONSTANT FWHM : 6.66667 Channels
SLOPE : 5.88729 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.105536E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_xgn_cnts
(Version: 1 Apr 07)

Sample Identity: KF8PD1AD
Detector: ALP171 8

Flags Key

Report Date: 25 Feb-08 10:28 AM

Intersect Region: ☉

Acquire Date: 25 FEB-2008 07:08:06.74

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
0		1	0		51	0		101	0		151	4		201	0		251	0		301	0		351	0		401	0		451	0		501
0		2	0		52	0		102	0		152	0		202	0		252	2		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	0		203	0		253	1		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	0		204	0		254	1		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0		205	0		255	1		305	2		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	1		206	0		256	3		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	0		207	0		257	2		307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	0		158	0		208	0		258	4		308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	0		159	0		209	0		259	1		309	1		359	0		409	0		459	0		509
0		10	1		60	0		110	0		160	0		210	0		260	3		310	0		360	0		410	2		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	2		311	0		361	0		411	1		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	3		312	3		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	4		313	4		363	0		413	0		463			
0		14	1		64	0		114	0		164	0		214	0		264	2		314	4		364	0		414	3		464			
0		15	2		65	0		115	0		165	0		215	0		265	1		315	7		365	0		415	1		465			
0		16	4		66	0		116	2		166	1		216	0		266	3		316	2		366	0		416	2		466			
0		17	0		67	0		117	1		167	0		217	0		267	2		317	9		367	0		417	3		467			
0		18	1		68	0		118	0		168	0		218	0		268	10		318	10		368	0		418	3		468			
1		19	0		69	0		119	0		169	0		219	0		269	12		319	6		369	0		419	3		469			
0		20	2		70	0		120	0		170	0		220	0		270	8		320	3		370	0		420	5		470			
0		21	2		71	0		121	2		171	0		221	0		271	14		321	2		371	0		421	7		471			
0		22	5		72	0		122	1		172	0		222	0		272	10		322	1		372	0		422	7		472			
0		23	10		73	0		123	0		173	0		223	0		273	16		323	0		373	0		423	2		473			
0		24	6		74	0		124	0		174	0		224	0		274	19		324	0		374	0		424	1		474			
0		25	4		75	0		125	2		175	0		225	0		275	16		325	0		375	1		425	1		475			
0		26	4		76	0		126	0		176	0		226	0		276	2		326	1		376	0		426	1		476			
0		27	6		77	0		127	0		177	0		227	0		277	0		327	0		377	1		427	0		477			
0		28	5		78	0		128	1		178	0		228	0		278	0		328	0		378	0		428	0		478			
0		29	8		79	0		129	0		179	0		229	0		279	0		329	0		379	0		429	0		479			
0		30	17		80	0		130	3		180	0		230	0		280	0		330	1		380	0		430	1		480			
0		31	19		81	0		131	1		181	0		231	0		281	0		331	0		381	2		431	0		481			
0		32	12		82	0		132	2		182	0		232	0		282	0		332	0		382	0		432	0		482			
0		33	11		83	0		133	3		183	0		233	0		283	0		333	2		383	0		433	0		483			
0		34	14		84	0		134	3		184	0		234	0		284	0		334	0		384	0		434	0		484			
0		35	11		85	0		135	2		185	0		235	0		285	1		335	1		385	0		435	0		485			
0		36	4		86	0		136	5		186	0		236	0		286	0		336	0		386	1		436	0		486			
0		37	0		87	0		137	2		187	0		237	1		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	3		188	0		238	1		288	0		338	0		388	1		438	0		488			
0		39	0		89	0		139	3		189	0		239	1		289	0		339	0		389	0		439	0		489			
1		40	0		90	0		140	12		190	0		240	1		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	6		191	0		241	0		291	1		341	0		391	0		441	0		491			
0		42	0		92	0		142	10		192	0		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	5		193	0		243	0		293	0		343	0		393	0		443	0		493			
0		44	0		94	0		144	15		194	0		244	1		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	7		195	0		245	0		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	10		196	0		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	20		197	0		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	17		198	0		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	12		199	0		249	0		299	0		349	0		399	0		449	0		499			

0 50 0 100 0 150 7 200 0 250 1 300 1 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 25-FEB-2008 10:28:50

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF8PD1AD_250280708H.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 07:08:06
Sample ID        : KF8PD1AD           Sample quantity  : 0.00000E+00 LITER
Sample type      : disk               Sample geometry   :
Detector name    : ALP171 1          Detector geometry:
Elapsed live time: 0 03:19:47.00     Elapsed real time: 0 03:19:47.00   0.0%
Start energy     : 3543.53 keV        End energy        : 6537.39 keV
Sensitivity      : 3.00                Sum Sensitivity   : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4007.56	139	0	41.21	81.83	70	18	1.16E-02	8.5	
2	0	4674.44	149	0	58.87	195.16	180	24	1.24E-02	8.2	
3	0	5223.47	4	0	23.55	288.50	286	6	3.34E-04	50.0	
4	0	5422.10	112	0	41.21	322.27	316	12	9.34E-03	9.4	
5	0	5681.78	51	0	41.21	366.44	361	13	4.25E-03	14.0	
6	0	6294.48	43	0	35.32	470.67	458	20	3.59E-03	15.2	

Error Report (Date: 25-Feb-08 10:28 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PE1AD

Detector: ALP113 1

Report Date: 25-Feb-08 10:37 AM

Acquire Date: 25-FEB-2008 07:08:15.23

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

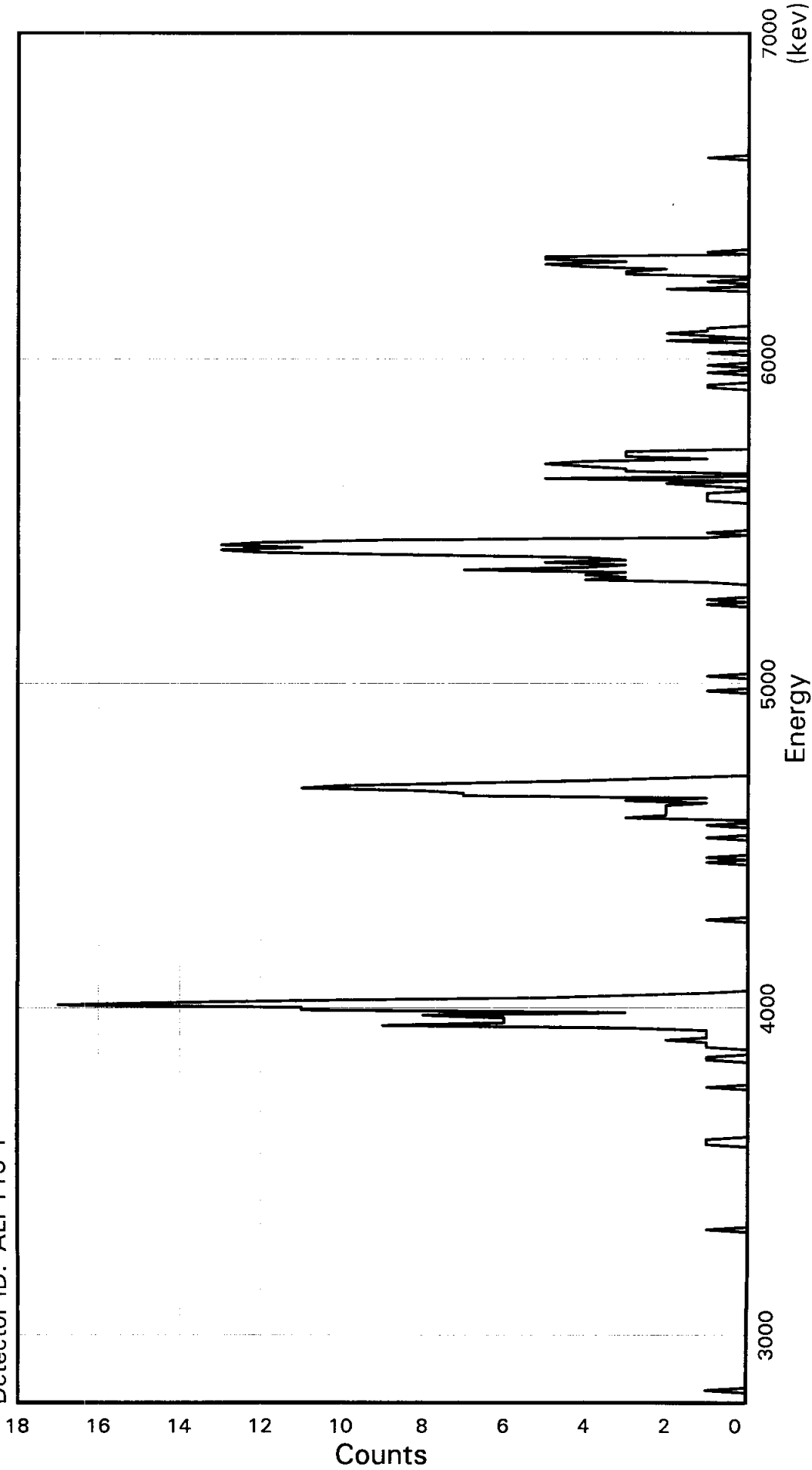
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	121✓	2	0.603	5423.2	152.1	333	353
TH-230	74✓	0	0.370	4687.7	152.5	236	256
TH-232	122✓	0	0.610	4013.0	198.6	142	168

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8035234

Sample ID: KF8PE1AD
Detector ID: ALP113 1



Acquisition Start: 25-FEB-2008 07:08:15.23
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:04.00

Energy Coefficients:
Offset: 2.76885E+03
Slope: 7.66851E+00
Quadrature: -9.16186E-05

SAMPLE IDENTIITY: KF8PE1AD

TITLE : TH BRCO

DETECTOR : ALP113 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP113.SAMPLE] KF8PE1AD_250280
708.CNF;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:06:32

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 25-FEB-2008 07:08:15 CALIB DATE : 11-FEB-2008 02:49:33

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:04

OFFSET : 2768.85 keV CONSTANT FWHM : 5.50000 Channels
SLOPE : 7.66851 keV/C SENSITIVITY : 6.00000 Std Dev's
QUAD COEFF : -.916186E-04 keV/C^2 SUM SENSITIVITY: 0.10000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1 Apr 07)

Sample Identity: KF8PEIAD

Flags Key

Detector: ALP113 1

Report Date: 25-Feb-08 10:28 AM

Intersect Region: @

Acquire Date: 25-FEB-2008 07:08:15.23

Non Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
0		1	0		51	0		101	1		151	0		201	10		251	0		301	1		351	0		401	0		451	0		501
		2	0		52	0		102	1		152	0		202	7		252	0		302	0		352	0		402	2		452	0		502
0		3	0		53	0		103	3		153	0		203	4		253	0		303	1		353	0		403	0		453	0		503
0		4	0		54	0		104	9		154	0		204	2		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	6		155	0		205	0		255	0		305	0		355	0		405	1		455	1		505
0		6	0		56	1		106	6		156	0		206	0		256	0		306	0		356	0		406	0		456	0		506
0		7	0		57	1		107	6		157	0		207	0		257	0		307	0		357	0		407	0		457	0		507
1		8	0		58	1		108	8		158	0		208	0		258	0		308	0		358	0		408	3		458	0		508
0		9	0		59	0		109	3		159	0		209	0		259	0		309	0		359	0		409	3		459	0		509
0		10	0		60	0		110	11		160	0		210	0		260	0		310	0		360	0		410	2		460	0		510
0		11	0		61	0		111	11		161	0		211	0		261	0		311	0		361	0		411	4		461	0		511
0		12	0		62	0		112	17		162	0		212	0		262	0		312	0		362	1		412	5		462	0		512
0		13	0		63	0		113	14		163	0		213	0		263	0		313	0		363	1		413	3		463			
0		14	0		64	0		114	10		164	0		214	0		264	0		314	0		364	0		414	5		464			
0		15	0		65	0		115	5		165	0		215	0		265	0		315	0		365	0		415	5		465			
0		16	0		66	0		116	3		166	0		216	0		266	0		316	1		366	0		416	0		466			
0		17	0		67	0		117	1		167	0		217	0		267	0		317	1		367	0		417	1		467			
0		18	0		68	0		118	0		168	0		218	0		268	0		318	1		368	1		418	0		468			
0		19	0		69	0		119	0		169	0		219	0		269	0		319	1		369	0		419	0		469			
0		20	0		70	0		120	0		170	1		220	0		270	0		320	0		370	0		420	0		470			
0		21	0		71	0		121	0		171	0		221	0		271	0		321	0		371	1		421	0		471			
0		22	1		72	0		122	0		172	1		222	0		272	0		322	1		372	0		422	0		472			
0		23	0		73	0		123	0		173	0		223	0		273	0		323	2		373	0		423	0		473			
0		24	0		74	0		124	0		174	0		224	0		274	1		324	0		374	0		424	0		474			
0		25	0		75	0		125	0		175	0		225	0		275	0		325	5		375	0		425	0		475			
0		26	0		76	0		126	0		176	0		226	0		276	1		326	0		376	1		426	0		476			
0		27	0		77	0		127	0		177	0		227	0		277	0		327	0		377	0		427	0		477			
0		28	0		78	0		128	0		178	0		228	0		278	0		328	3		378	0		428	0		478			
0		29	0		79	1		129	0		179	0		229	0		279	0		329	3		379	0		429	0		479			
0		30	0		80	0		130	0		180	1		230	0		280	0		330	4		380	0		430	0		480			
0		31	0		81	0		131	0		181	0		231	0		281	0		331	5		381	2		431	0		481			
0		32	0		82	0		132	0		182	0		232	0		282	0		332	4		382	0		432	0		482			
0		33	0		83	0		133	0		183	0		233	0		283	1		333	1		383	1		433	0		483			
0		34	0		84	0		134	0		184	0		234	0		284	4		334	3		384	2		434	0		484			
0		35	0		85	0		135	0		185	1		235	0		285	3		335	3		385	1		435	0		485			
0		36	0		86	0		136	0		186	0		236	0		286	4		336	3		386	1		436	0		486			
0		37	0		87	0		137	0		187	0		237	0		287	3		337	0		387	0		437	0		487			
0		38	0		88	0		138	0		188	3		238	0		288	7		338	0		388	0		438	0		488			
0		39	0		89	0		139	0		189	2		239	1		289	4		339	0		389	0		439	0		489			
0		40	0		90	1		140	0		190	2		240	0		290	3		340	0		390	0		440	0		490			
0		41	0		91	1		141	0		191	2		241	0		291	5		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	2		242	0		292	3		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	2		243	0		293	4		343	0		393	0		443	0		493			
0		44	0		94	0		144	0		194	1		244	0		294	8		344	0		394	0		444	0		494			
0		45	0		95	1		145	0		195	3		245	1		295	12		345	0		395	0		445	0		495			
0		46	0		96	1		146	0		196	1		246	0		296	13		346	0		396	0		446	0		496			
0		47	0		97	1		147	1		197	7		247	0		297	11		347	0		397	0		447	0		497			
0		48	0		98	2		148	0		198	7		248	0		298	13		348	0		398	0		448	0		498			
0		49	0		99	1		149	0		199	8		249	0		299	12		349	0		399	0		449	0		499			

0 50 0 100 1 150 0 200 11 250 0 300 9 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 25-FEB-2008 10:28:23

Configuration : RDND06\$DKA100:[ALP113.SAMPLE]KF8PE1AD_250280708.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRCO
Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 07:08:15
Sample ID : KF8PE1AD Sample quantity : 0.00000E+00 LITER
Sample type : disk Sample geometry :
Detector name : ALP113 Detector geometry:
Elapsed live time: 0 03:20:04.00 Elapsed real time: 0 03:20:04.00 0.0%
Start energy : 2791.85 kev End energy : 6671.11 kev
Sensitivity : 6.00 Sum Sensitivity : 0.10
No peaks were found

Error Report (Date: 25-Feb-08 10:28 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PG1AD

Detector: ALP116 1

Report Date: 25-Feb-08 10:37 AM

Acquire Date: 25-FEB-2008 07:08:20.22

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

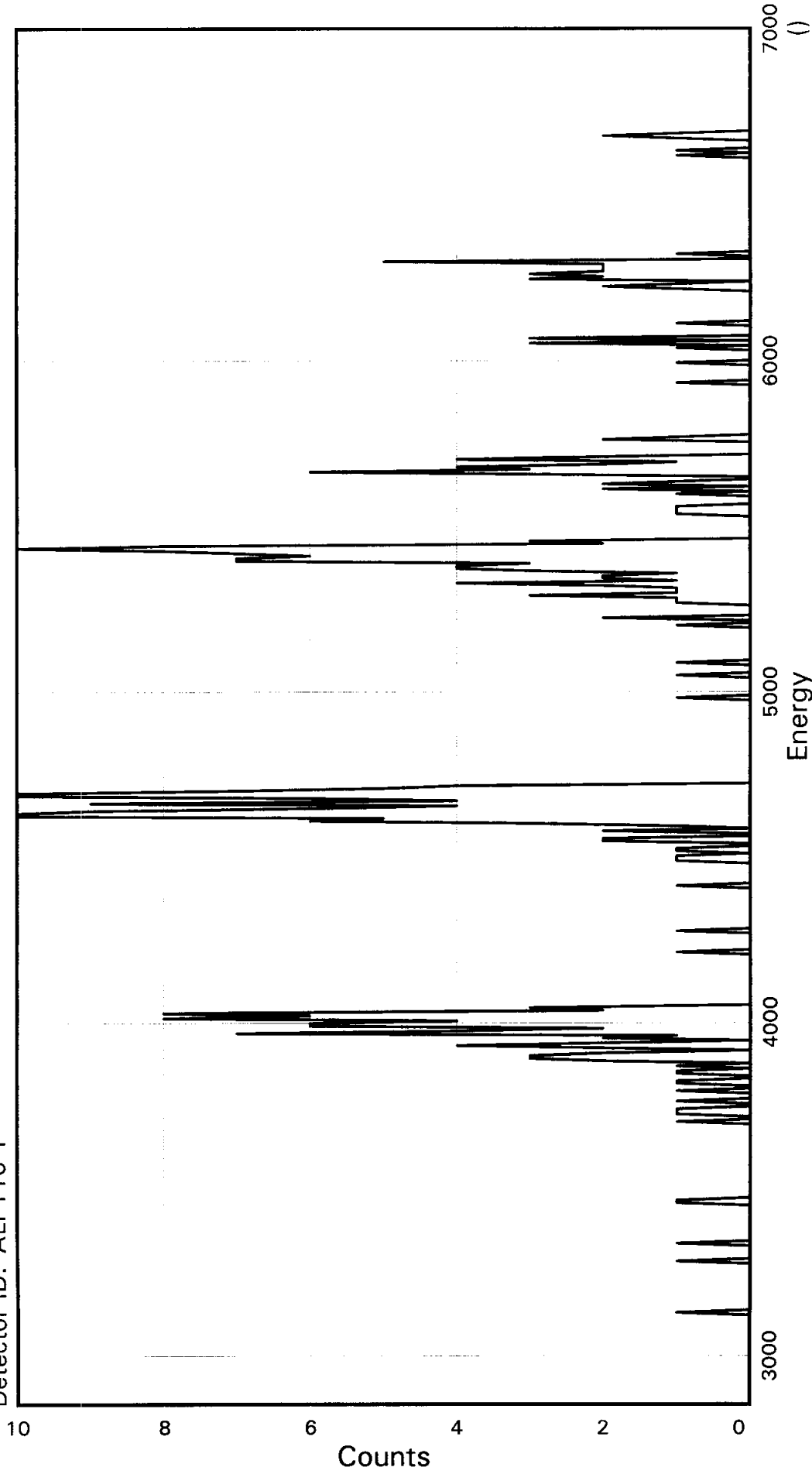
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	85	2	0.423	5423.2	150.0	327	347
TH-230	111	0	0.554	4687.7	151.0	229	249
TH-232	78	0	0.390	4013.0	189.9	135	160

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8035234

Sample ID: KF8PG1AD
Detector ID: ALP116 1



Acquisition Start: 25-FEB-2008 07:08:20.22
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:11.00

Energy Coefficients:
Offset: 2.83183E+03
Slope: 7.67107E+00
Quadrature: -2.55555E-04

SAMPLE IDENTIITY: KF8PG1AD

TITLE : TH BRCO

DETECTOR : ALP116 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP116.SAMPLE] KF8PG1AD_250280
708.CNF;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:06:37

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 25-FEB-2008 07:08:20 CALIB DATE : 11-FEB-2008 02:49:29

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:11

OFFSET : 2831.83 keV CONSTANT FWHM : 9.00000 Channels
SLOPE : 7.67107 keV/C SENSITIVITY : 6.00000 Std Dev's
QUAD COEFF : -.255555E-03 keV/C^2 SUM SENSITIVITY: 0.10000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1 Apr 07)

Sample Identity: KF8PGIAD
Detector: ALP116 1
Report Date: 25 Feb-08 10:28 AM
Acquire Date: 25 FEB 2008 07:08:20.22

Flags Key
Intersect Region: #
Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn									
0		1	0		51	0		101	2		151	0		201	0		251	0		301	0		351	0		401	0		451	0		501
0		2	0		52	0		102	6		152	0		202	0		252	0		302	0		352	0		402	3		452	1		502
0		3	0		53	0		103	6		153	0		203	0		253	0		303	0		353	0		403	2		453	0		503
0		4	0		54	0		104	4		154	0		204	0		254	0		304	0		354	0		404	3		454	1		504
0		5	0		55	0		105	8		155	0		205	0		255	0		305	0		355	0		405	2		455	0		505
0		6	0		56	0		106	6		156	0		206	0		256	0		306	0		356	0		406	2		456	0		506
0		7	0		57	0		107	8		157	0		207	0		257	0		307	1		357	0		407	2		457	0		507
0		8	0		58	0		108	2		158	1		208	0		258	0		308	1		358	0		408	2		458	0		508
0		9	1		59	0		109	3		159	0		209	0		259	0		309	1		359	0		409	5		459	1		509
0		10	0		60	0		110	0		160	0		210	0		260	0		310	1		360	1		410	0		460	2		510
0		11	0		61	0		111	0		161	0		211	0		261	0		311	0		361	0		411	0		461	1		511
0		12	0		62	0		112	0		162	0		212	0		262	1		312	0		362	0		412	1		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	0		463			
0		14	0		64	1		114	0		164	0		214	0		264	0		314	0		364	0		414	0		464			
0		15	0		65	0		115	0		165	0		215	0		265	2		315	1		365	0		415	0		465			
0		16	1		66	0		116	0		166	0		216	0		266	0		316	0		366	0		416	0		466			
0		17	0		67	1		117	0		167	0		217	0		267	0		317	2		367	0		417	0		467			
0		18	0		68	1		118	0		168	1		218	0		268	0		318	0		368	1		418	0		468			
0		19	0		69	1		119	0		169	1		219	0		269	0		319	2		369	0		419	0		469			
0		20	0		70	0		120	0		170	1		220	0		270	0		320	1		370	0		420	0		470			
0		21	0		71	0		121	0		171	0		221	0		271	1		321	0		371	0		421	0		471			
0		22	0		72	1		122	0		172	1		222	0		272	1		322	0		372	0		422	0		472			
0		23	0		73	0		123	0		173	1		223	0		273	1		323	3		373	0		423	0		473			
0		24	0		74	0		124	0		174	0		224	0		274	3		324	6		374	1		424	0		474			
0		25	0		75	0		125	0		175	0		225	0		275	1		325	3		375	0		425	0		475			
0		26	0		76	1		126	0		176	2		226	0		276	1		326	4		376	3		426	0		476			
0		27	0		77	0		127	0		177	2		227	0		277	1		327	2		377	0		427	0		477			
0		28	0		78	0		128	0		178	0		228	0		278	2		328	1		378	3		428	0		478			
0		29	0		79	1		129	0		179	0		229	0		279	4		329	4		379	0		429	0		479			
0		30	0		80	1		130	0		180	2		230	0		280	1		330	2		380	0		430	0		480			
0		31	0		81	0		131	1		181	0		231	0		281	2		331	0		381	0		431	0		481			
0		32	1		82	0		132	0		182	1		232	0		282	2		332	0		382	0		432	0		482			
0		33	1		83	1		133	0		183	3		233	1		283	1		333	0		383	0		433	0		483			
0		34	0		84	1		134	0		184	6		234	0		284	3		334	0		384	1		434	0		484			
0		35	0		85	0		135	0		185	5		235	0		285	4		335	0		385	0		435	0		485			
0		36	0		86	1		136	0		186	10		236	0		286	4		336	0		386	0		436	0		486			
0		37	0		87	0		137	0		187	10		237	0		287	3		337	2		387	0		437	0		487			
0		38	0		88	2		138	0		188	9		238	0		288	7		338	1		388	0		438	0		488			
1		39	0		89	3		139	0		189	6		239	0		289	7		339	0		389	0		439	0		489			
0		40	0		90	3		140	1		190	4		240	0		290	6		340	0		390	0		440	0		490			
0		41	0		91	2		141	0		191	9		241	0		291	7		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	4		242	1		292	8		342	0		392	0		442	0		492			
0		43	0		93	2		143	0		193	6		243	0		293	10		343	0		393	0		443	0		493			
0		44	0		94	4		144	0		194	10		244	0		294	8		344	0		394	0		444	0		494			
0		45	0		95	2		145	0		195	10		245	0		295	2		345	0		395	0		445	0		495			
0		46	0		96	0		146	0		196	7		246	0		296	3		346	0		396	0		446	0		496			
0		47	0		97	2		147	0		197	5		247	1		297	0		347	0		397	0		447	0		497			
0		48	0		98	1		148	0		198	4		248	0		298	0		348	0		398	1		448	0		498			
0		49	0		99	7		149	0		199	0		249	0		299	0		349	0		399	2		449	0		499			

0 50 0 100 4 150 0 200 0 250 0 300 0 350 0 400 1 450 0 500

VMS Peak Search Report V1.9 Generated 25-FEB-2008 10:28:35

Configuration : RDND06\$DKA100:[ALP116.SAMPLE]KF8PG1AD_250280708.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRCO
Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 07:08:20
Sample ID : KF8PG1AD Sample quantity : 0.00000E+00 LITER
Sample type : disk Sample geometry :
Detector name : ALP116 Detector geometry:
Elapsed live time: 0 03:20:11.00 Elapsed real time: 0 03:20:11.00 0.0%
Start energy : 2854.84 End energy : 6692.43
Sensitivity : 6.00 Sum Sensitivity : 0.10
No peaks were found

Error Report (Date: 25-Feb-08 10:28 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

THORIUM ISOTOPIIC COUNTING REQUEST

C.R. Technician CS
 Date Counted 2/26/08
 C.R. Analyst BR
 Date Analyzed 2/26/08

Counting Time 200 Minutes
 Sample 200
 Background See Alpha Analysis Report
 SOP's 1589
 Operating: RICHRD008
 Review: 1/24 8035234

WorkOrder #	Th-229 (4845 KeV) Tracer		TOTAL COUNTS			Det #	Comment	
	ID	Activity	ROI Cts	BKG	Th-228 (5423 KeV) (6)			Th-230 (4688 KeV) (8)
KF8N9AAD		10		0			171	See Alpha Analysis Report for ROI Information
KF8PD0AD		10		0			172	See Alpha Analysis Report for ROI Information
KF8PE0AD		10		0			173	See Alpha Analysis Report for ROI Information
KF8PL0AD		10		0			174	See Alpha Analysis Report for ROI Information
KF8PL0AG		10		0			175	See Alpha Analysis Report for ROI Information
KGH0L0AA		10		0			177	See Alpha Analysis Report for ROI Information
KGH0L0AA		10		0			178	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:

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8N92AD

Detector: ALP171 1

Report Date: 26-Feb-08 06:52 PM

Acquire Date: 26-FEB-2008 12:09:05.90

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

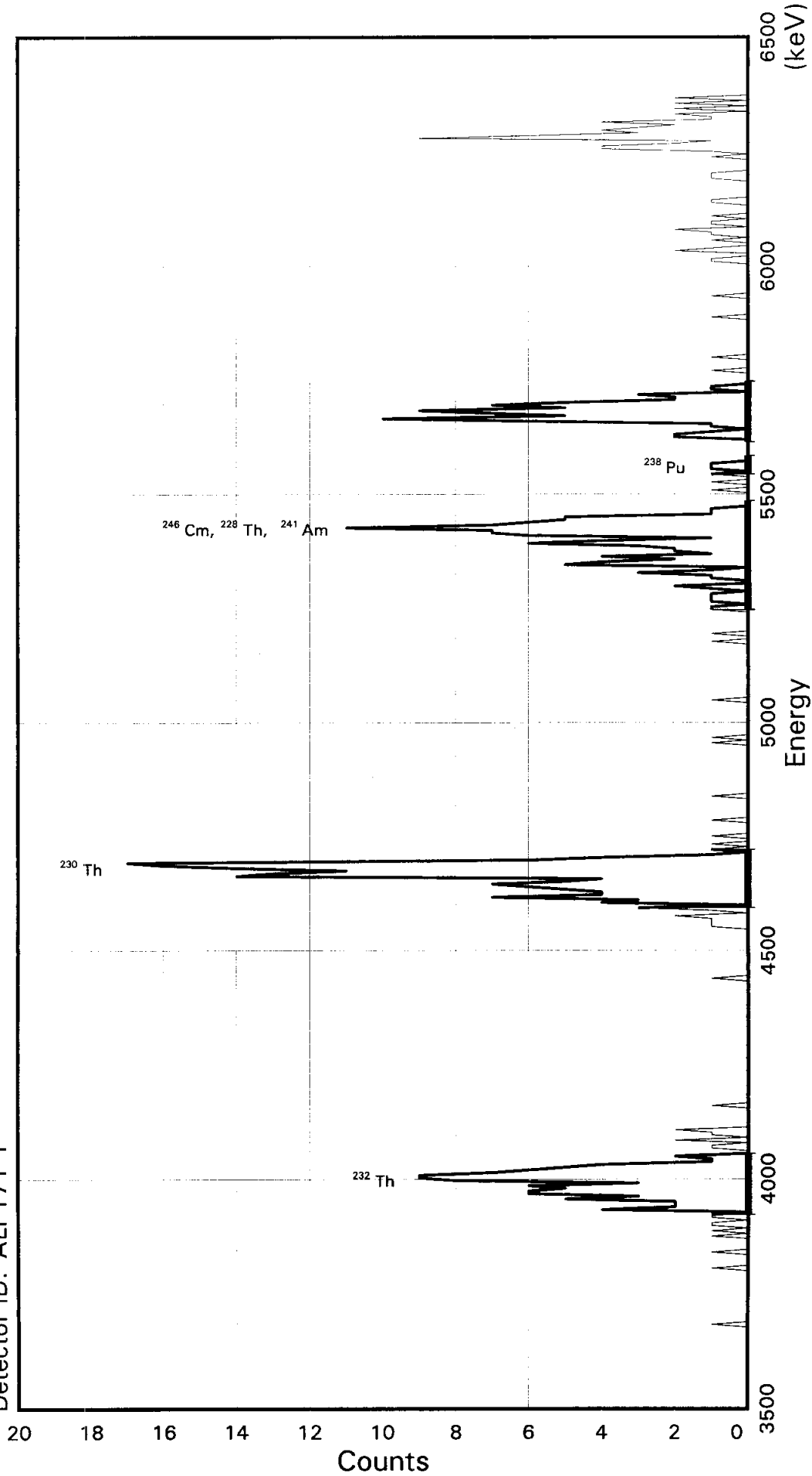
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	94	3	0.468	5423.2	134.0	314	337
TH-230	145	2	0.724	4687.7	116.3	190	210
TH-232	97	1	0.485	4013.0	139.2	74	98

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8N92AD
Detector ID: ALP171 1

Batch ID: 8035234



Acquisition Start: 26-FEB-2008 12:09:05.90
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.49866E + 03
Slope: 5.79205E + 00
Quadrature: 5.30073E - 05

SAMPLE IDENTIITY: KF8N92AD

TITLE : TH BRCO

DETECTOR : ALP171 1
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8N92AD_260281209A.CN
F;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 26-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 26-FEB-2008 12:09:05 CALIB DATE : 09-FEB-2008 06:26:03

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3498.66 keV CONSTANT FWHM : 9.00000 Channels
SLOPE : 5.79205 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 5.300730E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 (Version: 1 Apr 07)

Sample Identity: KF8N92AD

Flags Key

Detector: ALP171 1

Report Date: 26 Feb-08 03:29 PM

Intersect Region: @

Acquire Date: 26 FEB-2008 12:09:05.90

Non Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
		1	0		51	2	0	101	0		151	14	0	201	1		251	1		301	0		351	0		401	0		451	0		501
		2	0		52	0	0	102	0		152	13	0	202	0		252	1		302	1		352	0		402	0		452	0		502
@		3	1		53	1	0	103	0		153	11	0	203	1		253	0		303	0		353	0		403	0		453	0		503
@		4	0		54	1	0	104	0		154	14	0	204	0		254	1		304	1		354	0		404	1		454	0		504
@		5	0		55	2	0	105	0		155	16	0	205	0		255	1		305	1		355	0		405	1		455	0		505
@		6	0		56	0	0	106	0		156	17	0	206	0		256	1		306	1		356	0		406	0		456	0		506
@		7	0		57	0	0	107	0		157	6	0	207	0		257	1		307	0		357	0		407	0		457	0		507
@		8	0		58	0	0	108	0		158	4	0	208	0		258	0		308	0		358	0		408	0		458	0		508
@		9	1		59	0	0	109	0		159	1	0	209	0		259	1		309	0		359	0		409	0		459	0		509
@		10	0		60	0	0	110	0		160	0	0	210	0		260	2		310	0		360	0		410	0		460	0		510
@		11	0		61	0	0	111	0		161	1	0	211	0		261	0		311	0		361	1		411	0		461	0		511
@		12	0		62	0	0	112	1		162	0	0	212	0		262	0		312	0		362	0		412	0		462	0		512
@		13	0		63	0	0	113	0		163	1	0	213	0		263	1		313	0		363	0		413	1		463			
@		14	0		64	1	0	114	0		164	0	0	214	0		264	1		314	0		364	0		414	1		464			
@		15	1		65	0	0	115	0		165	0	0	215	0		265	3		315	0		365	0		415	1		465			
@		16	0		66	0	0	116	0		166	1	0	216	0		266	1		316	2		366	0		416	0		466			
@		17	1		67	0	0	117	0		167	0	0	217	1		267	0		317	2		367	0		417	0		467			
@		18	0		68	0	0	118	0		168	0	0	218	0		268	5		318	1		368	0		418	0		468			
@		19	1		69	0	0	119	0		169	0	0	219	0		269	4		319	0		369	1		419	0		469			
@		20	1		70	0	0	120	0		170	0	0	220	0		270	2		320	1		370	0		420	0		470			
@		21	0		71	0	0	121	0		171	0	0	221	0		271	4		321	1		371	0		421	1		471			
@		22	1		72	0	0	122	0		172	1	0	222	0		272	1		322	6		372	0		422	0		472			
@		23	1		73	0	0	123	0		173	0	0	223	0		273	2		323	10		373	0		423	1		473			
@		24	0		74	0	0	124	0		174	0	0	224	0		274	2		324	5		374	0		424	4		474			
@		25	4		75	0	0	125	0		175	0	0	225	0		275	3		325	7		375	0		425	4		475			
@		26	2		76	0	0	126	0		176	0	0	226	0		276	6		326	9		376	0		426	2		476			
@		27	2		77	0	0	127	0		177	0	0	227	0		277	4		327	5		377	0		427	1		477			
@		28	2		78	0	0	128	0		178	0	0	228	0		278	1		328	7		378	0		428	9		478			
@		29	5		79	0	0	129	0		179	0	0	229	0		279	6		329	5		379	0		429	6		479			
@		30	3		80	0	0	130	0		180	0	0	230	0		280	7		330	2		380	0		430	3		480			
@		31	6		81	0	0	131	0		181	1	0	231	0		281	7		331	2		381	0		431	4		481			
1		32	6		82	0	0	132	1		182	0	0	232	0		282	11		332	3		382	1		432	3		482			
@		33	5		83	0	0	133	1		183	0	0	233	0		283	7		333	0		383	1		433	2		483			
@		34	6		84	0	0	134	1		184	0	0	234	0		284	6		334	1		384	0		434	4		484			
@		35	3		85	0	0	135	1		185	0	0	235	0		285	5		335	1		385	0		435	1		485			
@		36	8		86	0	0	136	2		186	0	0	236	0		286	5		336	0		386	2		436	1		486			
@		37	9		87	0	0	137	0		187	0	0	237	0		287	1		337	0		387	1		437	2		487			
@		38	9		88	0	0	138	1		188	0	0	238	0		288	1		338	0		388	0		438	0		488			
@		39	7		89	0	0	139	3		189	0	0	239	1		289	1		339	0		389	0		439	2		489			
@		40	6		90	0	0	140	0		190	0	0	240	0		290	0		340	0		390	1		440	0		490			
@		41	5		91	0	0	141	4		191	0	0	241	0		291	0		341	1		391	0		441	2		491			
@		42	4		92	0	0	142	3		192	0	0	242	1		292	0		342	0		392	1		442	0		492			
@		43	1		93	0	0	143	7		193	0	0	243	0		293	0		343	0		393	1		443	2		493			
@		44	1		94	0	0	144	4		194	0	0	244	0		294	0		344	0		394	2		444	0		494			
@		45	2		95	0	0	145	4		195	0	0	245	0		295	0		345	0		395	0		445	0		495			
@		46	0		96	0	0	146	5		196	0	0	246	0		296	1		346	1		396	1		446	0		496			
@		47	0		97	0	0	147	6		197	0	0	247	0		297	0		347	0		397	1		447	0		497			
@		48	1		98	0	0	148	7		198	0	0	248	0		298	0		348	0		398	0		448	0		498			
@		49	1		99	0	0	149	5		199	0	0	249	0		299	1		349	0		399	1		449	0		499			

0 50 0 100 0 150 4 200 0 250 0 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 26-FEB-2008 15:29:20

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF8N92AD_260281209A.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 12:09:05
Sample ID        : KF8N92AD Sample quantity : 0.00000E+00 LITER
Sample type      : disk Sample geometry :
Detector name    : ALP171 1 Detector geometry:
Elapsed live time: 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
Start energy     : 3516.03 keV End energy : 6478.08 keV
Sensitivity      : 3.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3996.77	97	0	69.50	85.93	73	23	8.09E-03	10.2	
2	0	4680.38	146	0	46.34	203.65	189	22	1.22E-02	8.3	
3	0	5423.86	105	0	52.13	331.38	301	41	8.76E-03	9.8	
4	0	5558.60	4	0	23.17	354.50	352	7	3.34E-04	50.0	
5	0	5680.53	69	0	46.34	375.41	364	23	5.76E-03	12.0	

Error Report (Date: 26-Feb-08 03:29 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NCNAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PD2AD

Detector: ALP171 2

Report Date: 26-Feb-08 06:54 PM

Acquire Date: 26-FEB-2008 12:09:05.90

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

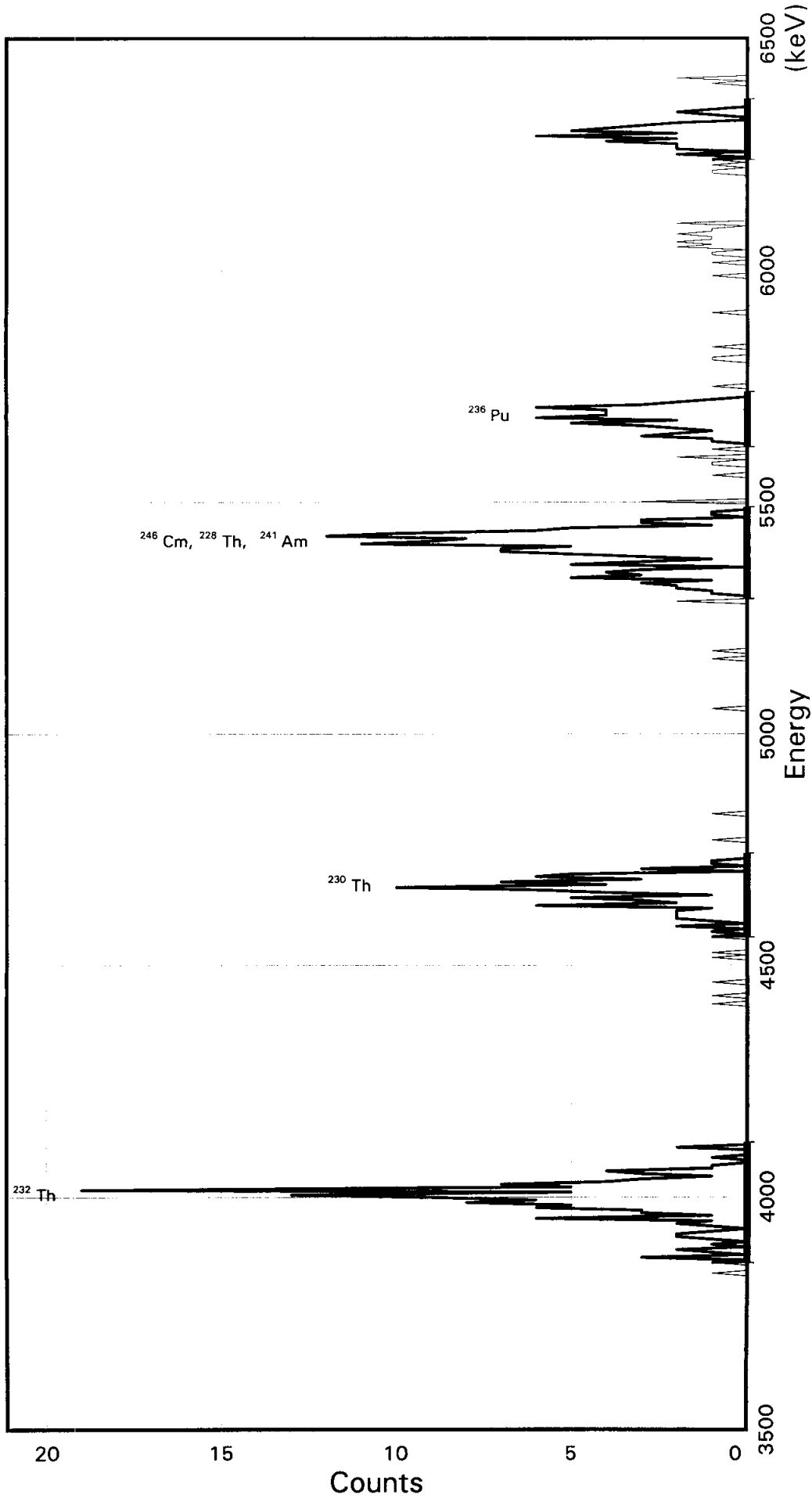
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Rght
			C/Min	keV	keV	Chnl	Chnl
TH-228	128	4	0.637	5423.2	158.5	315	343
TH-230	78	1	0.389	4687.7	141.1	185	210
TH-232	122	1	0.610	4013.0	152.0	67	94

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8035234

Sample ID: KF8PD2AD
Detector ID: ALP171 2



Acquisition Start: 26-FEB-2008 12:09:05.90
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.53220E+03
Slope: 5.62160E+00
Quadrature: 5.87552E-05

SAMPLE IDENTIITY: KF8PD2AD

TITLE : TH BRCO

DETECTOR : ALP171 2
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8PD2AD_260281209B.CN
F;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 26-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 26-FEB-2008 12:09:05 CALIB DATE : 09-FEB-2008 06:31:06

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3532.20 keV CONSTANT FWHM : 9.66667 Channels
SLOPE : 5.62160 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 5.875520E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1-Apr-07)

Sample Identity: KF8PD2AD

Flags Key

Detector: ALP171 2

Report Date: 26 Feb 08 03:29 PM

Intersect Region: %

Acquire Date: 26-FEB 2008 12:09:05.90

Non Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	
0	1	0	51	0	101	0	151	6	201	0	251	0	301	0	351	0	401	2	451	0	501			
	2	0	52	2	102	0	152	10	202	0	252	0	302	0	352	0	402	1	452	0	502			
0	3	0	53	0	103	0	153	4	203	0	253	0	303	0	353	1	403	1	453	0	503			
0	4	1	54	0	104	0	154	7	204	0	254	0	304	0	354	1	404	0	454	0	504			
0	5	0	55	0	105	0	155	3	205	0	255	0	305	0	355	0	405	2	455	0	505			
0	6	0	56	0	106	0	156	6	206	0	256	0	306	0	356	0	406	0	456	0	506			
0	7	0	57	0	107	1	157	5	207	0	257	0	307	0	357	0	407	0	457	0	507			
0	8	1	58	0	108	0	158	0	208	0	258	0	308	0	358	1	408	0	458	1	508			
0	9	0	59	0	109	0	159	3	209	0	259	0	309	1	359	0	409	0	459	0	509			
0	10	3	60	0	110	1	160	0	210	0	260	0	310	0	360	0	410	0	460	2	510			
0	11	0	61	0	111	0	161	1	211	0	261	2	311	0	361	0	411	0	461	0	511			
0	12	1	62	0	112	0	162	1	212	0	262	0	312	0	362	0	412	0	462	0	512			
0	13	2	63	0	113	0	163	0	213	0	263	0	313	1	363	0	413	0	463					
0	14	0	64	0	114	0	164	0	214	0	264	1	314	1	364	0	414	0	464					
0	15	1	65	0	115	1	165	0	215	0	265	1	315	0	365	0	415	0	465					
0	16	0	66	0	116	0	166	0	216	0	266	2	316	2	366	0	416	0	466					
0	17	1	67	0	117	0	167	0	217	0	267	2	317	0	367	0	417	0	467					
0	18	2	68	0	118	0	168	0	218	0	268	3	318	0	368	0	418	0	468					
0	19	2	69	0	119	0	169	0	219	0	269	1	319	1	369	0	419	0	469					
0	20	1	70	0	120	0	170	1	220	1	270	5	320	0	370	0	420	0	470					
0	21	0	71	0	121	0	171	0	221	0	271	3	321	0	371	1	421	0	471					
0	22	1	72	0	122	0	172	0	222	0	272	4	322	1	372	0	422	0	472					
0	23	2	73	0	123	0	173	0	223	0	273	3	323	1	373	0	423	0	473					
0	24	1	74	0	124	0	174	0	224	0	274	0	324	3	374	0	424	1	474					
0	25	6	75	0	125	1	175	0	225	0	275	5	325	2	375	0	425	1	475					
0	26	1	76	0	126	0	176	0	226	0	276	3	326	1	376	0	426	0	476					
0	27	3	77	0	127	1	177	0	227	0	277	1	327	2	377	0	427	1	477					
0	28	3	78	0	128	0	178	0	228	0	278	3	328	3	378	0	428	0	478					
0	29	6	79	0	129	0	179	0	229	0	279	5	329	5	379	0	429	1	479					
0	30	5	80	0	130	0	180	1	230	0	280	7	330	2	380	0	430	0	480					
0	31	8	81	0	131	0	181	0	231	0	281	7	331	6	381	0	431	2	481					
0	32	6	82	0	132	0	182	0	232	0	282	5	332	4	382	0	432	0	482					
0	33	9	83	0	133	1	183	0	233	0	283	11	333	4	383	0	433	2	483					
0	34	13	84	0	134	0	184	0	234	0	284	9	334	4	384	0	434	2	484					
0	35	5	85	0	135	1	185	0	235	0	285	8	335	6	385	1	435	2	485					
0	36	19	86	0	136	0	186	0	236	0	286	12	336	3	386	0	436	4	486					
0	37	5	87	0	137	2	187	0	237	0	287	10	337	2	387	0	437	2	487					
0	38	7	88	0	138	0	188	0	238	0	288	6	338	1	388	0	438	6	488					
0	39	4	89	0	139	1	189	0	239	1	289	5	339	0	389	0	439	2	489					
0	40	3	90	0	140	2	190	0	240	0	290	1	340	0	390	1	440	5	490					
0	41	1	91	0	141	2	191	0	241	0	291	3	341	0	391	0	441	4	491					
0	42	3	92	0	142	2	192	0	242	1	292	3	342	0	392	0	442	3	492					
0	43	4	93	0	143	2	193	0	243	0	293	0	343	1	393	1	443	2	493					
0	44	1	94	0	144	1	194	0	244	0	294	1	344	0	394	1	444	0	494					
0	45	1	95	0	145	6	195	0	245	0	295	1	345	0	395	0	445	0	495					
0	46	0	96	0	146	2	196	0	246	0	296	0	346	0	396	2	446	1	496					
0	47	0	97	0	147	3	197	0	247	0	297	0	347	0	397	1	447	2	497					
0	48	1	98	0	148	5	198	0	248	0	298	0	348	0	398	2	448	1	498					
0	49	0	99	0	149	1	199	0	249	0	299	3	349	0	399	1	449	0	499					

C 50 0 100 0 150 4 200 0 250 0 300 0 350 0 400 1 450 0 500

VMS Peak Search Report V1.9 Generated 26-FEB-2008 15:29:27

Configuration : \$DISK1:[ALP171.SAMPLE]KF8PD2AD_260281209B.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 12:09:05
 Sample ID : KF8PD2AD Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP171 1 Detector geometry:
 Elapsed live time: 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
 Start energy : 3549.07 keV End energy : 6425.86 keV
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4006.27	133	0	50.59	84.26	58	46	1.11E-02	8.7	
2	0	4675.21	81	0	50.59	202.89	183	32	6.76E-03	11.1	
3	0	5417.38	130	0	50.59	334.18	312	35	1.08E-02	8.8	
4	0	5688.70	50	0	50.59	382.08	370	21	4.17E-03	14.1	
5	0	6287.18	42	0	50.59	487.59	479	23	3.50E-03	15.4	

Error Report (Date: 26-Feb-08 03:29 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NCNAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PE2AD

Detector: ALP171 3

Report Date: 26-Feb-08 06:55 PM

Acquire Date: 26-FEB-2008 12:09:05.90

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

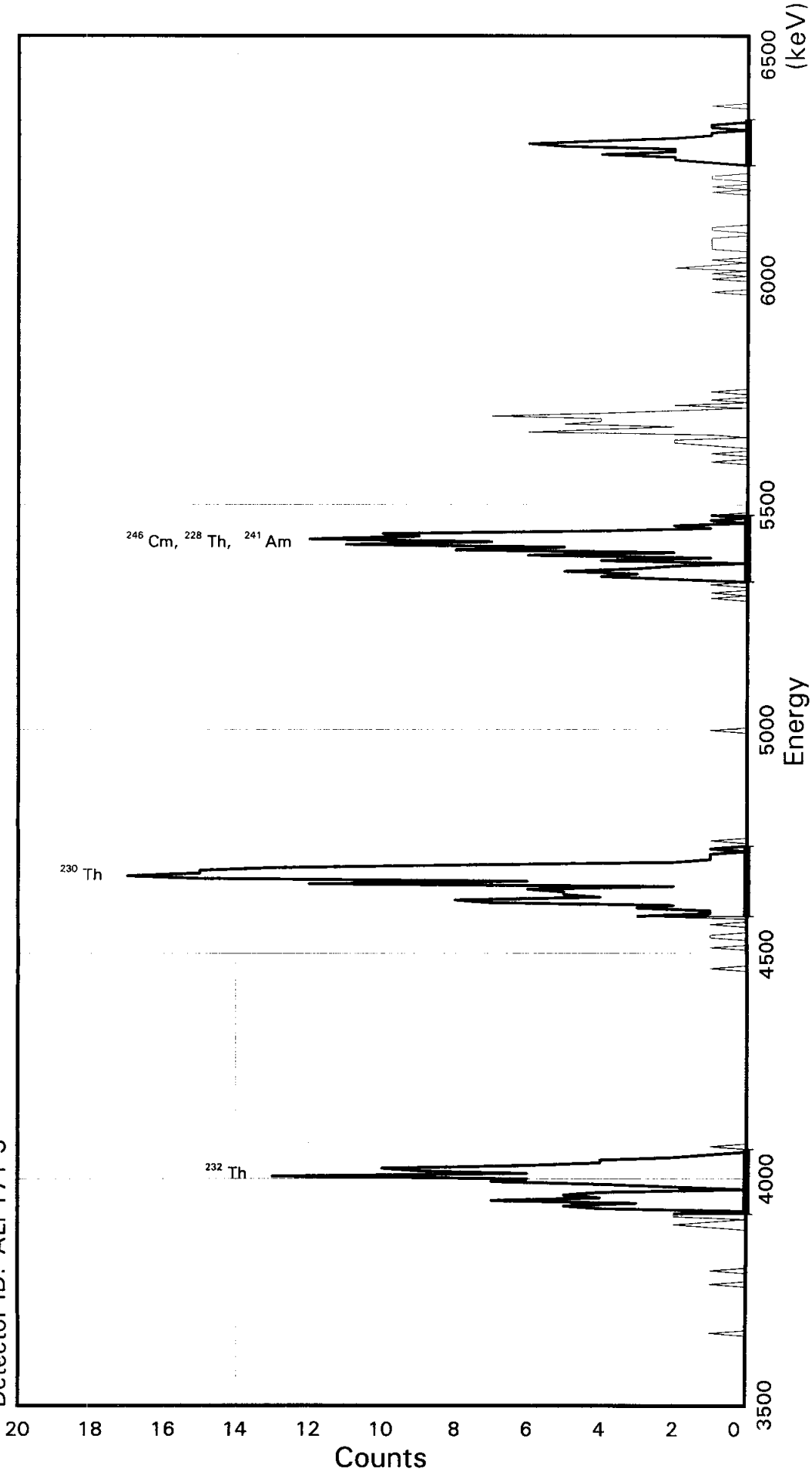
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl
TH-228	102	1	0.510	5423.2	137.6	309	332
TH-230	152	1	0.760	4687.7	137.5	184	207
TH-232	110	0	0.551	4013.0	143.5	72	96

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8PE2AD
Detector ID: ALP171 3

Batch ID: 8035234



Acquisition Start: 26-FEB-2008 12:09:05.90
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.47964E + 03
Slope: 5.97692E + 00
Quadrature: 5.57270E-06

SAMPLE IDENTIITY: KF8PE2AD

TITLE : TH BRCO

DETECTOR : ALP171 3
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8PE2AD_260281209C.CN
F;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 26-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 26-FEB-2008 12:09:05 CALIB DATE : 09-FEB-2008 06:26:32

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3479.64 keV CONSTANT FWHM : 7.33333 Channels
SLOPE : 5.97692 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 5.572700E-06 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 [Version: 1-Apr-07]

Sample Identity: KF8PE2AD

Flags Key

Detector: ALP171 3

Report Date: 26 Feb 08 03:29 PM

Intersect Region: *

Acquire Date: 26 FEB-2008 12:09:05.90

Non Intersect Region: +.

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn			
		1	0		51	0		101	0		151	15		201	0		251	0		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	15		202	0		252	0		302	0		352	0		402	0		452	0		502
0		3	1		53	0		103	0		153	13		203	0		253	1		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	8		204	1		254	0		304	1		354	0		404	1		454	0		504
0		5	0		55	0		105	0		155	2		205	0		255	1		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	1		206	0		256	0		306	0		356	0		406	1		456	0		506
0		7	0		57	0		107	0		157	1		207	0		257	0		307	1		357	0		407	0		457	0		507
0		8	0		58	0		108	0		158	1		208	0		258	1		308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	0		159	0		209	0		259	0		309	0		359	0		409	1		459	0		509
0		10	0		60	0		110	0		160	1		210	0		260	2		310	1		360	0		410	1		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	4		311	2		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	3		312	2		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	1		213	0		263	5		313	0		363	0		413	0		463			
0		14	0		64	0		114	0		164	0		214	0		264	3		314	1		364	0		414	0		464			
0		15	0		65	0		115	1		165	0		215	0		265	2		315	6		365	0		415	1		465			
0		16	0		66	0		116	0		166	0		216	0		266	0		316	4		366	0		416	2		466			
0		17	0		67	0		117	0		167	0		217	0		267	4		317	2		367	1		417	2		467			
0		18	0		68	0		118	0		168	0		218	0		268	1		318	5		368	0		418	4		468			
0		19	1		69	0		119	0		169	0		219	0		269	6		319	4		369	0		419	2		469			
0		20	2		70	0		120	0		170	0		220	0		270	2		320	4		370	0		420	2		470			
0		21	1		71	0		121	0		171	0		221	0		271	8		321	7		371	0		421	5		471			
0		22	0		72	0		122	0		172	0		222	0		272	5		322	4		372	1		422	6		472			
0		23	2		73	0		123	1		173	0		223	0		273	11		323	2		373	0		423	4		473			
0		24	2		74	0		124	0		174	0		224	0		274	7		324	0		374	1		424	2		474			
0		25	0		75	0		125	0		175	0		225	0		275	12		325	2		375	0		425	1		475			
0		26	4		76	0		126	0		176	0		226	0		276	9		326	0		376	2		426	1		476			
0		27	5		77	0		127	1		177	0		227	0		277	10		327	1		377	1		427	0		477			
0		28	3		78	0		128	1		178	0		228	0		278	4		328	0		378	0		428	1		478			
0		29	7		79	0		129	0		179	0		229	0		279	1		329	0		379	1		429	1		479			
1		30	4		80	0		130	0		180	0		230	0		280	2		330	1		380	0		430	0		480			
0		31	5		81	0		131	0		181	0		231	0		281	0		331	0		381	0		431	0		481			
0		32	4		82	0		132	1		182	0		232	0		282	1		332	0		382	0		432	0		482			
0		33	0		83	0		133	0		183	0		233	0		283	0		333	0		383	1		433	0		483			
0		34	2		84	0		134	0		184	0		234	0		284	1		334	0		384	1		434	0		484			
0		35	4		85	0		135	3		185	0		235	0		285	0		335	0		385	1		435	0		485			
0		36	7		86	0		136	1		186	0		236	0		286	0		336	0		386	1		436	1		486			
0		37	6		87	0		137	1		187	0		237	0		287	0		337	0		387	1		437	0		487			
0		38	13		88	0		138	3		188	0		238	0		288	0		338	0		388	0		438	0		488			
0		39	6		89	0		139	2		189	0		239	0		289	0		339	0		389	0		439	0		489			
0		40	9		90	0		140	7		190	0		240	0		290	0		340	0		390	1		440	0		490			
0		41	10		91	0		141	8		191	0		241	0		291	0		341	0		391	1		441	0		491			
0		42	6		92	0		142	4		192	0		242	0		292	0		342	0		392	0		442	0		492			
0		43	4		93	0		143	5		193	0		243	0		293	0		343	0		393	0		443	0		493			
0		44	4		94	0		144	5		194	0		244	0		294	0		344	0		394	0		444	0		494			
0		45	2		95	0		145	6		195	0		245	0		295	0		345	0		395	0		445	0		495			
0		46	1		96	0		146	2		196	0		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	12		197	0		247	0		297	0		347	0		397	0		447	0		497			
1		48	0		98	0		148	6		198	0		248	0		298	0		348	0		398	0		448	0		498			
0		49	1		99	0		149	15		199	0		249	0		299	0		349	0		399	0		449	0		499			

0 50 0 100 0 150 17 200 0 250 0 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 26-FEB-2008 15:29:33

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF8PE2AD_260281209C.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 12:09:05
Sample ID        : KF8PE2AD           Sample quantity  : 0.00000E+00 LITER
Sample type      : disk               Sample geometry   :
Detector name    : ALP171 1          Detector geometry:
Elapsed live time: 0 03:19:47.00     Elapsed real time: 0 03:19:47.00    0.0%
Start energy     : 3497.57 keV       End energy        : 6541.28 keV
Sensitivity      : 3.00              Sum Sensitivity   : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4013.39	106	0	47.82	89.30	74	24	8.84E-03	9.7	
2	0	4678.77	153	0	35.86	200.59	185	26	1.28E-02	8.1	
3	0	5418.14	104	0	41.84	324.23	309	25	8.68E-03	9.8	
4	0	6299.12	36	0	35.86	471.52	464	17	3.00E-03	16.7	

Error Report (Date: 26-Feb-08 03:29 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PG2AD

Detector: ALP171 4
Report Date: 26-Feb-08 06:57 PM
Acquire Date: 26-FEB-2008 12:09:05.90
Tracer Nuclide: TH-229
Sample Live Time: 200 minutes
Bkgrnd Live Time: 999 minutes

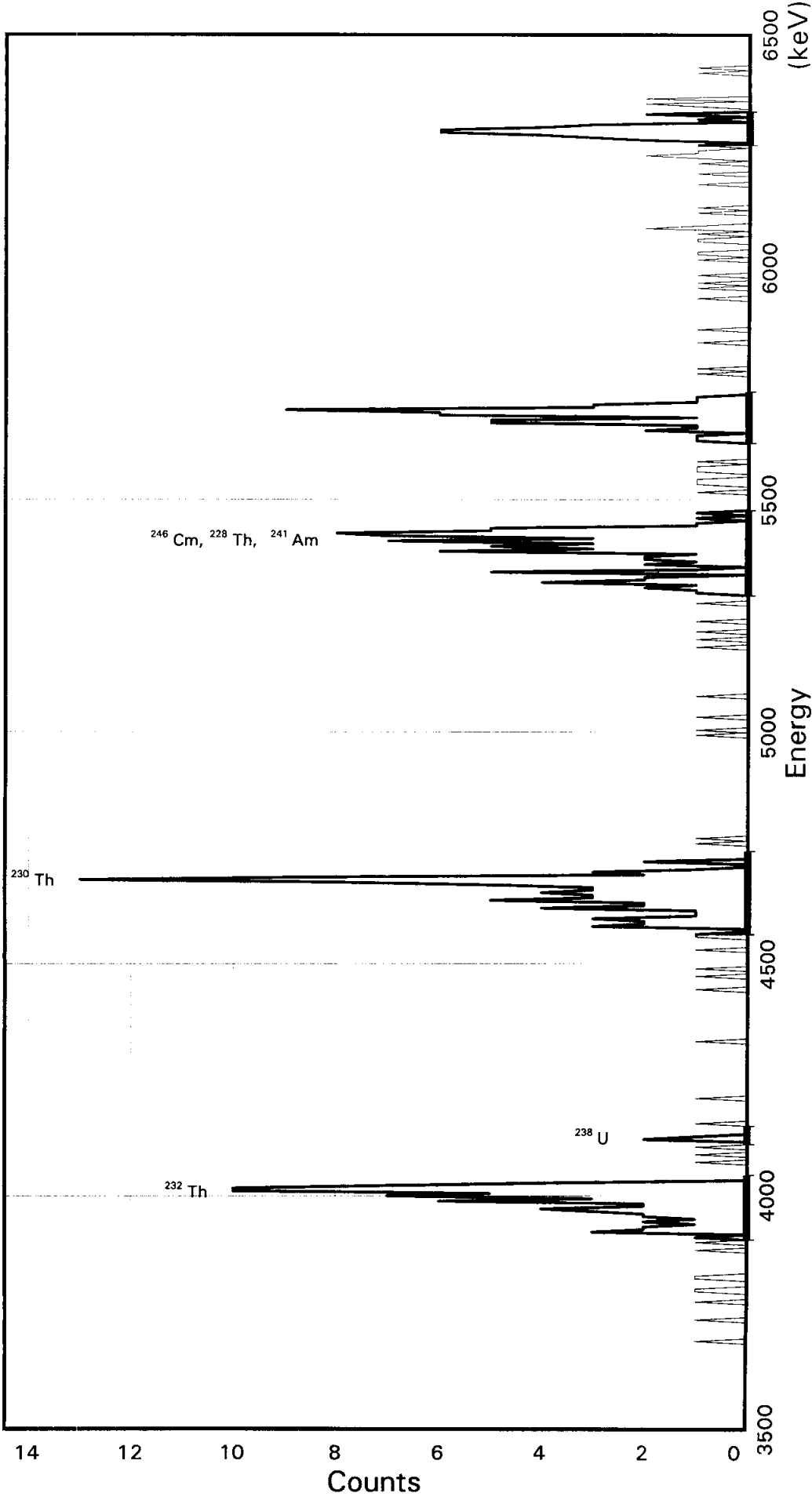
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Rght Chnl
TH-228	69	1	0.344	5423.2	127.9	311	334
TH-230	82	1	0.409	4687.7	138.9	174	199
TH-232	78	1	0.389	4013.0	122.1	55	77

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KF8PG2AD
Detector ID: ALP171 4

Batch ID: 8035234



Acquisition Start: 26-FEB-2008 12:09:05.90
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.61090E + 03
Slope: 5.54825E + 00
Quadrature: 2.13419E-05

SAMPLE IDENTIITY: KF8PG2AD

TITLE : TH BRCO

DETECTOR : ALP171 4

CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8PG2AD_260281209D.CN
F;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 26-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 26-FEB-2008 12:09:05 CALIB DATE : 09-FEB-2008 06:26:58

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3610.90 keV CONSTANT FWHM : 8.33333 Channels
SLOPE : 5.54825 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 2.134190E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 (Version: 1 Apr 07)

Sample Identity: KF8PG2AD

Flags Key

Detector: ALP171 4

Report Date: 26-Feb-08 03:29 PM

Intersect Region: %

Acquire Date: 26-FEB-2008 12:09:05.90

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	
		1	0	51	0	101	0	151	0	201	1	251	0	301	1	351	1	401	1	451	0	501		
		2	1	52	0	102	0	152	0	202	0	252	0	302	1	352	0	402	0	452	0	502		
C		3	0	53	0	103	0	153	0	203	0	253	0	303	1	353	0	403	1	453	0	503		
C		4	1	54	0	104	0	154	0	204	0	254	1	304	0	354	0	404	0	454	0	504		
0		5	0	55	0	105	1	155	0	205	0	255	1	305	1	355	0	405	0	455	1	505		
C		6	3	56	0	106	0	156	0	206	1	256	2	306	0	356	1	406	0	456	0	506		
C		7	2	57	0	107	0	157	1	207	0	257	1	307	0	357	0	407	0	457	1	507		
C		8	2	58	1	108	1	158	0	208	0	258	4	308	0	358	0	408	0	458	0	508		
C		9	1	59	0	109	0	159	1	209	0	259	2	309	0	359	0	409	0	459	0	509		
0		10	2	60	0	110	0	160	0	210	0	260	2	310	0	360	0	410	0	460	0	510		
0		11	1	61	0	111	0	161	0	211	0	261	0	311	0	361	0	411	0	461	0	511		
0		12	2	62	0	112	0	162	0	212	0	262	5	312	0	362	0	412	1	462	0	512		
0		13	2	63	0	113	0	163	0	213	0	263	1	313	1	363	0	413	0	463				
1		14	3	64	0	114	0	164	0	214	1	264	0	314	1	364	0	414	0	464				
0		15	4	65	0	115	0	165	0	215	0	265	2	315	1	365	0	415	0	465				
0		16	2	66	0	116	1	166	0	216	0	266	1	316	0	366	0	416	1	466				
0		17	2	67	0	117	0	167	0	217	0	267	2	317	2	367	0	417	0	467				
0		18	6	68	0	118	0	168	0	218	0	268	2	318	1	368	1	418	0	468				
0		19	3	69	0	119	0	169	0	219	0	269	1	319	1	369	0	419	0	469				
C		20	7	70	0	120	0	170	0	220	0	270	6	320	5	370	0	420	1	470				
C		21	5	71	0	121	1	171	0	221	0	271	3	321	5	371	0	421	0	471				
1		22	10	72	0	122	1	172	0	222	0	272	5	322	1	372	1	422	1	472				
C		23	10	73	0	123	0	173	0	223	0	273	3	323	6	373	0	423	2	473				
C		24	7	74	0	124	0	174	0	224	0	274	7	324	6	374	1	424	1	474				
0		25	4	75	0	125	3	175	0	225	0	275	3	325	9	375	0	425	1	475				
0		26	0	76	0	126	2	176	0	226	0	276	7	326	3	376	0	426	0	476				
0		27	0	77	0	127	2	177	0	227	0	277	8	327	3	377	1	427	1	477				
C		28	0	78	0	128	3	178	0	228	0	278	5	328	1	378	0	428	0	478				
1		29	0	79	0	129	1	179	0	229	0	279	5	329	1	379	0	429	2	479				
0		30	0	80	1	130	1	180	0	230	0	280	1	330	1	380	0	430	3	480				
0		31	0	81	0	131	1	181	0	231	0	281	1	331	0	381	0	431	4	481				
0		32	0	82	0	132	4	182	0	232	0	282	0	332	0	382	0	432	6	482				
1		33	1	83	0	133	2	183	0	233	1	283	1	333	0	383	1	433	6	483				
1		34	0	84	0	134	2	184	0	234	0	284	0	334	0	384	0	434	4	484				
0		35	0	85	0	135	5	185	0	235	0	285	1	335	0	385	1	435	3	485				
0		36	1	86	0	136	3	186	0	236	1	286	0	336	0	386	1	436	0	486				
0		37	0	87	0	137	3	187	0	237	0	287	0	337	0	387	0	437	1	487				
1		38	0	88	0	138	4	188	0	238	0	288	0	338	0	388	0	438	0	488				
1		39	1	89	0	139	3	189	0	239	1	289	0	339	1	389	0	439	2	489				
0		40	0	90	0	140	3	190	0	240	0	290	0	340	0	390	1	440	0	490				
0		41	0	91	0	141	5	191	0	241	0	291	0	341	1	391	1	441	0	491				
0		42	2	92	0	142	8	192	0	242	0	292	0	342	0	392	0	442	1	492				
0		43	1	93	0	143	13	193	0	243	1	293	1	343	0	393	1	443	2	493				
0		44	0	94	0	144	8	194	0	244	0	294	0	344	0	394	0	444	0	494				
0		45	0	95	0	145	2	195	0	245	0	295	0	345	0	395	2	445	2	495				
0		46	0	96	0	146	3	196	0	246	0	296	1	346	0	396	1	446	0	496				
0		47	0	97	0	147	1	197	0	247	0	297	1	347	0	397	0	447	0	497				
0		48	1	98	0	148	0	198	0	248	0	298	1	348	0	398	0	448	0	498				
1		49	0	99	0	149	0	199	1	249	0	299	0	349	0	399	0	449	0	499				

0 50 0 100 1 150 2 200 0 250 1 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 26-FEB-2008 15:29:37

Configuration : \$DISK1:[ALP171.SAMPLE]KF8PG2AD_260281209D.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 12:09:05
 Sample ID : KF8PG2AD Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP171 1 Detector geometry:
 Elapsed live time: 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
 Start energy : 3627.54 keV End energy : 6457.20 keV
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4009.06	79	0	33.29	71.74	53	25	6.59E-03	11.3	
2	0	4124.29	4	0	22.19	92.50	90	7	3.34E-04	50.0	
3	0	4682.06	86	0	27.74	192.92	172	32	7.17E-03	10.8	
4	0	5413.19	84	0	61.03	324.43	303	33	7.01E-03	10.9	
5	0	5687.49	48	0	33.29	373.74	362	20	4.00E-03	14.4	
6	0	6290.84	33	0	27.74	482.13	477	13	2.75E-03	17.4	

Error Report (Date: 26-Feb-08 03:29 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PG2AG

Detector: ALP171 5

Report Date: 26-Feb-08 06:59 PM

Acquire Date: 26-FEB-2008 12:09:05.90

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

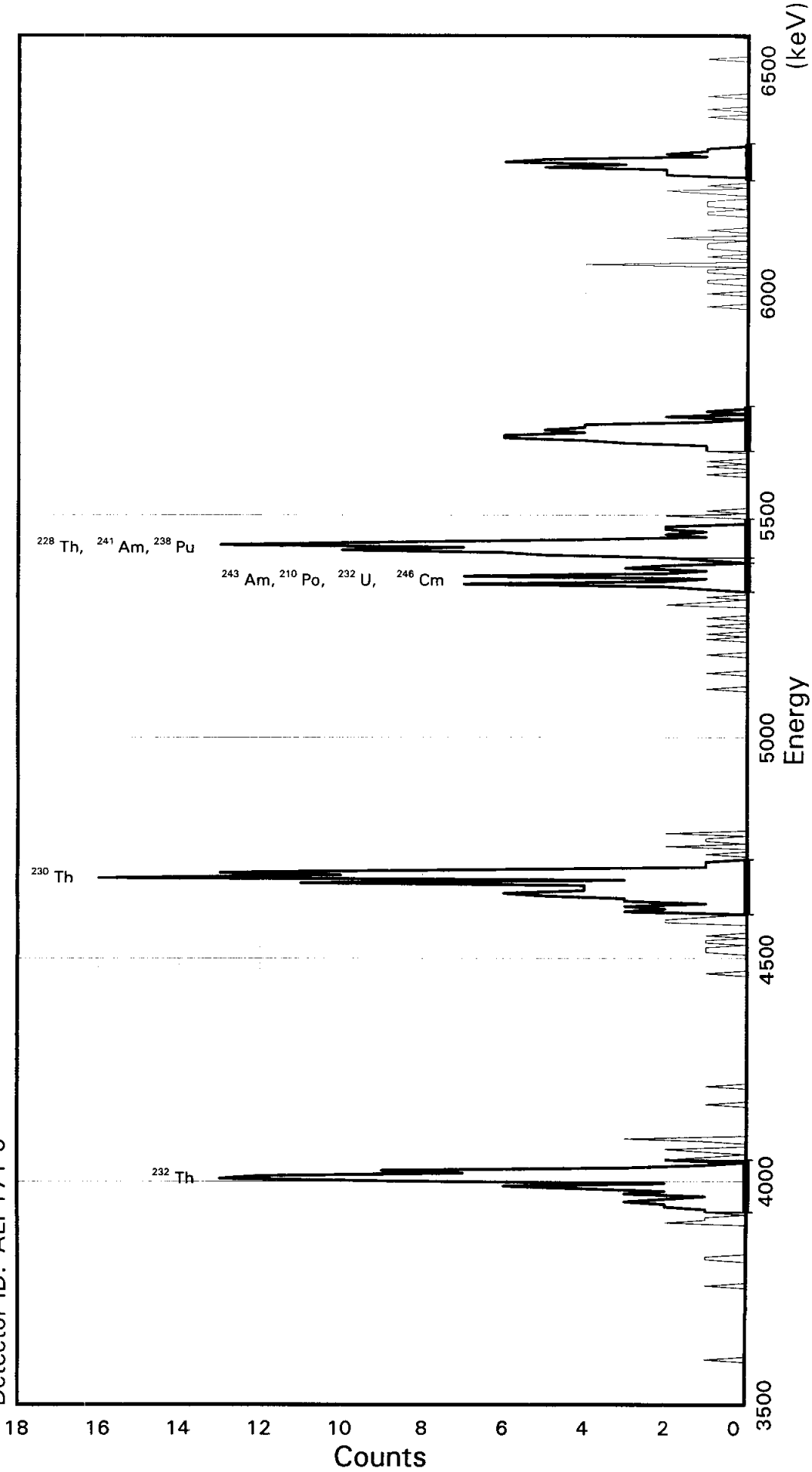
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	93	2	0.464	5423.2	159.3	299	326
TH-230	102	0	0.511	4687.7	135.5	176	199
TH-232	87	0	0.435	4013.0	141.2	58	82

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8035234

Sample ID: KF8PG2AG
Detector ID: ALP171 5



Acquisition Start: 26-FEB-2008 12:09:05.90
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.56014E + 03
Slope: 5.87973E + 00
Quadrature: 3.04036E-05

SAMPLE IDENTIITY: KF8PG2AG

TITLE : TH BRCO

DETECTOR : ALP171 5
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF8PG2AG_260281209E.CN
F;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 26-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 26-FEB-2008 12:09:05 CALIB DATE : 08-FEB-2008 22:00:18

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3560.14 keV CONSTANT FWHM : 7.33333 Channels
SLOPE : 5.87973 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 3.040360E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 For Spectra Not Processed by Alp_rgn_cnts
 (Version: 1-Apr-07)

Sample Identity: KF8PG2AG

Flags Key

Detector: ALP171 5

Report Date: 26 Feb-08 03:29 PM

Intersect Region: X

Acquire Date: 26 FEB 2008 12:09:05.90

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
0	1	51	0	101	0	151	0	201	0	251	1	301	0	351	0	401	0	451	0	501						
0	2	52	0	102	0	152	0	202	0	252	2	302	0	352	0	402	1	452	0	502						
0	3	53	0	103	0	153	2	203	0	253	7	303	0	353	0	403	2	453	1	503						
0	4	54	1	104	1	154	0	204	0	254	2	304	1	354	0	404	0	454	0	504						
0	5	55	0	105	0	155	1	205	0	255	1	305	1	355	0	405	1	455	0	505						
0	6	56	0	106	0	156	1	206	0	256	7	306	1	356	0	406	0	456	0	506						
1	7	57	0	107	0	157	0	207	0	257	2	307	3	357	0	407	0	457	0	507						
0	8	58	0	108	0	158	2	208	0	258	1	308	4	358	0	408	0	458	0	508						
0	9	59	0	109	0	159	0	209	0	259	3	309	6	359	1	409	2	459	0	509						
0	10	60	0	110	0	160	0	210	0	260	2	310	6	360	0	410	2	460	0	510						
0	11	61	1	111	0	161	0	211	0	261	0	311	4	361	0	411	2	461	0	511						
0	12	62	0	112	1	162	0	212	0	262	1	312	5	362	0	412	5	462	1	512						
0	13	63	0	113	1	163	0	213	1	263	2	313	4	363	0	413	3	463								
0	14	64	0	114	1	164	0	214	0	264	5	314	4	364	1	414	6	464								
0	15	65	0	115	0	165	0	215	0	265	6	315	1	365	0	415	5	465								
0	16	66	0	116	1	166	0	216	0	266	10	316	0	366	0	416	1	466								
0	17	67	0	117	1	167	0	217	0	267	7	317	2	367	0	417	2	467								
0	18	68	0	118	0	168	0	218	0	268	13	318	0	368	1	418	1	468								
0	19	69	0	119	1	169	0	219	1	269	9	319	1	369	1	419	1	469								
0	20	70	0	120	0	170	0	220	0	270	4	320	0	370	0	420	0	470								
0	21	71	0	121	0	171	0	221	0	271	1	321	0	371	0	421	0	471								
0	22	72	0	122	0	172	0	222	0	272	2	322	0	372	1	422	0	472								
0	23	73	0	123	0	173	0	223	0	273	1	323	0	373	1	423	0	473								
0	24	74	0	124	2	174	0	224	0	274	2	324	0	374	0	424	0	474								
0	25	75	0	125	2	175	0	225	0	275	2	325	0	375	4	425	0	475								
0	26	76	0	126	1	176	0	226	1	276	0	326	0	376	0	426	0	476								
0	27	77	0	127	0	177	0	227	0	277	0	327	0	377	0	427	0	477								
0	28	78	0	128	3	178	0	228	0	278	0	328	0	378	1	428	0	478								
0	29	79	0	129	2	179	0	229	0	279	2	329	0	379	0	429	0	479								
0	30	80	0	130	3	180	0	230	0	280	0	330	0	380	0	430	0	480								
0	31	81	0	131	1	181	0	231	0	281	1	331	0	381	1	431	1	481								
0	32	82	0	132	3	182	0	232	1	282	0	332	0	382	1	432	0	482								
0	33	83	0	133	3	183	0	233	0	283	0	333	0	383	1	433	0	483								
0	34	84	0	134	5	184	0	234	1	284	0	334	0	384	0	434	1	484								
1	35	85	0	135	6	185	0	235	0	285	0	335	0	385	2	435	0	485								
0	36	86	0	136	4	186	0	236	0	286	0	336	0	386	0	436	0	486								
0	37	87	0	137	4	187	0	237	1	287	0	337	0	387	0	437	0	487								
0	38	88	0	138	4	188	0	238	0	288	0	338	0	388	1	438	0	488								
0	39	89	0	139	11	189	0	239	0	289	0	339	0	389	0	439	1	489								
0	40	90	0	140	3	190	0	240	1	290	0	340	0	390	0	440	0	490								
0	41	91	0	141	16	191	0	241	0	291	0	341	0	391	0	441	0	491								
0	42	92	0	142	10	192	0	242	0	292	0	342	0	392	0	442	0	492								
0	43	93	0	143	13	193	0	243	0	293	0	343	0	393	0	443	0	493								
0	44	94	0	144	7	194	0	244	0	294	0	344	0	394	1	444	0	494								
1	45	95	0	145	1	195	0	245	2	295	1	345	0	395	1	445	0	495								
1	46	96	0	146	1	196	0	246	1	296	0	346	0	396	0	446	0	496								
0	47	97	0	147	1	197	0	247	0	297	0	347	0	397	1	447	0	497								
0	48	98	0	148	0	198	0	248	1	298	1	348	0	398	1	448	0	498								
0	49	99	0	149	0	199	0	249	0	299	0	349	0	399	1	449	0	499								

0 50 0 100 0 150 1 200 0 250 0 300 1 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 26-FEB-2008 15:29:41

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF8PG2AG_260281209E.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 12:09:05
Sample ID         : KF8PG2AG Sample quantity : 0.00000E+00 LITER
Sample type       : disk Sample geometry :
Detector name     : ALP171 1 Detector geometry:
Elapsed live time: 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
Start energy      : 3577.78 keV End energy : 6578.53 keV
Sensitivity       : 3.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4008.55	85	0	29.40	76.23	63	20	7.09E-03	10.8	
2	0	4685.57	101	0	29.40	191.22	177	21	8.43E-03	10.0	
3	0	5354.16	28	0	47.04	304.64	300	13	2.34E-03	18.9	
4	0	5427.94	66	0	41.16	317.15	311	17	5.51E-03	12.3	
5	0	5683.73	43	0	47.04	360.50	354	17	3.59E-03	15.2	
6	0	6291.92	32	0	35.28	463.50	457	14	2.67E-03	17.7	

Error Report (Date: 26-Feb-08 03:29 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KGH0L2AA

Detector: ALP171 7

Report Date: 26-Feb-08 07:23 PM

Acquire Date: 26-FEB-2008 12:09:05.90

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

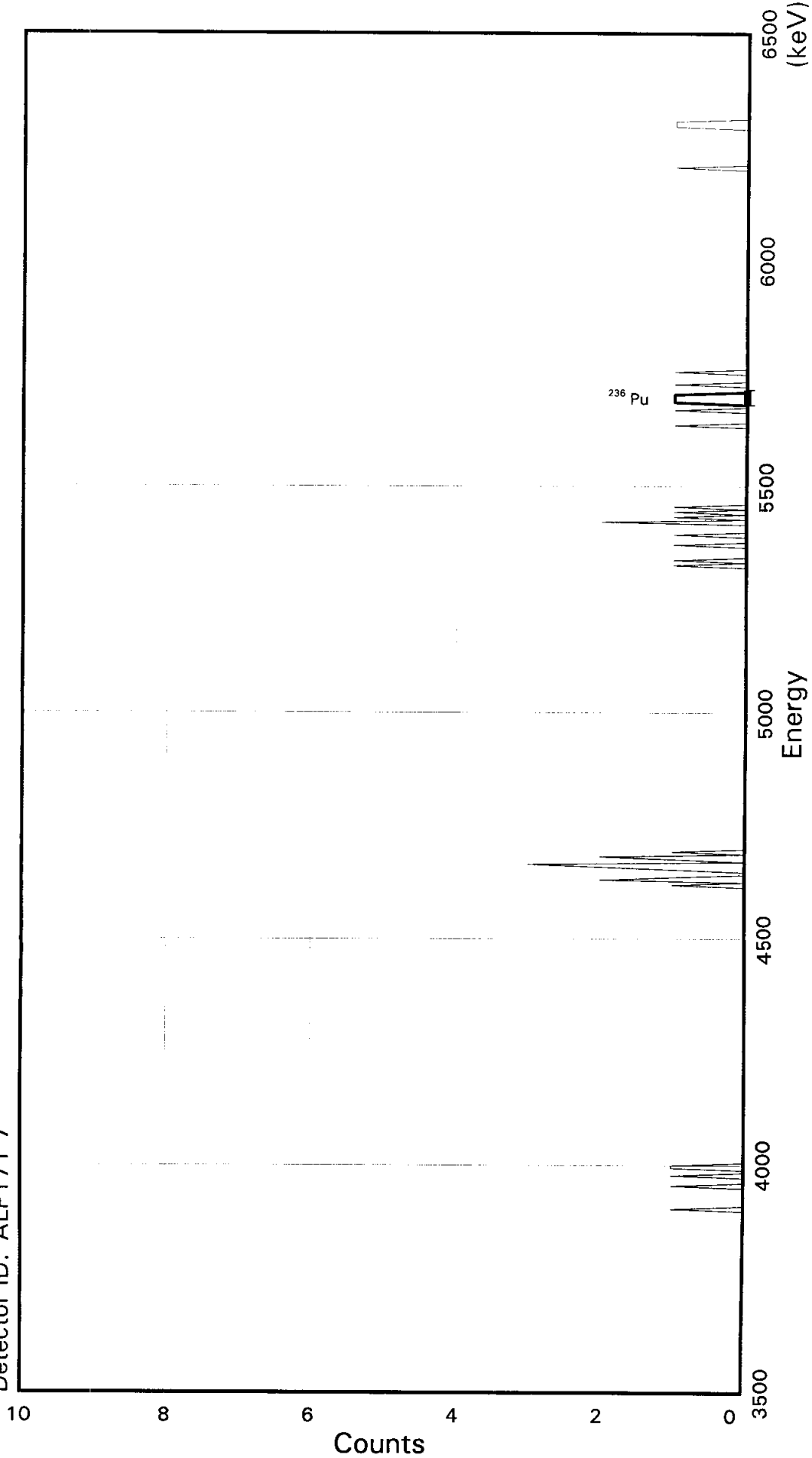
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	9	0	0.045	5423.2	140.9	307	332
TH-230	14	1	0.069	4687.7	112.9	180	200
TH-232	4	0	0.020	4013.0	113.0	60	80

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KGH0L2AA
Detector ID: ALP171 7

Batch ID: 8035234



Acquisition Start: 26-FEB-2008 12:09:05.90
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.58678E + 03
Slope: 5.65524E + 00
Quadrature: -3.13946E-05

SAMPLE IDENTIITY: KGH0L2AA

TITLE : TH BRCO

DETECTOR : ALP171 7

CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KGH0L2AA_260281209G.CN
F;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 26-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 26-FEB-2008 12:09:05 CALIB DATE : 09-FEB-2008 06:32:02

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3586.78 keV CONSTANT FWHM : 6.66667 Channels
SLOPE : 5.65524 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.313946E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp rgn_cnts
 (Version: 1-Apr-07)

Sample Identity: KGH0L2AA

Flags Key

Detector: ALP171 7

Report Date: 26-Feb-08 03:29 PM

Intersect Region: %

Acquire Date: 26 FEB 2008 12:09:05.90

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	
		1	0	51	0	101	0	151	0	201	0	251	0	301	0	351	0	401	0	451	0	501		
		2	0	52	0	102	0	152	0	202	0	252	0	302	0	352	0	402	0	452	0	502		
C		3	0	53	0	103	0	153	0	203	0	253	0	303	0	353	0	403	0	453	0	503		
C		4	0	54	0	104	0	154	0	204	0	254	0	304	0	354	0	404	0	454	0	504		
C		5	0	55	0	105	0	155	0	205	0	255	0	305	0	355	0	405	0	455	0	505		
C		6	1	56	0	106	0	156	0	206	0	256	0	306	0	356	0	406	0	456	0	506		
C		7	0	57	0	107	0	157	0	207	0	257	0	307	0	357	0	407	0	457	0	507		
C		8	0	58	0	108	0	158	0	208	0	258	1	308	0	358	0	408	0	458	0	508		
C		9	0	59	0	109	0	159	0	209	0	259	0	309	0	359	0	409	0	459	0	509		
C		10	0	60	0	110	0	160	0	210	0	260	1	310	0	360	0	410	0	460	0	510		
C		11	0	61	0	111	0	161	0	211	0	261	0	311	0	361	0	411	0	461	0	511		
C		12	0	62	0	112	0	162	0	212	0	262	0	312	0	362	0	412	0	462	0	512		
C		13	0	63	0	113	0	163	0	213	0	263	0	313	1	363	0	413	0	463				
C		14	0	64	0	114	0	164	0	214	0	264	0	314	0	364	0	414	1	464				
C		15	1	65	0	115	0	165	0	215	0	265	0	315	0	365	0	415	0	465				
C		16	0	66	0	116	0	166	0	216	0	266	1	316	0	366	0	416	0	466				
C		17	0	67	0	117	0	167	0	217	0	267	0	317	0	367	0	417	0	467				
C		18	0	68	0	118	0	168	0	218	0	268	0	318	0	368	0	418	0	468				
0		19	1	69	0	119	0	169	0	219	0	269	0	319	1	369	0	419	0	469				
0		20	0	70	0	120	0	170	0	220	0	270	1	320	0	370	0	420	0	470				
0		21	0	71	0	121	0	171	0	221	0	271	0	321	0	371	0	421	0	471				
0		22	1	72	0	122	0	172	0	222	0	272	0	322	1	372	0	422	0	472				
0		23	1	73	0	123	0	173	0	223	0	273	0	323	1	373	0	423	0	473				
0		24	0	74	0	124	0	174	0	224	0	274	0	324	1	374	0	424	0	474				
0		25	0	75	0	125	0	175	0	225	0	275	2	325	1	375	0	425	0	475				
0		26	0	76	0	126	0	176	0	226	0	276	0	326	0	376	0	426	0	476				
0		27	0	77	0	127	0	177	0	227	0	277	1	327	0	377	0	427	0	477				
0		28	0	78	0	128	0	178	0	228	0	278	0	328	0	378	0	428	0	478				
0		29	0	79	0	129	0	179	0	229	0	279	1	329	1	379	0	429	0	479				
0		30	0	80	0	130	0	180	0	230	0	280	0	330	0	380	0	430	1	480				
0		31	0	81	0	131	0	181	0	231	0	281	1	331	0	381	0	431	1	481				
0		32	0	82	0	132	0	182	0	232	0	282	0	332	0	382	0	432	1	482				
0		33	0	83	0	133	1	183	0	233	0	283	0	333	0	383	0	433	0	483				
0		34	0	84	0	134	0	184	0	234	0	284	0	334	1	384	0	434	0	484				
0		35	0	85	0	135	2	185	0	235	0	285	0	335	0	385	0	435	0	485				
0		36	0	86	0	136	1	186	0	236	0	286	0	336	0	386	0	436	0	486				
0		37	0	87	0	137	0	187	0	237	0	287	0	337	0	387	0	437	0	487				
0		38	0	88	0	138	0	188	0	238	0	288	0	338	0	388	0	438	0	488				
0		39	0	89	0	139	1	189	0	239	0	289	0	339	0	389	0	439	0	489				
0		40	0	90	0	140	2	190	0	240	0	290	0	340	0	390	0	440	0	490				
0		41	0	91	0	141	3	191	0	241	0	291	0	341	0	391	0	441	0	491				
0		42	0	92	0	142	0	192	0	242	0	292	0	342	0	392	0	442	0	492				
0		43	0	93	0	143	1	193	0	243	0	293	0	343	0	393	0	443	0	493				
0		44	0	94	0	144	2	194	0	244	0	294	0	344	0	394	0	444	0	494				
0		45	0	95	0	145	0	195	0	245	0	295	0	345	0	395	0	445	0	495				
0		46	0	96	0	146	1	196	0	246	0	296	0	346	0	396	0	446	0	496				
0		47	0	97	0	147	0	197	0	247	0	297	0	347	0	397	0	447	0	497				
0		48	0	98	0	148	0	198	0	248	0	298	0	348	0	398	0	448	0	498				
0		49	0	99	0	149	0	199	0	249	0	299	0	349	0	399	0	449	0	499				

0 50 0 100 0 150 0 200 0 250 0 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 26-FEB-2008 15:29:46

Configuration : \$DISK1:[ALP171.SAMPLE]KGH0L2AA_260281209G.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRCO
Sample date : 28-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 12:09:05
Sample ID : KGH0L2AA Sample quantity : 0.00000E+00 LITER
Sample type : disk Sample geometry :
Detector name : ALP171 1 Detector geometry:
Elapsed live time: 0 03:19:47.00 Elapsed real time: 0 03:19:47.00 0.0%
Start energy : 3603.75 keV End energy : 6474.04 keV
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	5694.64	4	0	22.62	373.50	371	6	3.34E-04	50.0	

Error Report (Date: 26-Feb-08 03:29 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KGH0L2AC

Detector: ALP171 8

Report Date: 26-Feb-08 07:03 PM

Acquire Date: 26-FEB-2008 12:09:05.90

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

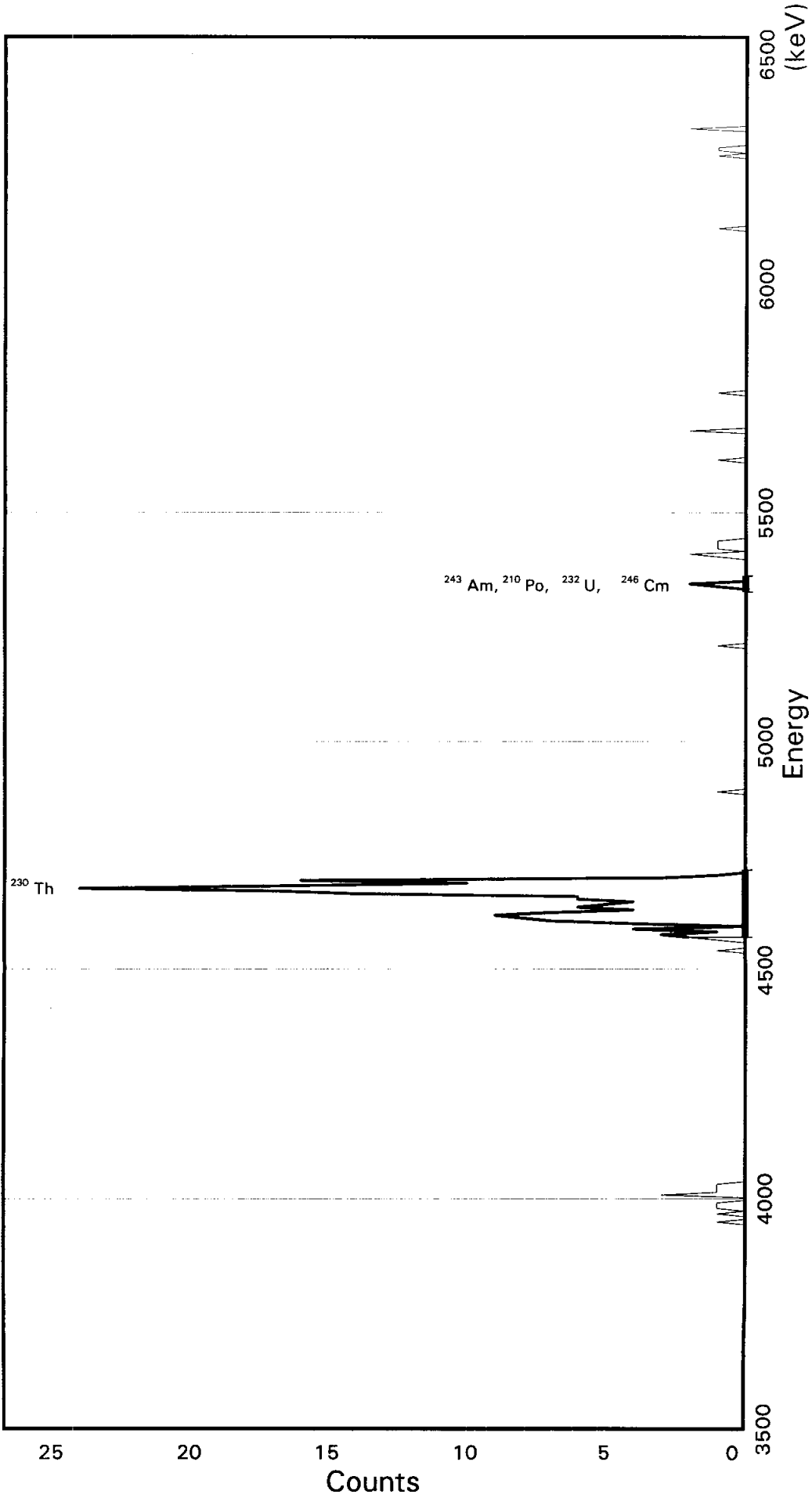
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	10	1	0.049	5423.2	117.6	307	327
TH-230	178	1	0.890	4687.7	164.7	174	202
TH-232	12	0	0.060	4013.0	117.7	68	88

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Sample ID: KGH0L2AC
Detector ID: ALP171 8

Batch ID: 8035234



Acquisition Start: 26-FEB-2008 12:09:05.90
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:
Offset: 3.52587E + 03
Slope: 5.88729E + 00
Quadrature: -1.05536E-05

SAMPLE IDENTIITY: KGH0L2AC

TITLE : TH BRCO

DETECTOR : ALP171 8
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE] KGH0L2AC_260281209H.CN
F;1

ACQUIRE DATE of BACKGROUND: 23-FEB-2008 11:07:48

REPORT DATE : 26-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 26-FEB-2008 12:09:05 CALIB DATE : 08-FEB-2008 22:00:28

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:19:47

OFFSET : 3525.87 keV CONSTANT FWHM : 6.66667 Channels
SLOPE : 5.88729 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.105536E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 (Version: 1 Apr 07)

Sample Identity: KGH0L2AC

Flags Key

Detector: ALP17L 8

Report Date: 26-Feb-08 03:29 PM

Intersect Region: #

Acquire Date: 26 FEB 2008 12:09:05.90

Non Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
		1	0		51	0		101	0		151	1		201	0		251	0		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0		202	0		252	0		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	0		203	0		253	0		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	0		204	0		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0		205	0		255	0		305	1		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	0		206	0		256	0		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	0		207	0		257	0		307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	0		158	0		208	0		258	1		308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	0		159	0		209	0		259	2		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	0		160	0		210	0		260	0		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	0		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	0		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	0		463	0		512
0		14	0		64	0		114	0		164	0		214	0		264	0		314	0		364	0		414	0		464	0		512
0		15	0		65	0		115	0		165	0		215	0		265	0		315	0		365	0		415	0		465	0		512
0		16	0		66	0		116	0		166	0		216	0		266	0		316	2		366	0		416	0		466	0		512
0		17	0		67	0		117	0		167	0		217	0		267	0		317	0		367	0		417	0		467	0		512
0		18	0		68	0		118	0		168	0		218	0		268	0		318	0		368	0		418	1		468	0		512
0		19	0		69	0		119	0		169	0		219	0		269	1		319	0		369	0		419	0		469	0		512
0		20	0		70	0		120	0		170	0		220	0		270	2		320	0		370	0		420	1		470	0		512
0		21	0		71	0		121	0		171	0		221	0		271	0		321	0		371	0		421	1		471	0		512
0		22	1		72	0		122	0		172	0		222	0		272	1		322	0		372	0		422	0		472	0		512
0		23	0		73	0		123	1		173	0		223	0		273	1		323	0		373	0		423	0		473	0		512
0		24	0		74	0		124	0		174	0		224	0		274	1		324	0		374	0		424	0		474	0		512
0		25	1		75	0		125	0		175	0		225	0		275	1		325	0		375	0		425	0		475	0		512
0		26	0		76	0		126	0		176	0		226	0		276	0		326	0		376	0		426	0		476	0		512
0		27	1		77	0		127	1		177	0		227	0		277	0		327	0		377	0		427	0		477	0		512
0		28	1		78	0		128	2		178	0		228	0		278	0		328	0		378	0		428	2		478	0		512
0		29	1		79	0		129	3		179	0		229	0		279	0		329	0		379	0		429	0		479	0		512
0		30	0		80	0		130	1		180	0		230	0		280	0		330	1		380	0		430	0		480	0		512
0		31	0		81	0		131	4		181	0		231	0		281	0		331	0		381	0		431	0		481	0		512
0		32	3		82	0		132	0		182	1		232	0		282	0		332	0		382	0		432	0		482	0		512
0		33	1		83	0		133	4		183	0		233	0		283	0		333	0		383	0		433	0		483	0		512
0		34	1		84	0		134	7		184	0		234	0		284	0		334	0		384	0		434	0		484	0		512
0		35	1		85	0		135	8		185	0		235	0		285	0		335	0		385	0		435	0		485	0		512
0		36	1		86	0		136	9		186	0		236	1		286	0		336	0		386	0		436	0		486	0		512
0		37	0		87	0		137	7		187	0		237	0		287	0		337	0		387	0		437	0		487	0		512
0		38	0		88	0		138	4		188	0		238	0		288	0		338	0		388	0		438	0		488	0		512
0		39	0		89	0		139	6		189	0		239	0		289	0		339	0		389	0		439	0		489	0		512
0		40	0		90	0		140	5		190	0		240	0		290	0		340	0		390	0		440	0		490	0		512
0		41	0		91	0		141	4		191	0		241	0		291	0		341	0		391	1		441	0		491	0		512
0		42	0		92	0		142	6		192	0		242	0		292	0		342	0		392	0		442	0		492	0		512
0		43	0		93	0		143	6		193	0		243	0		293	0		343	0		393	0		443	0		493	0		512
0		44	0		94	0		144	14		194	0		244	0		294	0		344	0		394	0		444	0		494	0		512
0		45	0		95	0		145	17		195	0		245	0		295	0		345	0		395	0		445	0		495	0		512
0		46	0		96	0		146	24		196	0		246	0		296	0		346	0		396	0		446	0		496	0		512
0		47	0		97	0		147	16		197	0		247	0		297	0		347	0		397	0		447	0		497	0		512
0		48	0		98	0		148	10		198	0		248	0		298	0		348	0		398	0		448	0		498	0		512
0		49	0		99	0		149	16		199	0		249	0		299	0		349	0		399	0		449	0		499	0		512

0 50 0 100 0 150 3 200 0 250 0 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 26-FEB-2008 15:29:49

```

Configuration      : $DISK1:[ALP171.SAMPLE]KGH0L2AC_260281209H.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 12:09:05
Sample ID        : KGH0L2AC           Sample quantity  : 0.00000E+00 LITER
Sample type      : disk               Sample geometry   :
Detector name    : ALP171 1          Detector geometry:
Elapsed live time: 0 03:19:47.00     Elapsed real time: 0 03:19:47.00   0.0%
Start energy     : 3543.53 keV       End energy       : 6537.39 keV
Sensitivity      : 3.00               Sum Sensitivity  : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4679.51	179	0	29.44	196.02	178	25	1.49E-02	7.5	
2	0	5341.09	4	0	23.55	308.50	306	6	3.34E-04	50.0	

Error Report (Date: 26-Feb-08 03:29 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

THORIUM
STANDARDS AND TRACEABILITY

Standard Material Fractions (Vials)

Vial Prep: 3/17/07 to 3/18/08, SMFractionIdentifier Between THTC12293 and THTC12303, Order by

Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
Parent Standard: TH23408A100		Ref: 2/27/2008	2.2003E+03	± 2.796E+02	CPM/G	
THTC12293	Th-234	5.0226E+02 ± 6.382E+01 CPM	0.2663 g	3/3/2008	3/3/2008	Armstron 1.8861E+03 ± 2.397E+02 CPM/G
THTC12294	Th-234	5.1414E+02 ± 6.533E+01 CPM	0.2726 g	3/3/2008	3/3/2008	Armstron 1.8860E+03 ± 2.396E+02 CPM/G
THTC12295	Th-234	5.0621E+02 ± 6.432E+01 CPM	0.2684 g	3/3/2008	3/3/2008	Armstron 1.8860E+03 ± 2.396E+02 CPM/G
THTC12296	Th-234	5.0225E+02 ± 6.382E+01 CPM	0.2663 g	3/3/2008	3/3/2008	Armstron 1.8860E+03 ± 2.396E+02 CPM/G
THTC12297	Th-234	5.0394E+02 ± 6.403E+01 CPM	0.2672 g	3/3/2008	3/3/2008	Armstron 1.8860E+03 ± 2.396E+02 CPM/G
THTC12298	Th-234	5.0357E+02 ± 6.399E+01 CPM	0.267 g	3/3/2008	3/3/2008	Armstron 1.8860E+03 ± 2.396E+02 CPM/G
THTC12299	Th-234	5.0357E+02 ± 6.399E+01 CPM	0.267 g	3/3/2008	3/3/2008	Armstron 1.8860E+03 ± 2.396E+02 CPM/G
THTC12300	Th-234	5.0770E+02 ± 6.451E+01 CPM	0.2692 g	3/3/2008	3/3/2008	Armstron 1.8860E+03 ± 2.396E+02 CPM/G
THTC12301	Th-234	5.0374E+02 ± 6.401E+01 CPM	0.2671 g	3/3/2008	3/3/2008	Armstron 1.8860E+03 ± 2.396E+02 CPM/G
THTC12302	Th-234	5.0355E+02 ± 6.398E+01 CPM	0.267 g	3/3/2008	3/3/2008	Armstron 1.8860E+03 ± 2.396E+02 CPM/G
THTC12303	Th-234	5.0393E+02 ± 6.403E+01 CPM	0.2672 g	3/3/2008	3/3/2008	Armstron 1.8860E+03 ± 2.396E+02 CPM/G

5.0499E+002 ± 3.426E+000 (11) 0.678% 5.0225E+002 , 5.1414E+002

Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
Parent Standard:		TH23408A100	Ref: 2/27/2008	2.2003E+03	± 2.796E+02	CPM/G
THSI1170	Th-234	5.0712E+02 ± 6.444E+01 CPM	0.269 g	3/3/2008 3/3/2008	Armstron	1.8852E+03 ± 2.395E+02 CPM/G
		5.0712E+002 ± 5.071E+002 (1)	5.0712E+002 , 5.0712E+002			
<p>STL Richland, SMFractions v4.8.29</p> <p>* - Isotope is an Impurity</p>						

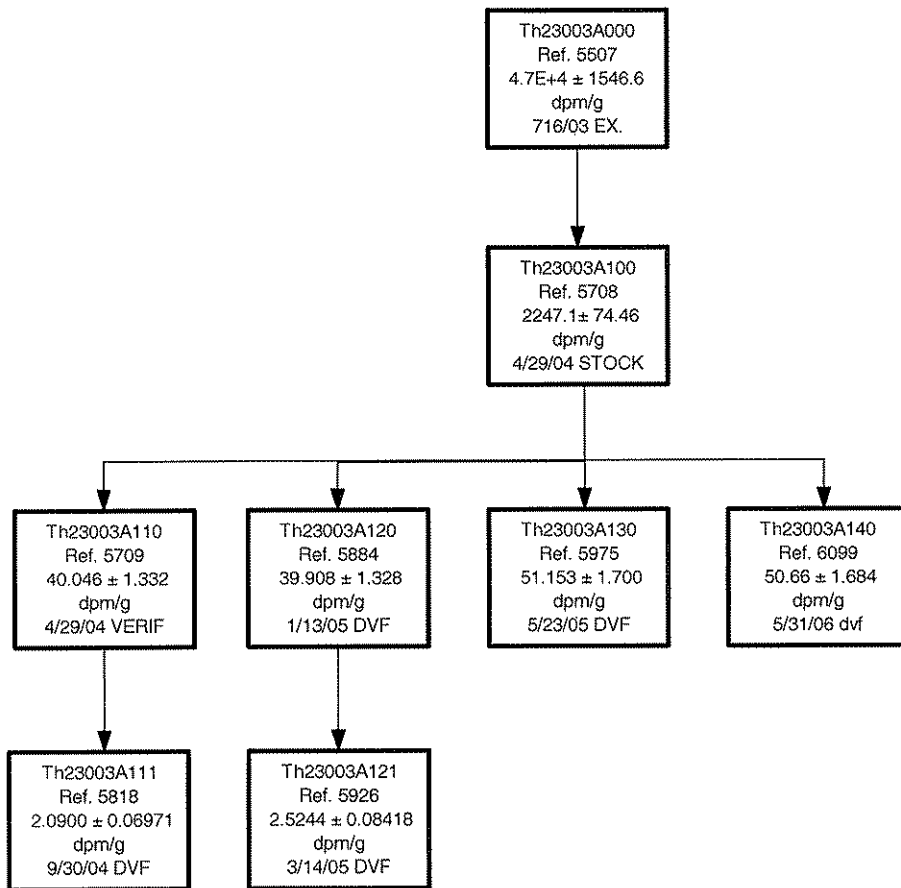
Standard Material Fractions (Vials)

Vial Prep: 3/17/07 to 3/18/08, SMFractionIdentifier Like: THSI1170%, 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: TH23003A150		Ref: 7/16/2003	5.0653E+01	± 1.679E+00	DPM/G	
THSI1170	Th-230	5.0702E+00 ± 1.682E-01 DPM	0.1001 g	3/3/2008 3/3/2008	Armstron	5.0651E+01 ± 1.679E+00 DPM/G

5.0702E+000 ± 5.070E+000 (1) 5.0702E+000 , 5.0702E+000

Th23003A



ISOTOPE DILUTION RECORD

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>5/31/2006</u>
3) Source Identification Number / Ref. Number	<u>TH23003A100</u>	<u>5708</u>	
4) Source Activity (dpm ± dpm/g)	<u>2.2471E+03</u>	±	<u>7.446E+01</u>
5) Percent error of Source Activity	<u>3.314</u>		%
6) Weight of Source Material used (g)	<u>3.1975</u>		
7) (% Error) of Weight of Source Material used	<u>0.1501</u>		%
8) Diluent	<u>2M HNO3</u>		
9) Total Weight of the Dilution (g)	<u>141.81</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2116</u>		%
11) Specific Activity of Diluted Solution dpm/g	<u>5.0667E+01</u>	±	<u>1.684E+00</u>
12) Total Uncertainty	<u>3.324</u>		%
13) Dilution Identification Number / Ref. Number	<u>TH23003A140</u>	<u>6099</u>	
14) Calibration Reference Date	<u>5/31/2006</u>		
15) Isotope Inventory File update by/date	<u>tda</u>		<u>5/31/2006</u>
16) Reviewed by/date	<u>JC</u>		<u>9/21/2006</u>
17) Location	<u>qclab</u>	18) Exhausted	<u></u>

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>5/23/2005</u>
3) Source Identification Number / Ref. Number	<u>TH23003A100</u>	<u>5708</u>	
4) Source Activity (dpm ± dpm/g)	<u>2.2471E+03</u>	±	<u>7.446E+01</u>
5) Percent error of Source Activity	<u>3.314</u>	%	
6) Weight of Source Material used (g)	<u>3.1833</u>		
7) (% Error) of Weight of Source Material used	<u>0.1508</u>	%	
8) Diluent	<u>2M HNO3-P0500135</u>		
9) Total Weight of the Dilution (g)	<u>139.84</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2145</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>5.1153E+01</u>	±	<u>1.700E+00</u>
12) Total Uncertainty	<u>3.324</u>	%	
13) Dilution Identification Number / Ref. Number	<u>TH23003A130</u>	<u>5975</u>	
14) Calibration Reference Date	<u>5/23/2005</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>5/23/2005</u>
16) Reviewed by/date	<u>sew</u>		<u>5/25/2005</u>
17) Location <u>QCLAB/STWT1161</u>	18) Exhausted		

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>3/14/2005</u>
3) Source Identification Number / Ref. Number	<u>TH23003A120</u>	<u>5884</u>	
4) Source Activity (dpm ± dpm/g)	<u>3.9908E+01</u>	±	<u>1.328E+00</u>
5) Percent error of Source Activity	<u>3.327</u>	%	
6) Weight of Source Material used (g)	<u>8.5965</u>		
7) (% Error) of Weight of Source Material used	<u>0.0558</u>	%	
8) Diluent	<u>2M HNO3-P0500135</u>		
9) Total Weight of the Dilution (g)	<u>135.9</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2208</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>2.5244E+00</u>	±	<u>8.418E-02</u>
12) Total Uncertainty	<u>3.335</u>	%	
13) Dilution Identification Number / Ref. Number	<u>TH23003A121</u>	<u>5926</u>	
14) Calibration Reference Date	<u>3/14/2005</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>3/14/2005</u>
16) Reviewed by/date	<u>SEW</u>		<u>3/14/2005</u>
17) Location <u>QCLAB/STWT1125</u>	18) Exhausted		<u></u>

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>1/13/2005</u>
3) Source Identification Number / Ref. Number	<u>TH23003A100</u>	<u>5708</u>	
4) Source Activity (dpm ± dpm/g)	<u>2.2471E+03</u>	±	<u>7.446E+01</u>
5) Percent error of Source Activity	<u>3.314</u>	%	
6) Weight of Source Material used (g)	<u>2.4647</u>		
7) (% Error) of Weight of Source Material used	<u>0.1947</u>	%	
8) Diluent	<u>2M HNO3-P0400766</u>		
9) Total Weight of the Dilution (g)	<u>138.78</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2162</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>3.9908E+01</u>	±	<u>1.328E+00</u>
12) Total Uncertainty	<u>3.327</u>	%	
13) Dilution Identification Number / Ref. Number	<u>TH23003A120</u>	<u>5884</u>	
14) Calibration Reference Date	<u>1/13/2005</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>1/13/2005</u>
16) Reviewed by/date	<u>SEW</u>		<u>1/14/2005</u>
17) Location <u>QCLAB/STWT1105</u>	18) Exhausted		<u></u>

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>9/30/2004</u>
3) Source Identification Number / Ref. Number	<u>TH23003A110</u>	<u>5709</u>	
4) Source Activity (dpm ± dpm/g)	<u>4.0046E+01</u>	±	<u>1.332E+00</u>
5) Percent error of Source Activity	<u>3.327</u>	%	
6) Weight of Source Material used (g)	<u>6.9826</u>		
7) (% Error) of Weight of Source Material used	<u>0.0687</u>	%	
8) Diluent	<u>2M HNO3-P0400528</u>		
9) Total Weight of the Dilution (g)	<u>133.79</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2242</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>2.0900E+00</u>	±	<u>6.971E-02</u>
12) Total Uncertainty	<u>3.335</u>	%	
13) Dilution Identification Number / Ref. Number	<u>TH23003A111</u>	<u>5818</u>	
14) Calibration Reference Date	<u>9/30/2004</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>9/30/2004</u>
16) Reviewed by/date	<u>SEW</u>		<u>10/6/2004</u>
17) Location <u>QCLAB/STWT1059</u>	18) Exhausted		<u></u>

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>4/29/2004</u>
3) Source Identification Number / Ref. Number	<u>TH23003A100</u>	<u>5708</u>	
4) Source Activity (dpm ± dpm/g)	<u>2.2471E+03</u>	±	<u>7.446E+01</u>
5) Percent error of Source Activity	<u>3.314</u>	%	
6) Weight of Source Material used (g)	<u>2.4577</u>		
7) (% Error) of Weight of Source Material used	<u>0.1953</u>	%	
8) Diluent	<u>2M HNO3-P0400176</u>		
9) Total Weight of the Dilution (g)	<u>137.91</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2175</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>4.0046E+01</u>	±	<u>1.332E+00</u>
12) Total Uncertainty	<u>3.327</u>	%	
13) Dilution Identification Number / Ref. Number	<u>TH23003A110</u>	<u>5709</u>	
14) Calibration Reference Date	<u>4/29/2004</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>4/29/2004</u>
16) Reviewed by/date	<u>D.M.</u>		<u>6/2/2004</u>
17) Location <u>QCLAB/STWT0990</u>	18) Exhausted		<u></u>

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>4/29/2004</u>
3) Source Identification Number / Ref. Number	<u>TH23003A000</u>	<u>5507</u>	
4) Source Activity (dpm ± dpm/g)	<u>4.6866E+04</u>	±	<u>1.547E+03</u>
5) Percent error of Source Activity	<u>3.3</u>	%	
6) Weight of Source Material used (g)	<u>5.0580</u>		
7) (% Error) of Weight of Source Material used	<u>0.0949</u>	%	
8) Diluent	<u>2M HNO3-P0400176</u>		
9) Total Weight of the Dilution (g)	<u>105.49</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2844</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>2.2471E+03</u>	±	<u>7.446E+01</u>
12) Total Uncertainty	<u>3.314</u>	%	
13) Dilution Identification Number / Ref. Number	<u>TH23003A100</u>	<u>5708</u>	
14) Calibration Reference Date	<u>4/29/2004</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>4/29/2004</u>
16) Reviewed by/date	<u>D.M.</u>		<u>6/2/2004</u>
17) Location <u>QCLAB/STWT0989</u>	18) Exhausted		<u></u>

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

ISOTOPE RECORD FORM

1) Isotope TH230 2) Reference Number 5507
 3) Half Life 7.54E4 yrs 4) Storage Location Std Lab
 5) Source Identification Number TH23003A000

CALIBRATION DATA

6) Activity as Received Units 3.979E+03 dps
 7) Overall Uncertainty Percent 3.30%
 8) Reference Date / Time 7/16/2003 12:00 EST (9:00AM)
 9) Activity dpm/g 4.6866E+04 ± 1546.59 (3.3%) dpm/g
 10) Volume or Mass (ml/g) 5.09407g
 11) Calibrated by ANALY
 12) Certificate Solution Number 66538-310

SURVEY DATA

13) Date Received 7/18/2003
 14) Surveyed by W.G
 15) Survey Reading (Beta/Gamma) cpm <100 CPM
 16) Survey Reading (Alpha) cpm <100 CPM

17) Activity Conversion 3979.0 dps x60sm/5.09407g=4.7E+04± 1546.6 (3.3%)dpm/g

18) Remarks USED ALL TO MAKE FIRST DILUTION 4/29/4 WG

19) Isotope File Updated by W.G 7/29/03

20) QC Approved SEW 8/1/03

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

66538-310

Th-230 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:	Th-230
ACTIVITY (dps):	3.979 E3
HALF-LIFE:	7.538 E4 years
CALIBRATION DATE:	July 16, 2003 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.3%

Impurities: γ -impurities <0.1%, α -impurities <0.23%

5.09407 grams 0.5M HNO₃ solution.

Master Solution ID#: P86V105

P O NUMBER 1875386-000 OP, Item 1

SOURCE PREPARED BY: M. Taskaeva
M. Taskaeva, Radiochemist

Q A APPROVED:

J.M. Mory 7-16-03

THORIUM
CONTINUING CALIBRATION

Quality Assurance Report.

Generated 26-MAR-2008 11:42:36.15

QA Filename : \$DISK1:[ALP171.QA]GROUP_5_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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.240651 Std Deviation : 0.008714

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		0.2345		
8-FEB-2008 05:19	chk		0.2321		
4-MAR-2008 08:00	chk		0.2196	In	

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 7.190476 Std Deviation : 0.194553

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		7.0000		
8-FEB-2008 05:19	chk		7.3333		
4-MAR-2008 08:00	chk		7.1667		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 327.556061 Std Deviation : 0.189696

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		327.5735		
8-FEB-2008 05:19	chk		327.9419	In	
4-MAR-2008 08:00	chk		327.9133		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.241619 Std Deviation : 0.008098

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
Quality Assurance Multi-Test Full Report (continued)					
					Page : 2
3-FEB-2008 11:02	chk		0.2314		
8-FEB-2008 05:19	chk		0.2307		
4-MAR-2008 08:00	chk		0.2297		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
Mean : 5.907343 Std Deviation : 0.015297

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 11:02	chk		5.9174	
8-FEB-2008 05:19	chk		5.8797	
4-MAR-2008 08:00	chk		5.9106	

Quality Assurance Report. Generated 26-MAR-2008 11:42:36.78

QA Filename : \$DISK1:[ALP171.QA]GROUP_5_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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000188 Std Deviation : 0.000404

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0010	In
5-MAR-2008 07:46	bkg		0.0000	

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000313 Std Deviation : 0.000603

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0000		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0020	In	

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000125 Std Deviation : 0.000342

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0000		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000125 Std Deviation : 0.000501

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000000 Std Deviation : 0.000000

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000063 Std Deviation : 0.000250

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:14 bkg 0.0000 | | |

Quality Assurance Multi-Test Full Report (continued)

Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000125 Std Deviation : 0.000342

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000125 Std Deviation : 0.000342

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	

9-FEB-2008 06:41 bkg	0.0000	
23-FEB-2008 11:07 bkg	0.0000	
27-FEB-2008 10:00 bkg	0.0000	
5-MAR-2008 07:46 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000125 Std Deviation : 0.000342

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14 bkg	0.0000	
9-FEB-2008 06:41 bkg	0.0000	
23-FEB-2008 11:07 bkg	0.0000	
27-FEB-2008 10:00 bkg	0.0000	
5-MAR-2008 07:46 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000063 Std Deviation : 0.000250

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14 bkg	0.0000	
9-FEB-2008 06:41 bkg	0.0000	

23-FEB-2008 11:07 bkg	0.0000	
27-FEB-2008 10:00 bkg	0.0000	
5-MAR-2008 07:46 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000188 Std Deviation : 0.000404

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14 bkg			0.0000	
9-FEB-2008 06:41 bkg			0.0010	In
23-FEB-2008 11:07 bkg			0.0000	
27-FEB-2008 10:00 bkg			0.0000	
5-MAR-2008 07:46 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000375 Std Deviation : 0.000720

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14 bkg			0.0020	In
9-FEB-2008 06:41 bkg			0.0010	
23-FEB-2008 11:07 bkg			0.0000	

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

27-FEB-2008 10:00 bkg 0.0000 | | |
 5-MAR-2008 07:46 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000375 Std Deviation : 0.000720

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0020	In	
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0000		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000250 Std Deviation : 0.000578

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0020	Ac	
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0000		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000188 Std Deviation : 0.000544

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 6

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0020	Ac	
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0000		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000188 Std Deviation : 0.000544

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0020	Ac	
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.001502 Std Deviation : 0.003166

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0100	In	
27-FEB-2008 10:00	bkg		0.0070		
5-MAR-2008 07:46	bkg		0.0060		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.001001 Std Deviation : 0.001968

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0060	In	
27-FEB-2008 10:00	bkg		0.0050	In	
5-MAR-2008 07:46	bkg		0.0030		

Quality Assurance Multi-Test Full Report (continued) Page : 7

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0060	In	
27-FEB-2008 10:00	bkg		0.0050	In	
5-MAR-2008 07:46	bkg		0.0030		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.001126 Std Deviation : 0.001545

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0040		
27-FEB-2008 10:00	bkg		0.0050	In	
5-MAR-2008 07:46	bkg		0.0010		

Quality Assurance Report. Generated 26-MAR-2008 11:42:33.41

QA Filename : \$DISK1:[ALP171.QA]GROUP_4_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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.233491 Std Deviation : 0.010680

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		0.2188		
8-FEB-2008 05:19	chk		0.2292		
4-MAR-2008 08:00	chk		0.2187		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 8.619048 Std Deviation : 0.499695

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		7.6667		
8-FEB-2008 05:19	chk		8.3333		
4-MAR-2008 08:00	chk		8.1667		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 338.212585 Std Deviation : 0.193253

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 11:02	chk		338.5123	
8-FEB-2008 05:19	chk		338.5093	
4-MAR-2008 08:00	chk		338.1666	

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.237368 Std Deviation : 0.010060

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
3-FEB-2008 11:02	chk		0.2255	
8-FEB-2008 05:19	chk		0.2245	
4-MAR-2008 08:00	chk		0.2238	

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
Mean : 5.558932 Std Deviation : 0.012208

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 11:02	chk		5.5502	
8-FEB-2008 05:19	chk		5.5483	
4-MAR-2008 08:00	chk		5.5707	

Quality Assurance Report. Generated 26-MAR-2008 11:42:33.99

QA Filename : \$DISK1:[ALP171.QA]GROUP_4_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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000501 Std Deviation : 0.000633

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0010	
27-FEB-2008 10:00	bkg		0.0010	
5-MAR-2008 07:46	bkg		0.0000	

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000313 Std Deviation : 0.000479

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0000		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000063 Std Deviation : 0.000250

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0000		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000501 Std Deviation : 0.000517

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0010	
27-FEB-2008 10:00	bkg		0.0010	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000313 Std Deviation : 0.000603

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000375 Std Deviation : 0.000620

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:14 bkg 0.0010 | | |

Quality Assurance Multi-Test Full Report (continued)

Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	bkg		0.0020	In

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000438 Std Deviation : 0.000728

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0020	In
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000375 Std Deviation : 0.000620

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	

9-FEB-2008 06:41 bkg	0.0000	
23-FEB-2008 11:07 bkg	0.0000	
27-FEB-2008 10:00 bkg	0.0000	
5-MAR-2008 07:46 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000313 Std Deviation : 0.000603

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:14 bkg	0.0010	
9-FEB-2008 06:41 bkg	0.0000	
23-FEB-2008 11:07 bkg	0.0000	
27-FEB-2008 10:00 bkg	0.0000	
5-MAR-2008 07:46 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000313 Std Deviation : 0.000705

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:14 bkg	0.0000	
9-FEB-2008 06:41 bkg	0.0000	

23-FEB-2008 11:07 bkg	0.0000	
27-FEB-2008 10:00 bkg	0.0000	
5-MAR-2008 07:46 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000188 Std Deviation : 0.000544

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14 bkg			0.0000	
9-FEB-2008 06:41 bkg			0.0000	
23-FEB-2008 11:07 bkg			0.0000	
27-FEB-2008 10:00 bkg			0.0020	Ac
5-MAR-2008 07:46 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000125 Std Deviation : 0.000342

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14 bkg			0.0000	
9-FEB-2008 06:41 bkg			0.0000	
23-FEB-2008 11:07 bkg			0.0000	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14 bkg			0.0000	
9-FEB-2008 06:41 bkg			0.0000	
23-FEB-2008 11:07 bkg			0.0000	

27-FEB-2008 10:00 bkg 0.0010 |In| |
 5-MAR-2008 07:46 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000188 Std Deviation : 0.000404

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0000		
27-FEB-2008 10:00	bkg		0.0010	In	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000125 Std Deviation : 0.000342

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0000		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0000		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000188 Std Deviation : 0.000404

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 6

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0010	In	
27-FEB-2008 10:00	bkg		0.0010	In	
5-MAR-2008 07:46	bkg		0.0000		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000188 Std Deviation : 0.000404

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0010	In	
27-FEB-2008 10:00	bkg		0.0010	In	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000813 Std Deviation : 0.001278

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0040	In	
27-FEB-2008 10:00	bkg		0.0030		
5-MAR-2008 07:46	bkg		0.0020		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000438 Std Deviation : 0.000630

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0010		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0010		

Quality Assurance Multi-Test Full Report (continued) Page : 7

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0010		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0010		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.001376 Std Deviation : 0.001410

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0020		
9-FEB-2008 06:41	bkg		0.0020		
23-FEB-2008 11:07	bkg		0.0030		
27-FEB-2008 10:00	bkg		0.0030		
5-MAR-2008 07:46	bkg		0.0010		

Quality Assurance Report.

Generated 26-MAR-2008 11:42:30.52

QA Filename : \$DISK1:[ALP171.QA]GROUP_3_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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.232895 Std Deviation : 0.007881

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		0.2227		
8-FEB-2008 05:19	chk		0.2236		
4-MAR-2008 08:00	chk		0.2245		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 7.277778 Std Deviation : 0.215166

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		7.0000		
8-FEB-2008 05:19	chk		7.3333		
4-MAR-2008 08:00	chk		7.3333		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 336.399139 Std Deviation : 0.175974

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 11:02	chk		336.5040	
8-FEB-2008 05:19	chk		336.2021	
4-MAR-2008 08:00	chk		336.1889	

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.234489 Std Deviation : 0.006830

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
Quality Assurance Multi-Test Full Report (continued) Page : 2				
3-FEB-2008 11:02	chk		0.2257	
8-FEB-2008 05:19	chk		0.2252	
4-MAR-2008 08:00	chk		0.2256	

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
Mean : 5.970840 Std Deviation : 0.014716

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		5.9667		
8-FEB-2008 05:19	chk		5.9769		
4-MAR-2008 08:00	chk		5.9791		

3-FEB-2008 11:02	chk		5.9667		
8-FEB-2008 05:19	chk		5.9769		
4-MAR-2008 08:00	chk		5.9791		

Quality Assurance Report. Generated 26-MAR-2008 11:42:31.14

QA Filename : \$DISK1:[ALP171.QA]GROUP_3_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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000250 Std Deviation : 0.000578

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0000		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0000		

4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0000		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0000		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000188 Std Deviation : 0.000404

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	bkg		0.0010	In

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000063 Std Deviation : 0.000250

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000563 Std Deviation : 0.000630

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0020	In
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0010	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000125 Std Deviation : 0.000342

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	bkg		0.0010	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000125 Std Deviation : 0.000342

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:14 bkg 0.0000 | | |

Quality Assurance Multi-Test Full Report (continued)

Page : 3

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

9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	bkg		0.0010	In

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000250 Std Deviation : 0.000448

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

4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000313 Std Deviation : 0.000479

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

4-FEB-2008 06:14	bkg		0.0000	

9-FEB-2008 06:41 bkg	0.0000	
23-FEB-2008 11:07 bkg	0.0000	
27-FEB-2008 10:00 bkg	0.0000	
5-MAR-2008 07:46 bkg	0.0010	

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000313 Std Deviation : 0.000479

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:14 bkg	0.0000	
9-FEB-2008 06:41 bkg	0.0000	
23-FEB-2008 11:07 bkg	0.0000	
27-FEB-2008 10:00 bkg	0.0000	
5-MAR-2008 07:46 bkg	0.0010	

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000250 Std Deviation : 0.000448

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:14 bkg	0.0000	
9-FEB-2008 06:41 bkg	0.0000	

23-FEB-2008 11:07 bkg	0.0000	
27-FEB-2008 10:00 bkg	0.0000	
5-MAR-2008 07:46 bkg	0.0010	

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000501 Std Deviation : 0.000517

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

4-FEB-2008 06:14 bkg			0.0000	
9-FEB-2008 06:41 bkg			0.0000	
23-FEB-2008 11:07 bkg			0.0010	
27-FEB-2008 10:00 bkg			0.0010	
5-MAR-2008 07:46 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000501 Std Deviation : 0.000517

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

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

4-FEB-2008 06:14 bkg			0.0000	
9-FEB-2008 06:41 bkg			0.0010	
23-FEB-2008 11:07 bkg			0.0010	

27-FEB-2008 10:00 bkg 0.0010 | | |
 5-MAR-2008 07:46 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000501 Std Deviation : 0.000517

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0010	
23-FEB-2008 11:07	bkg		0.0010	
27-FEB-2008 10:00	bkg		0.0010	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000563 Std Deviation : 0.000630

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0020	In
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0010	
27-FEB-2008 10:00	bkg		0.0010	
5-MAR-2008 07:46	bkg		0.0000	

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000751 Std Deviation : 0.000775

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 6

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0030	In	
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0010		
27-FEB-2008 10:00	bkg		0.0010		
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000688 Std Deviation : 0.000603

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0020	In	
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0010		
27-FEB-2008 10:00	bkg		0.0010		
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.001064 Std Deviation : 0.001916

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0050	In	
27-FEB-2008 10:00	bkg		0.0060	In	
5-MAR-2008 07:46	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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000501 Std Deviation : 0.000895

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
Quality Assurance Multi-Test Full Report (continued)					
					Page : 7
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0010		
27-FEB-2008 10:00	bkg		0.0030	In	
5-MAR-2008 07:46	bkg		0.0020		

-- 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 : 10-JUL-2007 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000876 Std Deviation : 0.000886

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0020		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0020		
27-FEB-2008 10:00	bkg		0.0030	In	
5-MAR-2008 07:46	bkg		0.0000		

Quality Assurance Report.

Generated 26-MAR-2008 11:42:27.24

QA Filename : \$DISK1:[ALP171.QA]GROUP_2_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 : 0.296247 Std Deviation : 0.021146

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		0.2857		
8-FEB-2008 05:19	chk		0.2850		
4-MAR-2008 08:00	chk		0.2812		

-- 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 : 9.485916 Std Deviation : 0.670079

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		9.5000		
8-FEB-2008 05:19	chk		9.6667		
4-MAR-2008 08:00	chk		9.6667		

-- 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 : 347.958679 Std Deviation : 5.170007

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		347.4862		
8-FEB-2008 05:19	chk		347.5727		
4-MAR-2008 08:00	chk		346.7501		

-- 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 : 0.296203 Std Deviation : 0.023559

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
Quality Assurance Multi-Test Full Report (continued)					
					Page : 2
3-FEB-2008 11:02	chk		0.2908		
8-FEB-2008 05:19	chk		0.2784		
4-MAR-2008 08:00	chk		0.2805		

-- 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 : 5.623811 Std Deviation : 0.098989

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		5.6227		
8-FEB-2008 05:19	chk		5.6216		
4-MAR-2008 08:00	chk		5.6762		

3-FEB-2008 11:02	chk		5.6227		
8-FEB-2008 05:19	chk		5.6216		
4-MAR-2008 08:00	chk		5.6762		

Quality Assurance Report. Generated 26-MAR-2008 11:42:27.95

QA Filename : \$DISK1:[ALP171.QA]GROUP_2_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-JAN-2002 00:00 End Date : -----

Mean : 0.001749 Std Deviation : 0.010615

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0010		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0010		

4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0010		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	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 : 1-JAN-2002 00:00 End Date : -----
 Mean : 0.061611 Std Deviation : 0.639806

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0030	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	bkg		0.0020	

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.003094 Std Deviation : 0.025658

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0010	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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-JAN-2002 00:00 End Date : -----
 Mean : 0.009654 Std Deviation : 0.090297

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0040	
23-FEB-2008 11:07	bkg		0.0010	
27-FEB-2008 10:00	bkg		0.0010	
5-MAR-2008 07:46	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 : 1-JAN-2002 00:00 End Date : -----
 Mean : 0.060462 Std Deviation : 0.624986

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0030	
23-FEB-2008 11:07	bkg		0.0010	
27-FEB-2008 10:00	bkg		0.0010	
5-MAR-2008 07:46	bkg		0.0020	

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.059622 Std Deviation : 0.616495

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:14 bkg 0.0000 | | |

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
9-FEB-2008 06:41	bkg		0.0010	
23-FEB-2008 11:07	bkg		0.0010	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	bkg		0.0020	

9-FEB-2008 06:41 bkg 0.0010 | | |

23-FEB-2008 11:07 bkg 0.0010 | | |

27-FEB-2008 10:00 bkg 0.0000 | | |

5-MAR-2008 07:46 bkg 0.0020 | | |

-- 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-JAN-2002 00:00 End Date : -----

Mean : 0.038451 Std Deviation : 0.394780

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0010	
27-FEB-2008 10:00	bkg		0.0010	
5-MAR-2008 07:46	bkg		0.0000	

4-FEB-2008 06:14 bkg 0.0010 | | |

9-FEB-2008 06:41 bkg 0.0000 | | |

23-FEB-2008 11:07 bkg 0.0010 | | |

27-FEB-2008 10:00 bkg 0.0010 | | |

5-MAR-2008 07:46 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 : 1-JAN-2002 00:00 End Date : -----

Mean : 0.004601 Std Deviation : 0.038484

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	

4-FEB-2008 06:14 bkg 0.0010 | | |

9-FEB-2008 06:41 bkg	0.0010	
23-FEB-2008 11:07 bkg	0.0000	
27-FEB-2008 10:00 bkg	0.0010	
5-MAR-2008 07:46 bkg	0.0030	

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.002137 Std Deviation : 0.012742

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14 bkg	0.0010	
9-FEB-2008 06:41 bkg	0.0010	
23-FEB-2008 11:07 bkg	0.0000	
27-FEB-2008 10:00 bkg	0.0010	
5-MAR-2008 07:46 bkg	0.0030	

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.062652 Std Deviation : 0.642788

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14 bkg	0.0010	
9-FEB-2008 06:41 bkg	0.0010	

23-FEB-2008 11:07 bkg	0.0010	
27-FEB-2008 10:00 bkg	0.0030	
5-MAR-2008 07:46 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-JAN-2002 00:00 End Date : -----
 Mean : 0.003809 Std Deviation : 0.027133

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14 bkg			0.0020	
9-FEB-2008 06:41 bkg			0.0030	
23-FEB-2008 11:07 bkg			0.0010	
27-FEB-2008 10:00 bkg			0.0010	
5-MAR-2008 07:46 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 : 1-JAN-2002 00:00 End Date : -----
 Mean : 0.002601 Std Deviation : 0.012680

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14 bkg			0.0020	
9-FEB-2008 06:41 bkg			0.0030	
23-FEB-2008 11:07 bkg			0.0010	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14 bkg			0.0020	
9-FEB-2008 06:41 bkg			0.0030	
23-FEB-2008 11:07 bkg			0.0010	

27-FEB-2008 10:00 bkg 0.0010 | | |
 5-MAR-2008 07:46 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-JAN-2002 00:00 End Date : -----
 Mean : 0.002719 Std Deviation : 0.013608

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0030		
9-FEB-2008 06:41	bkg		0.0030		
23-FEB-2008 11:07	bkg		0.0020		
27-FEB-2008 10:00	bkg		0.0010		
5-MAR-2008 07:46	bkg		0.0010		

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.011024 Std Deviation : 0.095469

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0030		
9-FEB-2008 06:41	bkg		0.0020		
23-FEB-2008 11:07	bkg		0.0040		
27-FEB-2008 10:00	bkg		0.0010		
5-MAR-2008 07:46	bkg		0.0030		

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.055164 Std Deviation : 0.554895

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 6

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0020		
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0050		
27-FEB-2008 10:00	bkg		0.0020		
5-MAR-2008 07:46	bkg		0.0020		

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.060701 Std Deviation : 0.613888

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0010		
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0040		
27-FEB-2008 10:00	bkg		0.0020		
5-MAR-2008 07:46	bkg		0.0020		

-- 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-JAN-2002 00:00 End Date : -----

Mean : 0.056766 Std Deviation : 0.520841

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0030		
9-FEB-2008 06:41	bkg		0.0040		
23-FEB-2008 11:07	bkg		0.0120		
27-FEB-2008 10:00	bkg		0.0120		
5-MAR-2008 07:46	bkg		0.0050		

-- 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-JAN-2002 00:00 End Date : -----

Mean : 0.100731 Std Deviation : 0.976318

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
Quality Assurance Multi-Test Full Report (continued)					
					Page : 7
4-FEB-2008 06:14	bkg		0.0050		
9-FEB-2008 06:41	bkg		0.0040		
23-FEB-2008 11:07	bkg		0.0050		
27-FEB-2008 10:00	bkg		0.0070		
5-MAR-2008 07:46	bkg		0.0010		

-- 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-JAN-2002 00:00 End Date : -----
Mean : 0.063928 Std Deviation : 0.637962

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0020		
9-FEB-2008 06:41	bkg		0.0050		
23-FEB-2008 11:07	bkg		0.0100		
27-FEB-2008 10:00	bkg		0.0120		
5-MAR-2008 07:46	bkg		0.0040		

Quality Assurance Report.

Generated 26-MAR-2008 11:42:23.56

QA Filename : \$DISK1:[ALP171.QA]GROUP_1_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 : 0.295301 Std Deviation : 0.036212

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		0.2840		
8-FEB-2008 05:19	chk		0.2855		
4-MAR-2008 08:00	chk		0.2748		

-- 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 : 8.448357 Std Deviation : 0.578443

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		9.1667		
8-FEB-2008 05:19	chk		9.0000		
4-MAR-2008 08:00	chk		9.1667		

-- 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 : 344.991302 Std Deviation : 8.328177

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 11:02	chk		343.4147	
8-FEB-2008 05:19	chk		343.3893	
4-MAR-2008 08:00	chk		343.4551	

-- Multi-Test Full Report --

Description : Average Efficiency

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 : 0.297777 Std Deviation : 0.018455

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 11:02	chk		0.2863	
8-FEB-2008 05:19	chk		0.2838	
4-MAR-2008 08:00	chk		0.2840	

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

-- 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 : 5.756739 Std Deviation : 0.220183

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 11:02	chk		5.7570	
8-FEB-2008 05:19	chk		5.7921	
4-MAR-2008 08:00	chk		5.7541	

Quality Assurance Report. Generated 26-MAR-2008 11:42:24.47

QA Filename : \$DISK1:[ALP171.QA]GROUP_1_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-JAN-2002 00:00 End Date : -----
 Mean : 0.000586 Std Deviation : 0.000838

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0010	
23-FEB-2008 11:07	bkg		0.0010	
27-FEB-2008 10:00	bkg		0.0010	
5-MAR-2008 07:46	bkg		0.0000	

-- 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 : 1-JAN-2002 00:00 End Date : -----
 Mean : 0.000687 Std Deviation : 0.001182

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0010	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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-JAN-2002 00:00 End Date : -----
 Mean : 0.000524 Std Deviation : 0.000838

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0010	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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-JAN-2002 00:00 End Date : -----
 Mean : 0.000882 Std Deviation : 0.001366

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0020	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0020	
27-FEB-2008 10:00	bkg		0.0010	
5-MAR-2008 07:46	bkg		0.0020	

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.000705 Std Deviation : 0.000934

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0020	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	bkg		0.0010	

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.000688 Std Deviation : 0.000892

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0020	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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-JAN-2002 00:00 End Date : -----

Mean : 0.000807 Std Deviation : 0.001142

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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 : 1-JAN-2002 00:00 End Date : -----

Mean : 0.000956 Std Deviation : 0.001201

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0000	
27-FEB-2008 10:00	bkg		0.0000	

5-MAR-2008 07:46 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-JAN-2002 00:00 End Date : -----
 Mean : 0.001056 Std Deviation : 0.001248

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0000		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	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-JAN-2002 00:00 End Date : -----
 Mean : 0.001415 Std Deviation : 0.001580

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0010		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0020		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	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-JAN-2002 00:00 End Date : -----
 Mean : 0.001234 Std Deviation : 0.001405

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0010		
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0020		
27-FEB-2008 10:00	bkg		0.0010		
5-MAR-2008 07:46	bkg		0.0040		

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.001398 Std Deviation : 0.001577

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0010		
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0020		
27-FEB-2008 10:00	bkg		0.0010		
5-MAR-2008 07:46	bkg		0.0040		

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

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.001367 Std Deviation : 0.001669

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0010	
23-FEB-2008 11:07	bkg		0.0020	
27-FEB-2008 10:00	bkg		0.0020	
5-MAR-2008 07:46	bkg		0.0030	

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.001813 Std Deviation : 0.001771

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0010	
23-FEB-2008 11:07	bkg		0.0020	
27-FEB-2008 10:00	bkg		0.0010	
5-MAR-2008 07:46	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-JAN-2002 00:00 End Date : -----
Mean : 0.002583 Std Deviation : 0.002319

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

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

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0020	
23-FEB-2008 11:07	bkg		0.0040	
27-FEB-2008 10:00	bkg		0.0020	
5-MAR-2008 07:46	bkg		0.0020	

-- 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-JAN-2002 00:00 End Date : -----
Mean : 0.002503 Std Deviation : 0.002199

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0020	
23-FEB-2008 11:07	bkg		0.0030	
27-FEB-2008 10:00	bkg		0.0020	
5-MAR-2008 07:46	bkg		0.0020	

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.010300 Std Deviation : 0.017605

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0060	
27-FEB-2008 10:00	bkg		0.0040	
5-MAR-2008 07:46	bkg		0.0080	

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.010217 Std Deviation : 0.017598

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
Quality Assurance Multi-Test Full Report (continued)				Page : 7

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0020	
27-FEB-2008 10:00	bkg		0.0010	
5-MAR-2008 07:46	bkg		0.0040	

-- 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-JAN-2002 00:00 End Date : -----

Mean : 0.002444 Std Deviation : 0.004131

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

4-FEB-2008 06:14	bkg		0.0020	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0080	
27-FEB-2008 10:00	bkg		0.0030	
5-MAR-2008 07:46	bkg		0.0030	

Quality Assurance Report.

Generated 25-MAR-2008 18:53:03.64

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-FEB-2008 10:09	chk		0.2512		
12-MAR-2008 06:19	chk		0.2539		
13-MAR-2008 08:36	chk		0.2602		

-- 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-FEB-2008 10:09	chk		9.5000		
12-MAR-2008 06:19	chk		9.8333		
13-MAR-2008 08:36	chk		9.8333		

-- 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-FEB-2008 10:09	chk		357.0647		
12-MAR-2008 06:19	chk		357.0597		
13-MAR-2008 08:36	chk		357.0412		

-- 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 : 0.245304 Std Deviation : 0.004842

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:09	chk		0.2565	In	
12-MAR-2008 06:19	chk		0.2543		
13-MAR-2008 08:36	chk		0.2560	In	

-- 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
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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
10-FEB-2008 10:09	chk		7.3811		
12-MAR-2008 06:19	chk		7.0208		
13-MAR-2008 08:36	chk		7.1450		

Quality Assurance Report. Generated 25-MAR-2008 18:53:05.10

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-FEB-2008 06:14	bkg		0.0000		
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0000	
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0000	
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0000	
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0000	
14-MAR-2008 05:15	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

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

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

11-FEB-2008 06:14	bkg		0.0000		
14-MAR-2008 05:15	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

11-FEB-2008 06:14	bkg		0.0000		
14-MAR-2008 05:15	bkg		0.0010		

-- 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-FEB-2008 06:14	bkg		0.0010		
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0010		
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0010	
14-MAR-2008 05:15	bkg		0.0010	

-- 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-FEB-2008 06:14	bkg		0.0030	
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0050	
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0040	
14-MAR-2008 05:15	bkg		0.0000	

-- Multi-Test Full Report --

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

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
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11-FEB-2008 06:14	bkg		0.0040		
14-MAR-2008 05:15	bkg		0.0000		

-- 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
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11-FEB-2008 06:14	bkg		0.0030		
14-MAR-2008 05:15	bkg		0.0000		

-- 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
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11-FEB-2008 06:14	bkg		0.0030		
14-MAR-2008 05:15	bkg		0.0000		

-- 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
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11-FEB-2008 06:14	bkg		0.0100		
14-MAR-2008 05:15	bkg		0.0010		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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11-FEB-2008 06:14	bkg		0.0090	
14-MAR-2008 05:15	bkg		0.0010	

-- 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
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11-FEB-2008 06:14	bkg		0.0040	
14-MAR-2008 05:15	bkg		0.0010	

Quality Assurance Report.

Generated 25-MAR-2008 18:51:06.51

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
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10-FEB-2008 10:09	chk		0.2466		
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12-MAR-2008 06:19	chk		0.2450		
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-- Multi-Test Full Report --

Description : Constant FWHM

Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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10-FEB-2008 10:09	chk		8.5000		
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12-MAR-2008 06:19	chk		9.3333		
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-- 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
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10-FEB-2008 10:09	chk		355.1470		
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12-MAR-2008 06:19	chk		355.0778		
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-- 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 : 0.259987 Std Deviation : 0.004522

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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10-FEB-2008 10:09	chk		0.2541		
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12-MAR-2008 06:19	chk		0.2576		
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-- 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
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10-FEB-2008 10:09	chk		7.4867		
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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
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12-MAR-2008 06:19	chk		7.2333		
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Quality Assurance Report. Generated 25-MAR-2008 18:51:07.90

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
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11-FEB-2008 06:14	bkg		0.0000		
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13-MAR-2008 08:36	bkg		0.0000		
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-- 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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	bkg		0.0010	

-- 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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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
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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
11-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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
11-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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
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11-FEB-2008 06:14 bkg	0.0030	
13-MAR-2008 08:36 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-FEB-2008 06:14 bkg			0.0020	
13-MAR-2008 08:36 bkg			0.0010	

-- 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-FEB-2008 06:14 bkg			0.0020	
13-MAR-2008 08:36 bkg			0.0010	

-- 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-FEB-2008 06:14 bkg			0.0000	
13-MAR-2008 08:36 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
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11-FEB-2008 06:14 bkg	0.0020	
13-MAR-2008 08:36 bkg	0.0000	

-- 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
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11-FEB-2008 06:14 bkg			0.0030		
13-MAR-2008 08:36 bkg			0.0000		

-- 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
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11-FEB-2008 06:14 bkg			0.0020		
13-MAR-2008 08:36 bkg			0.0000		

-- 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
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11-FEB-2008 06:14 bkg			0.0080		
13-MAR-2008 08:36 bkg			0.0030		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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11-FEB-2008 06:14	bkg		0.0130	
13-MAR-2008 08:36	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
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11-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	bkg		0.0010	

Quality Assurance Report.

Generated 26-MAR-2008 14:01:16.32

QA Filename : RDND06::RDND06\$DKA100:[ALP118.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-FEB-2008 10:09	chk		0.3430		
12-MAR-2008 06:19	chk		0.3452		

-- 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-FEB-2008 10:09	chk		7.6667		
12-MAR-2008 06:19	chk		7.5000		

-- 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-FEB-2008 10:09	chk		350.4190		
12-MAR-2008 06:19	chk		350.6029		

-- 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 : 26-NOV-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.353515 Std Deviation : 0.003043

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:09	chk		0.3493		
12-MAR-2008 06:19	chk		0.3527		

-- 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-FEB-2008 10:09	chk		7.5726		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
12-MAR-2008 06:19	chk		7.5445		

Quality Assurance Report. Generated 26-MAR-2008 14:01:17.31

QA Filename : RDND06::RDND06\$DKA100:[ALP118.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-FEB-2008 06:14	bkg		0.0000		
13-MAR-2008 10:55	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 10:55	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-FEB-2008 06:14	bkg		0.0020	
13-MAR-2008 10:55	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 10:55	bkg		0.0030	

-- 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-FEB-2008 06:14	bkg		0.0010	
13-MAR-2008 10:55	bkg		0.0040	

-- 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
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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
11-FEB-2008 06:14	bkg		0.0010	
13-MAR-2008 10:55	bkg		0.0040	

-- 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-FEB-2008 06:14	bkg		0.0020	
13-MAR-2008 10:55	bkg		0.0040	

-- 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-FEB-2008 06:14	bkg		0.0040	
13-MAR-2008 10:55	bkg		0.0040	

-- 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-FEB-2008 06:14	bkg		0.0050	
13-MAR-2008 10:55	bkg		0.0040	

-- 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
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11-FEB-2008 06:14 bkg	0.0000	
13-MAR-2008 10:55 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-FEB-2008 06:14 bkg			0.0020	
13-MAR-2008 10:55 bkg			0.0020	

-- 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-FEB-2008 06:14 bkg			0.0020	
13-MAR-2008 10:55 bkg			0.0020	

-- 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-FEB-2008 06:14 bkg			0.0020	
13-MAR-2008 10:55 bkg			0.0020	

-- 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
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```
-----
11-FEB-2008 06:14 bkg          0.0020  | | |
13-MAR-2008 10:55 bkg          0.0030  | | |
```

-- 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
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```
-----
11-FEB-2008 06:14 bkg          0.0020  | | |
13-MAR-2008 10:55 bkg          0.0050  | | |
```

-- 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
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```
-----
11-FEB-2008 06:14 bkg          0.0020  | | |
13-MAR-2008 10:55 bkg          0.0050  | | |
```

-- 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
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```
-----
11-FEB-2008 06:14 bkg          0.0010  | | |
13-MAR-2008 10:55 bkg          0.0010  | | |
```

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0020	
13-MAR-2008 10:55	bkg		0.0010	

-- 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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 10:55	bkg		0.0000	

Quality Assurance Report.

Generated 25-MAR-2008 18:48:44.57

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-FEB-2008 10:09	chk		0.3610		
12-MAR-2008 06:19	chk		0.3556		

-- 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-FEB-2008 10:09	chk		8.0000		
12-MAR-2008 06:19	chk		8.3333		

-- 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-FEB-2008 10:09	chk		353.8010		
12-MAR-2008 06:19	chk		353.7530		

-- 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 : 26-NOV-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.363342 Std Deviation : 0.002291

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:09	chk		0.3589		
12-MAR-2008 06:19	chk		0.3612		

-- 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-FEB-2008 10:09	chk		7.4558		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
12-MAR-2008 06:19	chk		7.2866		

Quality Assurance Report. Generated 25-MAR-2008 18:48:45.50

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
11-FEB-2008 06:14	bkg		0.0000		
13-MAR-2008 08:35	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:35	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:35	bkg		0.0030	

-- 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-FEB-2008 06:14	bkg		0.0020	
13-MAR-2008 08:35	bkg		0.0000	

-- 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-FEB-2008 06:14	bkg		0.0020	
13-MAR-2008 08:35	bkg		0.0000	

-- 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
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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
11-FEB-2008 06:14	bkg		0.0010	
13-MAR-2008 08:35	bkg		0.0000	

-- 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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:35	bkg		0.0000	

-- 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
11-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:35	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
11-FEB-2008 06:14	bkg		0.0010	
13-MAR-2008 08:35	bkg		0.0020	

-- 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
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11-FEB-2008 06:14 bkg	0.0000	
13-MAR-2008 08:35 bkg	0.0010	

-- 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
11-FEB-2008 06:14 bkg			0.0010	
13-MAR-2008 08:35 bkg			0.0010	

Quality Assurance Report.

Generated 25-MAR-2008 18:47:19.17

QA Filename : RDND06::RDND06\$DKA100:[ALP116.QA]GROUP_1_CHK.QAF;2

-- Multi-Test Full Report --

Description : U-238 Centroid

Parameter Units : channel Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:09	chk		179.1732		
12-MAR-2008 06:18	chk		177.8667		
13-MAR-2008 08:35	chk		177.8813		
14-MAR-2008 05:58	chk		178.7130		

-- 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-FEB-2008 10:09	chk		9.0000		
12-MAR-2008 06:18	chk		9.0000		
13-MAR-2008 08:35	chk		9.1667		
14-MAR-2008 05:58	chk		9.0000		

-- Multi-Test Full Report --

Description : Cf-252 Centroid

Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:09	chk		434.7047		
12-MAR-2008 06:18	chk		433.1610		
13-MAR-2008 08:35	chk		No Value		
14-MAR-2008 05:58	chk		434.0824		

-- Multi-Test Full Report --

Description : Average Efficiency

Parameter Units : counts/decay Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
10-FEB-2008 10:09	chk		0.1656	
12-MAR-2008 06:18	chk		0.2188	
13-MAR-2008 08:35	chk		0.1692	
14-MAR-2008 05:58	chk		0.1688	

-- Multi-Test Full Report --

Description : Am-241 Efficiency

Parameter Units : counts/decay Parameter Type :

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
10-FEB-2008 10:09	chk		0.1611	
12-MAR-2008 06:18	chk		0.2567	
13-MAR-2008 08:35	chk		0.1677	
14-MAR-2008 05:58	chk		0.1611	

Quality Assurance Report. Generated 25-MAR-2008 18:47:20.16

QA Filename : RDND06::RDND06\$DKA100:[ALP116.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-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0010	
15-MAR-2008 16:24	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-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0000	
15-MAR-2008 16:24	bkg		0.0010	

-- 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-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0000	
15-MAR-2008 16:24	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-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0000	
15-MAR-2008 16:24	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
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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
11-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0000	
15-MAR-2008 16:24	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-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0000	
15-MAR-2008 16:24	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
11-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0000	
15-MAR-2008 16:24	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-FEB-2008 06:14	bkg		0.0010	
23-FEB-2008 11:06	bkg		0.0000	

27-FEB-2008 10:32 bkg	0.0000	
15-MAR-2008 16:24 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-FEB-2008 06:14	bkg		0.0010	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0000	
15-MAR-2008 16:24	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
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Quality Assurance Multi-Test Full Report (continued) Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0020	
27-FEB-2008 10:32	bkg		0.0000	
15-MAR-2008 16:24	bkg		0.0010	

-- 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-FEB-2008 06:14	bkg		0.0020	
23-FEB-2008 11:06	bkg		0.0030	
27-FEB-2008 10:32	bkg		0.0030	
15-MAR-2008 16:24	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-FEB-2008 06:14	bkg		0.0020		
23-FEB-2008 11:06	bkg		0.0020		
27-FEB-2008 10:32	bkg		0.0040		
15-MAR-2008 16:24	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-FEB-2008 06:14	bkg		0.0020		
23-FEB-2008 11:06	bkg		0.0020		
27-FEB-2008 10:32	bkg		0.0050		
15-MAR-2008 16:24	bkg		0.0000		

-- 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-FEB-2008 06:14	bkg		0.0020		
23-FEB-2008 11:06	bkg		0.0020		
27-FEB-2008 10:32	bkg		0.0050		
15-MAR-2008 16:24	bkg		0.0020		

-- 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
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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:14	bkg		0.0040		
23-FEB-2008 11:06	bkg		0.0030		
27-FEB-2008 10:32	bkg		0.0020		
15-MAR-2008 16:24	bkg		0.0020		

-- 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-FEB-2008 06:14	bkg		0.0040		
23-FEB-2008 11:06	bkg		0.0030		
27-FEB-2008 10:32	bkg		0.0020		
15-MAR-2008 16:24	bkg		0.0020		

-- 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-FEB-2008 06:14	bkg		0.0050		
23-FEB-2008 11:06	bkg		0.0080		
27-FEB-2008 10:32	bkg		0.0090		
15-MAR-2008 16:24	bkg		0.0010		

-- 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-FEB-2008 06:14	bkg		0.0090		
23-FEB-2008 11:06	bkg		0.0070		
27-FEB-2008 10:32	bkg		0.0070		

15-MAR-2008 16:24 bkg 0.0020 | | |

-- 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-FEB-2008 06:14	bkg		0.0010		
23-FEB-2008 11:06	bkg		0.0020		
27-FEB-2008 10:32	bkg		0.0030		
15-MAR-2008 16:24	bkg		0.0000		

Quality Assurance Report.

Generated 26-MAR-2008 16:37:54.10

QA Filename : RDND06::RDND06\$DKA100:[ALP113.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

Description : Efficiency, Pu-239

Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:09	chk		0.3328		
12-MAR-2008 06:18	chk		0.3349		

-- 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-FEB-2008 10:09	chk		5.5000		
12-MAR-2008 06:18	chk		5.3333		

-- Multi-Test Full Report --

Description : Centroid, Pu-239

Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:09	chk		312.1530		
12-MAR-2008 06:18	chk		312.1513		

-- Multi-Test Full Report --

Description : Average Efficiency

Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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10-FEB-2008 10:09	chk	0.3434	
12-MAR-2008 06:18	chk	0.3425	

-- 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-FEB-2008 10:09	chk		7.6685	
12-MAR-2008 06:18	chk		7.6247	

-- Multi-Test Full Report --

Description : Efficiency, Am-241
 Parameter Units : % 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
10-FEB-2008 10:09	chk		0.3328	
12-MAR-2008 06:18	chk		0.3349	

-- 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-FEB-2008 10:09	chk		356.5219	
12-MAR-2008 06:18	chk		356.4680	

Quality Assurance Report. Generated 26-MAR-2008 16:37:55.26

QA Filename : RDND06::RDND06\$DKA100:[ALP113.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-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0000	
13-MAR-2008 08:35	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-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0010	
13-MAR-2008 08:35	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-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0000	
13-MAR-2008 08:35	bkg		0.0010	

-- 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-FEB-2008 06:14	bkg		0.0000	

23-FEB-2008 11:06 bkg	0.0000	
27-FEB-2008 10:32 bkg	0.0000	
13-MAR-2008 08:35 bkg	0.0010	

-- 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
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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
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11-FEB-2008 06:14 bkg	0.0000	
23-FEB-2008 11:06 bkg	0.0000	
27-FEB-2008 10:32 bkg	0.0000	
13-MAR-2008 08:35 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
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11-FEB-2008 06:14 bkg	0.0000	
23-FEB-2008 11:06 bkg	0.0000	
27-FEB-2008 10:32 bkg	0.0000	
13-MAR-2008 08:35 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
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11-FEB-2008 06:14 bkg	0.0000	
23-FEB-2008 11:06 bkg	0.0000	
27-FEB-2008 10:32 bkg	0.0000	
13-MAR-2008 08:35 bkg	0.0020	

-- 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-FEB-2008 06:14	bkg		0.0010	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0000	
13-MAR-2008 08:35	bkg		0.0020	

-- 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-FEB-2008 06:14	bkg		0.0010	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0000	
13-MAR-2008 08:35	bkg		0.0020	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0040	
23-FEB-2008 11:06	bkg		0.0010	
27-FEB-2008 10:32	bkg		0.0010	
13-MAR-2008 08:35	bkg		0.0010	

-- 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-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0010	
13-MAR-2008 08:35	bkg		0.0020	

-- 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-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0000	
27-FEB-2008 10:32	bkg		0.0000	
13-MAR-2008 08:35	bkg		0.0020	

-- 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-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0010	
27-FEB-2008 10:32	bkg		0.0000	
13-MAR-2008 08:35	bkg		0.0020	

-- 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-FEB-2008 06:14	bkg		0.0010	
23-FEB-2008 11:06	bkg		0.0020	

27-FEB-2008 10:32 bkg	0.0030	
13-MAR-2008 08:35 bkg	0.0030	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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11-FEB-2008 06:14 bkg			0.0010	
23-FEB-2008 11:06 bkg			0.0010	
27-FEB-2008 10:32 bkg			0.0040	
13-MAR-2008 08:35 bkg			0.0020	

-- 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
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11-FEB-2008 06:14 bkg			0.0010	
23-FEB-2008 11:06 bkg			0.0010	
27-FEB-2008 10:32 bkg			0.0040	
13-MAR-2008 08:35 bkg			0.0000	

-- 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
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11-FEB-2008 06:14 bkg			0.0010	
23-FEB-2008 11:06 bkg			0.0060	
27-FEB-2008 10:32 bkg			0.0050	
13-MAR-2008 08:35 bkg			0.0000	

-- 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-FEB-2008 06:14	bkg		0.0010	
23-FEB-2008 11:06	bkg		0.0030	
27-FEB-2008 10:32	bkg		0.0050	
13-MAR-2008 08:35	bkg		0.0000	

-- 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-FEB-2008 06:14	bkg		0.0000	
23-FEB-2008 11:06	bkg		0.0020	
27-FEB-2008 10:32	bkg		0.0000	
13-MAR-2008 08:35	bkg		0.0020	

Quality Assurance Report.

Generated 26-MAR-2008 11:42:39.11

QA Filename : \$DISK1:[ALP171.QA]GROUP_6_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 : 0.295455 Std Deviation : 0.016426

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		0.2870		
8-FEB-2008 05:19	chk		0.2746		
4-MAR-2008 08:00	chk		0.2902		

-- 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 : 7.328889 Std Deviation : 0.580575

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		7.5000		
8-FEB-2008 05:19	chk		8.0000		
4-MAR-2008 08:00	chk		8.1667		

-- 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 : 348.500214 Std Deviation : 2.758969

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		347.5314		
8-FEB-2008 05:19	chk		347.5456		
4-MAR-2008 08:00	chk		347.5714		

-- 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 : 0.298287 Std Deviation : 0.016131

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
Quality Assurance Multi-Test Full Report (continued) Page : 2					
3-FEB-2008 11:02	chk		0.2948		
8-FEB-2008 05:19	chk		0.2795		
4-MAR-2008 08:00	chk		0.2940		

-- 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 : 6.039288 Std Deviation : 0.022915

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		6.0366		
8-FEB-2008 05:19	chk		6.0111		
4-MAR-2008 08:00	chk		6.0401		

3-FEB-2008 11:02	chk		6.0366		
8-FEB-2008 05:19	chk		6.0111		
4-MAR-2008 08:00	chk		6.0401		

Quality Assurance Report. Generated 26-MAR-2008 11:42:39.80

QA Filename : \$DISK1:[ALP171.QA]GROUP_6_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-JAN-2002 00:00 End Date : -----

Mean : 0.000534 Std Deviation : 0.000759

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0010		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0010		

4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0010		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	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 : 1-JAN-2002 00:00 End Date : -----
 Mean : 0.000462 Std Deviation : 0.000706

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0020	In
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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-JAN-2002 00:00 End Date : -----
 Mean : 0.000485 Std Deviation : 0.000774

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0010	
23-FEB-2008 11:07	bkg		0.0010	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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-JAN-2002 00:00 End Date : -----
 Mean : 0.000736 Std Deviation : 0.000937

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0010	
23-FEB-2008 11:07	bkg		0.0010	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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 : 1-JAN-2002 00:00 End Date : -----
 Mean : 0.000564 Std Deviation : 0.000771

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0010	
23-FEB-2008 11:07	bkg		0.0040	Ac
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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 : 1-JAN-2002 00:00 End Date : -----
 Mean : 0.000548 Std Deviation : 0.000764

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:14 bkg 0.0000 | | |

Quality Assurance Multi-Test Full Report (continued)

Page : 3

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

9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0040	Ac
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	bkg		0.0000	

9-FEB-2008 06:41 bkg 0.0000 | | |

23-FEB-2008 11:07 bkg 0.0040 |Ac| |

27-FEB-2008 10:00 bkg 0.0000 | | |

5-MAR-2008 07:46 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 : 1-JAN-2002 00:00 End Date : -----

Mean : 0.000521 Std Deviation : 0.000729

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

4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0030	Ac
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	bkg		0.0000	

4-FEB-2008 06:14 bkg 0.0000 | | |

9-FEB-2008 06:41 bkg 0.0000 | | |

23-FEB-2008 11:07 bkg 0.0030 |Ac| |

27-FEB-2008 10:00 bkg 0.0000 | | |

5-MAR-2008 07:46 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 : 1-JAN-2002 00:00 End Date : -----

Mean : 0.000491 Std Deviation : 0.000776

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

4-FEB-2008 06:14	bkg		0.0000	

4-FEB-2008 06:14 bkg 0.0000 | | |

9-FEB-2008 06:41 bkg	0.0000	
23-FEB-2008 11:07 bkg	0.0010	
27-FEB-2008 10:00 bkg	0.0010	
5-MAR-2008 07:46 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-JAN-2002 00:00 End Date : -----
 Mean : 0.000450 Std Deviation : 0.000752

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14 bkg	0.0000	
9-FEB-2008 06:41 bkg	0.0000	
23-FEB-2008 11:07 bkg	0.0000	
27-FEB-2008 10:00 bkg	0.0010	
5-MAR-2008 07:46 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-JAN-2002 00:00 End Date : -----
 Mean : 0.000809 Std Deviation : 0.000967

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14 bkg	0.0000	
9-FEB-2008 06:41 bkg	0.0000	

23-FEB-2008 11:07 bkg 0.0000 | | |
 27-FEB-2008 10:00 bkg 0.0020 | | |
 5-MAR-2008 07:46 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-JAN-2002 00:00 End Date : -----
 Mean : 0.000826 Std Deviation : 0.000858

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0000	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0020	
27-FEB-2008 10:00	bkg		0.0000	
5-MAR-2008 07:46	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 : 1-JAN-2002 00:00 End Date : -----
 Mean : 0.000946 Std Deviation : 0.000853

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0030	In

27-FEB-2008 10:00 bkg 0.0010 | | |
 5-MAR-2008 07:46 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-JAN-2002 00:00 End Date : -----
 Mean : 0.001021 Std Deviation : 0.000969

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0000	
23-FEB-2008 11:07	bkg		0.0030	In
27-FEB-2008 10:00	bkg		0.0010	
5-MAR-2008 07:46	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-JAN-2002 00:00 End Date : -----
 Mean : 0.001754 Std Deviation : 0.001730

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:14	bkg		0.0040	
9-FEB-2008 06:41	bkg		0.0010	
23-FEB-2008 11:07	bkg		0.0040	
27-FEB-2008 10:00	bkg		0.0040	
5-MAR-2008 07:46	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-JAN-2002 00:00 End Date : -----
 Mean : 0.001969 Std Deviation : 0.001921

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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Quality Assurance Multi-Test Full Report (continued) Page : 6

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0020		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0050		
27-FEB-2008 10:00	bkg		0.0030		
5-MAR-2008 07:46	bkg		0.0000		

-- 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-JAN-2002 00:00 End Date : -----
 Mean : 0.001947 Std Deviation : 0.002063

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:14	bkg		0.0020		
9-FEB-2008 06:41	bkg		0.0000		
23-FEB-2008 11:07	bkg		0.0050		
27-FEB-2008 10:00	bkg		0.0020		
5-MAR-2008 07:46	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 : 1-JAN-2002 00:00 End Date : -----

Mean : 0.007897 Std Deviation : 0.015019

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0080		
27-FEB-2008 10:00	bkg		0.0040		
5-MAR-2008 07:46	bkg		0.0000		

-- 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-JAN-2002 00:00 End Date : -----

Mean : 0.009398 Std Deviation : 0.018221

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
Quality Assurance Multi-Test Full Report (continued)					
					Page : 7
4-FEB-2008 06:14	bkg		0.0010		
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0030		
27-FEB-2008 10:00	bkg		0.0040		
5-MAR-2008 07:46	bkg		0.0000		

-- 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-JAN-2002 00:00 End Date : -----
Mean : 0.002082 Std Deviation : 0.003862

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:14	bkg		0.0030		
9-FEB-2008 06:41	bkg		0.0010		
23-FEB-2008 11:07	bkg		0.0020		
27-FEB-2008 10:00	bkg		0.0020		
5-MAR-2008 07:46	bkg		0.0030		

URANIUM ISOTOPIC
SAMPLE AND QC DATA

Lot No., Due Date: **F8A290183; 02/28/2008**
 Client, Site: **1418995; LANDWELL - Tronox Parcel H**
 QC Batch No., Method Test: **8035233; RUISO** Also by ALP
 SDG, Matrix: *******; *******

- | | | |
|-----------------------------|---|------------|
| 1.0 COC | | |
| 1.1 | Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions? | Yes No N/A |
| 2.0 QC Batch | | |
| 2.1 | Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? | Yes No N/A |
| 2.2 | Are the QC appropriate for the analysis included in the batch? | Yes No N/A |
| 2.3 | Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? | Yes No N/A |
| 2.4 | Does the Worksheets include a Tracer Vial label for each sample? | Yes No N/A |
| 3.0 QC & Samples | | |
| 3.1 | Is the blank results, yield, and MDA within contract limits? | Yes No N/A |
| 3.2 | Is the LCS result, yield, and MDA within contract limits? | Yes No N/A |
| 3.3 | Are the MS/MSD results, yields, and MDA within contract limits? | Yes No N/A |
| 3.4 | Are the duplicate result, yields, and MDAs within contract limits? | Yes No N/A |
| 3.5 | Are the sample yields and MDAs within contract limits? | Yes No N/A |
| 4.0 Raw Data | | |
| 4.1 | Were results calculated in the correct units? | Yes No N/A |
| 4.2 | Were analysis volumes entered correctly? | Yes No N/A |
| 4.3 | Were Yields entered correctly? | Yes No N/A |
| 4.4 | Were spectra reviewed/meet contractual requirements? | Yes No N/A |
| 4.5 | Were raw counts reviewed for anomalies? | Yes No N/A |
| 5.0 Other | | |
| 5.1 | Are all nonconformances included and noted? | Yes No N/A |
| 5.2 | Are all required forms filled out? | Yes No N/A |
| 5.3 | Was the correct methodology used? | Yes No N/A |
| 5.4 | Was transcription checked? | Yes No N/A |
| 5.5 | Were all calculations checked at a minimum frequency? | Yes No N/A |
| 5.6 | Are worksheet entries complete and correct? | Yes No N/A |
| 6.0 | Comments on any No response: | |

First Level Review *[Signature]*

Date 2-25-8

Data Review Checklist
RADIOCHEMISTRY
 Second Level Review

Batch Number: 835233

Review Item	Yes (✓)	No (✓)	NA (✓)
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 within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other			
1. Are all Non-conformances 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: Eike Jod Date: 2/25/18

2/22/2008 10:35:28 AM

Sample Preparation/Analysis

Balance Id:1120373922

1418995, Landwell Company
Landwell Company

KW Uiso PrpRC5013/5032/5086 SepRC5067(5039)
SR Uranium-234,235,238 by Alpha Spec
01 STANDARD TEST SET

Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:

AnalyDueDate: 02/25/2008

PM, Quote: JAE, 78254

Prep Tech: ,Barcott

Batch: 8035233

pCi/L

SEQ Batch, Test: None

Work Order, Lot, Sample Date	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 KF8NX-1-AA F8A290183-1-SAMP 01/28/2008 07:00		1.02g.in	UITC19496 02/06/08,pd 06:15:01			200				
2 KF8N4-1-AA F8A290183-2-SAMP 01/28/2008 07:15		1.00g.in	UITC19497 02/06/08,pd 06:15:01							
3 KF8N5-1-AA F8A290183-3-SAMP 01/28/2008 07:55		1.01g.in	UITC19498 02/06/08,pd 06:15:01							
4 KF8N6-1-AA F8A290183-4-SAMP 01/28/2008 07:55		1.02g.in	UITC19499 02/06/08,pd 06:15:01							
5 KF8N8-1-AA F8A290183-5-SAMP 01/28/2008 08:11		1.03g.in	UITC19500 02/06/08,pd 06:15:01							
6 KF8N9-1-AA F8A290183-6-SAMP 01/28/2008 08:30		1.00g.in	UITC19501 02/06/08,pd 06:15:01							
7 KF8PD-1-AA F8A290183-7-SAMP 01/28/2008 08:40		1.03g.in	UITC19502 02/06/08,pd 06:15:01							

2/22/2008 10:35:37 AM **Sample Preparation/Analysis** Balance Id: 1120373922
 1418995, Landwell Company KW Uiso PrpRC5013/5032/5086 SepRC5067(5039) Pipet #:
 Landwell Company SR Uranium-234,235,238 by Alpha Spec
Analyte Date: 02/25/2008 **01 STANDARD TEST SET** Sep1 DT/Tm Tech:
Batch: 8035233 PM, Quote: JAE, 78254 Sep2 DT/Tm Tech:
 SEQ Batch, Test: None

Work Order, Lot, Sample Date Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments
8 KF8PE-1-AA	1.01g.in	1.01g.in	UITC19503 02/06/08.pd 05/15/01			500				
F8A290183-8-SAMP										
01/28/2008 09:00										
9 KF8PG-1-AA	1.03g.in	1.03g.in	UITC19504 02/06/08.pd 05/15/01							
F8A290183-9-SAMP										
01/28/2008 09:15										
10 KF8PG-1-AE-X	1.00g.in	1.00g.in	UITC19505 02/06/08.pd 05/15/01							
F8A290183-9-DUP										
01/28/2008 09:15										
11 KGHX7-1-AA-B	1.01g.in	1.01g.in	UITC19506 02/06/08.pd 05/15/01							
J8B040000-233-BLK										
01/28/2008 07:00										
12 KGHX7-1-AC-C	1.03g.in	1.03g.in	UISG1604 01/24/08.pd 05/15/01							
J8B040000-233-LCS										
01/28/2008 07:00										

Comments:

All Clients for Batch:
 1418995, Landwell Company Landwell Company JAE, 78254

KF8NX1AA-SAMP Constituent List:

TAL Richland Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 2
 Richland Wa. pd - Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

WO Cnt: 12
 Prep SamplePrep v4.8.32

Sample Preparation/Analysis

Balance Id:1120373922

KW Uiso PrpRC5013/5032/5086 SepRC5067(5039)
SR Uranium-234,235,238 by Alpha Spec
01 STANDARD TEST SET

Pipet #:

AnalyteDate: 02/25/2008

Sep1 DT/Tm Tech:

Batch: 8035233

pCi/L

Sep2 DT/Tm Tech:

SEO Batch, Test: None

Prep Tech: ,Barcotl

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
KGHX71AA-BLK:										
U-232	RDL:	pCi/L	LCL:20	UCL:115	RPD:35	U-234	RDL:1.00E+00	pCi/L	LCL:70	RPD:35
U-235	RDL:1.00E+00	pCi/L	LCL:	UCL:	RPD:	U-238	RDL:1.00E+00	pCi/L	LCL:	RPD:
KGHX71AC-LCS:										
U-232	RDL:	pCi/L	LCL:20	UCL:115	RPD:35	Uranium	RDL:	pCi/L	LCL:70	RPD:35
KF8NX1AA-SAMP Calc Info:										
Uncert Level (#s): 4		Decay to SaDt: N		Blk Subt.: N		Sci.Not.: N		ODRs: B		
KGHX71AA-BLK:										
Uncert Level (#s): 4		Decay to SaDt: N		Blk Subt.: N		Sci.Not.: N		ODRs: B		
KGHX71AC-LCS:										
Uncert Level (#s): 4		Decay to SaDt: N		Blk Subt.: N		Sci.Not.: N		ODRs: B		

Approved By

Date:

ICOC Fraction Transfer/Status Report

ByDate: 2/25/2007, 3/1/2008, Batch: '8035233', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
8035233				
AC	Rev1C	Barcotl	2/22/2008 10:40:00	
SC		wagarr	IsBatched	2/4/2008 1:30:07 PM
SC		Barcotl	InPrep	2/22/2008 10:40:00 AM
SC		Barcotl	Prep1C	2/22/2008 10:40:18 AM
SC		Barcotl	InPrep2	2/22/2008 10:40:51 AM
SC		Barcotl	Prep2C	2/22/2008 10:41:29 AM
SC		AshworthA	Sep2C	2/25/2008 10:15:53 AM
SC		BlackCL	InCnt1	2/25/2008 10:17:05 AM
SC		DAWKINSO	CalcC	2/25/2008 4:16:17 PM
SC		nortonj	Rev1C	2/25/2008 4:53:20 PM
AC		Barcotl	2/22/2008 10:40:18	
AC		Barcotl	2/22/2008 10:40:51	
AC		Barcotl	2/22/2008 10:41:29	
AC		AshworthA	2/25/2008 10:15:53	
AC		BlackCL	2/25/2008 10:17:05	
AC		DAWKINSO	2/25/2008 4:16:17 PM	
AC		nortonj	2/25/2008 4:53:20 PM	

AC: Accepting Entry; SC: Status Change

TAL Richland

Richland Wa.

Rpt DB Transfer log (Batch Results)

SDG or Batch Isotope	Rpt Db Id Method	RTst Qc	LotSample Analysis Date	Client Id Result	Matrix	Received Date	Sample Date	Units	Expected Yield	Volumes
8035233	9KF8N410		F8A2901832	TSB-HJ-10-10'	SOLID	1/29/2008 9:20:00	1/28/2008 7:15:00 AM			
U-234	KWSR	0	2/25/2008 12:06:41	PM3.0559E+00	1.428E-01	2.935E-01	3.196E-02	PCI/G	0.938	1.0E+0
U-235	KWSR	0	2/25/2008 12:06:41	PM7.206E-02	2.217E-02	2.298E-02	3.196E-02	PCI/G	0.938	1.0E+0
U-238	KWSR	0	2/25/2008 12:06:41	PM2.4888E+00	1.289E-01	2.454E-01	3.196E-02	PCI/G	0.938	1.0E+0
8035233	9KF8N510		F8A2901833	TSB-HR-06-0'	SOLID	1/29/2008 9:20:00	1/28/2008 7:55:00 AM			
U-234	KWSR	0	2/25/2008 12:06:47	PM1.3532E+00	9.077E-02	1.446E-01	4.165E-02	PCI/G	0.978	1.01E+0
U-235	KWSR	0	2/25/2008 12:06:47	PM2.9101E-02	1.361E-02	1.382E-02	2.904E-02	PCI/G	0.978	1.01E+0
U-238	KWSR	0	2/25/2008 12:06:47	PM1.2319E+00	8.663E-02	1.341E-01	4.165E-02	PCI/G	0.978	1.01E+0
8035233	9KF8N610		F8A2901834	TSB-HR-06-0' FD	SOLID	1/29/2008 9:20:00	1/28/2008 7:55:00 AM			
U-234	KWSR	0	2/25/2008 12:06:49	PM1.2898E+00	8.969E-02	1.399E-01	4.564E-02	PCI/G	0.947	1.02E+0
U-235	KWSR	0	2/25/2008 12:06:49	PM1.1162E-02	8.856E-03	8.905E-03	2.97E-02	PCI/G	0.947	1.02E+0
U-238	KWSR	0	2/25/2008 12:06:49	PM1.1521E+00	8.458E-02	1.279E-01	2.97E-02	PCI/G	0.947	1.02E+0
8035233	9KF8N810		F8A2901835	TSB-HR-06-10'	SOLID	1/29/2008 9:20:00	1/28/2008 8:11:00 AM			
U-234	KWSR	0	2/25/2008 12:06:58	PM2.8653E+00	1.306E-01	2.715E-01	3.749E-02	PCI/G	0.891	1.03E+0
U-235	KWSR	0	2/25/2008 12:06:58	PM5.8209E-02	1.882E-02	1.943E-02	2.845E-02	PCI/G	0.891	1.03E+0
U-238	KWSR	0	2/25/2008 12:06:58	PM2.4935E+00	1.219E-01	2.404E-01	4.636E-02	PCI/G	0.891	1.03E+0
8035233	9KF8N910		F8A2901836	TSB-HJ-08-0'	SOLID	1/29/2008 9:20:00	1/28/2008 8:30:00 AM			
U-234	KWSR	0	2/25/2008 12:07:00	PM1.2032E+00	8.552E-02	1.316E-01	2.91E-02	PCI/G	0.968	1.0E+0
U-235	KWSR	0	2/25/2008 12:07:00	PM4.74E-02	1.723E-02	1.768E-02	2.91E-02	PCI/G	0.968	1.0E+0
U-238	KWSR	0	2/25/2008 12:07:00	PM9.7108E-01	7.688E-02	1.115E-01	2.91E-02	PCI/G	0.968	1.0E+0
8035233	9KF8NX10		F8A2901831	TSB-HJ-10-0'	SOLID	1/29/2008 9:20:00	1/28/2008 7:00:00 AM			
U-234	KWSR	0	2/25/2008 12:06:34	PM1.2855E+00	9.227E-02	1.419E-01	3.733E-02	PCI/G	0.877	1.02E+0
U-235	KWSR	0	2/25/2008 12:06:34	PM5.2848E-02	1.873E-02	1.925E-02	3.164E-02	PCI/G	0.877	1.02E+0
U-238	KWSR	0	2/25/2008 12:06:34	PM1.1283E+00	8.64E-02	1.281E-01	3.164E-02	PCI/G	0.877	1.02E+0
8035233	9KF8PD10		F8A2901837	TSB-HJ-08-10'	SOLID	1/29/2008 9:20:00	1/28/2008 8:40:00 AM			
U-234	KWSR	0	2/25/2008 12:07:11	PM2.9267E+00	1.317E-01	2.766E-01	2.839E-02	PCI/G	0.988	1.03E+0
U-235	KWSR	0	2/25/2008 12:07:11	PM9.3645E-02	2.374E-02	2.498E-02	2.839E-02	PCI/G	0.988	1.03E+0
U-238	KWSR	0	2/25/2008 12:07:11	PM2.3577E+00	1.182E-01	2.288E-01	2.839E-02	PCI/G	0.988	1.03E+0
8035233	9KF8PE10		F8A2901838	TSB-HR-05-0'	SOLID	1/29/2008 9:20:00	1/28/2008 9:00:00 AM			
U-234	KWSR	0	2/25/2008 12:07:18	PM1.2114E+00	8.654E-02	1.329E-01	2.96E-02	PCI/G	0.929	1.01E+0
U-235	KWSR	0	2/25/2008 12:07:18	PM4.9444E-02	1.752E-02	1.8E-02	2.96E-02	PCI/G	0.929	1.01E+0
U-238	KWSR	0	2/25/2008 12:07:18	PM1.2299E+00	8.72E-02	1.345E-01	2.96E-02	PCI/G	0.929	1.01E+0
8035233	9KF8PG10		F8A2901839	TSB-HR-05-10'	SOLID	1/29/2008 9:20:00	1/28/2008 9:15:00 AM			
U-234	KWSR	0	2/25/2008 12:07:29	PM2.0549E+00	1.175E-01	2.09E-01	3.216E-02	PCI/G	0.861	1.03E+0
U-235	KWSR	0	2/25/2008 12:07:29	PM8.7299E-02	2.425E-02	2.534E-02	3.216E-02	PCI/G	0.861	1.03E+0
U-238	KWSR	0	2/25/2008 12:07:29	PM1.7124E+00	1.072E-01	1.796E-01	3.216E-02	PCI/G	0.861	1.03E+0
8035233	KF8PG1ER		F8A2901839	TSB-HR-05-10' DUP	SOLID	1/29/2008 9:20:00	1/28/2008 9:15:00 AM			
U-234	KWSR	0 R	2/25/2008 12:07:37	PM2.3805E+00	1.275E-01	2.373E-01	3.269E-02	PCI/G	0.916	1.0E+0
U-235	KWSR	0 R	2/25/2008 12:07:37	PM1.092E-01	2.733E-02	2.883E-02	3.269E-02	PCI/G	0.916	1.0E+0
U-238	KWSR	0 R	2/25/2008 12:07:37	PM1.9683E+00	1.16E-01	2.021E-01	4.308E-02	PCI/G	0.916	1.0E+0
8035233	KGHX71AB		J8B04000233	INTRA-LAB BLANK	SOLID	1/29/2008 9:20:00	1/28/2008 7:00:00 AM			
U-234	KWSR	0 B	2/25/2008 12:07:42	PM4.219E-02	1.599E-02	1.637E-02	2.887E-02	PCI/G	0.907	1.01E+0
U-235	KWSR	0 B	2/25/2008 12:07:42	PM-1.2055E-03	6.146E-03	6.147E-03	2.887E-02	PCI/G	0.907	1.01E+0
U-238	KWSR	0 B	2/25/2008 12:07:42	PM2.893E-02	1.353E-02	1.374E-02	2.887E-02	PCI/G	0.907	1.01E+0
8035233	KGHX71CS		J8B04000233	INTRA-LAB CHECK	SOLID	1/29/2008 9:20:00	1/28/2008 7:00:00 AM			
U-234	KWSR	0 S	2/25/2008 12:07:47	PM1.597E+00	9.545E-02	1.629E-01	2.732E-02	PCI/G	1.6734E+00	1.015
U-238	KWSR	0 S	2/25/2008 12:07:47	PM1.7966E+00	1.012E-01	1.797E-01	2.732E-02	PCI/G	1.7525E+00	1.015

8035233, **Samples Inserted | Updated | NotUpdated => 12 | 0 | 0,
 **Results Inserted | ReTestInserted | Updated | NotInserted => 35 | 0 | 0.
 **Diff RptDb | Qtims => *wo:KF8N41AA=> , unt:PCI/G | pCi/L *wo:KF8N41AA=> , unt:PCI/G | pCi/L *wo:KF8N51AA=> , unt:PCI/G | pCi/L *wo:KF8N51AA=> , unt:PCI/G | pCi/L *wo:KF8N61AA=> , unt:PCI/G | pCi/L *wo:KF8N61AA=> , unt:PCI/G | pCi/L *wo:KF8N81AA=> , unt:PCI/G | pCi/L

Alpha Spec, Ulso by ALP , Results

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	*MLcC	MDC	QC Trc	Yld	LCS Yld
Ulso by ALP														
Richland Standard Alplso Wo Blk Subt. *CntU: 0+1, + *SystU, `MDCConst:2.71														
Calc	SR	SOLID	KF8NX1AA	U-234	1.29E+00	(1.42E-01)		PCI/G	R	9.72E-03	3.73E-02		88%	
Calc	SR	SOLID	KF8NX1AA	U-235	5.28E-02	(1.92E-02)		PCI/G	R	6.87E-03	3.16E-02		88%	
Calc	SR	SOLID	KF8NX1AA	U-238	1.13E+00	(1.28E-01)		PCI/G	R	6.87E-03	3.16E-02		88%	
Calc	SR	SOLID	KF8N41AA	U-234	3.06E+00	(2.93E-01)		PCI/G	R	6.94E-03	3.20E-02		94%	
Calc	SR	SOLID	KF8N41AA	U-235	7.21E-02	(2.30E-02)		PCI/G	R	6.94E-03	3.20E-02		94%	
Calc	SR	SOLID	KF8N41AA	U-238	2.49E+00	(2.45E-01)		PCI/G	R	6.94E-03	3.20E-02		94%	
Calc	SR	SOLID	KF8N51AA	U-234	1.35E+00	(1.45E-01)		PCI/G	R	1.26E-02	4.16E-02		98%	
Calc	SR	SOLID	KF8N51AA	U-235	2.91E-02	(1.38E-02)		PCI/G	R	6.31E-03	2.90E-02		98%	
Calc	SR	SOLID	KF8N51AA	U-238	1.23E+00	(1.34E-01)		PCI/G	R	1.26E-02	4.16E-02		98%	
Calc	SR	SOLID	KF8N61AA	U-234	1.29E+00	(1.40E-01)		PCI/G	R	1.44E-02	4.56E-02		95%	
Calc	SR	SOLID	KF8N61AA	U-235	1.12E-02	(8.91E-03)	U4	PCI/G	R	6.45E-03	2.97E-02		95%	
Calc	SR	SOLID	KF8N61AA	U-238	1.15E+00	(1.28E-01)		PCI/G	R	6.45E-03	2.97E-02		95%	
Calc	SR	SOLID	KF8N81AA	U-234	2.87E+00	(2.72E-01)		PCI/G	R	1.07E-02	3.75E-02		89%	
Calc	SR	SOLID	KF8N81AA	U-235	5.82E-02	(1.94E-02)		PCI/G	R	6.18E-03	2.85E-02		89%	
Calc	SR	SOLID	KF8N81AA	U-238	2.49E+00	(2.40E-01)		PCI/G	R	1.51E-02	4.64E-02		89%	
Calc	SR	SOLID	KF8N91AA	U-234	1.20E+00	(1.32E-01)		PCI/G	R	6.32E-03	2.91E-02		97%	
Calc	SR	SOLID	KF8N91AA	U-235	4.74E-02	(1.77E-02)		PCI/G	R	6.32E-03	2.91E-02		97%	
Calc	SR	SOLID	KF8N91AA	U-238	9.71E-01	(1.11E-01)		PCI/G	R	6.32E-03	2.91E-02		97%	
Calc	SR	SOLID	KF8PD1AA	U-234	2.93E+00	(2.77E-01)		PCI/G	R	6.17E-03	2.84E-02		99%	
Calc	SR	SOLID	KF8PD1AA	U-235	9.36E-02	(2.50E-02)		PCI/G	R	6.17E-03	2.84E-02		99%	
Calc	SR	SOLID	KF8PD1AA	U-238	2.36E+00	(2.29E-01)		PCI/G	R	6.17E-03	2.84E-02		99%	
Calc	SR	SOLID	KF8PE1AA	U-234	1.21E+00	(1.33E-01)		PCI/G	R	6.43E-03	2.96E-02		93%	
Calc	SR	SOLID	KF8PE1AA	U-235	4.94E-02	(1.80E-02)		PCI/G	R	6.43E-03	2.96E-02		93%	
Calc	SR	SOLID	KF8PE1AA	U-238	1.23E+00	(1.34E-01)		PCI/G	R	6.43E-03	2.96E-02		93%	
Calc	SR	SOLID	KF8PG1AA	U-234	2.05E+00	(2.09E-01)		PCI/G	R	6.99E-03	3.22E-02		86%	
Calc	SR	SOLID	KF8PG1AA	U-235	8.73E-02	(2.53E-02)		PCI/G	R	6.99E-03	3.22E-02		86%	
Calc	SR	SOLID	KF8PG1AA	U-238	1.71E+00	(1.80E-01)		PCI/G	R	6.99E-03	3.22E-02		86%	
Calc	SR	SOLID	KF8PG1AE	U-234	2.38E+00	(2.37E-01)		PCI/G	R	7.10E-03	3.27E-02	R	92%	
Calc	SR	SOLID	KF8PG1AE	U-235	1.09E-01	(2.88E-02)		PCI/G	R	7.10E-03	3.27E-02	R	92%	
Calc	SR	SOLID	KF8PG1AE	U-238	1.97E+00	(2.02E-01)		PCI/G	R	1.23E-02	4.31E-02	R	92%	
Calc	SR	SOLID	KGHX71AA	U-234	4.22E-02	(1.64E-02)		PCI/G	R	6.27E-03	2.89E-02	B	91%	
Calc	SR	SOLID	KGHX71AA	U-235	-1.21E-03	(6.15E-03)	U4	PCI/G	R	6.27E-03	2.89E-02	B	91%	
Calc	SR	SOLID	KGHX71AA	U-238	2.89E-02	(1.37E-02)		PCI/G	R	6.27E-03	2.89E-02	B	91%	
Calc	SR	SOLID	KGHX71AC	U-234	1.60E+00	(1.63E-01)		PCI/G	R	5.93E-03	2.73E-02	S	102%	95%
Calc	SR	SOLID	KGHX71AC	U-235	9.13E-02	(2.41E-02)		PCI/G	R	5.93E-03	2.73E-02	S	102%	120%

() - (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

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC Trc Yld	LCS Yld
Calc	SR	SOLID	KGHX71AC	U-238	1.80E+00	(1.80E-01)		PCI/G	R	5.93E-03	2.73E-02	S 102%	103%

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

RecCnt:48
 RADCALC v4.8.29
 TA Richland

Detailed Report

Sq	Calc SR	Method Matrix	Protocol Equation Set	Wk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol				
1	1418995,TSB-HJ-10-0	SOLID	*STLE AlplsoWoBS	KF8N41AA	PC1/G	01/28/08 07:00	02/25/08 12:06	UITS:19496 Alq	1	1.02 g							
					SOLID												
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 10:26	U-232	681	12	ALP1	ED	Y	N	3.8124E-01	(1.144E-02)	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.0166666	1000.1833			Y							(0.000E+00)	0.980392		
1	02/25/08 10:26	U-234	195	2	ALP1	ED	N	N	3.8124E-01	(1.144E-02)	N	88%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.0166666	1000.1833			Y							(0.000E+00)	0.980392		
2	02/25/08 10:26	U-235	8	0	ALP1	ED	N	N	3.8124E-01	(1.144E-02)	N	88%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.0166666	1000.1833			Y							(0.000E+00)	0.980392		
3	02/25/08 10:26	U-238	171	1	ALP1	ED	N	N	3.8124E-01	(1.144E-02)	N	88%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.0166666	1000.1833			Y							(0.000E+00)	0.980392		
Sq	CalcDate,TrcAct	Parameter	Avg Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIK/LcC/MDC	StdDvMdC/LcC				
	02/25/08	U-232	R 3.93		3.39272E+00	8.899101	8.899101	1.02 G	88%								
	4.483E+00		(0.282529)		(1.3051E-01)	(0.434133)	(0.434133)	(0.017321)									
	02/25/08	U-234	R 1.285539		9.72919E-01	2.910976	2.910976	1.02 G	88%	0.037329							
	4.483E+00		(0.141922)		(6.9830E-02)	(0.282223)	(0.282223)	(0.017321)		0.009719							
	02/25/08	U-235	R 0.052848		3.99967E-02	0.11967	0.11967	1.02 G	88%	0.031639							
	4.483E+00		(0.019249)		(1.4176E-02)	(0.043127)	(0.043127)	(0.017321)		0.006873							
	02/25/08	U-238	R 1.128314		8.53929E-01	2.554957	2.554957	1.02 G	88%	0.031639							
	4.483E+00		(0.128149)		(6.5386E-02)	(0.256912)	(0.256912)	(0.017321)		0.006873							

Sq	Calc SR	Method Matrix	Protocol Equation Set	Wk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol				
2	1418995,TSB-HJ-10-10	SOLID	*STLE AlplsoWoBS	KF8N41AA	PC1/G	01/28/08 07:15	02/25/08 12:06	UITS:19497 Alq	1	1.00 g							
					SOLID												
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/25/08 10:26	U-232	685	12	ALP2	ED	Y	N	3.5984E-01	(1.080E-02)	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.0833333	1000.1166			Y							(0.000E+00)	1.00		
1	02/25/08 10:26	U-234	458	0	ALP2	ED	N	N	3.5984E-01	(1.080E-02)	N	94%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.0833333	1000.1166			Y							(0.000E+00)	1.00		
2	02/25/08 10:26	U-235	11	1	ALP2	ED	N	N	3.5984E-01	(1.080E-02)	N	94%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.0833333	1000.1166			Y							(0.000E+00)	1.00		
3	02/25/08 10:26	U-238	373	0	ALP2	ED	N	N	3.5984E-01	(1.080E-02)	N	94%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.0833333	1000.1166			Y							(0.000E+00)	1.00		

Alpha Spec, Uiso by ALP , Calculated Results

Sq	CalcDate	TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Trc Yld, EnFct	LCS Yld, EFctU	IDC/ILcC	BIK/LcC	StdDvMdc/LcC
02/25/08	U-232	R	4.270611	3.41157E+00	9.480767	9.480767	9.480767	1.00 G	94%	1.00 G	0.031959	0.006943	0.031959	0.006943	
4.555E+00			(0.307103)	(1.3085E-01)	(0.461663)	(0.461663)	(0.461663)	(0.017321)							
02/25/08	U-234	R	3.055915	2.28905E+00	6.784136	6.784136	6.784136	1.00 G	94%	1.00 G	0.031959	0.006943	0.031959	0.006943	
4.555E+00			(0.293479)	(1.0696E-01)	(0.543705)	(0.543705)	(0.543705)	(0.017321)							
02/25/08	U-235	R	0.07206	5.39772E-02	0.159974	0.159974	0.159974	1.00 G	94%	1.00 G	0.031959	0.006943	0.031959	0.006943	
4.555E+00			(0.022979)	(1.6606E-02)	(0.050307)	(0.050307)	(0.050307)	(0.017321)							
02/25/08	U-238	R	2.488768	1.86422E+00	5.525071	5.525071	5.525071	1.00 G	94%	1.00 G	0.031959	0.006943	0.031959	0.006943	
4.555E+00			(0.245376)	(9.6531E-02)	(0.459633)	(0.459633)	(0.459633)	(0.017321)							

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
3	Calc	SR	SOLID	*STLE	AlpIsoWoBS	KF8N51AA	PCI/G			01/28/08 07:55	02/25/08 12:06						
								SOLID									
								,F8A290183-3									
0	02/25/08	10:26	U-232	746	11	ALP3	ED	Y	N	3.7580E-01	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
								Y		(1.127E-02)				(0.000E+00)	0.990099		
1	02/25/08	10:26	U-234	224	4	ALP3	ED	N	N	3.7580E-01	N	98%	N	1.0000E+00	4.5045E-01	1.0000E+00	
								Y		(1.127E-02)		6%		(0.000E+00)	0.990099		
2	02/25/08	10:26	U-235	5	1	ALP3	ED	N	N	3.7580E-01	N	98%	N	1.0000E+00	4.5045E-01	1.0000E+00	
								Y		(1.127E-02)		6%		(0.000E+00)	0.990099		
3	02/25/08	10:26	U-238	204	4	ALP3	ED	N	N	3.7580E-01	N	98%	N	1.0000E+00	4.5045E-01	1.0000E+00	
								Y		(1.127E-02)		6%		(0.000E+00)	0.990099		

Sq	CalcDate	TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Trc Yld, EnFct	LCS Yld, EFctU	IDC/ILcC	BIK/LcC	StdDvMdc/LcC
02/25/08	U-232	R	4.412159	3.71776E+00	9.892954	9.892954	9.892954	1.01 G	98%	1.01 G	0.041648	0.012617	0.041648	0.012617	
4.509E+00			(0.313335)	(1.3656E-01)	(0.469183)	(0.469183)	(0.469183)	(0.017321)							
02/25/08	U-234	R	1.353188	1.11563E+00	3.03412	3.03412	3.03412	1.01 G	98%	1.01 G	0.029039	0.006308	0.029039	0.006308	
4.509E+00			(0.144551)	(7.4835E-02)	(0.281651)	(0.281651)	(0.281651)	(0.017321)							
02/25/08	U-235	R	0.029101	2.39917E-02	0.065249	0.065249	0.065249	1.01 G	98%	1.01 G	0.041648	0.012617	0.041648	0.012617	
4.509E+00			(0.013824)	(1.1221E-02)	(0.030804)	(0.030804)	(0.030804)	(0.017321)							
02/25/08	U-238	R	1.231934	1.01566E+00	2.762246	2.762246	2.762246	1.01 G	98%	1.01 G	0.041648	0.012617	0.041648	0.012617	
4.509E+00			(0.13414)	(7.1418E-02)	(0.26295)	(0.26295)	(0.26295)	(0.017321)							

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
4	Calc	SR	SOLID	*STLE	AlpIsoWoBS	KF8N61AA	PCI/G			01/28/08 07:55	02/25/08 12:06						
								SOLID									
								,F8A290183-4									
0	02/25/08	10:26	U-232	727	6	ALP4	ED	Y	N	3.7608E-01	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
								Y		(1.128E-02)				(0.000E+00)	0.980392		

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 TA Richland
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 - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

Alpha Spec, Uiso by ALP, Calculated Results

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlC/MDC	StdDvMdc/LcC
1	02/25/08 10:26	U-234	209	5	ALP4	ED	N	N	3.7608E-01	N	95%	N	1.0000E+00	4.5045E-01 1.0000E+00
			200.0166666	1000.2333			Y	(1.128E-02)	(0.017321)	5%			(0.000E+00) 0.980392	
2	02/25/08 10:26	U-235	2	1	ALP4	ED	N	N	3.7608E-01	N	95%	N	1.0000E+00	4.5045E-01 1.0000E+00
			200.0166666	1000.2333			Y	(1.128E-02)	(0.017321)	5%			(0.000E+00) 0.980392	
3	02/25/08 10:26	U-238	186	1	ALP4	ED	N	N	3.7608E-01	N	95%	N	1.0000E+00	4.5045E-01 1.0000E+00
			200.0166666	1000.2333			Y	(1.128E-02)	(0.017321)	5%			(0.000E+00) 0.980392	

Sq	CalcDate,TrcAct	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	100%	Trc Yld Fct	Ent	95% <th>Vol Used</th> <th>TrcYld,EnFct</th> <th>LCSYld,EFctU</th> <th>IDC/ILcC</th> <th>BIKlC/MDC</th> <th>StdDvMdc/LcC</th>	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlC/MDC	StdDvMdc/LcC	
0	02/25/08 10:26	U-232	742	8	ALP5	ED	Y	N	4.1305E-01	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	1.0000E+00	1.02 G	95%	9.648709	9.648709	9.648709	9.648709	9.648709	9.648709
			200.1	1000.2			Y	(1.239E-02)	(0.425307)	(0.425307)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)
1	02/25/08 10:26	U-234	483	3	ALP5	ED	N	N	4.1305E-01	N	89%	N	1.0000E+00	4.5045E-01	1.0000E+00	1.0000E+00	1.03 G	89%	2.920549	2.920549	2.920549	2.920549	2.920549	2.920549
			200.1	1000.2			Y	(1.239E-02)	(0.515831)	(0.515831)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)
2	02/25/08 10:26	U-235	10	1	ALP5	ED	N	N	4.1305E-01	N	89%	N	1.0000E+00	4.5045E-01	1.0000E+00	1.0000E+00	1.03 G	89%	0.025274	0.025274	0.025274	0.025274	0.025274	0.025274
			200.1	1000.2			Y	(1.239E-02)	(0.043876)	(0.043876)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)
3	02/25/08 10:26	U-238	421	6	ALP5	ED	N	N	4.1305E-01	N	89%	N	1.0000E+00	4.5045E-01	1.0000E+00	1.0000E+00	1.03 G	89%	2.608835	2.608835	2.608835	2.608835	2.608835	2.608835
			200.1	1000.2			Y	(1.239E-02)	(0.460129)	(0.460129)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)	(0.017321)

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol
5	Calc	SR	SOLID	*STLE	AlisoWoBS	KF8N81AA	PCI/G		01/28/08 08:11	02/25/08 12:06				1	g	
							SOLID							UITC19500	Alq	1.03 g

Sq	Calc SR	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol
6	1418995	TSB-HJ-08-0'	SOLID	*STLE AlplsoWoBS KFB9D1AA	PC1/G	SOLID	F8A290183-6	01/28/08 08:30	02/25/08 12:07		UITC19501	Alq	1	1.00 g	g
0	02/25/08 10:26	U-232	749	5	ALP6	ED	Y	N	3.8270E-01	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
			200.0166666	1000.1833			Y		(1.148E-02)				(0.000E+00)	1.00	
1	02/25/08 10:26	U-234	198	0	ALP6	ED	N	N	3.8270E-01	N	97%	N	1.0000E+00	4.5045E-01	1.0000E+00
			200.0166666	1000.1833			Y		(1.148E-02)				(0.000E+00)	1.00	
2	02/25/08 10:26	U-235	8	1	ALP6	ED	N	N	3.8270E-01	N	97%	N	1.0000E+00	4.5045E-01	1.0000E+00
			200.0166666	1000.1833			Y		(1.148E-02)				(0.000E+00)	1.00	
3	02/25/08 10:26	U-238	160	1	ALP6	ED	N	N	3.8270E-01	N	97%	N	1.0000E+00	4.5045E-01	1.0000E+00
			200.0166666	1000.1833			Y		(1.148E-02)				(0.000E+00)	1.00	
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BkLcC/MDC	StdDvMdc/LcC	
	02/25/08	U-232	R	4.40171		3.73969E+00	9.771807	9.771807	1.00 G	97%					
	4.545E+00			(0.312461)		(1.3685E-01)	(0.462387)	(0.462387)	(0.017321)						
	02/25/08	U-234	R	1.20322		9.89918E-01	2.671151	2.671151	1.00 G	97%					
	4.545E+00			(0.13158)		(7.0357E-02)	(0.255634)	(0.255634)	(0.017321)						
	02/25/08	U-235	R	0.0474		3.89869E-02	0.105227	0.105227	1.00 G	97%					
	4.545E+00			(0.017675)		(1.4176E-02)	(0.038843)	(0.038843)	(0.017321)						
	02/25/08	U-238	R	0.971084		7.98934E-01	2.155808	2.155808	1.00 G	97%					
	4.545E+00			(0.111461)		(6.3248E-02)	(0.21958)	(0.21958)	(0.017321)						

Sq	Calc SR	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol
7	1418995	TSB-HJ-08-10'	SOLID	*STLE AlplsoWoBS KFB9D1AA	PC1/G	SOLID	F8A290183-7	01/28/08 08:40	02/25/08 12:07		UITC19502	Alq	1	1.03 g	g
0	02/25/08 10:27	U-232	744	10	ALP7	ED	Y	N	3.7341E-01	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
			200.1	1000.1			Y		(1.120E-02)				(0.000E+00)	0.970874	
1	02/25/08 10:27	U-234	494	1	ALP7	ED	N	N	3.7341E-01	N	99%	N	1.0000E+00	4.5045E-01	1.0000E+00
			200.1	1000.1			Y		(1.120E-02)				(0.000E+00)	0.970874	
2	02/25/08 10:27	U-235	16	1	ALP7	ED	N	N	3.7341E-01	N	99%	N	1.0000E+00	4.5045E-01	1.0000E+00
			200.1	1000.1			Y		(1.120E-02)				(0.000E+00)	0.970874	
3	02/25/08 10:27	U-238	398	1	ALP7	ED	N	N	3.7341E-01	N	99%	N	1.0000E+00	4.5045E-01	1.0000E+00
			200.1	1000.1			Y		(1.120E-02)				(0.000E+00)	0.970874	

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Trc Yld,EnFct	LCS Yld,EFcU	IDC/ILcC	BkLcC/MDC	StdVnMdc/LcC
02/25/08	U-232	R	4.342865	3.70814E+00	9.930404	9.930404	1.03 G	99%						
4.398E+00			(0.308155)	(1.3635E-01)	(0.471257)	(0.471257)	(0.017321)					0.02839		
02/25/08	U-234	R	2.926731	2.46777E+00	6.692269	6.692269	1.03 G	99%				0.006168		
4.398E+00			(0.276566)	(1.1108E-01)	(0.524667)	(0.524667)	(0.017321)					0.02839		
02/25/08	U-235	R	0.093645	7.89601E-02	0.21413	0.21413	1.03 G	99%				0.006168		
4.398E+00			(0.02498)	(2.0015E-02)	(0.055991)	(0.055991)	(0.017321)					0.02839		
02/25/08	U-238	R	2.357743	1.98801E+00	5.39122	5.39122	1.03 G	99%				0.006168		
4.398E+00			(0.228816)	(9.9705E-02)	(0.439166)	(0.439166)	(0.017321)							

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk Ord	Units/Matrix	QC/IBB	Sa/On Date	AnalysisDate/PptWt	Sept/Sept2 Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol
8	Calc	SR	SOLID	*STLE	AlpIsoWoBS	KF8PG1AA	PCI/G			01/28/08 09:00	02/25/08 12:07				1	g	
1418995	TSB	HR	05-0'				SOLID									1.01 g	
0	02/25/08	10:27	U-232	740	14	ALP8	ED	Y	N	3.8820E-01	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
								Y		(1.165E-02)				(0.000E+00)	0.990099		
1	02/25/08	10:27	U-234	196	0	ALP8	ED	N	N	3.8820E-01	N	93%	N	1.0000E+00	4.5045E-01	1.0000E+00	
								Y		(1.165E-02)		5%		(0.000E+00)	0.990099		
2	02/25/08	10:27	U-235	8	0	ALP8	ED	N	N	3.8820E-01	N	93%	N	1.0000E+00	4.5045E-01	1.0000E+00	
								Y		(1.165E-02)		5%		(0.000E+00)	0.990099		
3	02/25/08	10:27	U-238	199	0	ALP8	ED	N	N	3.8820E-01	N	93%	N	1.0000E+00	4.5045E-01	1.0000E+00	
								Y		(1.165E-02)		5%		(0.000E+00)	0.990099		

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Trc Yld,EnFct	LCS Yld,EFcU	IDC/ILcC	BkLcC/MDC	StdVnMdc/LcC
02/25/08	U-232	R	4.233321	3.68477E+00	9.491961	9.491961	1.01 G	93%						
4.556E+00			(0.301035)	(1.3602E-01)	(0.451509)	(0.451509)	(0.017321)					0.029604		
02/25/08	U-234	R	1.211375	9.79673E-01	2.716147	2.716147	1.01 G	93%				0.006431		
4.556E+00			(0.132855)	(6.9984E-02)	(0.261004)	(0.261004)	(0.017321)					0.029604		
02/25/08	U-235	R	0.049444	3.99867E-02	0.110863	0.110863	1.01 G	93%				0.006431		
4.556E+00			(0.018001)	(1.4173E-02)	(0.039935)	(0.039935)	(0.017321)					0.029604		
02/25/08	U-238	R	1.229916	9.94668E-01	2.757721	2.757721	1.01 G	93%				0.006431		
4.556E+00			(0.134456)	(7.0517E-02)	(0.263893)	(0.263893)	(0.017321)							

QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol

1418995,TSB-HR-05-10' UITC:19503,Alq 1.03 g

1418995,TSB-HR-05-10' UITC:19504,Alq 1.03 g

0 02/25/08 10:27 U-232 660 6 ALP9 ED Y N 3.7821E-01 (1.135E-02) N 100% N 1.0000E+00 4.5045E-01 1.0000E+00

200.09333333 1000.0166 (0.000E+00) 0.970874

RecCnt:9 RADCALC v4.8.29
TA Richland

Page 5
- (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 Significant, Date/Time - mm/dd/yyyy hh:mm, 24hr Time

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm	Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKLC/MDC	StdDvMdc/LcC
1	02/25/08 10:27	U-234	306	0	ALP9	ED	N	N	3.7821E-01	N	86%	N	1.0000E+00	4.5045E-01	1.0000E+00
			200.03333333	1000.0166			Y	(1.135E-02)		(0.017321)	5%		(0.000E+00)	0.970874	(0.000E+00)
2	02/25/08 10:27	U-235	13	0	ALP9	ED	N	N	3.7821E-01	N	86%	N	1.0000E+00	4.5045E-01	1.0000E+00
			200.03333333	1000.0166			Y	(1.135E-02)		(0.017321)	5%		(0.000E+00)	0.970874	(0.000E+00)
3	02/25/08 10:27	U-238	255	0	ALP9	ED	N	N	3.7821E-01	N	86%	N	1.0000E+00	4.5045E-01	1.0000E+00
			200.03333333	1000.0166			Y	(1.135E-02)		(0.017321)	5%		(0.000E+00)	0.970874	(0.000E+00)

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wkr Ord	Units/Matrix	QC/IBB	Sa/On Date	AnalysisDate/PptWt	Sep 1/Sep 2 Date	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
10	Calc	SR	SOLID	*STLE	AlpIsoWoBS	KF8PGIAE	PCI/G	R	01/28/08 09:15	02/25/08 12:07	1		UITC19505	Alq	1.00 g		
								SOLID									

Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/Vol/Adj	Decay	Abn
0	02/25/08 10:27	U-232	668	0	ALP10	ED	Y	N	3.5997E-01		N	100%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200.08333333	1000.1833			Y	(1.080E-02)							(0.000E+00)	1.00		
1	02/25/08 10:27	U-234	349	1	ALP10	ED	N	N	3.5997E-01		N	92%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200.08333333	1000.1833			Y	(1.080E-02)							(0.000E+00)	1.00		
2	02/25/08 10:27	U-235	16	0	ALP10	ED	N	N	3.5997E-01		N	92%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200.08333333	1000.1833			Y	(1.080E-02)							(0.000E+00)	1.00		
3	02/25/08 10:27	U-238	289	3	ALP10	ED	N	N	3.5997E-01		N	92%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200.08333333	1000.1833			Y	(1.080E-02)							(0.000E+00)	1.00		

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm	Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKLC/MDC	StdDvMdc/LcC
	02/25/08	U-232	R	4.177769		3.33861E+00	9.274656	9.274656	9.274656	1.00 G	92%				
				(0.301179)		(1.2918E-01)	(0.454088)	(0.454088)	(0.454088)	(0.017321)					
	02/25/08	U-234	R	2.380515		1.74327E+00	5.284747	5.284747	5.284747	1.00 G	92%				
				(0.237268)		(9.3374E-02)	(0.446374)	(0.446374)	(0.446374)	(0.017321)					
	02/25/08	U-235	R	0.109198		7.99667E-02	0.24242	0.24242	0.24242	1.00 G	92%				
				(0.028834)		(2.0017E-02)	(0.062712)	(0.062712)	(0.062712)	(0.017321)					
	02/25/08	U-238	R	1.968291		1.44140E+00	4.369611	4.369611	4.369611	1.00 G	92%				
				(0.202087)		(8.4982E-02)	(0.384461)	(0.384461)	(0.384461)	(0.017321)					

(0 - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

Sq	Calc	SR	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol			
11	02/25/08	10:27	SOLID	*STLE	AlpIsoWcBS	KGHX71AA	PCI/G	B	01/28/08 07:00	02/25/08 12:07			1	g					
			INTRA-LAB BLANK		.JB8040000-233		SOLID						UITC19506	Alq	1.01 g				
Sq	CalcDate	TrcAct	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/Vol/Adj	Decay	Abn
0	02/25/08	10:27	U-232	748	12	ALP11	ED	Y	N	4.0783E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
				200.0333333	1000.1166			Y		(1.223E-02)						(0.000E+00)	0.990099		
1	02/25/08	10:27	U-234	7	0	ALP11	ED	N	N	4.0783E-01		N	91%	N		1.0000E+00	4.5045E-01	1.0000E+00	
				200.0333333	1000.1166			Y		(1.223E-02)						(0.000E+00)	0.990099		
2	02/25/08	10:27	U-235	0	1	ALP11	ED	N	N	4.0783E-01		N	91%	N		1.0000E+00	4.5045E-01	1.0000E+00	
				200.0333333	1000.1166			Y		(1.223E-02)						(0.000E+00)	0.990099		
3	02/25/08	10:27	U-238	5	1	ALP11	ED	N	N	4.0783E-01		N	91%	N		1.0000E+00	4.5045E-01	1.0000E+00	
				200.0333333	1000.1166			Y		(1.223E-02)						(0.000E+00)	0.990099		
Sq	CalcDate	TrcAct	Parameter	Avg Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EntFct	LCSYld,EFctU	IDC/ILcC	BIK/LcC	BIK/LcC/MDC	StdDvMdc/LcC				
	02/25/08	4.494E+00	U-232	R 4.07614		3.72738E+00	9.139531	9.139531	1.01 G	91%									
				(0.289391)		(1.3677E-01)	(0.433177)	(0.433177)	(0.017321)										
	02/25/08	4.494E+00	U-234	R 0.04219		3.49942E-02	0.094598	0.094598	1.01 G	91%									
				(0.016372)		(1.3264E-02)	(0.036366)	(0.036366)	(0.017321)										
	02/25/08	4.494E+00	U-235	R -0.001205		U4 -9.99883E-04	-0.002703	-0.002703	1.01 G	91%									
				(0.006147)		(5.0982E-03)	(0.013783)	(0.013783)	(0.017321)										
	02/25/08	4.494E+00	U-238	R 0.02893		2.39960E-02	0.064867	0.064867	1.01 G	91%									
				(0.013743)		(1.1223E-02)	(0.030623)	(0.030623)	(0.017321)										

Sq	Calc	SR	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol			
12	02/25/08	10:27	SOLID	*STLE	AlpIsoWcBS	KGHX71AC	PCI/G	S	01/28/08 07:00	02/25/08 12:07			1	g					
			INTRA-LAB CHECK		.JB8040000-233		SOLID						UISG1604	Alq	1.03 g				
Sq	CalcDate	TrcAct	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/Vol/Adj	Decay	Abn
0	02/25/08	10:27	U-232	781	3	ALP12	ED	Y	N	3.8329E-01		N	100%	N		1.0000E+00	4.5045E-01	1.0000E+00	
				200.05	1000.1333			Y		(1.150E-02)						(0.000E+00)	0.970874		
1	02/25/08	10:27	U-234	280	0	ALP12	ED	N	N	3.8329E-01		N	102%	N		1.0000E+00	4.5045E-01	1.0000E+00	
				200.05	1000.1333			Y		(1.150E-02)						(0.000E+00)	0.970874		
2	02/25/08	10:27	U-235	16	0	ALP12	ED	N	N	3.8329E-01		N	102%	N		1.0000E+00	4.5045E-01	1.0000E+00	
				200.05	1000.1333			Y		(1.150E-02)						(0.000E+00)	0.970874		
3	02/25/08	10:27	U-238	315	0	ALP12	ED	N	N	3.8329E-01		N	102%	N		1.0000E+00	4.5045E-01	1.0000E+00	
				200.05	1000.1333			Y		(1.150E-02)						(0.000E+00)	0.970874		

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC
02/25/08	4.385E+00	U-232	R	4.451046 (0.313644)		3.90102E+00 (1.3971E-01)	10.177773 (0.475486)	10.177773 (0.475486)	1.03 G (0.017321)	102%		
02/25/08	4.385E+00	U-234	R	1.596993 (0.162905)		1.39965E+00 (8.3651E-02)	3.651687 (0.318823)	3.651687 (0.318823)	1.03 G (0.017321)	102%	95%	0.027318 0.005934
02/25/08	4.385E+00	U-235	R	0.091257 (0.024056)		7.99800E-02 (2.0020E-02)	0.208668 (0.053894)	0.208668 (0.053894)	1.03 G (0.017321)	102%	120%	0.027318 0.005934
02/25/08	4.385E+00	U-238	R	1.796617 (0.179739)		1.57461E+00 (8.8725E-02)	4.108148 (0.349213)	4.108148 (0.349213)	1.03 G (0.017321)	102%	103%	0.027318 0.005934

URANIUM ISOTOPIIC COUNTING REQUEST

1347

C.R. Technician B
Date Counted 2/25/08

Counting Time 20 Minutes
Sample 20
Background See Alpha Regions Report

SOP's RICHRD008
Operating: RICHRD0016
Review: 1/28/08
8035233

WorkOrder #	U-232 (5320 KeV) Tracer	TOTAL COUNTS			Det #	Comments/Edits
		U-238 (4196 KeV)	U-235 (4396 KeV)	U-234 (4776 KeV)		
<u>KF8N01AA</u>	See Counting Room Printout for ROI information				<u>1</u>	
<u>KF8N041AA</u>	See Counting Room Printout for ROI information				<u>2</u>	
<u>KF8N051AA</u>	See Counting Room Printout for ROI information				<u>3</u>	
<u>KF8N061AA</u>	See Counting Room Printout for ROI information				<u>4</u>	
<u>KF8N081AA</u>	See Counting Room Printout for ROI information				<u>5</u>	
<u>KF8N091AA</u>	See Counting Room Printout for ROI information				<u>6</u>	
<u>KF8PD1AA</u>	See Counting Room Printout for ROI information				<u>7</u>	
<u>KF8PE1AA</u>	See Counting Room Printout for ROI information				<u>8</u>	
Comments:						

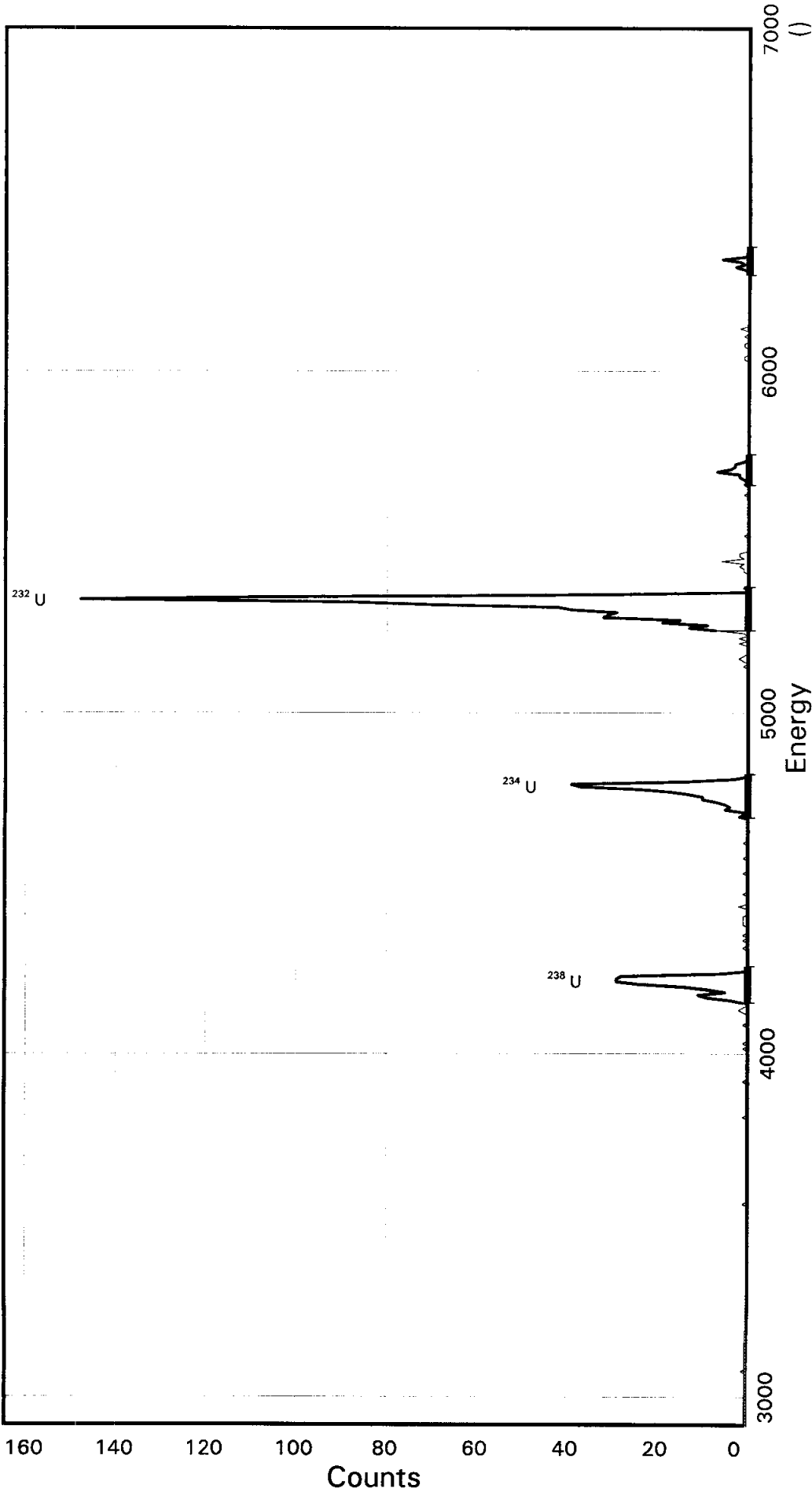
Approved by: BA Date: 2/25/08

TAL Richland WA.

U BRCO

Batch ID: 8035233

Sample ID: KF8NX1AA
Detector ID: ALP1 1



Acquisition Start: 25-FEB-2008 10:26:33.56
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:01.00

Energy Coefficients:
Offset: 2.89653E + 03
Slope: 7.45256E + 00
Quadrature: 4.73726E - 05

SAMPLE IDENTIITY: KF8NX1AA

TITLE : U BRCO

DETECTOR : ALP1 1
CONFIGURATION NAME : \$DISK1:[ALP1.SAMPLE]KF8NX1AA_250281026.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:30

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 25-FEB-2008 10:26:33 CALIB DATE : 04-FEB-2008 03:38:52

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:01

OFFSET : 2896.53 keV CONSTANT FWHM : 8.00000 Channels
SLOPE : 7.45256 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : 4.737260E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KF8NX1AA

Flags Key

Detector: ALP1 1
 Report Date: 25-Feb-08 01:46 PM P: Peak Identified
 Acquire Date: 25-FEB-2008 10:26:33.56 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgrnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide	Smpl	Bkg	Intrsc	Count	Centrd	Region	Left	Right	Left	Right	Flags
Name	Count	Count	Count	Rate	Energy	Width	Chnl	Chnl	Wdth	Wdth	
U-232	681	12	0	3.393	5327.9	127.2	314	331	0.00	0.00	P ✓
U-234	195	2	0	0.973	4782.3	127.1	241	258	0.00	0.00	P ✓
U-235	8	0	0	0.040	4405.5	127.0	191	208	0.00	0.00	
U-238	171	1	0	0.854	4205.7	104.6	168	182	0.00	0.00	P ✓

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 13:46:51

Configuration : \$DISK1:[ALP1.SAMPLE]KF8NX1AA_250281026.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 10:26:33
 Sample ID : KF8NX1AA Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP1 Detector geometry:
 Elapsed live time: 0 03:20:01.00 Elapsed real time: 0 03:20:01.00 0.0%
 Start energy : 2918.88 End energy : 6724.65
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4210.79	171	0	37.26	176.15	168	14	1.42E-02	7.6	
2	0	4785.34	195	0	37.26	253.04	241	17	1.62E-02	7.2	
3	0	5327.91	681	0	29.81	325.57	314	17	5.67E-02	3.8	
4	0	5709.35	24	0	29.81	376.53	371	12	2.00E-03	20.4	
5	0	6322.46	15	0	29.81	458.36	453	11	1.25E-03	25.8	

Alpha Spectrum Listing

(Version: 1-Apr-07)

Sample Identity: KF8NX1AA

Flags Key

Detector: ALP1 1

Report Date: 25 Feb-08 01:46 PM

Intersect Region: @

Acquire Date: 25 FEB 2008 10:26:33.56

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn										
0		1	0		51	0		101	0		151	1+		201	17+		251	0		301	1		351	0		401	0		451	0		501	
		2	0		52	0		102	1		152	1+		202	24+		252	1		302	0		352	0		402	0		452	0		502	
0		3	0		53	0		103	0		153	0+		203	37+		253	2		303	0		353	0		403	0		453	0		503	
0		4	0		54	0		104	0		154	0+		204	39+		254	1		304	0		354	0		404	0		454	0		504	
0		5	0		55	0		105	0		155	0+		205	14+		255	0		305	0		355	0		405	1		455	0		505	
0		6	0		56	0		106	0		156	2+		206	3+		256	0		306	0		356	0		406	3		456	0		506	
0		7	0		57	0		107	0		157	0+		207	0+		257	0		307	0		357	0		407	1		457	0		507	
0		8	0		58	0		108	0		158	0+		208	0		258	0		308	0		358	0		408	2		458	0		508	
0		9	0		59	0		109	1		159	0		209	0		259	2		309	0		359	0		409	6		459	0		509	
0		10	0		60	0		110	0		160	0		210	0		260	0		310	0		360	0		410	1		460	0		510	
0		11	0		61	0		111	0		161	1		211	0		261	2		311	0		361	0		411	0		461	0		511	
0		12	0		62	0		112	0		162	0		212	0		262	0		312	0		362	0		412	0		462	0		512	
0		13	0		63	0		113	0		163	0		213	0		263	1		313	0		363	0		413	0		463				
0		14	0		64	0		114	1		164	0		214	0		264	7+		314	0		364	0		414	0		464				
0		15	0		65	0		115	2		165	0		215	0		265	13+		315	0		365	0		415	0		465				
0		16	0		66	0		116	1		166	0		216	0		266	9+		316	0		366	0		416	0		466				
0		17	0		67	0		117	0		167	0		217	0		267	19+		317	1		367	0		417	0		467				
0		18	0		68	0		118	1+		168	0		218	0		268	15+		318	0		368	0		418	0		468				
0		19	0		69	0		119	4+		169	1		219	0		269	32+		319	0		369	0		419	0		469				
0		20	0		70	0		120	9+		170	0		220	0		270	31+		320	0		370	1		420	0		470				
0		21	0		71	0		121	11+		171	0		221	0		271	29+		321	1		371	1		421	0		471				
0		22	0		72	0		122	5+		172	0		222	0		272	39+		322	0		372	0		422	0		472				
0		23	0		73	1		123	9+		173	0		223	0		273	42+		323	1		373	0		423	0		473				
1		24	0		74	0		124	14+		174	0		224	0		274	70+		324	2		374	0		424	0		474				
0		25	0		75	0		125	24+		175	1		225	0		275	88+		325	2		375	1		425	0		475				
0		26	0		76	0		126	29+		176	0		226	0		276	148+		326	7		376	1		426	0		476				
0		27	0		77	0		127	29+		177	0		227	0		277	102+		327	4		377	0		427	0		477				
0		28	0		78	0		128	28+		178	0		228	0		278	32+		328	3		378	0		428	0		478				
0		29	0		79	0		129	6+		179	0		229	0		279	0+		329	3		379	1		429	0		479				
0		30	0		80	0		130	0+		180	0		230	0		280	0+		330	1		380	0		430	0		480				
0		31	0		81	0		131	0+		181	1		231	0		281	1		331	0		381	0		431	0		481				
0		32	0		82	0		132	0		182	0		232	0		282	0		332	0		382	2		432	0		482				
0		33	0		83	0		133	0		183	0		233	0		283	0		333	0		383	0		433	0		483				
0		34	0		84	0		134	0		184	0		234	0		284	0		334	0		384	0		434	0		484				
0		35	0		85	0		135	0		185	0		235	0		285	0		335	0		385	0		435	0		485				
0		36	0		86	0		136	0		186	0		236	0		286	0		336	0		386	0		436	0		486				
0		37	0		87	1		137	0		187	0		237	0		287	1		337	0		387	0		437	0		487				
0		38	0		88	0		138	0		188	0		238	0		288	1		338	0		388	0		438	0		488				
0		39	1		89	0		139	0		189	0		239	0		289	2		339	0		389	0		439	0		489				
0		40	0		90	0		140	1		190	0		240	0		290	1		340	0		390	0		440	0		490				
0		41	0		91	0		141	0+		191	2+		241	0		291	6		341	0		391	0		441	0		491				
0		42	0		92	0		142	0+		192	1+		242	0		292	1		342	0		392	0		442	0		492				
0		43	0		93	0		143	1+		193	1+		243	0		293	2		343	0		393	0		443	0		493				
0		44	0		94	0		144	0+		194	5+		244	0		294	2		344	0		394	0		444	0		494				
0		45	0		95	0		145	1+		195	4+		245	0		295	0		345	0		395	0		445	0		495				
0		46	0		96	0		146	0+		196	5+		246	0		296	0		346	0		396	0		446	0		496				
0		47	0		97	0		147	0+		197	7+		247	0		297	0		347	0		397	0		447	0		497				
0		48	0		98	0		148	0+		198	10+		248	0		298	0		348	0		398	0		448	0		498				
0		49	0		99	0		149	1+		199	10+		249	0		299	0		349	0		399	0		449	0		499				
0		50	0		100	1		150	1+		200	13+		250	1		300	0		350	0		400	0		450	0		500				

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP1.SAMPLE]KF8NX1AA_250281026.CNF;1

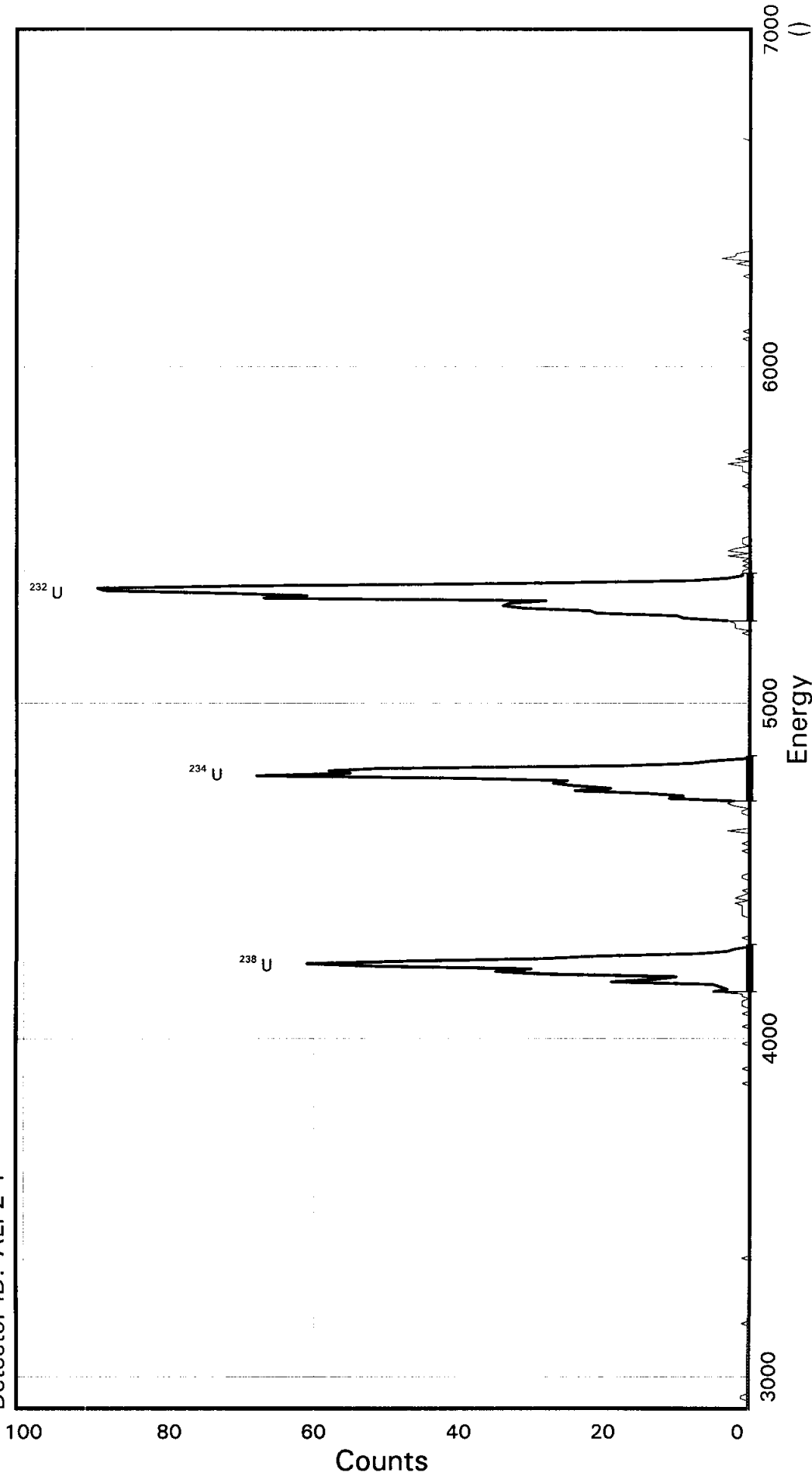
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4210.79	168	182	171	169	0.15		
4785.34	241	258	195	192	0.21		
5327.90	314	331	681	677	0.15		
5709.34	371	383	24	24	0.00		
6322.45	453	464	15	14	0.26		

End of Report

TAL Richland WA.
U BRCO

Sample ID: KF8N41AA
Detector ID: ALP2 1

Batch ID: 8035233



Acquisition Start: 25-FEB-2008 10:26:38.35
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:05.00

Energy Coefficients:
Offset: 2.88374E + 03
Slope: 7.38355E + 00
Quadrature: 4.94405E-05

SAMPLE IDENTIITY: KF8N41AA

TITLE : U BRCO

DETECTOR : ALP2 1
CONFIGURATION NAME : \$DISK1:[ALP2.SAMPLE] KF8N41AA_250281026.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:36

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 25-FEB-2008 10:26:38 CALIB DATE : 04-FEB-2008 03:39:03

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:05

OFFSET : 2883.74 keV CONSTANT FWHM : 9.33333 Channels
SLOPE : 7.38355 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : 4.944050E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KF8N41AA

Flags Key

Detector: ALP2 1
 Report Date: 25-Feb-08 01:47 PM P: Peak Identified
 Acquire Date: 25-FEB-2008 10:26:38.35 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgrnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrscnt Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth	Right Wdth	Flags
U-232	685	12	0	3.412	5327.5	140.9	319	338	0.00	0.00	P ✓
U-234	458	0	0	2.289	4781.9	133.4	247	265	0.00	0.00	P ✓
U-235	11	1	0	0.054	4405.1	140.7	195	214	0.00	0.00	
U-238	373	0	0	1.864	4205.3	140.6	170	189	0.00	0.00	P ✓

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 13:46:58

Configuration : \$DISK1:[ALP2.SAMPLE]KF8N41AA_250281026.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 10:26:38
 Sample ID : KF8N41AA Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP2 Detector geometry:
 Elapsed live time: 0 03:20:05.00 Elapsed real time: 0 03:20:05.00 0.0%
 Start energy : 2905.89 End energy : 6677.08
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4218.41 ✓	373	0	44.30 ✓	180.54	170	19	3.11E-02	5.2	
2	0	4789.24 ✓	458	0	44.30 ✓	257.63	247	18	3.82E-02	4.7	
3	0	5327.51 ✓	685	0	51.68 ✓	330.25	319	19	5.71E-02	3.8	

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP2.SAMPLE]KF8N41AA_250281026.CNF;1

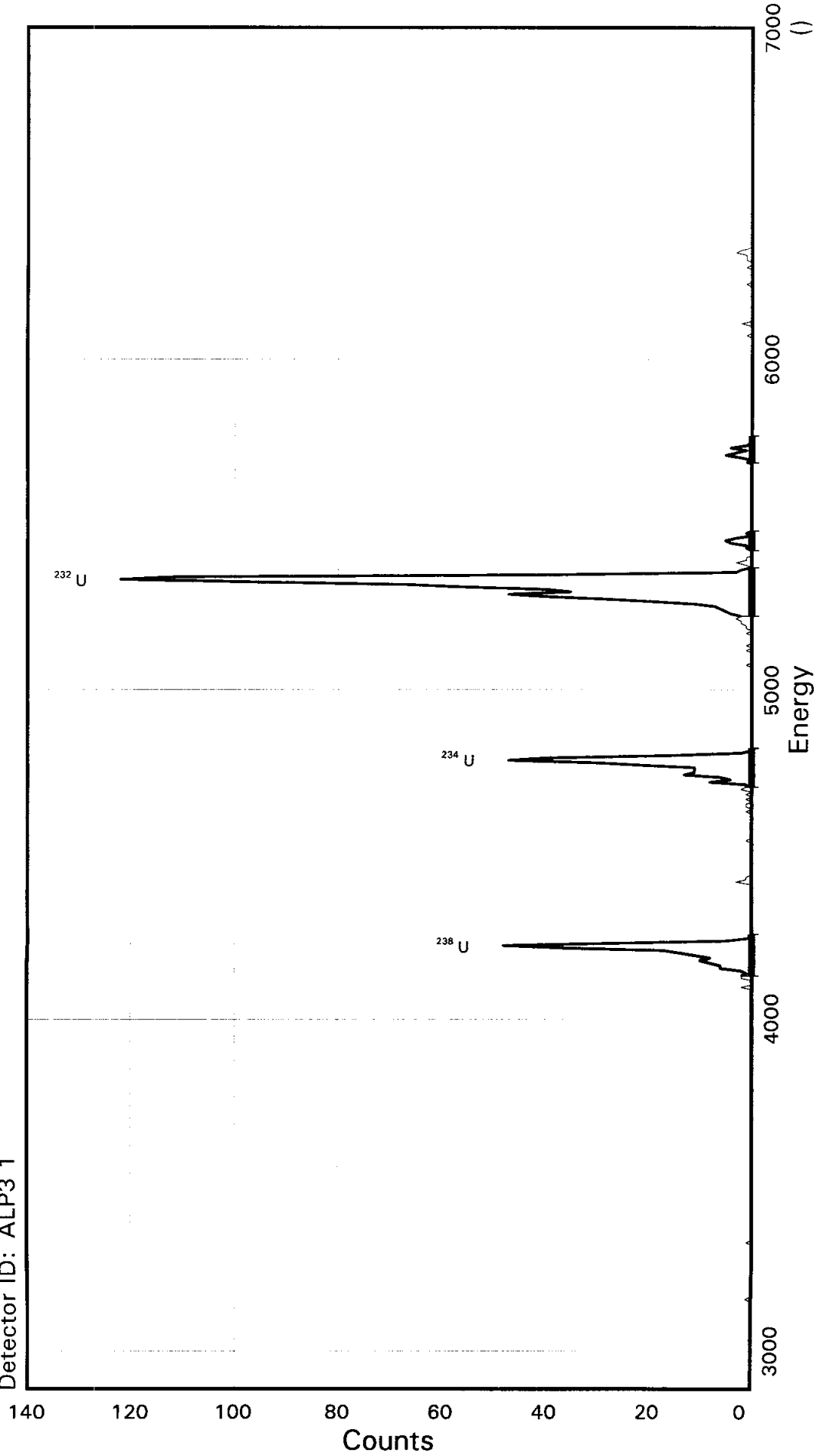
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4218.40	170	189	373	372	0.05		
4789.24	247	265	458	457	0.05		
5327.51	319	338	685	680	0.19		

End of Report

TAL Richland WA.
U BRCO

Sample ID: KF8N51AA
Detector ID: ALP3 1

Batch ID: 8035233



Acquisition Start: 25-FEB-2008 10:26:44.62
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:04.00

Energy Coefficients:
Offset: 2.86333E+03
Slope: 7.32666E+00
Quadrature: 7.05255E-05

SAMPLE IDENTIITY: KF8N51AA

TITLE : U BRCO

DETECTOR : ALP3 1

CONFIGURATION NAME : \$DISK1:[ALP3.SAMPLE]KF8N51AA_250281026.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:39

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 10:26:44 CALIB DATE : 04-FEB-2008 03:39:11

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:04

OFFSET : 2863.33 keV CONSTANT FWHM : 7.83333 Channels
SLOPE : 7.32666 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : 7.052550E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KF8N51AA

Flags Key

Detector: ALP3 1 Report Date: 25-Feb-08 01:47 PM Acquire Date: 25-FEB-2008 10:26:44.62 Tracer Nuclide: U-232 High Counts Limit: 36 Sample Live Time: 200 minutes Bkgrnd Live Time: 1000 minutes	P: Peak Identified I: Peak Intersect S: Single Non-peak Intersect M: Multiple Non-peak Intersect H: High Non-peak Sample Count A: Altered via ALP-RGN-EDIT
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Nuclide Name	Smpl Count	Bkg Count	Intrscnt Count	Count	Centrd Region			Left	Right	Left	Right	Flags
				Rate C/Min	Energy keV	Width keV	Chnl	Chnl	Wdth Mult	Wdth Mult		
U-232	746	11	0	3.718	5329.9	147.5	321	341	0.00	0.00	P ✓	
U-234	224	4	0	1.116	4784.3	117.8	251	267	0.00	0.00	P ✓	
U-235	5	1	0	0.024	4407.5	147.1	196	216	0.00	0.00		
U-238	204	4	0	1.016	4207.7	125.0	173	190	0.00	0.00	P ✓	

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 13:47:07

```

Configuration      : $DISK1:[ALP3.SAMPLE]KF8N51AA_250281026.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : U BRCO
Sample date       : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 10:26:44
Sample ID         : KF8N51AA Sample quantity : 0.000000E+00 LITER
Sample type       : disk Sample geometry :
Detector name     : ALP3 Detector geometry:
Elapsed live time : 0 03:20:04.00 Elapsed real time: 0 03:20:04.00 0.0%
Start energy      : 2885.31 End energy : 6633.07
Sensitivity       : 4.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4217.80 ✓	204	0	29.31 ✓	184.54	173	17	1.70E-02	7.0	
2	0	4787.66 ✓	224	0	36.63 ✓	261.99	251	16	1.87E-02	6.7	
3	0	5329.86 ✓	746	0	29.31 ✓	335.57	321	20	6.21E-02	3.7	
4	0	5448.22	15	0	29.31	351.62	348	8	1.25E-03	25.8	
5	0	5715.64	17	0	36.63	387.86	384	11	1.42E-03	24.3	

Alpha Spectrum Listing

(Version: 1 Apr 07)

Sample Identity: KFSN5IAA

Flags Key

Detector: ALP3 L

Report Date: 25 Feb 08 01:47 PM

Intersect Region: *

Acquire Date: 25 FEB 2008 10:26:44.62

Non Intersect Region: +, ,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
		1	0		51	0		101	0		151	0+		201	1+		251	1		301	4		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0+		202	1+		252	0		302	5		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	0+		203	8+		253	0		303	3		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	0+		204	4+		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0+		205	6+		255	0		305	1		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	0+		206	13+		256	0		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	0+		207	11+		257	1		307	0		357	0		407	1		457	0		507
0		8	0		58	0		108	0		158	0+		208	11+		258	0		308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	0		159	0+		209	11+		259	1		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	0		160	0+		210	21+		260	0		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0+		211	30+		261	0		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	3+		212	47+		262	0		312	0		362	0		412	0		462	0		512
0		13	1		63	0		113	0		163	1+		213	39+		263	0		313	0		363	0		413	0		463			
0		14	0		64	0		114	0		164	1+		214	16+		264	1		314	0		364	0		414	1		464			
0		15	0		65	0		115	0		165	0+		215	2+		265	0		315	0		365	0		415	0		465			
0		16	0		66	0		116	0		166	0+		216	0+		266	1		316	0		366	0		416	0		466			
0		17	0		67	0		117	0		167	0		217	0		267	1		317	0		367	0		417	1		467			
0		18	0		68	0		118	2		168	0		218	0		268	2		318	0		368	0		418	1		468			
0		19	0		69	0		119	0		169	0		219	0		269	2		319	0		369	0		419	1		469			
0		20	0		70	0		120	0		170	0		220	0		270	3		320	0		370	0		420	3		470			
0		21	0		71	0		121	0		171	0		221	0		271	2+		321	0		371	0		421	2		471			
0		22	0		72	0		122	2		172	0		222	0		272	4+		322	0		372	0		422	0		472			
0		23	0		73	0		123	2+		173	0		223	0		273	5+		323	0		373	0		423	0		473			
0		24	0		74	0		124	1+		174	0		224	0		274	6+		324	0		374	0		424	0		474			
0		25	0		75	0		125	2+		175	0		225	0		275	7+		325	0		375	0		425	0		475			
0		26	0		76	0		126	6+		176	0		226	0		276	11+		326	0		376	0		426	0		476			
0		27	0		77	0		127	6+		177	0		227	0		277	19+		327	0		377	0		427	0		477			
C		28	0		78	0		128	8+		178	0		228	0		278	28+		328	0		378	0		428	0		478			
0		29	0		79	0		129	10+		179	1		229	0		279	39+		329	0		379	0		429	0		479			
C		30	0		80	0		130	8+		180	0		230	0		280	47+		330	0		380	0		430	0		480			
0		31	0		81	0		131	11+		181	0		231	0		281	35+		331	0		381	0		431	0		481			
0		32	0		82	0		132	14+		182	0		232	0		282	40+		332	0		382	0		432	0		482			
0		33	0		83	0		133	17+		183	0		233	0		283	56+		333	0		383	0		433	0		483			
0		34	0		84	0		134	36+		184	0		234	0		284	67+		334	1		384	0		434	0		484			
0		35	0		85	0		135	48+		185	0		235	0		285	97+		335	0		385	0		435	0		485			
0		36	0		86	0		136	27+		186	0		236	0		286	122+		336	2		386	1		436	0		486			
0		37	0		87	0		137	5+		187	0		237	0		287	111+		337	5		387	0		437	0		487			
0		38	0		88	0		138	1+		188	0		238	0		288	38+		338	3		388	0		438	0		488			
0		39	0		89	0		139	0+		189	0		239	0		289	3+		339	2		389	0		439	0		489			
1		40	0		90	0		140	0		190	0		240	0		290	2+		340	4		390	0		440	0		490			
0		41	0		91	0		141	0		191	1		241	0		291	0		341	2		391	2		441	0		491			
0		42	0		92	0		142	0		192	0		242	0		292	1		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	1		243	0		293	3		343	0		393	0		443	0		493			
0		44	0		94	0		144	0		194	1		244	0		294	1		344	0		394	0		444	0		494			
0		45	0		95	0		145	0		195	0		245	0		295	1		345	0		395	0		445	0		495			
0		46	0		96	0		146	0+		196	1		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	0+		197	0		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0+		198	1		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	0+		199	0		249	0		299	1		349	0		399	0		449	0		499			
0		50	0		100	0		150	0+		200	2		250	0		300	1		350	0		400	0		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP3.SAMPLE]KF8N51AA_250281026.CNF;1

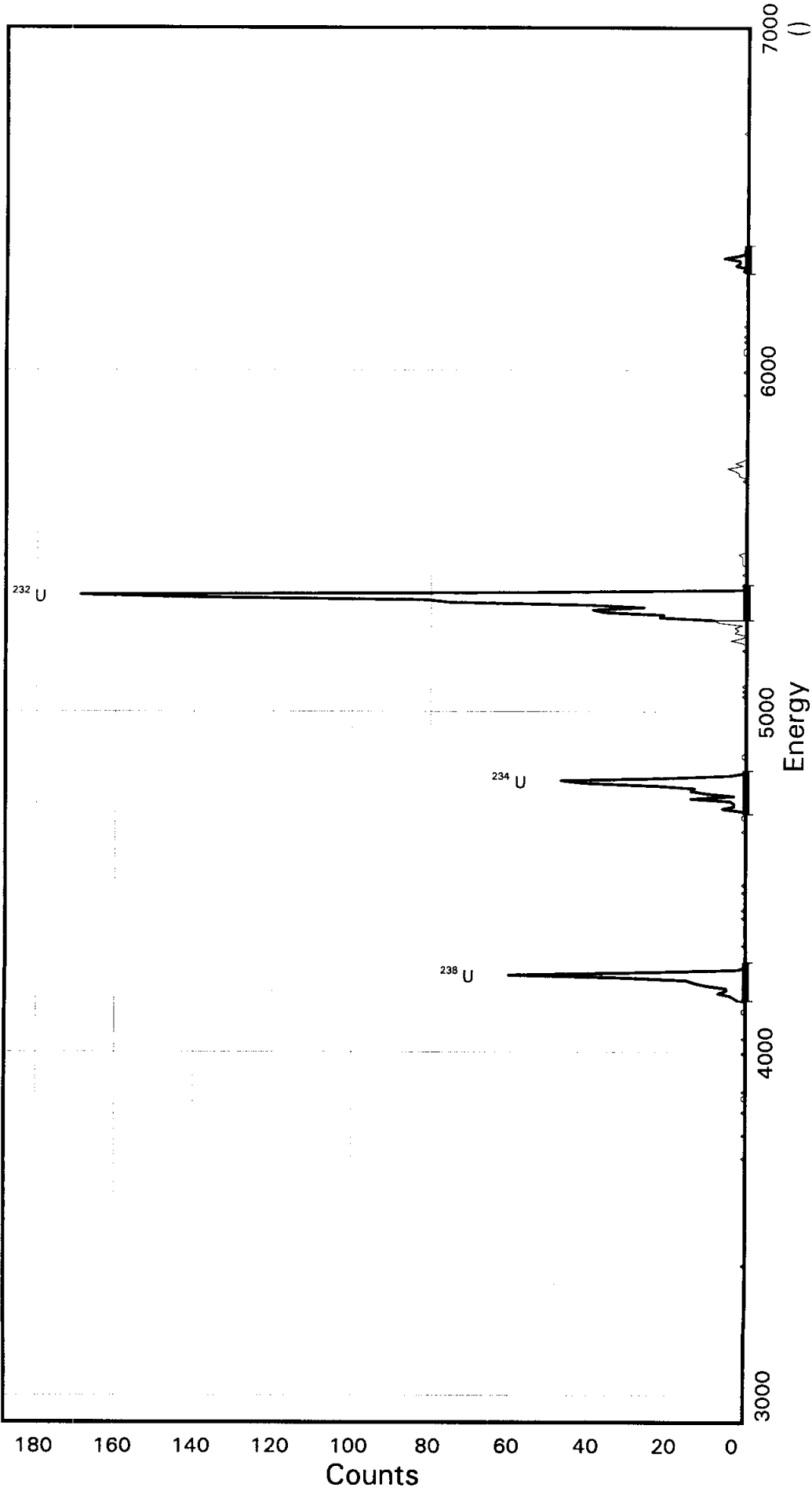
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4217.79	173	190	204	202	0.14		
4787.66	251	267	224	221	0.20		
5329.86	321	341	746	739	0.26		
5448.21	348	356	15	15	0.00		
5715.63	384	395	17	17	0.00		

End of Report

TAL Richland WA.
U BRCO

Sample ID: KF8N61AA
Detector ID: ALP4 1

Batch ID: 8035233



Acquisition Start: 25-FEB-2008 10:26:48.44
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:01.00

Energy Coefficients:
Offset: 2.89851E+03
Slope: 7.46541E+00
Quadrature: -5.32157E-05

SAMPLE IDENTIITY: KF8N61AA

TITLE : U BRCO

DETECTOR : ALP4 1

CONFIGURATION NAME : \$DISK1:[ALP4.SAMPLE]KF8N61AA_250281026.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:43

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 10:26:48 CALIB DATE : 04-FEB-2008 03:39:19

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:01

OFFSET : 2898.51 keV CONSTANT FWHM : 7.50000 Channels
SLOPE : 7.46541 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : -.532157E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KF8N61AA

Flags Key

Detector: ALP4 1
 Report Date: 25-Feb-08 01:47 PM P: Peak Identified
 Acquire Date: 25-FEB-2008 10:26:48.44 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgrnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrscnt Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth Mult	Right Wdth Mult	Flags
U-232	727	6	0	3.629	5336.8	104.0	318	332	0.00	0.00	P
U-234	209	5	0	1.040	4791.2	126.5	242	259	0.00	0.00	P
U-235	2	1	0	0.009	4414.4	104.2	194	208	0.00	0.00	
U-238	186	1	0	0.929	4214.6	111.7	168	183	0.00	0.00	P

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 13:47:12

Configuration : \$DISK1:[ALP4.SAMPLE]KF8N61AA_250281026.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 10:26:48
 Sample ID : KF8N61AA Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP4 Detector geometry:
 Elapsed live time: 0 03:20:01.00 Elapsed real time: 0 03:20:01.00 0.0%
 Start energy : 2920.91 End energy : 6706.85
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4222.33	186	0	29.86	177.55	168	15	1.55E-02	7.3	
2	0	4794.63	209	0	29.86	254.45	242	17	1.74E-02	6.9	
3	0	5336.75	727	0	29.86	327.37	318	14	6.06E-02	3.7	
4	0	6321.34	16	0	22.40	460.00	455	11	1.33E-03	25.0	

Alpha Spectrum Listing

(Version: 1 Apr-07)

Sample Identity: KFSN61AA

Flags Key

Detector: ALP4 1

Report Date: 25 Feb 08 01:47 PM

Intersect Region: -

Acquire Date: 25 FEB 2008 10:26:48.44

Non Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn									
0		1	0		51	0		101	0		151	1+		201	14+		251	0		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0+		202	13+		252	0		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	1		153	0+		203	23+		253	0		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	1+		204	41+		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0+		205	47+		255	0		305	0		355	0		405	0		455	0		505
0		6	0		56	1		106	0		156	0+		206	20+		256	1		306	0		356	0		406	1		456	0		506
0		7	0		57	0		107	0		157	0+		207	4+		257	0		307	0		357	1		407	0		457	0		507
0		8	0		58	0		108	0		158	0+		208	0+		258	0		308	0		358	0		408	3		458	0		508
0		9	0		59	0		109	0		159	0		209	0		259	1		309	0		359	0		409	2		459	0		509
0		10	0		60	0		110	0		160	0		210	0		260	4		310	0		360	0		410	2		460	1		510
0		11	0		61	0		111	0		161	1		211	0		261	1		311	0		361	0		411	6		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	0		312	0		362	0		412	2		462	0		512
0		13	0		63	0		113	1		163	0		213	0		263	3		313	0		363	0		413	0		463			
0		14	1		64	0		114	1		164	1		214	1		264	2		314	0		364	0		414	0		464			
0		15	0		65	1		115	0		165	0		215	1		265	3		315	0		365	0		415	0		465			
0		16	0		66	0		116	0		166	0		216	0		266	1		316	0		366	1		416	0		466			
0		17	0		67	0		117	0		167	0		217	0		267	7		317	0		367	0		417	0		467			
0		18	0		68	0		118	2+		168	0		218	0		268	8+		318	0		368	0		418	0		468			
0		19	0		69	0		119	3+		169	0		219	0		269	22+		319	0		369	0		419	0		469			
0		20	0		70	0		120	4+		170	0		220	0		270	21+		320	0		370	0		420	0		470			
0		21	0		71	0		121	7+		171	0		221	0		271	36+		321	0		371	0		421	0		471			
0		22	0		72	0		122	5+		172	0		222	0		272	39+		322	0		372	0		422	0		472			
0		23	0		73	0		123	5+		173	0		223	0		273	26+		323	1		373	1		423	0		473			
0		24	0		74	1		124	10+		174	0		224	0		274	40+		324	0		374	1		424	0		474			
0		25	0		75	0		125	13+		175	0		225	0		275	75+		325	2		375	1		425	0		475			
0		26	0		76	0		126	15+		176	0		226	0		276	81+		326	2		376	0		426	0		476			
0		27	0		77	0		127	31+		177	0		227	0		277	143+		327	3		377	0		427	0		477			
0		28	0		78	0		128	60+		178	0		228	0		278	169+		328	5		378	1		428	0		478			
0		29	0		79	1		129	26+		179	0		229	0		279	54+		329	1		379	0		429	0		479			
0		30	0		80	1		130	2+		180	0		230	0		280	1+		330	3		380	1		430	0		480			
0		31	0		81	0		131	0+		181	0		231	0		281	0+		331	1		381	0		431	0		481			
0		32	0		82	1		132	0+		182	0		232	0		282	1		332	0		382	0		432	0		482			
0		33	0		83	0		133	0		183	0		233	0		283	0		333	0		383	0		433	0		483			
0		34	0		84	0		134	0		184	0		234	0		284	0		334	0		384	1		434	0		484			
0		35	0		85	0		135	0		185	1		235	0		285	0		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	0		236	0		286	1		336	0		386	0		436	0		486			
0		37	0		87	0		137	0		187	0		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	0		188	0		238	1		288	0		338	0		388	0		438	0		488			
0		39	0		89	0		139	0		189	0		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	1		190	1		240	1		290	1		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	1		241	0		291	1		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	0+		242	1		292	1		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	1+		243	0		293	1		343	0		393	0		443	0		493			
0		44	0		94	0		144	0+		194	6+		244	0		294	2		344	0		394	0		444	0		494			
0		45	0		95	0		145	0+		195	3+		245	0		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	0+		196	3+		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	1		147	0+		197	4+		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0+		198	14+		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	0+		199	3+		249	0		299	0		349	0		399	0		449	0		499			
0		50	0		100	0		150	0+		200	10+		250	0		300	0		350	0		400	0		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP4.SAMPLE]KF8N61AA_250281026.CNF;1

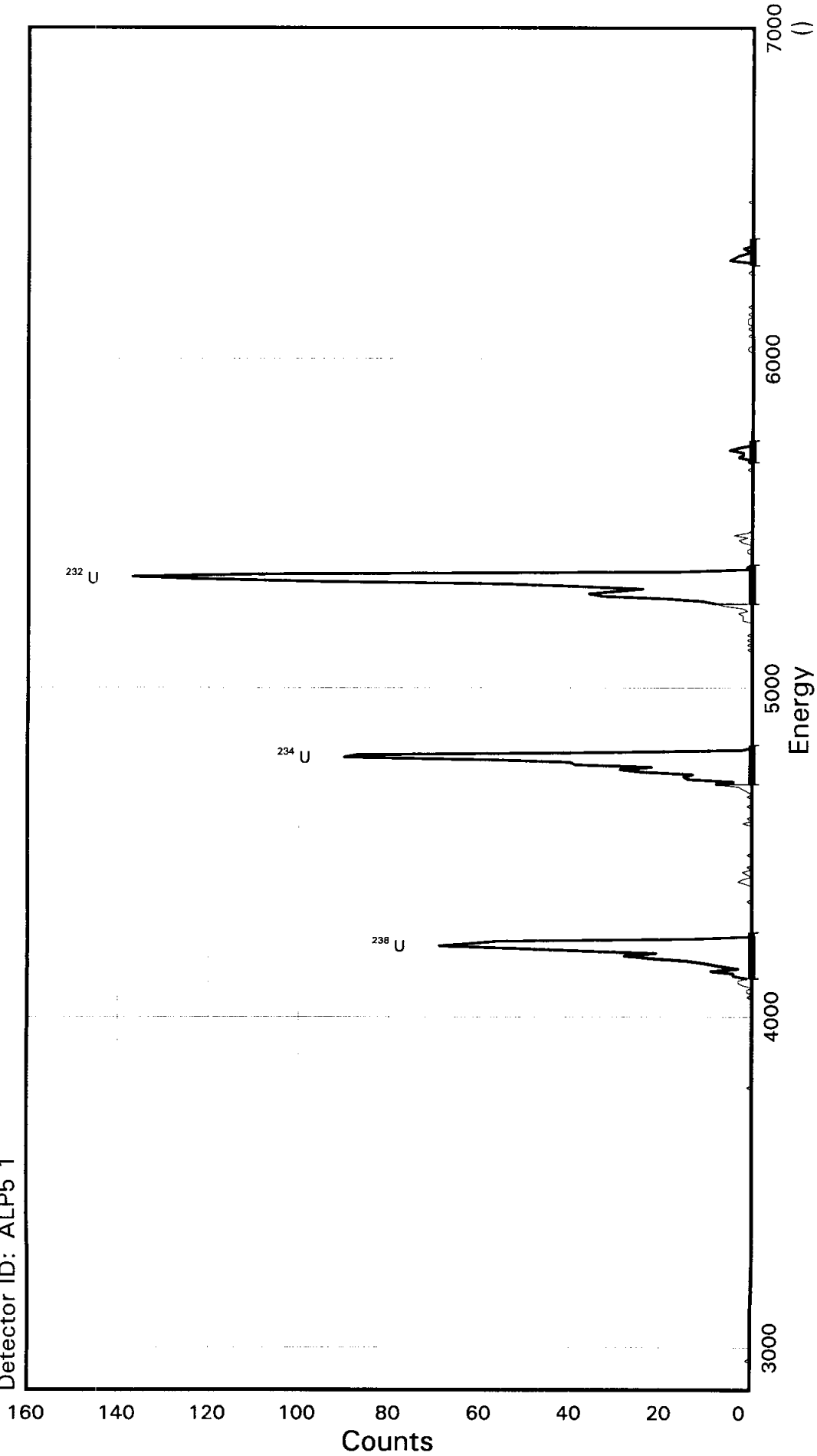
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4222.32	168	183	186	183	0.22		
4794.63	242	259	209	206	0.21		
5336.75	318	332	727	716	0.41		
6321.34	455	466	16	16	0.00		

End of Report

TAL Richland WA.
U BRCO

Sample ID: KF8N81AA
Detector ID: ALP5 1

Batch ID: 8035233



Acquisition Start: 25-FEB-2008 10:26:55.22
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:06.00

Energy Coefficients:
Offset: 2.84934E + 03
Slope: 7.42018E + 00
Quadrature: -4.35080E-05

SAMPLE IDENTIITY: KF8N81AA

TITLE : U BRCO

DETECTOR : ALP5 1
CONFIGURATION NAME : \$DISK1:[ALP5.SAMPLE]KF8N81AA_250281026.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:45

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 25-FEB-2008 10:26:55 CALIB DATE : 04-FEB-2008 03:39:25

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:06

OFFSET : 2849.34 keV CONSTANT FWHM : 7.50000 Channels
SLOPE : 7.42018 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : -.435080E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KF8N81AA

Flags Key

Detector: ALP5 1
 Report Date: 25-Feb-08 01:47 PM P: Peak Identified
 Acquire Date: 25-FEB-2008 10:26:55.22 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrscnt Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth	Right Wdth	Flags
U-232	742	8	0	3.700	5333.7	118.3	325	341	0.00	0.00	P ✓
U-234	483	3	0	2.411	4788.2	118.4	251	267	0.00	0.00	P ✓
U-235	10	1	0	0.049	4411.4	118.4	200	216	0.00	0.00	
U-238	421	6	0	2.098	4211.6	140.7	171	190	0.00	0.00	P ✓

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 13:47:24

Configuration : \$DISK1:[ALP5.SAMPLE]KF8N81AA_250281026.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 10:26:55
 Sample ID : KF8N81AA Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP5 Detector geometry:
 Elapsed live time: 0 03:20:06.00 Elapsed real time: 0 03:20:06.00 0.0%
 Start energy : 2871.60 End energy : 6637.07
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4213.74 ✓	421	0	37.10 ✓	184.08	171	19	3.51E-02	4.9	
2	0	4790.34 ✓	483	0	37.10 ✓	261.99	251	16	4.02E-02	4.6	
3	0	5333.73 ✓	742	0	29.68 ✓	335.48	325	16	6.18E-02	3.7	
4	0	5716.02	16	0	37.10	387.21	383	9	1.33E-03	25.0	
5	0	6302.62	17	0	29.68	466.67	464	11	1.42E-03	24.3	

Alpha Spectrum Listing

(Version: 1 Apr 07)

Sample Identity: KF8N81AA

Flags Key

Detector: ALP5 1

Report Date: 25 Feb 08 01:47 PM

Intersect Region: 0

Acquire Date: 25 FEB 2008 10:26:55.22

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn									
		1	0		51	0		101	0		151	0+		201	8+		251	0		301	3		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0+		202	4+		252	0		302	1		352	0		402	0		452	0		502
C		3	0		53	0		103	0		153	1+		203	14+		253	0		303	4		353	0		403	0		453	0		503
C		4	0		54	0		104	0		154	0+		204	15+		254	0		304	1		354	0		404	0		454	0		504
C		5	0		55	0		105	0		155	0+		205	13+		255	0		305	0		355	0		405	0		455	0		505
C		6	0		56	0		106	0		156	0+		206	24+		256	1		306	0		356	0		406	0		456	0		506
C		7	0		57	0		107	0		157	0+		207	29+		257	0		307	0		357	0		407	0		457	0		507
C		8	0		58	0		108	0		158	0+		208	22+		258	1		308	0		358	0		408	0		458	0		508
C		9	0		59	0		109	0		159	0+		209	39+		259	0		309	0		359	0		409	0		459	0		509
C		10	0		60	0		110	0		160	1+		210	40+		260	1		310	0		360	0		410	0		460	0		510
C		11	0		61	0		111	0		161	3+		211	58+		261	0		311	0		361	0		411	1		461	0		511
0		12	0		62	0		112	0		162	2+		212	90+		262	1		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	1		163	0+		213	87+		263	0		313	0		363	0		413	0		463			
0		14	0		64	0		114	0		164	1+		214	33+		264	0		314	0		364	0		414	0		464			
1		15	0		65	0		115	1		165	2+		215	2+		265	0		315	0		365	0		415	0		465			
C		16	0		66	0		116	1		166	0+		216	0+		266	0		316	0		366	0		416	5		466			
C		17	0		67	0		117	0		167	1		217	0		267	0		317	0		367	0		417	4		467			
C		18	0		68	0		118	2		168	0		218	0		268	2		318	0		368	0		418	3		468			
C		19	0		69	0		119	3		169	0		219	0		269	2		319	0		369	0		419	1		469			
C		20	0		70	0		120	3		170	0		220	0		270	2		320	0		370	0		420	1		470			
C		21	0		71	0		121	1+		171	0		221	0		271	3		321	0		371	0		421	2		471			
C		22	0		72	0		122	4+		172	1		222	0		272	1		322	0		372	0		422	0		472			
C		23	0		73	0		123	4+		173	0		223	0		273	2		323	0		373	0		423	0		473			
C		24	0		74	0		124	9+		174	0		224	0		274	6		324	0		374	0		424	0		474			
0		25	0		75	0		125	3+		175	0		225	0		275	8+		325	0		375	0		425	0		475			
0		26	0		76	1		126	7+		176	0		226	0		276	11+		326	0		376	0		426	0		476			
0		27	0		77	0		127	10+		177	0		227	0		277	19+		327	0		377	0		427	0		477			
0		28	0		78	0		128	14+		178	0		228	0		278	33+		328	0		378	0		428	0		478			
0		29	0		79	0		129	22+		179	0		229	0		279	36+		329	0		379	1		429	0		479			
0		30	0		80	0		130	28+		180	0		230	0		280	30+		330	1		380	1		430	0		480			
0		31	0		81	0		131	21+		181	0		231	0		281	24+		331	0		381	0		431	0		481			
0		32	0		82	0		132	38+		182	0		232	0		282	38+		332	0		382	0		432	0		482			
0		33	0		83	0		133	53+		183	0		233	0		283	54+		333	1		383	0		433	0		483			
0		34	0		84	0		134	69+		184	0		234	0		284	96+		334	0		384	0		434	0		484			
0		35	0		85	0		135	62+		185	2		235	0		285	121+		335	3		385	1		435	0		485			
0		36	0		86	0		136	56+		186	0		236	0		286	137+		336	2		386	0		436	0		486			
0		37	0		87	0		137	13+		187	1		237	0		287	108+		337	2		387	0		437	0		487			
0		38	0		88	0		138	0+		188	0		238	0		288	16+		338	5		388	1		438	0		488			
0		39	0		89	0		139	0+		189	0		239	0		289	1+		339	3		389	0		439	0		489			
0		40	0		90	0		140	0		190	0		240	0		290	1+		340	0		390	1		440	1		490			
0		41	0		91	0		141	0		191	0		241	0		291	0		341	0		391	1		441	0		491			
0		42	0		92	0		142	0		192	1		242	0		292	0		342	0		392	1		442	0		492			
0		43	0		93	0		143	0		193	0		243	0		293	0		343	0		393	0		443	0		493			
0		44	0		94	0		144	0		194	0		244	0		294	0		344	0		394	1		444	0		494			
0		45	0		95	0		145	0		195	0		245	0		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	0		196	1		246	0		296	1		346	0		396	0		446	0		496			
0		47	0		97	0		147	0		197	0		247	0		297	1		347	0		397	1		447	0		497			
0		48	0		98	0		148	0		198	1		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	0		199	2		249	0		299	0		349	0		399	0		449	0		499			
0		50	0		100	0		150	0+		200	3		250	0		300	2		350	0		400	0		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP5.SAMPLE]KF8N81AA_250281026.CNF;1

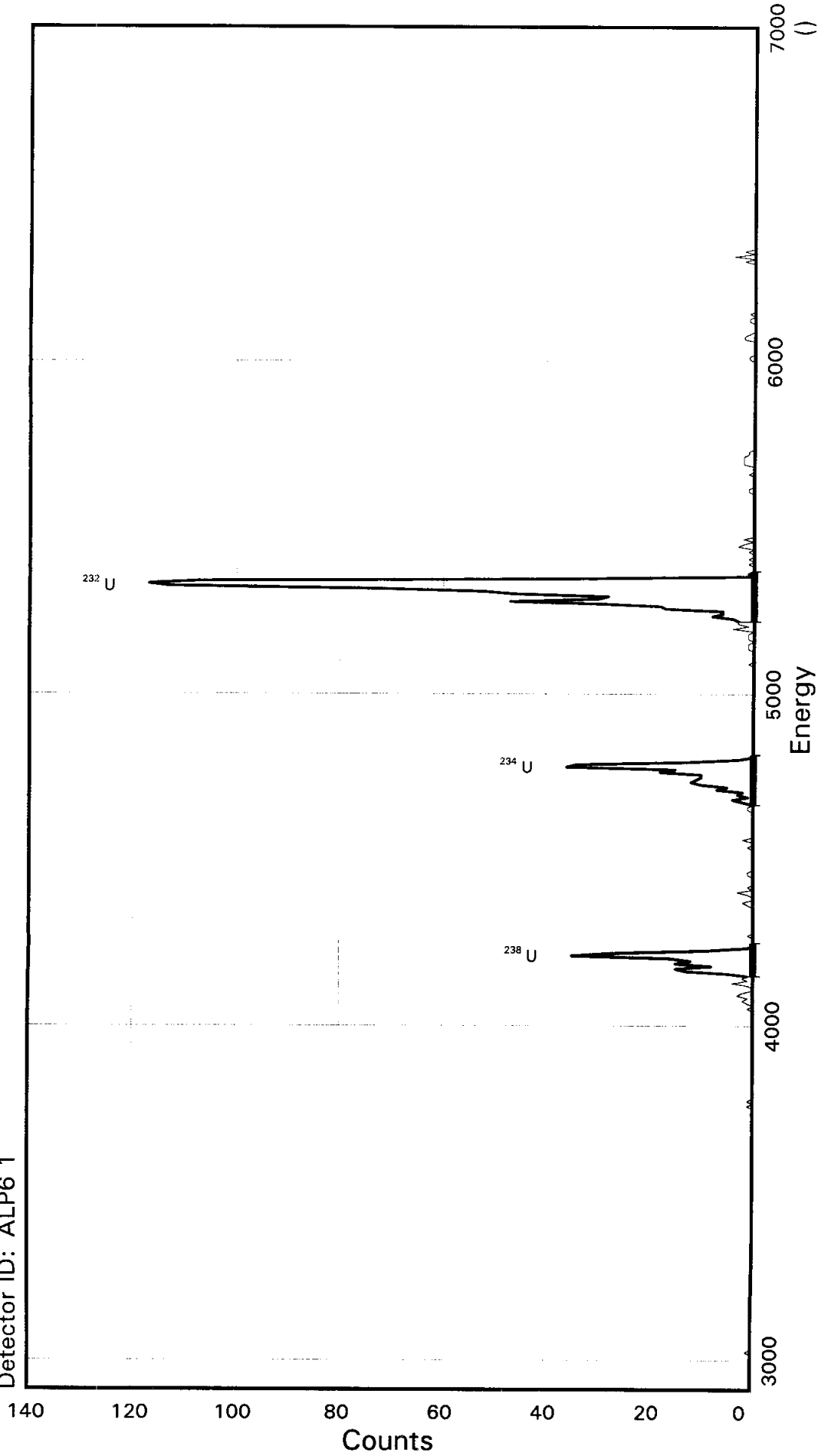
Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4213.73	171	190	421	414	0.34		
4790.34	251	267	483	478	0.23		
5333.73	325	341	742	733	0.33		
5716.01	383	392	16	16	0.00		
6302.61	464	475	17	16	0.24		

End of Report

TAL Richland WA.
U BRCO

Sample ID: KF8N91AA
Detector ID: ALP6 1

Batch ID: 8035233



Acquisition Start: 25-FEB-2008 10:26:59.89
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:01.00

Energy Coefficients:
Offset: 2.88921E+03
Slope: 7.49841E+00
Quadrature: 3.05801E-05

SAMPLE IDENTIITY: KF8N91AA

TITLE : U BRCO

DETECTOR : ALP6 1

CONFIGURATION NAME : \$DISK1: [ALP6.SAMPLE] KF8N91AA_250281026.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:48

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 10:26:59 CALIB DATE : 04-FEB-2008 03:39:34

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:01

OFFSET : 2889.21 keV CONSTANT FWHM : 6.66667 Channels
SLOPE : 7.49841 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : 3.058010E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KF8N91AA

Flags Key

Detector: ALP6 1
 Report Date: 25-Feb-08 01:47 PM P: Peak Identified
 Acquire Date: 25-FEB-2008 10:26:59.89 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgrnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide	Smpl	Bkg	Intrsc	Count	Centrd	Region	Left	Right	Left	Right	Flags
Name	Count	Count	Count	Rate	Energy	Width	Chnl	Chnl	Wdth	Wdth	
U-232	749	5	0	3.740	5323.5	150.4	310	330	0.00	0.00	P ✓
U-234	198	0	0	0.990	4777.9	150.3	237	257	0.00	0.00	P ✓
U-235	8	1	0	0.039	4401.1	150.2	187	207	0.00	0.00	
U-238	160	1	0	0.799	4201.3	97.6	168	181	0.00	0.00	P ✓

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 13:47:19

Configuration : \$DISK1:[ALP6.SAMPLE]KF8N91AA_250281026.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 10:26:59
 Sample ID : KF8N91AA Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP6 Detector geometry:
 Elapsed live time: 0 03:20:01.00 Elapsed real time: 0 03:20:01.00 0.0%
 Start energy : 2911.70 End energy : 6736.41
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4209.72 ✓	160	0	37.49 ✓	175.98	168	13	1.33E-02	7.9	
2	0	4781.34 ✓	198	0	37.49 ✓	252.08	237	20	1.65E-02	7.1	
3	0	5323.48 ✓	749	0	37.49 ✓	324.21	310	20	6.24E-02	3.7	

Alpha Spectrum Listing

(Version: 1 Apr-07)

Sample Identity: KF8N91AA

Flags Key

Detector: ALP6 1

Report Date: 25-Feb-08 01:47 PM

Intersect Region: j

Acquire Date: 25-FEB 2008 10:26:59.89

Non Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn									
0		1	0		51	0		101	0		151	1+		201	15+		251	1		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	3+		202	36+		252	0		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	0+		203	34+		253	1		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	1+		204	13+		254	1		304	0		354	0		404	2		454	0		504
0		5	0		55	0		105	1		155	0+		205	3+		255	1		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	0+		206	0+		256	0		306	0		356	0		406	4		456	0		506
0		7	0		57	0		107	1		157	0+		207	0		257	4		307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	2		158	0		208	0		258	1		308	0		358	0		408	2		458	0		508
0		9	0		59	0		109	1		159	1		209	0		259	3		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	3		160	1		210	0		260	3+		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	2		161	0		211	0		261	4+		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	8+		312	1		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	6+		313	1		363	0		413	0		463			
0		14	0		64	0		114	1		164	0		214	0		264	6+		314	0		364	0		414	0		464			
0		15	0		65	0		115	4		165	0		215	0		265	17+		315	0		365	1		415	0		465			
0		16	0		66	1		116	1		166	0		216	0		266	18+		316	0		366	1		416	0		466			
0		17	0		67	0		117	2		167	0		217	0		267	29+		317	0		367	0		417	0		467			
1		18	0		68	1		118	1+		168	0		218	0		268	47+		318	0		368	0		418	0		468			
0		19	0		69	0		119	5+		169	0		219	0		269	30+		319	1		369	0		419	0		469			
0		20	0		70	0		120	13+		170	1		220	0		270	28+		320	0		370	0		420	0		470			
0		21	0		71	0		121	15+		171	0		221	0		271	46+		321	0		371	0		421	0		471			
0		22	0		72	0		122	8+		172	0		222	0		272	52+		322	0		372	0		422	0		472			
0		23	0		73	0		123	15+		173	2		223	0		273	72+		323	2		373	2		423	0		473			
0		24	0		74	0		124	12+		174	0		224	0		274	113+		324	2		374	2		424	0		474			
0		25	0		75	0		125	16+		175	0		225	0		275	117+		325	2		375	1		425	0		475			
0		26	0		76	0		126	35+		176	0		226	0		276	107+		326	2		376	0		426	0		476			
0		27	0		77	0		127	27+		177	0		227	0		277	36+		327	1		377	0		427	0		477			
0		28	0		78	0		128	9+		178	0		228	0		278	0+		328	1		378	0		428	0		478			
0		29	0		79	0		129	1+		179	0		229	0		279	1+		329	0		379	0		429	0		479			
0		30	0		80	0		130	0+		180	0		230	0		280	0		330	0		380	1		430	0		480			
0		31	0		81	0		131	0		181	0		231	0		281	0		331	0		381	1		431	0		481			
0		32	0		82	0		132	0		182	0		232	0		282	0		332	0		382	0		432	0		482			
0		33	0		83	0		133	0		183	0		233	0		283	1		333	0		383	1		433	0		483			
0		34	0		84	0		134	1		184	0		234	0		284	0		334	0		384	0		434	0		484			
0		35	0		85	0		135	0		185	1		235	0		285	1		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	1		236	0		286	0		336	0		386	0		436	0		486			
0		37	0		87	0		137	0+		187	0+		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	0+		188	2+		238	0		288	1		338	0		388	0		438	0		488			
0		39	0		89	0		139	0+		189	4+		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	0+		190	1+		240	0		290	3		340	0		390	0		440	0		490			
0		41	0		91	0		141	0+		191	3+		241	0		291	2		341	0		391	0		441	0		491			
0		42	0		92	0		142	0+		192	2+		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	0+		193	7+		243	1		293	2		343	0		393	0		443	0		493			
0		44	0		94	0		144	0+		194	5+		244	0		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	0+		195	10+		245	0		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	0+		196	12+		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	1+		197	11+		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	2+		198	10+		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	0+		199	10+		249	1		299	0		349	0		399	0		449	0		499			
0		50	0		100	0		150	0+		200	18+		250	1		300	0		350	0		400	0		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP6.SAMPLE]KF8N91AA_250281026.CNF;1

Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4209.72	168	181	160	157	0.24		
4781.34	237	257	198	196	0.14		
5323.48	310	330	749	740	0.33		

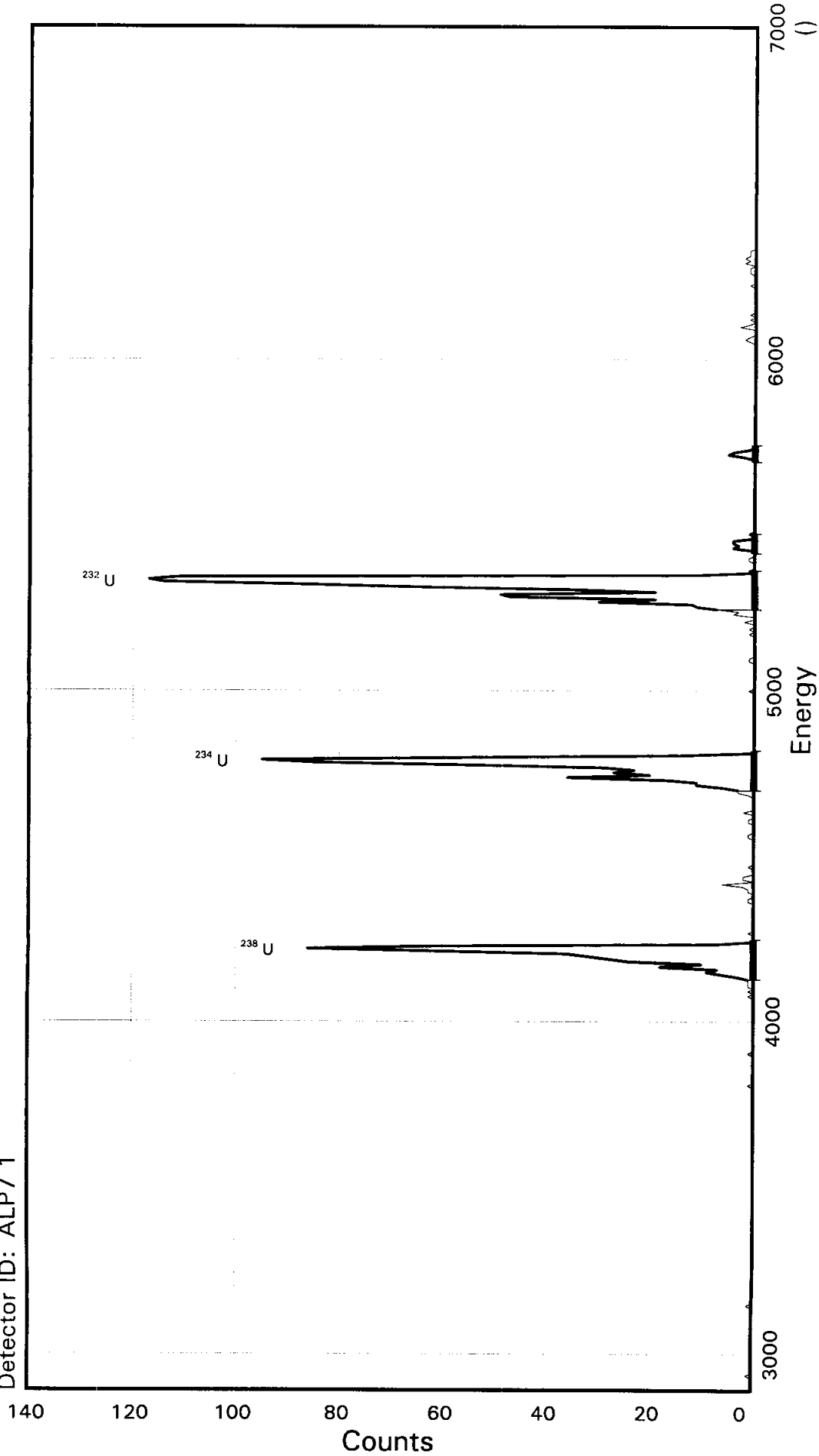
End of Report

TAL Richland WA.

U BRCO

Sample ID: KF8PD1AA
Detector ID: ALP7 1

Batch ID: 8035233



Acquisition Start: 25-FEB-2008 10:27:07.56
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:06.00

Energy Coefficients:
Offset: 2.86835E + 03
Slope: 7.51668E + 00
Quadrature: -1.30370E-04

SAMPLE IDENTIITY: KF8PD1AA

TITLE : U BRCO

DETECTOR : ALP7 1

CONFIGURATION NAME : \$DISK1:[ALP7.SAMPLE]KF8PD1AA_250281027.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:52

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 10:27:07 CALIB DATE : 04-FEB-2008 03:39:40

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:06

OFFSET : 2868.35 keV CONSTANT FWHM : 6.66667 Channels

SLOPE : 7.51668 keV/C SENSITIVITY : 4.00000 Std Dev's

QUAD COEFF : -.130370E-03 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KF8PD1AA

Flags Key

Detector: ALP7 1
 Report Date: 25-Feb-08 01:47 PM P: Peak Identified
 Acquire Date: 25-FEB-2008 10:27:07.56 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgrnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrscnt Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth Mult	Right Wdth Mult	Flags
U-232	744	10	0	3.708	5328.3	118.9	318	334	0.00	0.00	P ✓
U-234	494	1	0	2.468	4782.8	119.2	245	261	0.00	0.00	P ✓
U-235	16	1	0	0.079	4406.0	119.4	194	210	0.00	0.00	
U-238	398	1	0	1.988	4206.2	119.5	168	184	0.00	0.00	P ✓

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 13:47:33

Configuration : \$DISK1:[ALP7.SAMPLE]KF8PD1AA_250281027.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 10:27:07
 Sample ID : KF8PD1AA Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP7 Detector geometry:
 Elapsed live time: 0 03:20:06.00 Elapsed real time: 0 03:20:06.00 0.0%
 Start energy : 2890.90 End energy : 6682.72
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4213.72 ✓	398	0	30.07 ✓	179.54	168	16	3.32E-02	5.0	
2	0	4787.67 ✓	494	0	30.07 ✓	256.48	245	16	4.11E-02	4.5	
3	0	5328.33 ✓	744 ✓	0	37.58 ✓	329.15	318	16	6.20E-02	3.7	
4	0	5440.15	15	0	22.55	344.20	341	8	1.25E-03	25.8	
5	0	5713.28	13	0	22.55	381.00	378	7	1.08E-03	27.7	

Alpha Spectrum Listing

(Version: 1 Apr 07)

Sample Identity: KP8PD:AA

Flags Key

Detector: ALP7 L

Report Date: 25 Feb 08 01:47 PM

Intersect Region: -

Acquire Date: 25 FEB-2008 10:27:07.56

Non Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn									
0		1	0		51	0		101	0		151	1+		201	20+		251	0		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0+		202	27+		252	0		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	0+		203	23+		253	0		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	1+		204	29+		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	1+		205	55+		255	0		305	0		355	0		405	1		455	0		505
0		6	0		56	0		106	0		156	2+		206	85+		256	0		306	0		356	0		406	1		456	0		506
0		7	0		57	0		107	0		157	6+		207	95+		257	0		307	0		357	0		407	1		457	0		507
0		8	0		58	0		108	0		158	0+		208	57+		258	1		308	0		358	0		408	0		458	0		508
1		9	0		59	0		109	0		159	2+		209	14+		259	0		309	0		359	0		409	2		459	0		509
0		10	0		60	0		110	0		160	2+		210	0+		260	1		310	0		360	0		410	1		460	0		510
0		11	0		61	0		111	1		161	0		211	0		261	0		311	0		361	0		411	2		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	0		312	0		362	0		412	1		462	0		512
0		13	0		63	0		113	1		163	0		213	0		263	2		313	0		363	0		413	1		463			
0		14	0		64	0		114	0		164	1		214	0		264	0		314	0		364	0		414	1		464			
0		15	0		65	0		115	1		165	0		215	0		265	0		315	0		365	0		415	0		465			
0		16	0		66	0		116	1		166	0		216	0		266	4		316	0		366	0		416	0		466			
0		17	0		67	0		117	1		167	0		217	0		267	3		317	0		367	0		417	0		467			
0		18	0		68	0		118	1+		168	0		218	0		268	7+		318	0		368	0		418	0		468			
0		19	0		69	0		119	3+		169	0		219	0		269	11+		319	0		369	0		419	0		469			
0		20	0		70	0		120	6+		170	0		220	0		270	12+		320	0		370	0		420	0		470			
0		21	0		71	0		121	9+		171	0		221	0		271	30+		321	0		371	0		421	0		471			
0		22	0		72	0		122	7+		172	0		222	0		272	19+		322	0		372	0		422	0		472			
0		23	0		73	0		123	18+		173	0		223	0		273	47+		323	0		373	0		423	0		473			
0		24	0		74	0		124	10+		174	0		224	0		274	49+		324	0		374	0		424	0		474			
0		25	0		75	1		125	24+		175	0		225	0		275	19+		325	0		375	0		425	0		475			
0		26	0		76	0		126	28+		176	1		226	0		276	35+		326	0		376	0		426	0		476			
0		27	0		77	0		127	32+		177	1		227	0		277	65+		327	0		377	1		427	0		477			
0		28	0		78	0		128	36+		178	0		228	0		278	86+		328	0		378	2		428	0		478			
0		29	0		79	0		129	61+		179	0		229	0		279	114+		329	0		379	1		429	0		479			
0		30	0		80	0		130	86+		180	0		230	0		280	117+		330	2		380	0		430	0		480			
0		31	0		81	0		131	62+		181	0		231	0		281	111+		331	5		381	0		431	0		481			
0		32	0		82	0		132	7+		182	1		232	0		282	11+		332	4		382	0		432	0		482			
0		33	0		83	0		133	0+		183	1		233	0		283	0+		333	1		383	3		433	0		483			
0		34	0		84	0		134	0		184	0		234	0		284	1		334	0		384	1		434	0		484			
0		35	0		85	0		135	0		185	0		235	1		285	0		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	2		236	0		286	0		336	0		386	1		436	0		486			
1		37	0		87	0		137	1		187	0		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	1		138	0		188	0		238	0		288	1		338	0		388	1		438	0		488			
0		39	0		89	0		139	0		189	0		239	0		289	1		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	0		240	0		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	0		241	0		291	0		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	0		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	1		243	0		293	4		343	0		393	0		443	0		493			
0		44	0		94	0		144	0+		194	3		244	0		294	3		344	0		394	0		444	0		494			
0		45	0		95	0		145	0+		195	3+		245	0		295	4		345	0		395	0		445	0		495			
0		46	0		96	0		146	0+		196	6+		246	0		296	4		346	0		396	0		446	0		496			
0		47	0		97	0		147	0+		197	11+		247	1		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0+		198	11+		248	1		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	0+		199	17+		249	0		299	1		349	0		399	0		449	0		499			
0		50	0		100	0		150	1+		200	36+		250	0		300	0		350	0		400	1		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP7.SAMPLE]KF8PD1AA_250281027.CNF;1

Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4213.71	168	184	398	390	0.40		
4787.66	245	261	494	489	0.22		
5328.33	318	334	744	734	0.37		
5440.14	341	349	15	16	-0.26		
5713.28	378	385	13	12	0.28		

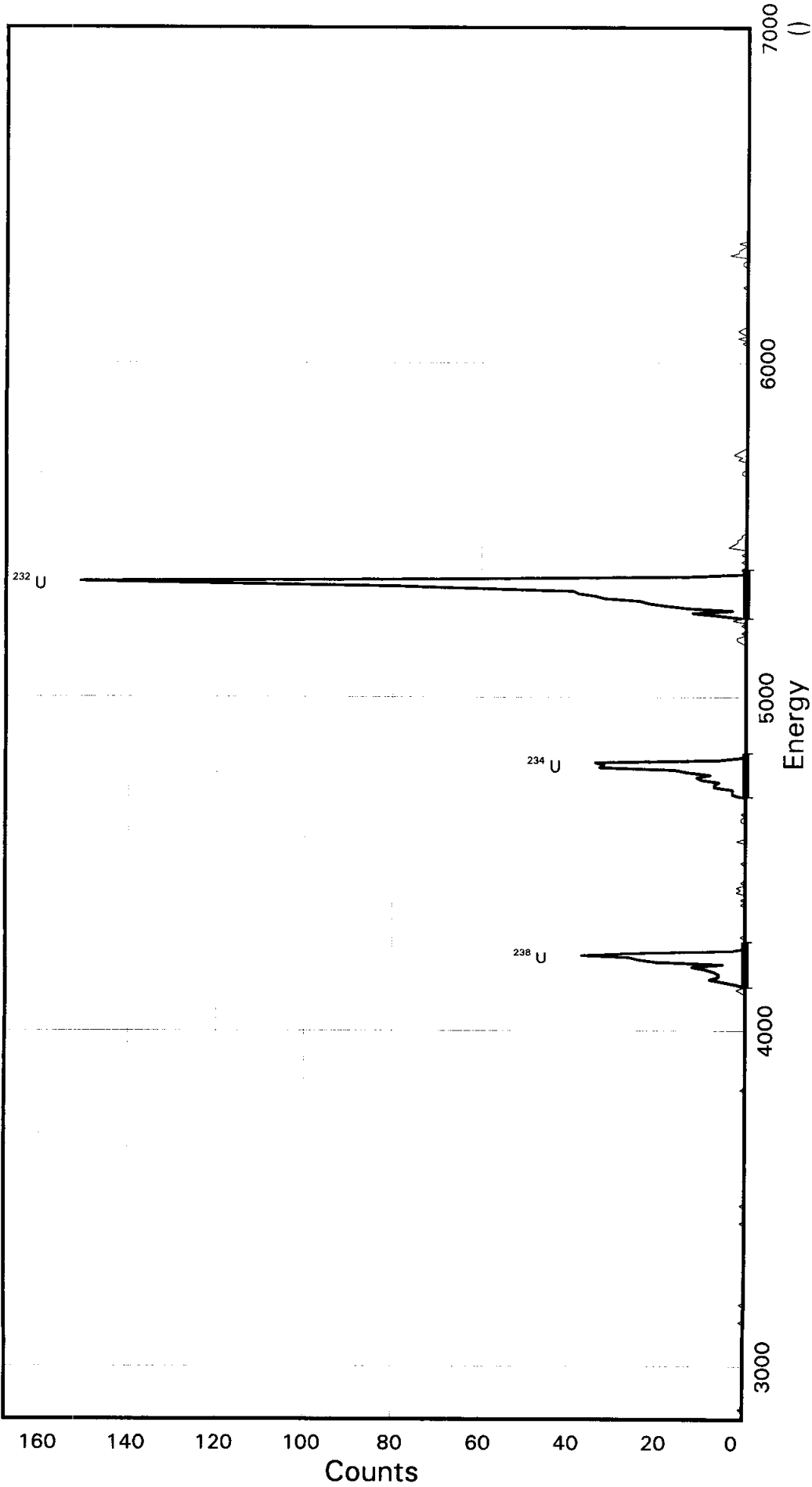
End of Report

TAL Richland WA.

U BRCO

Sample ID: KF8PE1AA
Detector ID: ALP8 1

Batch ID: 8035233



Acquisition Start: 25-FEB-2008 10:27:15.90
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:04.00

Energy Coefficients:
Offset: 2.81988E+03
Slope: 7.38161E+00
Quadrature: -1.21988E-04

SAMPLE IDENTIITY: KF8PE1AA

TITLE : U BRCO

DETECTOR : ALP8 1

CONFIGURATION NAME : \$DISK1: [ALP8.SAMPLE] KF8PE1AA_250281027.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:56

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 10:27:15 CALIB DATE : 04-FEB-2008 03:39:47

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:04

OFFSET : 2819.88 keV CONSTANT FWHM : 8.50000 Channels

SLOPE : 7.38161 keV/C SENSITIVITY : 4.00000 Std Dev's

QUAD COEFF : -.121988E-03 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KF8PE1AA

Flags Key

Detector: ALP8 1
 Report Date: 25-Feb-08 01:47 PM P: Peak Identified
 Acquire Date: 25-FEB-2008 10:27:15.90 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgrnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrscnt Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth	Right Wdth	Flags
U-232	740	14	0	3.685	5337.5	146.0	329	349	0.00	0.00	P ✓
U-234	196	0	0	0.980	4791.9	131.7	256	274	0.00	0.00	P ✓
U-235	8	0	0	0.040	4415.1	146.6	203	223	0.00	0.00	
U-238	199	0	0	0.995	4215.3	139.4	178	197	0.00	0.00	P ✓

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 13:47:40

Configuration : \$DISK1:[ALP8.SAMPLE]KF8PE1AA_250281027.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 10:27:15
 Sample ID : KF8PE1AA Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP8 Detector geometry:
 Elapsed live time: 0 03:20:04.00 Elapsed real time: 0 03:20:04.00 0.0%
 Start energy : 2842.02 End energy : 6567.29
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4218.36 ✓	199	0	36.91 ✓	190.05	178	19	1.66E-02	7.1	
2	0	4793.22 ✓	196	0	44.29 ✓	268.52	256	18	1.63E-02	7.1	
3	0	5337.47 ✓	740	0	36.91 ✓	343.01	329	20	6.16E-02	3.7	

Alpha Spectrum Listing

(Version: 1 Apr 07)

Sample Identity: KF8PE1AA

Flags Key

Detector: ALP8 I

Report Date: 25 Feb-08 01:47 PM

Intersect Region: X

Acquire Date: 25 FEB-2008 10:27:15.90

Non Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	
		1	0	51	0	101	0	151	0	201	0	251	0	301	0	351	0	401	0	451	0	501		
		2	0	52	0	102	0	152	0	202	0	252	0	302	1	352	0	402	0	452	0	502		
0		3	0	53	0	103	0	153	0+	203	0	253	0	303	0	353	0	403	0	453	0	503		
0		4	0	54	0	104	0	154	0+	204	0	254	0	304	0	354	0	404	0	454	0	504		
0		5	0	55	0	105	0	155	0+	205	0	255	0	305	1	355	0	405	0	455	0	505		
0		6	0	56	0	106	0	156	0+	206	1+	256	0	306	0	356	0	406	0	456	0	506		
1		7	0	57	0	107	0	157	0+	207	3+	257	0	307	0	357	0	407	0	457	0	507		
0		8	0	58	0	108	0	158	0+	208	3+	258	0	308	4	358	0	408	0	458	0	508		
0		9	0	59	0	109	0	159	0+	209	3+	259	0	309	3	359	0	409	0	459	0	509		
0		10	0	60	0	110	0	160	0+	210	7+	260	0	310	2	360	0	410	0	460	0	510		
0		11	0	61	0	111	0	161	0+	211	7+	261	0	311	2	361	0	411	0	461	0	511		
0		12	0	62	0	112	0	162	1+	212	6+	262	0	312	1	362	0	412	0	462	0	512		
0		13	0	63	0	113	0	163	0+	213	10+	263	0	313	1	363	0	413	0	463				
0		14	0	64	0	114	0	164	1+	214	11+	264	0	314	0	364	0	414	0	464				
0		15	0	65	0	115	0	165	0+	215	8+	265	0	315	0	365	0	415	1	465				
0		16	0	66	0	116	0	166	0+	216	13+	266	0	316	0	366	0	416	0	466				
0		17	0	67	0	117	0	167	2+	217	16+	267	0	317	0	367	0	417	0	467				
0		18	0	68	0	118	0	168	1+	218	33+	268	0	318	0	368	0	418	0	468				
0		19	0	69	0	119	0	169	2+	219	32+	269	1	319	0	369	0	419	0	469				
0		20	0	70	0	120	0	170	0+	220	34+	270	2	320	0	370	0	420	0	470				
0		21	0	71	0	121	0	171	1+	221	6+	271	2	321	0	371	0	421	0	471				
0		22	0	72	0	122	0	172	0+	222	1+	272	0	322	0	372	0	422	0	472				
0		23	0	73	0	123	0	173	0+	223	0+	273	1	323	0	373	0	423	0	473				
0		24	0	74	0	124	0	174	0	224	0	274	0	324	0	374	0	424	1	474				
0		25	0	75	0	125	0	175	0	225	0	275	0	325	0	375	0	425	1	475				
0		26	0	76	0	126	1	176	0	226	0	276	1	326	0	376	0	426	0	476				
0		27	0	77	0	127	2	177	0	227	0	277	0	327	0	377	0	427	0	477				
0		28	0	78	0	128	0+	178	0	228	0	278	3	328	0	378	0	428	4	478				
0		29	0	79	0	129	2+	179	1	229	0	279	1+	329	0	379	0	429	2	479				
0		30	0	80	0	130	5+	180	0	230	0	280	6+	330	0	380	0	430	2	480				
0		31	0	81	0	131	8+	181	0	231	0	281	12+	331	0	381	0	431	1	481				
0		32	1	82	0	132	6+	182	0	232	0	282	3+	332	0	382	0	432	0	482				
0		33	0	83	0	133	6+	183	0	233	0	283	13+	333	0	383	0	433	2	483				
0		34	0	84	0	134	7+	184	0	234	0	284	18+	334	0	384	0	434	0	484				
0		35	0	85	0	135	9+	185	0	235	0	285	22+	335	0	385	0	435	0	485				
0		36	0	86	1	136	12+	186	0	236	0	286	24+	336	0	386	0	436	0	486				
0		37	0	87	0	137	5+	187	0	237	0	287	32+	337	0	387	0	437	0	487				
0		38	0	88	0	138	20+	188	2	238	0	288	34+	338	1	388	0	438	0	488				
0		39	1	89	0	139	24+	189	0	239	0	289	38+	339	1	389	0	439	0	489				
0		40	0	90	0	140	26+	190	0	240	0	290	39+	340	0	390	0	440	0	490				
0		41	0	91	0	141	37+	191	0	241	0	291	60+	341	0	391	0	441	0	491				
1		42	0	92	0	142	25+	192	0	242	0	292	79+	342	0	392	1	442	0	492				
0		43	0	93	0	143	3+	193	0	243	0	293	117+	343	0	393	0	443	0	493				
0		44	0	94	0	144	0+	194	0	244	0	294	151+	344	2	394	2	444	0	494				
0		45	0	95	0	145	0+	195	0	245	0	295	63+	345	1	395	0	445	0	495				
0		46	0	96	0	146	0+	196	1	246	0	296	13+	346	3	396	1	446	0	496				
0		47	0	97	0	147	0	197	1	247	0	297	0+	347	2	397	2	447	0	497				
0		48	0	98	0	148	0	198	0	248	0	298	0+	348	1	398	1	448	0	498				
1		49	0	99	0	149	1	199	1	249	0	299	1	349	0	399	0	449	0	499				
0		50	0	100	0	150	0	200	0	250	0	300	0	350	0	400	0	450	0	500				

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP8.SAMPLE]KF8PE1AA_250281027.CNF;1

Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4218.35	178	197	199	195	0.28		
4793.21	256	274	196	194	0.14		
5337.47	329	349	740	726	0.51		

End of Report

URANIUM ISOTOPIIC COUNTING REQUEST

1347

C.R. Technician CS
Date Counted 2/25/08

Counting Time 700 Minutes
Sample BCU
Background See Alpha Regions Report

SOP's
Operating: RICHRD008
Review: RICHRD0016
8035033

WorkOrder #	U-232 (5320 KeV) Tracer	TOTAL COUNTS			Det #	Comments/Edits
		U-238 (4196 KeV)	U-235 (4396 KeV)	U-234 (4776 KeV)		
KF8P61A1	See Counting Room Printout for ROI information				9	
KF8P61A2	See Counting Room Printout for ROI information				10	
K6H X71A1	See Counting Room Printout for ROI information				11	
K6H X71A2	See Counting Room Printout for ROI information				12	
	See Counting Room Printout for ROI information					
	See Counting Room Printout for ROI information					
	See Counting Room Printout for ROI information					
	See Counting Room Printout for ROI information					
	See Counting Room Printout for ROI information					
Comments:						

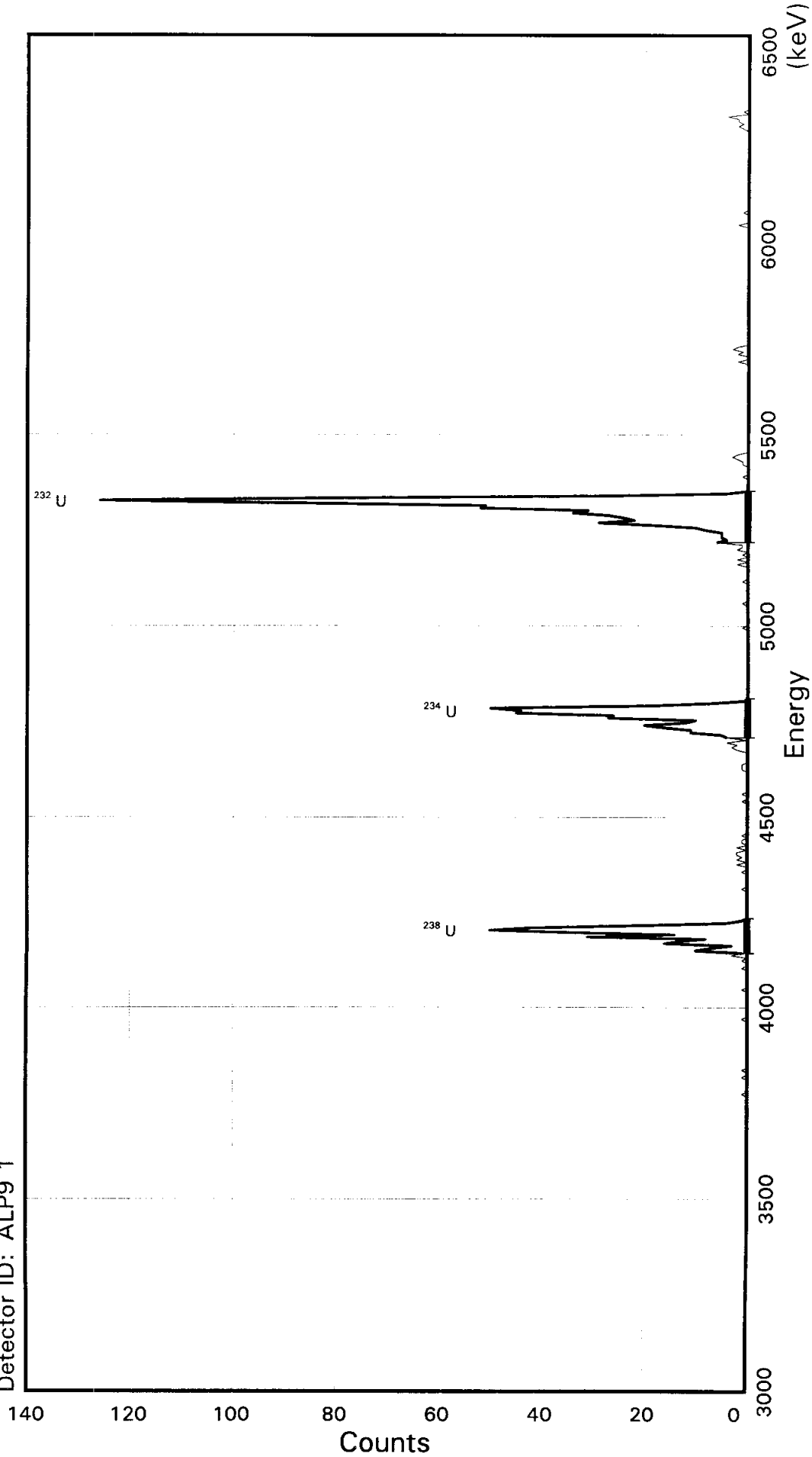
Approved by: AD

Date: 2/25/08

TAL Richland WA.
U BRCO

Sample ID: KF8PG1AA
Detector ID: ALP9 1

Batch ID: 8035233



Acquisition Start: 25-FEB-2008 10:27:28.18
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:02.00

Energy Coefficients:
Offset: 3.27772E + 03
Slope: 6.34407E + 00
Quadrature: 6.17500E-05

SAMPLE IDENTIITY: KF8PG1AA

TITLE : U BRCO

DETECTOR : ALP9 1

CONFIGURATION NAME : \$DISK1:[ALP9.SAMPLE]KF8PG1AA_250281027.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:07:00

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 10:27:28 CALIB DATE : 04-FEB-2008 03:39:54

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:02

OFFSET : 3277.72 keV CONSTANT FWHM : 5.66667 Channels

SLOPE : 6.34407 keV/C SENSITIVITY : 4.00000 Std Dev's

QUAD COEFF : 6.175000E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KF8PG1AA

Flags Key

Detector: ALP9 1
 Report Date: 25-Feb-08 01:47 PM P: Peak Identified
 Acquire Date: 25-FEB-2008 10:27:28.18 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgrnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrscnt Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth	Right Wdth	Flags
U-232	660	6	0	3.293	5324.5	134.0	305	326	0.00	0.00	P
U-234	306	0	0	1.530	4779.0	102.0	225	241	0.00	0.00	P
U-235	13	0	0	0.065	4402.2	133.7	160	181	0.00	0.00	
U-238	255	0	0	1.275	4202.4	95.4	136	151	0.00	0.00	P

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 13:47:49

Configuration : \$DISK1:[ALP9.SAMPLE]KF8PG1AA_250281027.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 10:27:28
 Sample ID : KF8PG1AA Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP9 Detector geometry:
 Elapsed live time: 0 03:20:02.00 Elapsed real time: 0 03:20:02.00 0.0%
 Start energy : 3296.76 keV End energy : 6542.08 keV
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4203.55 ✓	255	0	25.38 ✓	145.73	136	15	2.12E-02	6.3	
2	0	4775.86 ✓	306	0	25.38 ✓	235.61	225	16	2.55E-02	5.7	
3	0	5324.53 ✓	660	0	25.38 ✓	321.63	305	21	5.50E-02	3.9	

Alpha Spectrum Listing
(Version: 1-Apr-07)

Sample Identity: KF8PG1AA
Detector: ALP9 1

Flags Key

Report Date: 25 Feb 08 01:47 PM

Intersect Region: X

Acquire Date: 25-FEB-2008 10:27:28.18

Non Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn																
		1	0		51	0		101	0		151	0		201	0		251	0		301	0		351	0		401	0		451	0		501	
		2	0		52	0		102	0		152	1		202	0		252	2		302	0		352	0		402	0		452	0		502	
0		3	0		53	0		103	0		153	0		203	0		253	1		303	0		353	0		403	0		453	0		503	
0		4	0		54	0		104	0		154	0		204	0		254	1		304	0		354	0		404	0		454	0		504	
0		5	0		55	0		105	0		155	0		205	0		255	6+		305	0		355	0		405	0		455	0		505	
0		6	0		56	0		106	0		156	0		206	0		256	4+		306	0		356	0		406	0		456	0		506	
0		7	0		57	0		107	0		157	0		207	0		257	5+		307	0		357	0		407	0		457	0		507	
0		8	0		58	0		108	0		158	0		208	0		258	5+		308	0		358	0		408	0		458	0		508	
0		9	0		59	1		109	0		159	0		209	0		259	5+		309	0		359	0		409	0		459	0		509	
0		10	0		60	0		110	0+		160	0		210	0		260	8+		310	0		360	0		410	0		460	0		510	
0		11	0		61	0		111	0+		161	0		211	0		261	10+		311	0		361	0		411	0		461	0		511	
0		12	0		62	0		112	0+		162	1		212	0		262	18+		312	0		362	0		412	0		462	0		512	
0		13	0		63	0		113	1+		163	1		213	0		263	29+		313	0		363	0		413	0		463				
0		14	0		64	0		114	0+		164	1		214	0		264	22+		314	0		364	0		414	0		464				
0		15	0		65	0		115	0+		165	0		215	0		265	24+		315	0		365	0		415	0		465				
0		16	0		66	0		116	0+		166	0		216	0		266	27+		316	0		366	0		416	0		466				
0		17	0		67	0		117	0+		167	0		217	0		267	34+		317	0		367	0		417	0		467				
0		18	0		68	0		118	0+		168	0		218	0		268	31+		318	0		368	0		418	0		468				
0		19	0		69	0		119	0+		169	0		219	0		269	52+		319	0		369	0		419	0		469				
0		20	0		70	0		120	1+		170	2		220	1		270	51+		320	0		370	0		420	0		470				
0		21	0		71	1		121	0+		171	3		221	0		271	91+		321	0		371	0		421	0		471				
0		22	0		72	0		122	0+		172	2		222	0		272	126+		322	0		372	0		422	0		472				
0		23	0		73	0		123	2+		173	4		223	0		273	80+		323	0		373	0		423	0		473				
0		24	0		74	0		124	0+		174	0		224	0		274	27+		324	0		374	0		424	1		474				
0		25	0		75	0		125	2+		175	4+		225	0		275	4+		325	0		375	0		425	2		475				
0		26	0		76	0		126	1+		176	5+		226	0		276	0		326	0		376	0		426	1		476				
0		27	0		77	0		127	2+		177	11+		227	0		277	0		327	0		377	0		427	2		477				
C		28	1		78	0		128	2+		178	11+		228	0		278	0		328	0		378	0		428	2		478				
0		29	0		79	0		129	0+		179	16+		229	0		279	0		329	2		379	0		429	4		479				
C		30	0		80	1		130	2+		180	20+		230	1		280	0		330	0		380	0		430	0		480				
C		31	0		81	0		131	0+		181	12+		231	0		281	0		331	0		381	0		431	1		481				
0		32	0		82	0		132	1		182	10+		232	0		282	1		332	2		382	0		432	0		482				
0		33	0		83	1		133	1		183	27+		233	0		283	0		333	1		383	0		433	0		483				
0		34	0		84	0		134	0		184	26+		234	0		284	0		334	3		384	0		434	0		484				
0		35	1		85	3		135	1		185	45+		235	0		285	0		335	2		385	2		435	0		485				
0		36	0		86	1+		136	0		186	44+		236	0		286	0		336	0		386	0		436	0		486				
0		37	0		87	10+		137	0		187	50+		237	0		287	1		337	0		387	0		437	0		487				
0		38	1		88	7+		138	0		188	19+		238	0		288	1		338	0		388	0		438	0		488				
0		39	0		89	3+		139	0		189	7+		239	1		289	2		339	0		389	0		439	0		489				
0		40	0		90	16+		140	0		190	0+		240	0		290	3		340	0		390	1		440	0		490				
0		41	0		91	13+		141	0		191	0		241	0		291	2		341	0		391	0		441	0		491				
0		42	0		92	8+		142	0		192	0		242	0		292	0		342	0		392	0		442	0		492				
0		43	0		93	31+		143	0		193	0		243	0		293	0		343	0		393	0		443	0		493				
0		44	0		94	14+		144	0		194	0		244	0		294	0		344	0		394	0		444	0		494				
0		45	0		95	34+		145	0		195	0		245	0		295	0		345	0		395	0		445	0		495				
0		46	0		96	50+		146	0		196	0		246	2		296	0		346	0		396	0		446	0		496				
0		47	0		97	42+		147	0		197	0		247	0		297	0		347	0		397	0		447	0		497				
0		48	0		98	21+		148	0		198	0		248	2		298	0		348	0		398	0		448	0		498				
0		49	0		99	4+		149	1		199	0		249	0		299	0		349	0		399	0		449	0		499				
0		50	0		100	1+		150	0		200	0		250	1		300	0		350	0		400	0		450	0		500				

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP9.SAMPLE]KF8PG1AA_250281027.CNF;1

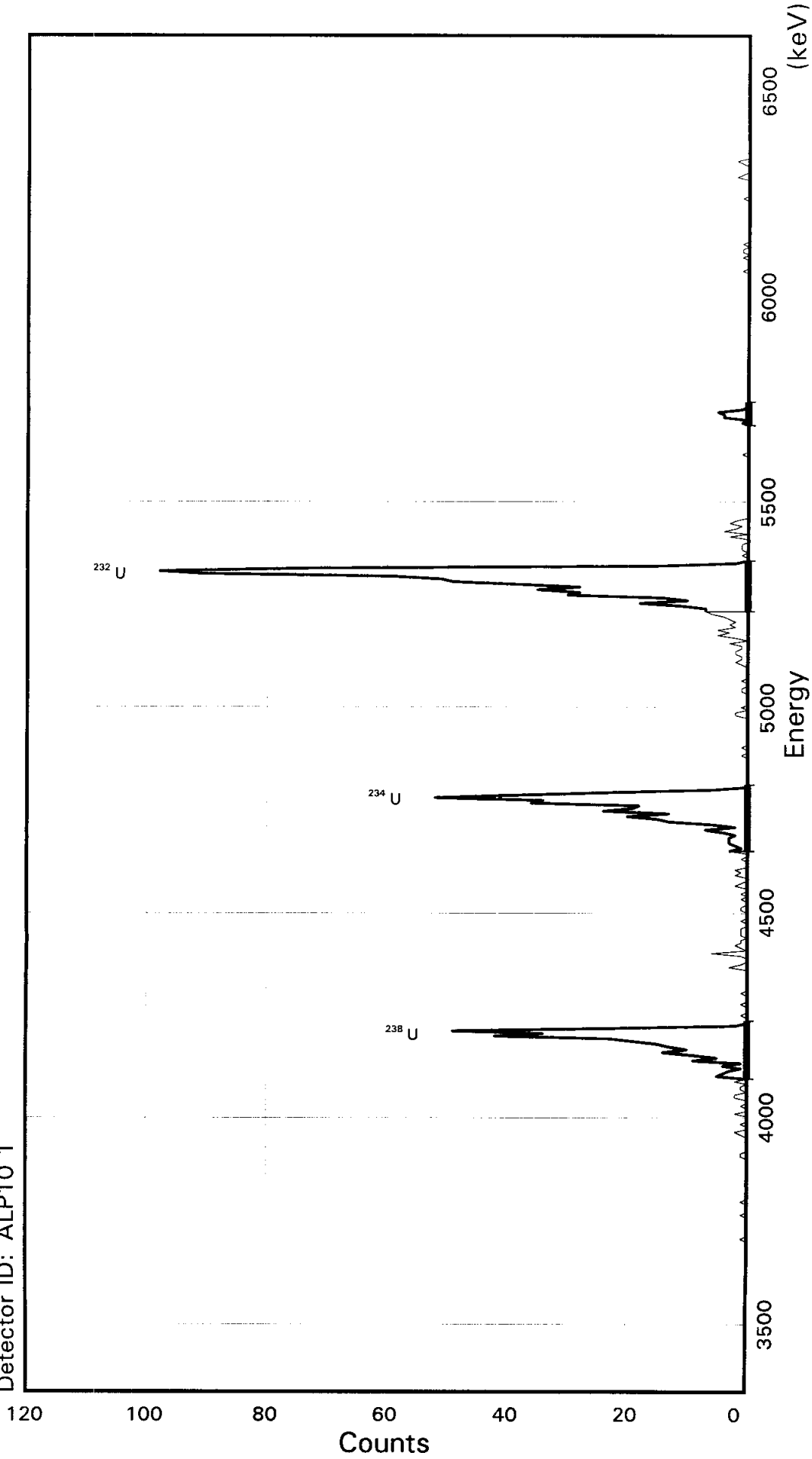
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4203.55	136	151	255	255	0.00		
4775.86	225	241	306	307	-0.06		
5324.52	305	326	660	659	0.04		

End of Report

TAL Richland WA.
U BRCO

Sample ID: KF8PG1AE
Detector ID: ALP10 1

Batch ID: 8035233



Acquisition Start: 25-FEB-2008 10:27:34.68
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:05.00

Energy Coefficients:
Offset: 3.31729E + 03
Slope: 6.46731E + 00
Quadrature: 1.89948E-05

SAMPLE IDENTIITY: KF8PG1AE

TITLE : U BRCO

DETECTOR : ALP10 1

CONFIGURATION NAME : \$DISK1:[ALP10.SAMPLE]KF8PG1AE_250281027.CNF;
1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:07:03

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 10:27:34 CALIB DATE : 04-FEB-2008 03:39:59

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:05

OFFSET : 3317.29 keV CONSTANT FWHM : 6.66667 Channels

SLOPE : 6.46731 keV/C SENSITIVITY : 4.00000 Std Dev's

QUAD COEFF : 1.899480E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KF8PG1AE

Flags Key

Detector: ALP10 1
 Report Date: 25-Feb-08 01:47 PM P: Peak Identified
 Acquire Date: 25-FEB-2008 10:27:34.68 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgrnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrscnt Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth	Right Wdth	Flags
U-232	668	0	0	3.339	5324.6	123.1	296	315	0.00	0.00	P
U-234	349	1	0	1.743	4779.0	161.9	206	231	0.00	0.00	P
U-235	16	0	0	0.080	4402.2	123.0	154	173	0.00	0.00	
U-238	289	3	0	1.441	4202.4	142.4	120	142	0.00	0.00	P

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 13:47:55

Configuration : \$DISK1:[ALP10.SAMPLE]KF8PG1AE_250281027.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 10:27:34
 Sample ID : KF8PG1AE Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP10 Detector geometry:
 Elapsed live time: 0 03:20:05.00 Elapsed real time: 0 03:20:05.00 0.0%
 Start energy : 3336.69 keV End energy : 6633.53 keV
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4201.29	289	0	38.80	136.63	120	22	2.41E-02	5.9	
2	0	4776.94	349	0	38.80	225.55	206	25	2.91E-02	5.4	
3	0	5324.59	668	0	32.34	310.09	296	19	5.56E-02	3.9	
4	0	5711.30	17	0	25.87	369.77	366	9	1.42E-03	24.3	

Alpha Spectrum Listing

(Version: 1 Apr 07)

Sample Identity: KF8PG1AE

Flags Key

Detector: ALP10 :

Report Date: 25 Feb 08 01:47 PM

Intersect Region: 0

Acquire Date: 25 FEB 2008 10:27:34.68

Non Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn					
0		1	0		51	0		101	0		151	0		201	0		251	14+	301	0		351	0		401	1		451	0		501
0		2	0		52	0		102	1		152	0		202	0		252	30+	302	0		352	0		402	0		452	0		502
C		3	0		53	1		103	0		153	1		203	0		253	28+	303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0+		154	0		204	0		254	35+	304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0+		155	0		205	0		255	28+	305	1		355	0		405	0		455	0		505
0		6	0		56	0		106	0+		156	3+		206	0		256	38+	306	0		356	0		406	0		456	0		506
0		7	0		57	2		107	0+		157	1+		207	2		257	49+	307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	0+		158	2+		208	2		258	51+	308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	0+		159	3+		209	0		259	59+	309	0		359	0		409	2		459	0		509
0		10	1		60	1		110	0+		160	3+		210	1		260	91+	310	0		360	0		410	1		460	0		510
0		11	0		61	0		111	0+		161	3+		211	0		261	98+	311	0		361	0		411	0		461	0		511
C		12	0		62	0		112	3+		162	2+		212	0		262	73+	312	0		362	0		412	0		462	0		512
C		13	0		63	2		113	1+		163	4+		213	0		263	15+	313	0		363	0		413	0		463	0		513
C		14	0		64	2		114	0+		164	7+		214	0		264	2+	314	0		364	0		414	1		464	0		514
C		15	0		65	0		115	0+		165	2+		215	0		265	0	315	0		365	0		415	2		465	0		515
C		16	0		66	1		116	1+		166	6+		216	1		266	0	316	0		366	0		416	0		466	0		516
C		17	0		67	1		117	6+		167	13+		217	1		267	1	317	1		367	0		417	0		467	0		517
C		18	0		68	0		118	0+		168	15+		218	0		268	0	318	0		368	0		418	0		468	0		518
C		19	1		69	2		119	1+		169	20+		219	0		269	1	319	4		369	0		419	0		469	0		519
C		20	0		70	0+		120	2+		170	13+		220	1		270	1	320	4		370	0		420	0		470	0		520
C		21	0		71	5+		121	1+		171	24+		221	0		271	1	321	5		371	0		421	0		471	0		521
C		22	0		72	4+		122	1+		172	19+		222	0		272	0	322	1		372	0		422	0		472	0		522
C		23	0		73	3+		123	0+		173	18+		223	0		273	0	323	0		373	0		423	0		473	0		523
C		24	1		74	1+		124	1		174	36+		224	0		274	3	324	0		374	1		424	0		474	0		524
0		25	0		75	4+		125	1		175	34+		225	0		275	0	325	0		375	0		425	0		475	0		525
0		26	0		76	1+		126	1		176	52+		226	1		276	4	326	0		376	0		426	0		476	0		526
0		27	0		77	9+		127	1		177	38+		227	2		277	2	327	0		377	0		427	0		477	0		527
0		28	0		78	5+		128	0		178	23+		228	1		278	1	328	0		378	0		428	0		478	0		528
C		29	0		79	9+		129	0		179	6+		229	1		279	3	329	0		379	1		429	0		479	0		529
C		30	0		80	14+		130	1		180	0+		230	2		280	2	330	0		380	0		430	0		480	0		530
0		31	0		81	10+		131	0		181	0		231	2		281	0	331	0		381	1		431	0		481	0		531
0		32	0		82	13+		132	0		182	0		232	1		282	0	332	0		382	1		432	0		482	0		532
0		33	0		83	15+		133	0		183	0		233	1		283	0	333	0		383	0		433	0		483	0		533
0		34	0		84	19+		134	1		184	0		234	3		284	0	334	0		384	1		434	0		484	0		534
0		35	0		85	23+		135	1		185	0		235	0		285	0	335	0		385	0		435	0		485	0		535
0		36	0		86	42+		136	0		186	0		236	2		286	0	336	0		386	0		436	0		486	0		536
0		37	0		87	34+		137	0		187	0		237	5		287	0	337	0		387	0		437	0		487	0		537
0		38	0		88	49+		138	1		188	0		238	3		288	0	338	0		388	0		438	0		488	0		538
0		39	0		89	24+		139	0		189	0		239	5		289	0	339	0		389	0		439	0		489	0		539
0		40	0		90	2+		140	1		190	0		240	2		290	0	340	0		390	0		440	0		490	0		540
0		41	1		91	0+		141	0		191	0		241	3		291	0	341	0		391	0		441	0		491	0		541
0		42	1		92	0		142	0		192	1		242	2		292	0	342	0		392	0		442	0		492	0		542
C		43	0		93	0		143	2		193	0		243	3		293	0	343	0		393	0		443	0		493	0		543
C		44	0		94	1		144	1		194	0		244	4		294	0	344	0		394	0		444	0		494	0		544
0		45	0		95	0		145	0		195	1		245	6		295	0	345	0		395	0		445	0		495	0		545
0		46	0		96	0		146	0		196	0		246	7+		296	0	346	0		396	0		446	0		496	0		546
0		47	0		97	0		147	2		197	0		247	7+		297	0	347	0		397	0		447	0		497	0		547
0		48	0		98	1		148	1		198	0		248	11+		298	0	348	0		398	0		448	0		498	0		548
0		49	1		99	0		149	2		199	0		249	18+		299	0	349	0		399	0		449	0		499	0		549
0		50	2		100	0		150	0		200	0		250	10+		300	0	350	0		400	0		450	0		500	0		550

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP10.SAMPLE]KF8PG1AE_250281027.CNF;1

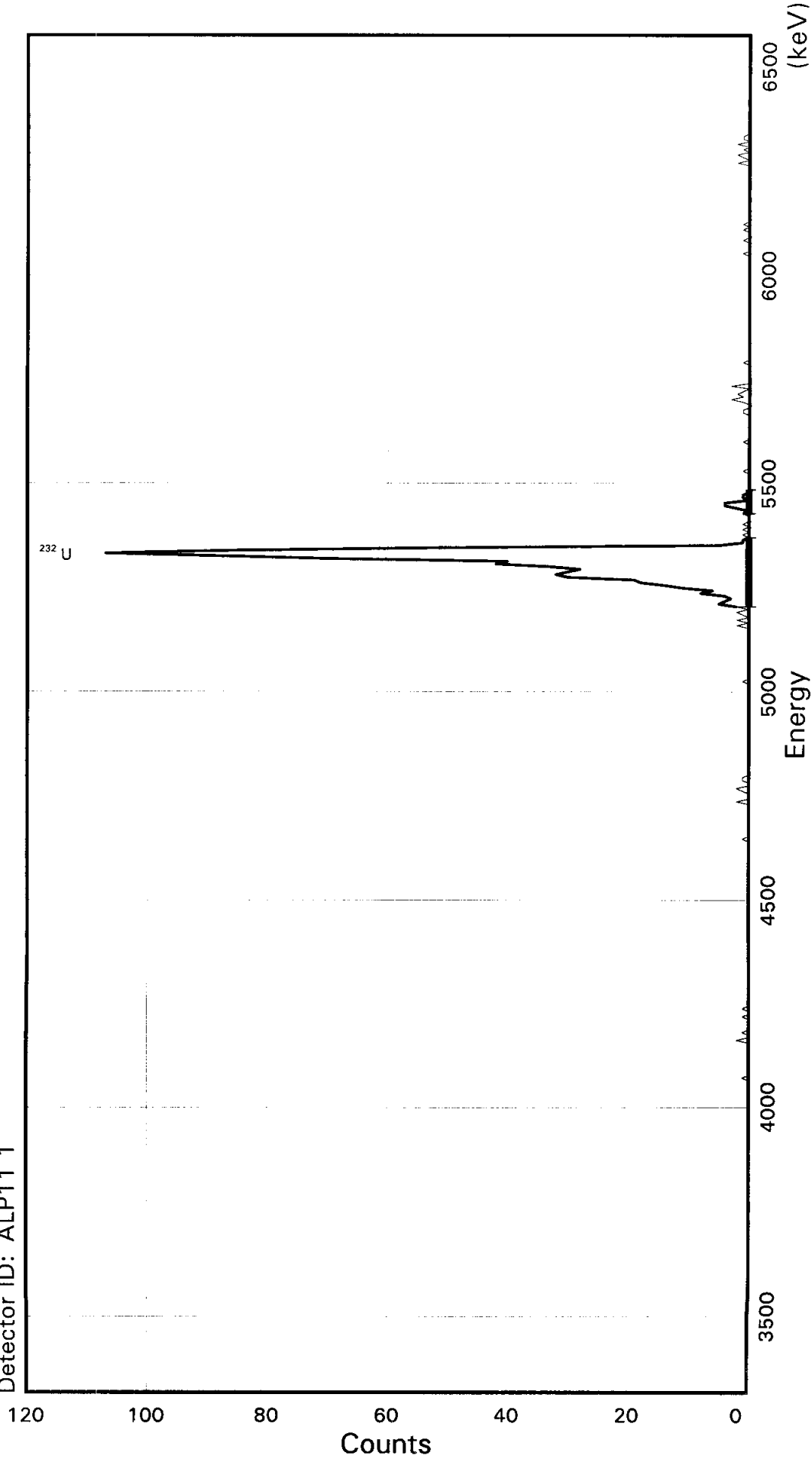
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4201.28	120	142	289	286	0.18		
4776.94	206	231	349	347	0.11		
5324.59	296	315	668	664	0.15		
5711.29	366	375	17	15	0.49		

End of Report

TAL Richland WA.
U BRCO

Sample ID: KGHX71AA
Detector ID: ALP11 1

Batch ID: 8035233



Acquisition Start: 25-FEB-2008 10:27:41.25
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:02.00

Energy Coefficients:
Offset: 3.29908E + 03
Slope: 6.43439E + 00
Quadrature: -7.02757E-05

SAMPLE IDENTIITY: KGHX71AA

TITLE : U BRCO

DETECTOR : ALP11 1
CONFIGURATION NAME : \$DISK1:[ALP11.SAMPLE] KGHX71AA_250281027.CNF;
1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:07:08

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 25-FEB-2008 10:27:41 CALIB DATE : 04-FEB-2008 03:40:05

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:02

OFFSET : 3299.08 keV CONSTANT FWHM : 8.00000 Channels
SLOPE : 6.43439 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : -.702757E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KGHX71AA

Flags Key

Detector: ALP11 1
 Report Date: 25-Feb-08 01:48 PM P: Peak Identified
 Acquire Date: 25-FEB-2008 10:27:41.25 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgrnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide	Smpl	Bkg	Intrsc	Count	Centrd	Region	Left	Right	Left	Right	Flags
Name	Count	Count	Count	Rate	Energy	Width	Chnl	Chnl	Wdth	Wdth	
U-232	748	12	0	3.727	5328.9	166.2	297	323	0.00	0.00	P
U-234	7	0	0	0.035	4783.4	166.5	212	238	0.00	0.00	
U-235	0	1	0	-0.001	4406.6	166.7	153	179	0.00	0.00	
U-238	5	1	0	0.024	4206.8	166.8	122	148	0.00	0.00	

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 13:48:02

Configuration : \$DISK1:[ALP11.SAMPLE]KGHX71AA_250281027.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 10:27:41
 Sample ID : KGHX71AA Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP11 Detector geometry:
 Elapsed live time: 0 03:20:02.00 Elapsed real time: 0 03:20:02.00 0.0%
 Start energy : 3318.38 keV End energy : 6575.06 keV
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	5328.93 ✓	748	0	38.61 ✓	316.56	297	26	6.23E-02	3.7	
2	0	5449.04	13	0	25.74	335.36	332	9	1.08E-03	27.7	

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP11.SAMPLE]KGHX71AA_250281027.CNF;1

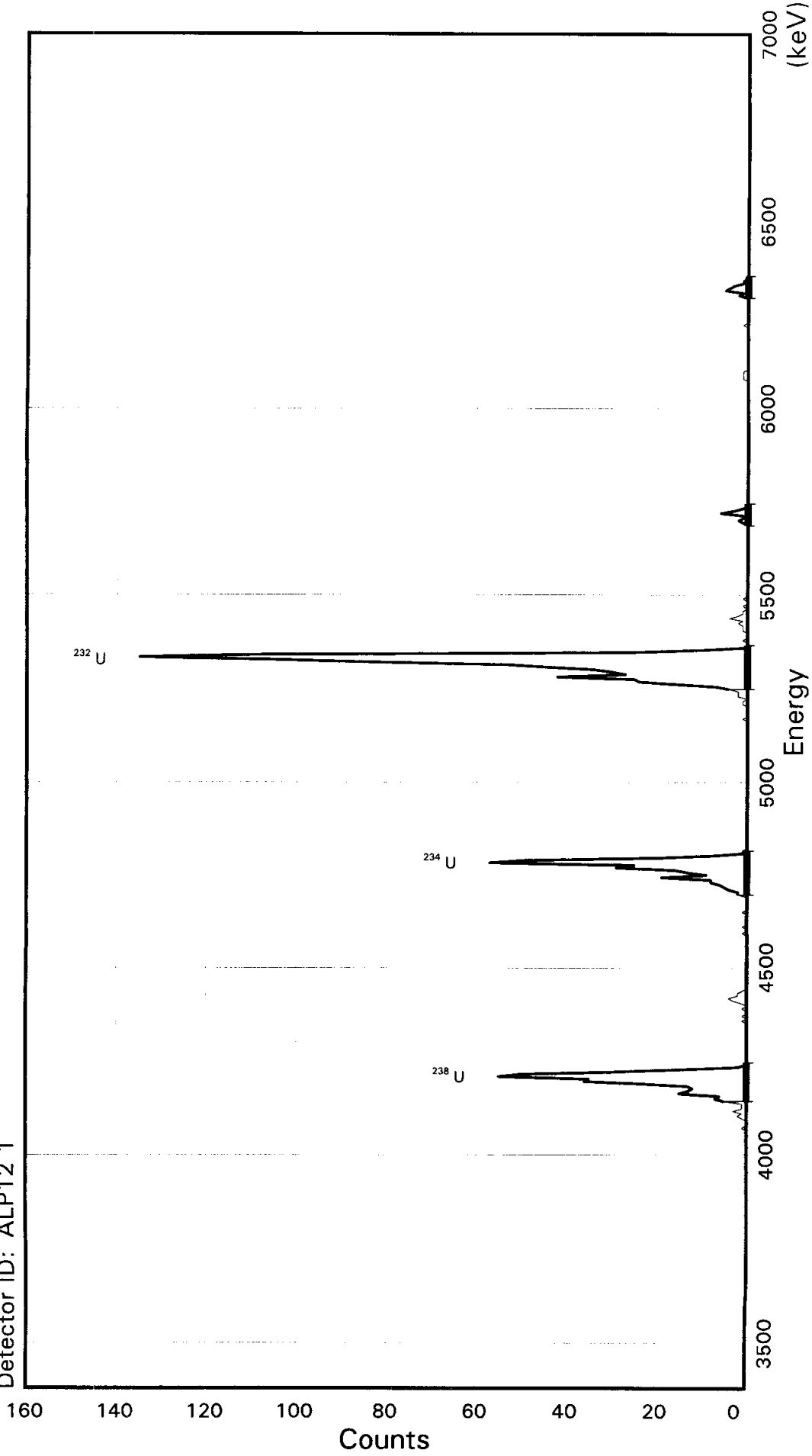
Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
5328.92	297	323	748	743	0.18		
5449.03	332	341	13	13	0.00		

End of Report

TAL Richland WA.
U BRCO

Sample ID: KGHX71AC
Detector ID: ALP12 1

Batch ID: 8035233



Acquisition Start: 25-FEB-2008 10:27:45.63
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:03.00

Energy Coefficients:
Offset: 3.35913E + 03
Slope: 6.52757E + 00
Quadrature: 2.98539E-05

SAMPLE IDENTIITY: KGHX71AC

TITLE : U BRCO

DETECTOR : ALP12 1

CONFIGURATION NAME : \$DISK1:[ALP12.SAMPLE] KGHX71AC_250281027.CNF;
1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:07:15

REPORT DATE : 25-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00 ✓
ACQUIRE DATE: 25-FEB-2008 10:27:45 CALIB DATE : 04-FEB-2008 03:40:10

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:03

OFFSET : 3359.13 keV CONSTANT FWHM : 6.50000 Channels
SLOPE : 6.52757 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : 2.985390E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KGHX71AC

Flags Key

Detector: ALP12 1
 Report Date: 25-Feb-08 01:48 PM P: Peak Identified
 Acquire Date: 25-FEB-2008 10:27:45.63 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgrnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrscnt Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth	Right Wdth	Flags
U-232	781	3	0	3.901	5328.0	117.8	289	307	0.00	0.00	P ✓
U-234	280	0	0	1.400	4782.5	117.7	205	223	0.00	0.00	P ✓
U-235	16	0	0	0.080	4405.7	117.7	148	166	0.00	0.00	
U-238	315	0	0	1.575	4205.9	104.6	120	136	0.00	0.00	P ✓

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 13:48:09

Configuration : \$DISK1:[ALP12.SAMPLE]KGHX71AC_250281027.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 10:27:45
 Sample ID : KGHX71AC Sample quantity : 0.000000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP12 Detector geometry:
 Elapsed live time: 0 03:20:03.00 Elapsed real time: 0 03:20:03.00 0.0%
 Start energy : 3378.72 keV End energy : 6709.07 keV
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4208.29 ✓	315	0	32.64 ✓	130.01	120	16	2.62E-02	5.6	
2	0	4783.75 ✓	280	0	32.64 ✓	218.03	205	18	2.33E-02	6.0	
3	0	5328.02 ✓	781	0	32.64 ✓	301.21	289	18	6.51E-02	3.6	
4	0	5719.48	15	0	32.64	361.00	356	9	1.25E-03	25.8	
5	0	6318.97	18	0	26.11	452.50	449	9	1.50E-03	23.6	

Alpha Spectrum Listing

(Version: 1-Apr 07)

Sample Identity: KGHX71AC

Flags Key

Detector: ALP12 1

Report Date: 25 Feb 08 01:48 PM

Intersect Region: G

Acquire Date: 25 FEB 2008 10:27:45.63

Non Intersect Region: +

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn									
0		1	0		51	0		101	0+		151	0		201	0		251	105+		301	0		351	0		401	1		451	0		501
		2	0		52	0		102	0+		152	0		202	0		252	135+		302	0		352	0		402	5		452	0		502
0		3	0		53	0		103	1+		153	0		203	0		253	110+		303	0		353	0		403	4		453	0		503
0		4	0		54	0		104	0+		154	0		204	0		254	26+		304	0		354	0		404	3		454	0		504
0		5	0		55	0		105	1+		155	2+		205	0		255	10+		305	0		355	0		405	1		455	0		505
0		6	0		56	0		106	0+		156	2+		206	0		256	0+		306	0		356	0		406	1		456	0		506
0		7	0		57	0		107	0+		157	4+		207	0		257	0		307	1		357	0		407	0		457	0		507
0		8	0		58	0		108	1+		158	5+		208	0		258	0		308	2		358	0		408	0		458	0		508
0		9	0		59	1		109	0+		159	6+		209	0		259	1		309	1		359	0		409	0		459	0		509
0		10	0		60	0		110	1+		160	8+		210	0		260	0		310	1		360	0		410	0		460	0		510
0		11	0		61	0		111	3+		161	8+		211	0		261	0		311	6		361	0		411	0		461	0		511
0		12	0		62	0		112	4+		162	19+		212	0		262	0		312	3		362	0		412	0		462	0		512
0		13	0		63	1		113	2+		163	9+		213	0		263	1		313	1		363	0		413	0		463			
0		14	0		64	2		114	2+		164	13+		214	0		264	1		314	0		364	0		414	0		464			
0		15	0		65	1		115	1+		165	16+		215	0		265	1		315	0		365	0		415	0		465			
0		16	0		66	3		116	0+		166	29+		216	0		266	2		316	0		366	1		416	0		466			
0		17	0		67	1		117	0		167	25+		217	0		267	1		317	0		367	1		417	0		467			
0		18	0		68	1		118	0		168	57+		218	0		268	4		318	0		368	1		418	0		468			
0		19	0		69	1		119	0		169	49+		219	0		269	2		319	0		369	1		419	0		469			
0		20	0		70	5+		120	0		170	20+		220	0		270	1		320	0		370	0		420	0		470			
0		21	0		71	7+		121	0		171	7+		221	0		271	1		321	0		371	0		421	0		471			
0		22	0		72	6+		122	0		172	0+		222	0		272	0		322	0		372	0		422	0		472			
0		23	0		73	15+		123	0		173	1		223	0		273	1		323	0		373	0		423	0		473			
0		24	0		74	13+		124	0		174	0		224	0		274	0		324	0		374	0		424	0		474			
0		25	0		75	12+		125	0		175	0		225	0		275	0		325	0		375	0		425	0		475			
0		26	0		76	13+		126	0		176	0		226	0		276	1		326	0		376	0		426	0		476			
0		27	0		77	23+		127	0		177	0		227	1		277	0		327	0		377	0		427	0		477			
0		28	0		78	36+		128	0		178	0		228	0		278	0		328	0		378	0		428	0		478			
0		29	0		79	35+		129	0		179	0		229	0		279	0		329	0		379	0		429	0		479			
0		30	0		80	55+		130	0		180	0		230	0		280	0		330	0		380	0		430	0		480			
0		31	0		81	50+		131	0		181	0		231	0		281	0		331	0		381	0		431	0		481			
0		32	0		82	30+		132	0		182	0		232	0		282	0		332	0		382	0		432	0		482			
0		33	0		83	15+		133	0		183	0		233	1		283	0		333	0		383	0		433	0		483			
0		34	0		84	2+		134	0		184	0		234	1		284	0		334	0		384	0		434	0		484			
0		35	0		85	0+		135	0		185	0		235	0		285	0		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	0		236	2		286	0		336	0		386	0		436	0		486			
0		37	0		87	0		137	0		187	0		237	2		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	0		188	0		238	2		288	0		338	0		388	1		438	0		488			
0		39	0		89	0		139	1		189	0		239	4+		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	0		240	7+		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	0		241	16+		291	0		341	0		391	0		441	0		491			
0		42	0		92	0		142	1		192	0		242	24+		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	0		243	25+		293	0		343	0		393	0		443	0		493			
0		44	0		94	0		144	0		194	0		244	42+		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	0		195	0		245	27+		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	0		196	0		246	30+		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	0		197	0		247	34+		297	0		347	0		397	0		447	0		497			
0		48	0		98	0+		148	1		198	0		248	44+		298	0		348	0		398	0		448	0		498			
0		49	0		99	0+		149	0		199	0		249	53+		299	0		349	0		399	0		449	0		499			
0		50	0		100	0+		150	0		200	0		250	82+		300	0		350	0		400	2		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP12.SAMPLE]KGHX71AC_250281027.CNF;1

Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4208.28	120	136	315	317	-0.11		
4783.74	205	223	280	280	0.00		
5328.02	289	307	781	774	0.25		
5719.47	356	365	15	15	0.00		
6318.97	449	458	18	17	0.24		

End of Report

URANIUM ISOTOPIC
STANDARDS AND TRACEABILITY

Standard Material Fractions (Vials)

Vial Prep: 3/26/07 to 3/27/08, SMFractionIdentifier Between UITC19496 and UITC19506, 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: U23201A131		Ref: 6/15/2001	5.3490E+01	± 1.664E+00	DPM/G	
UITC19496	U-232	1.0156E+01 ± 3.160E-01	DPM 0.203 g	2/6/2008 2/6/2008	Armstron	5.0031E+01 ± 1.556E+00 DPM/G
UITC19497	U-232	1.0116E+01 ± 3.148E-01	DPM 0.2022 g	2/6/2008 2/6/2008	Armstron	5.0031E+01 ± 1.556E+00 DPM/G
UITC19498	U-232	1.0116E+01 ± 3.148E-01	DPM 0.2022 g	2/6/2008 2/6/2008	Armstron	5.0031E+01 ± 1.556E+00 DPM/G
UITC19499	U-232	1.0196E+01 ± 3.173E-01	DPM 0.2038 g	2/6/2008 2/6/2008	Armstron	5.0031E+01 ± 1.556E+00 DPM/G
UITC19500	U-232	1.0061E+01 ± 3.131E-01	DPM 0.2011 g	2/6/2008 2/6/2008	Armstron	5.0031E+01 ± 1.556E+00 DPM/G
UITC19501	U-232	1.0096E+01 ± 3.142E-01	DPM 0.2018 g	2/6/2008 2/6/2008	Armstron	5.0031E+01 ± 1.556E+00 DPM/G
UITC19502	U-232	1.0061E+01 ± 3.131E-01	DPM 0.2011 g	2/6/2008 2/6/2008	Armstron	5.0031E+01 ± 1.556E+00 DPM/G
UITC19503	U-232	1.0221E+01 ± 3.181E-01	DPM 0.2043 g	2/6/2008 2/6/2008	Armstron	5.0031E+01 ± 1.556E+00 DPM/G
UITC19504	U-232	1.0121E+01 ± 3.149E-01	DPM 0.2023 g	2/6/2008 2/6/2008	Armstron	5.0031E+01 ± 1.556E+00 DPM/G
UITC19505	U-232	1.0126E+01 ± 3.151E-01	DPM 0.2024 g	2/6/2008 2/6/2008	Armstron	5.0031E+01 ± 1.556E+00 DPM/G
UITC19506	U-232	1.0081E+01 ± 3.137E-01	DPM 0.2015 g	2/6/2008 2/6/2008	Armstron	5.0031E+01 ± 1.556E+00 DPM/G

9.2796E+000 ± 2.923E+000 (12) 31.496% 1.0061E+001 , 1.0221E+001

Standard Material Fractions (Vials)

Vial Prep: 3/26/07 to 3/27/08, SMFractionIdentifier Like: UISG1604%, 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:		U23201A131	Ref: 6/15/2001	5.3490E+01	± 1.664E+00	DPM/G
UISG1604	U-232	1.0035E+01 ± 3.123E-01 DPM	0.2005 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
		1.0035E+001 ± 1.003E+001 (1)		1.0035E+001 , 1.0035E+001		

U23201A

U23201A000 #4911
4.8E+7 ± 1.5E+6
dpm/g
6/1/01 REF

U23201A100 #4920
1.896E+6 ± 5.9E+4
dpm/g
6/15/01 PREP

U23201A130 #6281
1.33E+4 ± 4.1E+2
dpm/g
1/10/08 PREP

U23201A131 #6282
53.49 ± 1.66
dpm/g
1/10/08 PREP

ISOTOPE DILUTION RECORD

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>1/10/2008</u>
3) Source Identification Number / Ref. Number	<u>U23201A130</u>	<u>6281</u>	
4) Source Activity (dpm ± dpm/g)	<u>1.3382E+04</u>	±	<u>4.162E+02</u>
5) Percent error of Source Activity	<u>3.11</u>	%	
6) Weight of Source Material used (g)	<u>1.0212</u>		
7) (% Error) of Weight of Source Material used	<u>0.0294</u>	%	
8) Diluent	<u>2 M HNO3</u>		
9) Total Weight of the Dilution (g)	<u>255.48</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.0068</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>5.3490E+01</u>	±	<u>1.664E+00</u>
12) Total Uncertainty	<u>3.110</u>	%	
13) Dilution Identification Number / Ref. Number	<u>U23201A131</u>	<u>6282</u>	
14) Calibration Reference Date	<u>6/15/2001</u>		
15) Isotope Inventory File update by/date	<u>tda</u>	<u>1/10/2008</u>	
16) Reviewed by/date	<u></u>	<u></u>	
17) Location	<u>Lab 134A</u>	18) Exhausted	<u></u>

CALCULATIONS

5) Cert value at 99.7% (K=3) level / 3 OR Cert Value 95% (K=2) level/2 = 1 sigma uncertainty for propagation

7) % error of wt. used = (0.0003 / weight of source material used * 100)

$$\text{wt uncert (4 place balance)} = \text{Sqrt}(0.0002^2 + 0.0002^2 + 0.00001^2) = 0.0003 \text{ g}$$

10) % error of dilution wt. = (0.0173 / total weight of dilution * 100)

$$\text{wt uncert (0.1 place balance)} = \text{Sqrt}(0.1^2 + 0.1^2 + 0.1^2) = 0.178 \text{ g}$$

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

$$12) \% \text{ Total Uncertainty} = \sqrt{(\% \text{ error of Source Activity})^2 + (\% \text{ error of Wt. Used})^2 + (\% \text{ error of Dilution Wt.})^2}$$

ISOTOPE DILUTION RECORD

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>1/10/2008</u>
3) Source Identification Number / Ref. Number	<u>U23201A100</u>	<u>4920</u>	
4) Source Activity (dpm ± dpm/g)	<u>1.8963E+06</u>	±	<u>5.897E+04</u>
5) Percent error of Source Activity	<u>3.11</u>	%	
6) Weight of Source Material used (g)	<u>1.7787</u>		
7) (% Error) of Weight of Source Material used	<u>0.0169</u>	%	
8) Diluent	<u>2 M HNO3</u>		
9) Total Weight of the Dilution (g)	<u>252.06</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.0069</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>1.3382E+04</u>	±	<u>4.162E+02</u>
12) Total Uncertainty	<u>3.110</u>	%	
13) Dilution Identification Number / Ref. Number	<u>U23201A130</u>	<u>6281</u>	
14) Calibration Reference Date	<u>6/15/2001</u>		
15) Isotope Inventory File update by/date	<u>tda</u>		<u>1/10/2008</u>
16) Reviewed by/date	<u></u>		<u></u>
17) Location	<u>Lab 134A</u>	18) Exhausted	<u></u>

CALCULATIONS

5) Cert value at 99.7% (K=3) level / 3 OR Cert Value 95% (K=2) level/2 = 1 sigma uncertainty for propagation

7) % error of wt. used = (0.0003 / weight of source material used * 100)
wt uncert (4 place balance) = Sqrt(0.0002² + 0.0002² + 0.00001²) = 0.0003 g

10) % error of dilution wt. = (0.0173 / total weight of dilution * 100)
wt uncert (0.1 place balance) = Sqrt(0.1² + 0.1² + 0.1²) = 0.178 g

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

12) % Total Uncertainty = $\sqrt{(\% \text{ error of Source Activity})^2 + (\% \text{ error of Wt. Used})^2 + (\% \text{ error of Dilution Wt.})^2}$

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>6/15/2001</u>
3) Source Identification Number / Ref. Number	<u>U23201A000</u>	<u>4911</u>	
4) Source Activity (dpm ± dpm/g)	<u>4.8289E+07</u>	±	<u>1.497E+06</u>
5) Percent error of Source Activity	<u>3.1</u>	%	
6) Weight of Source Material used (g)	<u>5.1444</u>		
7) (% Error) of Weight of Source Material used	<u>0.0933</u>	%	
8) Diluent	<u>2M HNO3-P0100281</u>		
9) Total Weight of the Dilution (g)	<u>131</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2290</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>1.8963E+06</u>	±	<u>5.897E+04</u>
12) Total Uncertainty	<u>3.110</u>	%	
13) Dilution Identification Number / Ref. Number	<u>U23201A100</u>	<u>4920</u>	
14) Calibration Reference Date	<u>6/15/2001</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>6/15/2001</u>
16) Reviewed by/date	<u>rross</u>		<u>6/20/2001</u>
17) Location <u>QCLABSTWT0413</u>	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

ISOTOPE RECORD FORM

1) Isotope U-232 2) Reference Number 4911
3) Half Life 69.9 yrs 4) Storage Location STDLAB

5) Source Identification Number U23201A000

CALIBRATION DATA

6) Activity as Received Units 21.76 uCi/g

7) Overall Uncertainty Percent 3.1%

8) Reference Date / Time 6/1/01 12:00 PST (12:00 PM)

9) Activity dpm/g 4.8307E+07 ± 1.4975E+06 dpm

10) Volume or Mass (ml/g) 5.18455g

11) Calibrated by IPL

12) Certificate Solution Number 763-34-3

SURVEY DATA

13) Date Received 6/4/2001

14) Surveyed by W.G

15) Survey Reading (Beta/Gamma) cpm <1k

16) Survey Reading (Alpha) cpm <100 cpm

17) Activity Conversion _____

21.76 uCi/g x 2.22E+6dpm/uCi= 4.831E+7 ± 1.498E+6 (3.1%) dpm/g

18) Remarks _____

19) Isotope File Updated by 6/4/01 W.G

20) QC Approved rross 6/20/01

Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
		Parent Standard: U3O808A100	Ref: 8/1/1957	1.1369E+01 ± 3.506E-01	UG/G	
UISG1604	U	5.2070E+00 ± 1.606E-01 UG	0.458 g	1/24/2008 1/24/2008	Armstron	1.1369E+01 ± 3.506E-01 UG/G
		5.2070E+000 ± 5.207E+000 (1)		5.2070E+000 , 5.2070E+000		

Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
Parent Standard: U3O808A100		Ref: 8/1/1957	1.7485E+01	± 5.390E-01	DPM/G	
UISG1604	Uiso	8.0084E+00 ± 2.469E-01 DPM	0.458 g	1/24/2008 1/24/2008	Armstron	1.7485E+01 ± 5.390E-01 DPM/G

8.0084E+000 ± 8.008E+000 (1) 8.0084E+000 , 8.0084E+000

U3O808A

U3O808A100 #6283
17.855 ± 0.539
dpm/g
8/1/57 REF

ISOTOPE DILUTION RECORD

1) Prepared by tda 2) Date Prepared 8/12/2004

3) Source Identification Number / Ref. Number U23801ALA2

4) Source Activity (dpm ± dpm/g) 1.7486E+01 ± 5.390E-01

5) Source Activity (ug ± ug/g) 1.1369E+01 3.5046E-01

6) Percent error of Source Activity 3.083 %

7) Weight of Source Material used (g) 500

8) (% Error) of Weight of Source Material used 0.0000 %

9) Diluent 1 M HNO3

10) Total Weight of the Dilution (g) 500

11) (% Error) of Total Weight of the Dilution 0.0036 %

12) Specific Activity of Diluted Solution dpm/g 1.7486E+01 ± 5.392E-01

13) Specific Activity of Diluted Solution ug/g 1.1369E+01 ± 3.506E-01

14) Specific Activity of Diluted Solution ug/ml 1.2120E+01 3.737E-01

15) Total Uncertainty 3.084 %

16) Dilution Identification Number / Ref. Number U3O808A100 6283

17) Calibration Reference Date 8/1/1957

18) Isotope Inventory File update by/date tda 1/14/2008

19) Reviewed by/date _____

20) Location 134A 21) Exhausted _____

CALCULATIONS

5) Cert value at 99.7% (K=3) level / 3 OR Cert Value 95% (K=2) level/2 = 1 sigma uncertainty for propagation

7) % error of wt. used = (0.0003 / weight of source material used * 100)
 wt uncert (4 place balance) = $\text{Sqrt}(0.0002^2 + 0.0002^2 + 0.00001^2) = 0.0003 \text{ g}$

10) % error of dilution wt. = (0.0173 / total weight of dilution * 100)
 wt uncert (0.1 place balance) = $\text{Sqrt}(0.1^2 + 0.1^2 + 0.1^2) = 0.178 \text{ g}$

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

12) % Total Uncertainty = $\sqrt{(\% \text{ error of Source Activity}^2 + \% \text{ error of Wt. Used}^2 + \% \text{ error of Dilution Wt.}^2)}$

ISOTOPE RECORD FORM

1) Isotope U-NAT 2) Reference Number 6283

3) Half Life Neglible Decay 4) Storage Location Standards Lab 134A

5) Source Identification Number U3O808A100 #6283

CALIBRATION DATA

6) Activity as Received Units 7.9 pCi/mL

7) Overall Uncertainty Percent 3.1%

8) Reference Date / Time 8/1/1957

9) Activity dpm/g 17.4855 ± 0.539 dpm/g

10) Volume or Mass (ml/g) 500 g

11) Calibrated by North American Scientific

12) Certificate Solution Number 9059

SURVEY DATA

13) Date Received 1/14/2008

14) Surveyed by tda

15) Survey Reading (Beta/Gamma) cpm < BKGD

16) Survey Reading (Alpha) cpm <BKGD

17) Activity Conversion 7.9 pCi/mL * 2.22 dpm/pCi / 1.003 g/mL

17.4855 ± 0.539 dpm/g

18) Remarks From STL DENVER

19) Isotope File Updated by tda 1/14/2008

20) QC Approved _____

URANIUM ISOTOPIC
CONTINUING CALIBRATION

Quality Assurance Report. Generated 25-MAR-2008 18:29:41.97

QA Filename : \$DISK1:[ALP10.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.309514 Std Deviation : 0.004136

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3113		
1-MAR-2008 05:27	chk		0.3124		

3-FEB-2008 10:58	chk		0.3113		
1-MAR-2008 05:27	chk		0.3124		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 6.871528 Std Deviation : 0.277697

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		6.6667		
1-MAR-2008 05:27	chk		6.6667		

3-FEB-2008 10:58	chk		6.6667		
1-MAR-2008 05:27	chk		6.6667		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 336.913025 Std Deviation : 0.884855

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		335.9507		
1-MAR-2008 05:27	chk		336.0268		

3-FEB-2008 10:58	chk		335.9507		
1-MAR-2008 05:27	chk		336.0268		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.393942 Std Deviation : 0.003594

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3966		
1-MAR-2008 05:27	chk		0.3933		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3966		
1-MAR-2008 05:27	chk		0.3933		

3-FEB-2008 10:58	chk		0.3966		
1-MAR-2008 05:27	chk		0.3933		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 6.460815 Std Deviation : 0.032956

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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3-FEB-2008 10:58	chk	6.4673	
1-MAR-2008 05:27	chk	6.4832	

Quality Assurance Report. Generated 25-MAR-2008 18:29:42.62

QA Filename : \$DISK1:[ALP10.QA]GROUP_1_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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000720 Std Deviation : 0.000834

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0000		
2-MAR-2008 06:38	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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.001100 Std Deviation : 0.001054

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0020		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000480 Std Deviation : 0.000931

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000980 Std Deviation : 0.001134

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
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4-FEB-2008 06:07	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0020		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.001360 Std Deviation : 0.001258

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0010		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001280 Std Deviation : 0.001125

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0010		
2-MAR-2008 06:38	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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000860 Std Deviation : 0.000904

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0010		
2-MAR-2008 06:38	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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000700 Std Deviation : 0.000974

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0000		
2-MAR-2008 06:38	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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000600 Std Deviation : 0.000833

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0000		
2-MAR-2008 06:38	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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001500 Std Deviation : 0.001182

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:07	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002480 Std Deviation : 0.001865

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:07	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0030	

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.003160 Std Deviation : 0.002262

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
4-FEB-2008 06:07	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0030	

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.003799 Std Deviation : 0.002618

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0040		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.030576 Std Deviation : 0.020744

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0590		
2-MAR-2008 06:38	bkg		0.0510		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.028916 Std Deviation : 0.020062

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07 bkg 0.0630 | | |
 2-MAR-2008 06:38 bkg 0.0570 | | |

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.027536 Std Deviation : 0.019106

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07 bkg			0.0590		
2-MAR-2008 06:38 bkg			0.0540		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.026496 Std Deviation : 0.020217

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07 bkg			0.0620		
2-MAR-2008 06:38 bkg			0.0600		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.017718 Std Deviation : 0.014607

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0480	In	
2-MAR-2008 06:38	bkg		0.0470	In	

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.007619 Std Deviation : 0.005882

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0130		
2-MAR-2008 06:38	bkg		0.0080		

Quality Assurance Report.

Generated 25-MAR-2008 18:24:43.12

QA Filename : \$DISK1:[ALP9.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

Description : Efficiency, Am-241

Parameter Units : % Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.375765 Std Deviation : 0.004805

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3781		
1-MAR-2008 05:27	chk		0.3821		

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 5.978633 Std Deviation : 0.327090

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		5.6667		
1-MAR-2008 05:27	chk		5.3333		

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 348.659424 Std Deviation : 1.265148

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		347.5289		
1-MAR-2008 05:27	chk		347.6479		

3-FEB-2008 10:58	chk		347.5289		
1-MAR-2008 05:27	chk		347.6479		

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.399313 Std Deviation : 0.002771

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.4041		
1-MAR-2008 05:27	chk		0.4030		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.4041		
1-MAR-2008 05:27	chk		0.4030		

3-FEB-2008 10:58	chk		0.4041		
1-MAR-2008 05:27	chk		0.4030		

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 6.388854 Std Deviation : 0.034148

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

```
-----
3-FEB-2008 10:58  chk          6.3441  | | |
1-MAR-2008 05:27  chk          6.4185  | | |
```

Quality Assurance Report. Generated 25-MAR-2008 18:24:43.75

QA Filename : \$DISK1:[ALP9.QA]GROUP_1_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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000900 Std Deviation : 0.001033

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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```
-----
4-FEB-2008 06:07  bkg          0.0030  |In| |
2-MAR-2008 06:38  bkg          0.0000  | | |
```

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.001025 Std Deviation : 0.000891

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

```
-----
4-FEB-2008 06:07  bkg          0.0000  | | |
2-MAR-2008 06:38  bkg          0.0010  | | |
```

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000425 Std Deviation : 0.000594

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001375 Std Deviation : 0.001191

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
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4-FEB-2008 06:07	bkg		0.0000		
2-MAR-2008 06:38	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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.001300 Std Deviation : 0.001159

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:07	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0010	

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.001300 Std Deviation : 0.001202

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:07	bkg		0.0010	
2-MAR-2008 06:38	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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.001125 Std Deviation : 0.001244

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:07	bkg		0.0010	
2-MAR-2008 06:38	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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001325 Std Deviation : 0.001268

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

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

4-FEB-2008 06:07	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001225 Std Deviation : 0.001229

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:07	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000525 Std Deviation : 0.000987

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:07	bkg		0.0010	
2-MAR-2008 06:38	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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001800 Std Deviation : 0.001667

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:07	bkg		0.0060	In
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002350 Std Deviation : 0.001791

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
4-FEB-2008 06:07	bkg		0.0060	In
2-MAR-2008 06:38	bkg		0.0040	

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002650 Std Deviation : 0.002007

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0060		
2-MAR-2008 06:38	bkg		0.0040		

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.028122 Std Deviation : 0.018926

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0500		
2-MAR-2008 06:38	bkg		0.0440		

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.026872 Std Deviation : 0.018140

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07 bkg 0.0480 | | |
 2-MAR-2008 06:38 bkg 0.0500 | | |

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.025647 Std Deviation : 0.017446

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07 bkg			0.0440		
2-MAR-2008 06:38 bkg			0.0490		

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.024822 Std Deviation : 0.017017

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07 bkg			0.0420		
2-MAR-2008 06:38 bkg			0.0460		

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.015073 Std Deviation : 0.011386

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0300		
2-MAR-2008 06:38	bkg		0.0330		

-- 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 : 26-AUG-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.007749 Std Deviation : 0.006041

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0110		
2-MAR-2008 06:38	bkg		0.0160		

Quality Assurance Report.

Generated 25-MAR-2008 18:22:41.11

QA Filename : \$DISK1:[ALP8.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

Description : Efficiency, Am-241

Parameter Units : Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.375300 Std Deviation : 0.005814

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3760		
1-MAR-2008 05:27	chk		0.3705		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00

Mean : 8.564816 Std Deviation : 0.215774

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		8.5000		
1-MAR-2008 05:27	chk		8.8333		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 363.823730 Std Deviation : 1.395498

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		364.5159		
1-MAR-2008 05:27	chk		364.9947		

3-FEB-2008 10:58	chk		364.5159		
1-MAR-2008 05:27	chk		364.9947		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.388212 Std Deviation : 0.003624

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3892		
1-MAR-2008 05:27	chk		0.3879		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3892		
1-MAR-2008 05:27	chk		0.3879		

3-FEB-2008 10:58	chk		0.3892		
1-MAR-2008 05:27	chk		0.3879		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.337713 Std Deviation : 0.059876

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

-----
3-FEB-2008 10:58  chk          7.3816  | | |
1-MAR-2008 05:27  chk          7.3840  | | |

```

Quality Assurance Report. Generated 25-MAR-2008 18:22:41.82

QA Filename : \$DISK1:[ALP8.QA]GROUP_1_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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000273 Std Deviation : 0.000489

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

-----
4-FEB-2008 06:06  bkg          0.0010  | | |
2-MAR-2008 06:38  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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000618 Std Deviation : 0.000850

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

```

-----
4-FEB-2008 06:06  bkg          0.0010  | | |
2-MAR-2008 06:38  bkg          0.0030  |In| |

```

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000273 Std Deviation : 0.000489

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000582 Std Deviation : 0.000738

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
Quality Assurance Multi-Test Full Report (continued)					
					Page : 2
4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000727 Std Deviation : 0.000912

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0030	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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000745 Std Deviation : 0.000907

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0030	In

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000600 Std Deviation : 0.000894

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0030	In

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000509 Std Deviation : 0.000814

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

4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0020		

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

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

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

4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0020		

4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0020		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000491 Std Deviation : 0.000717

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

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

4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0020	In	

4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0020	In	

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000945 Std Deviation : 0.001079

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002018 Std Deviation : 0.001810

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0040	
2-MAR-2008 06:38	bkg		0.0060	In

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002381 Std Deviation : 0.002095

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
4-FEB-2008 06:06	bkg		0.0040	
2-MAR-2008 06:38	bkg		0.0060	

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.003054 Std Deviation : 0.002669

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0080		
2-MAR-2008 06:38	bkg		0.0090	In	

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.029142 Std Deviation : 0.020744

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0620		
2-MAR-2008 06:38	bkg		0.0590		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.034432 Std Deviation : 0.024465

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg 0.0690 | | |
 2-MAR-2008 06:38 bkg 0.0630 | | |

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.032850 Std Deviation : 0.023341

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.0650		
2-MAR-2008 06:38 bkg			0.0550		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.028323 Std Deviation : 0.021259

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.0460		
2-MAR-2008 06:38 bkg			0.0570		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.025924 Std Deviation : 0.019373

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0420		
2-MAR-2008 06:38	bkg		0.0520		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.008490 Std Deviation : 0.006154

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0110		
2-MAR-2008 06:38	bkg		0.0180		

Quality Assurance Report. Generated 25-MAR-2008 18:13:08.41

QA Filename : \$DISK1:[ALP7.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.352356 Std Deviation : 0.005641

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3558		
1-MAR-2008 05:27	chk		0.3460		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 6.811476 Std Deviation : 0.287833

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		6.6667		
1-MAR-2008 05:27	chk		6.8333		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 352.506622 Std Deviation : 1.223419

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		351.1161		
1-MAR-2008 05:27	chk		351.5854		

3-FEB-2008 10:58	chk		351.1161		
1-MAR-2008 05:27	chk		351.5854		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.366566 Std Deviation : 0.003389

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3682		
1-MAR-2008 05:27	chk		0.3647		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3682		
1-MAR-2008 05:27	chk		0.3647		

3-FEB-2008 10:58	chk		0.3682		
1-MAR-2008 05:27	chk		0.3647		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.468111 Std Deviation : 0.055237

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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3-FEB-2008 10:58  chk          7.5167  | | |
1-MAR-2008 05:27  chk          7.3664  | | |
```

Quality Assurance Report. Generated 25-MAR-2008 18:13:09.11

QA Filename : \$DISK1:[ALP7.QA]GROUP_1_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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000806 Std Deviation : 0.000973

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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```
-----
4-FEB-2008 06:06  bkg          0.0000  | | |
2-MAR-2008 06:38  bkg          0.0020  | | |
```

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.001761 Std Deviation : 0.001915

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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```
-----
4-FEB-2008 06:06  bkg          0.0010  | | |
2-MAR-2008 06:38  bkg          0.0010  | | |
```

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000343 Std Deviation : 0.000565

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001806 Std Deviation : 0.002039

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
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4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.001776 Std Deviation : 0.002288

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001552 Std Deviation : 0.002203

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0030	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000925 Std Deviation : 0.001049

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000746 Std Deviation : 0.000893

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000582 Std Deviation : 0.000819

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000985 Std Deviation : 0.001174

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002134 Std Deviation : 0.002102

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0030	
2-MAR-2008 06:38	bkg		0.0060	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002850 Std Deviation : 0.002606

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
4-FEB-2008 06:06	bkg		0.0070	
2-MAR-2008 06:38	bkg		0.0110	Ac

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.004373 Std Deviation : 0.003646

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0110		
2-MAR-2008 06:38	bkg		0.0140	In	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.031652 Std Deviation : 0.023391

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0630		
2-MAR-2008 06:38	bkg		0.0670		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.031160 Std Deviation : 0.023231

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg 0.0600 | | |
 2-MAR-2008 06:38 bkg 0.0650 | | |

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.029414 Std Deviation : 0.022060

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.0560		
2-MAR-2008 06:38 bkg			0.0620		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.029832 Std Deviation : 0.024627

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.0460		
2-MAR-2008 06:38 bkg			0.0680		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.026534 Std Deviation : 0.022488

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0430		
2-MAR-2008 06:38	bkg		0.0640		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.009193 Std Deviation : 0.007069

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0180		
2-MAR-2008 06:38	bkg		0.0190		

Quality Assurance Report. Generated 25-MAR-2008 18:10:12.93

QA Filename : \$DISK1:[ALP6.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.325596 Std Deviation : 0.006286

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:58	chk		0.3269	
1-MAR-2008 05:27	chk		0.3273	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 6.668651 Std Deviation : 0.443225

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:58	chk		6.6667	
1-MAR-2008 05:27	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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 347.786224 Std Deviation : 1.373586

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:58	chk		346.2343	
1-MAR-2008 05:27	chk		346.6425	

3-FEB-2008 10:58	chk		346.2343	
1-MAR-2008 05:27	chk		346.6425	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.332977 Std Deviation : 0.003597

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:58	chk		0.3294	
1-MAR-2008 05:27	chk		0.3344	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:58	chk		0.3294	
1-MAR-2008 05:27	chk		0.3344	

3-FEB-2008 10:58	chk		0.3294	
1-MAR-2008 05:27	chk		0.3344	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.488939 Std Deviation : 0.067328

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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-----
3-FEB-2008 10:58  chk          7.4984  | | |
1-MAR-2008 05:27  chk          7.5890  | | |
```

Quality Assurance Report. Generated 25-MAR-2008 18:10:13.64

QA Filename : \$DISK1:[ALP6.QA]GROUP_1_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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000725 Std Deviation : 0.000978

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

```
-----
4-FEB-2008 06:06  bkg          0.0000  | | |
2-MAR-2008 06:38  bkg          0.0000  | | |
```

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.001143 Std Deviation : 0.001070

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

```
-----
4-FEB-2008 06:06  bkg          0.0010  | | |
2-MAR-2008 06:38  bkg          0.0010  | | |
```

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000560 Std Deviation : 0.000819

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

4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000989 Std Deviation : 0.001049

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
------------------	-----------	----------------	-------	-------------	-----

4-FEB-2008 06:06	bkg		0.0020		
2-MAR-2008 06:38	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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000967 Std Deviation : 0.001016

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000978 Std Deviation : 0.001022

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000736 Std Deviation : 0.000905

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	bkg		0.0020		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000604 Std Deviation : 0.000842

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0020		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000527 Std Deviation : 0.000779

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0020		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001253 Std Deviation : 0.001296

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0040	In
2-MAR-2008 06:38	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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002318 Std Deviation : 0.002361

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0030	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.003164 Std Deviation : 0.003066

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
4-FEB-2008 06:06	bkg		0.0030	
2-MAR-2008 06:38	bkg		0.0060	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.004571 Std Deviation : 0.004484

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0050		
2-MAR-2008 06:38	bkg		0.0090		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.044476 Std Deviation : 0.021869

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0780		
2-MAR-2008 06:38	bkg		0.0750		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.044268 Std Deviation : 0.021668

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg 0.0810 | | |
 2-MAR-2008 06:38 bkg 0.0700 | | |

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.041719 Std Deviation : 0.020522

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.0780		
2-MAR-2008 06:38 bkg			0.0640		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.037829 Std Deviation : 0.022874

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.0750		
2-MAR-2008 06:38 bkg			0.0690		

-- 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
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4-FEB-2008 06:06	bkg		0.0700	
2-MAR-2008 06:38	bkg		0.0570	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.011570 Std Deviation : 0.007071

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0170	
2-MAR-2008 06:38	bkg		0.0220	

Quality Assurance Report. Generated 25-MAR-2008 17:57:21.61

QA Filename : \$DISK1:[ALP5.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.387492 Std Deviation : 0.005712

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		0.3891	
1-MAR-2008 05:27	chk		0.3950	

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.312500 Std Deviation : 0.242195

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		7.5000	
1-MAR-2008 05:27	chk		7.0000	

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 357.539337 Std Deviation : 1.944102

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		357.0847	
1-MAR-2008 05:27	chk		357.2202	

3-FEB-2008 10:57	chk		357.0847	
1-MAR-2008 05:27	chk		357.2202	

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.397028 Std Deviation : 0.002308

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		0.3969	
1-MAR-2008 05:27	chk		0.4009	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		0.3969	
1-MAR-2008 05:27	chk		0.4009	

3-FEB-2008 10:57	chk		0.3969	
1-MAR-2008 05:27	chk		0.4009	

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.408459 Std Deviation : 0.062026

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

```
-----
3-FEB-2008 10:57  chk          7.4202  | | |
1-MAR-2008 05:27  chk          7.5694  |In| |
```

Quality Assurance Report. Generated 25-MAR-2008 17:57:22.26

QA Filename : \$DISK1:[ALP5.QA]GROUP_1_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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.006499 Std Deviation : 0.003092

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

```
-----
4-FEB-2008 06:06  bkg          0.0000  |In| |
2-MAR-2008 06:38  bkg          0.0050  | | |
```

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.010798 Std Deviation : 0.004793

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

```
-----
4-FEB-2008 06:06  bkg          0.0060  | | |
2-MAR-2008 06:38  bkg          0.0040  | | |
```

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002080 Std Deviation : 0.001536

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

4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.009919 Std Deviation : 0.003629

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
------------------	-----------	----------------	-------	-------------	-----

4-FEB-2008 06:06	bkg		0.0040		
2-MAR-2008 06:38	bkg		0.0070		

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.009979 Std Deviation : 0.003966

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0040	
2-MAR-2008 06:38	bkg		0.0080	

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.009099 Std Deviation : 0.003676

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0040	
2-MAR-2008 06:38	bkg		0.0070	

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.004679 Std Deviation : 0.002853

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0050	

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002020 Std Deviation : 0.001463

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0050	In

-- 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
------------------	-----------	----------------	-------	-----------------

4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0030	

-- 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
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4-FEB-2008 06:06	bkg		0.0030	
2-MAR-2008 06:38	bkg		0.0030	

-- 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
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4-FEB-2008 06:06 bkg 0.0040 | | |
 2-MAR-2008 06:38 bkg 0.0020 | | |

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.004119 Std Deviation : 0.002479

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0060	
2-MAR-2008 06:38	bkg		0.0030	

4-FEB-2008 06:06 bkg 0.0060 | | |
 2-MAR-2008 06:38 bkg 0.0030 | | |

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.005419 Std Deviation : 0.003104

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0060	
2-MAR-2008 06:38	bkg		0.0060	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0060	
2-MAR-2008 06:38	bkg		0.0060	

4-FEB-2008 06:06 bkg 0.0060 | | |
 2-MAR-2008 06:38 bkg 0.0060 | | |

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.040874 Std Deviation : 0.028236

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0860		
2-MAR-2008 06:38	bkg		0.0880		

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.039935 Std Deviation : 0.027586

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0870		
2-MAR-2008 06:38	bkg		0.0830		

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.038055 Std Deviation : 0.026500

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0850		
2-MAR-2008 06:38	bkg		0.0780		

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.037695 Std Deviation : 0.025607

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

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

4-FEB-2008 06:06	bkg		0.0660		
2-MAR-2008 06:38	bkg		0.0650		

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.033595 Std Deviation : 0.023088

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

4-FEB-2008 06:06	bkg		0.0580		
2-MAR-2008 06:38	bkg		0.0600		

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.011118 Std Deviation : 0.008548

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

4-FEB-2008 06:06 bkg 0.0180 | | |
2-MAR-2008 06:38 bkg 0.0250 | | |

Quality Assurance Report. Generated 25-MAR-2008 17:55:30.58

QA Filename : \$DISK1:[ALP4.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.236798 Std Deviation : 0.004342

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		0.2383		
1-MAR-2008 05:27	chk		0.2326		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.481482 Std Deviation : 0.232719

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		7.5000		
1-MAR-2008 05:27	chk		7.3333		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 348.353210 Std Deviation : 0.928021

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		348.1969		
1-MAR-2008 05:27	chk		348.6509		

3-FEB-2008 10:57	chk		348.1969		
1-MAR-2008 05:27	chk		348.6509		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.296245 Std Deviation : 0.002702

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		0.2985		
1-MAR-2008 05:27	chk		0.2952		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		0.2985		
1-MAR-2008 05:27	chk		0.2952		

3-FEB-2008 10:57	chk		0.2985		
1-MAR-2008 05:27	chk		0.2952		

-- Multi-Test Full Report --

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

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 0.000000 Upper Bound : 10.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00

Mean : 7.457886 Std Deviation : 0.051992

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		7.4654	
1-MAR-2008 05:27	chk		7.4649	

Quality Assurance Report. Generated 25-MAR-2008 17:55:31.18

QA Filename : \$DISK1:[ALP4.QA]GROUP_1_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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.004206 Std Deviation : 0.003640

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0050	

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.008068 Std Deviation : 0.010388

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0050	
2-MAR-2008 06:38	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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002293 Std Deviation : 0.002255

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	bkg		0.0030		

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.007430 Std Deviation : 0.007597

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
Quality Assurance Multi-Test Full Report (continued)					
					Page : 2
4-FEB-2008 06:06	bkg		0.0040		
2-MAR-2008 06:38	bkg		0.0080		

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.007688 Std Deviation : 0.008986

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0060	
2-MAR-2008 06:38	bkg		0.0040	

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.007188 Std Deviation : 0.008627

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0060	
2-MAR-2008 06:38	bkg		0.0050	

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.004275 Std Deviation : 0.004936

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0050	
2-MAR-2008 06:38	bkg		0.0050	

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002327 Std Deviation : 0.002319

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

4-FEB-2008 06:06	bkg		0.0040		
2-MAR-2008 06:38	bkg		0.0030		

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001569 Std Deviation : 0.001500

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

4-FEB-2008 06:06	bkg		0.0030		
2-MAR-2008 06:38	bkg		0.0030		

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002396 Std Deviation : 0.002331

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0050	
2-MAR-2008 06:38	bkg		0.0050	

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.003034 Std Deviation : 0.002391

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0060	
2-MAR-2008 06:38	bkg		0.0030	

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.003655 Std Deviation : 0.002819

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
4-FEB-2008 06:06	bkg		0.0050	
2-MAR-2008 06:38	bkg		0.0050	

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.004413 Std Deviation : 0.003356

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0080		
2-MAR-2008 06:38	bkg		0.0060		

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.039926 Std Deviation : 0.030129

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0860		
2-MAR-2008 06:38	bkg		0.0770		

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.041874 Std Deviation : 0.031571

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0910	
2-MAR-2008 06:38	bkg		0.0800	

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.039702 Std Deviation : 0.030126

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0880	
2-MAR-2008 06:38	bkg		0.0790	

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.037530 Std Deviation : 0.031848

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0550	
2-MAR-2008 06:38	bkg		0.0720	

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.033840 Std Deviation : 0.029068

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0540		
2-MAR-2008 06:38	bkg		0.0620		

-- 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 : 8-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.011757 Std Deviation : 0.010401

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0140		
2-MAR-2008 06:38	bkg		0.0200		

Quality Assurance Report. Generated 25-MAR-2008 17:54:00.37

QA Filename : \$DISK1:[ALP3.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.365901 Std Deviation : 0.005153

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		0.3638		
1-MAR-2008 05:27	chk		0.3674		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.987422 Std Deviation : 0.223724

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		7.8333		
1-MAR-2008 05:27	chk		8.1667		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 357.495911 Std Deviation : 0.983872

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		357.5582		
1-MAR-2008 05:27	chk		357.6862		

3-FEB-2008 10:57	chk		357.5582		
1-MAR-2008 05:27	chk		357.6862		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.371693 Std Deviation : 0.002561

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		0.3697		
1-MAR-2008 05:27	chk		0.3753		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		0.3697		
1-MAR-2008 05:27	chk		0.3753		

3-FEB-2008 10:57	chk		0.3697		
1-MAR-2008 05:27	chk		0.3753		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.393487 Std Deviation : 0.059003

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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3-FEB-2008 10:57	chk	7.3267	
1-MAR-2008 05:27	chk	7.4302	

Quality Assurance Report. Generated 25-MAR-2008 17:54:01.09

QA Filename : \$DISK1:[ALP3.QA]GROUP_1_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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.005403 Std Deviation : 0.003802

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0070	
2-MAR-2008 06:38	bkg		0.0050	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.007017 Std Deviation : 0.004900

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0060	
2-MAR-2008 06:38	bkg		0.0090	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002438 Std Deviation : 0.001861

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	bkg		0.0020		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.007420 Std Deviation : 0.004935

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
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4-FEB-2008 06:06	bkg		0.0080		
2-MAR-2008 06:38	bkg		0.0070		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.006596 Std Deviation : 0.003977

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0080	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.005876 Std Deviation : 0.003630

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0060	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.003543 Std Deviation : 0.002673

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0030	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002614 Std Deviation : 0.002320

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0020	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002035 Std Deviation : 0.001927

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002859 Std Deviation : 0.002271

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0050	
2-MAR-2008 06:38	bkg		0.0030	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.004789 Std Deviation : 0.003405

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0070	
2-MAR-2008 06:38	bkg		0.0070	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.005491 Std Deviation : 0.003727

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
4-FEB-2008 06:06	bkg		0.0100	
2-MAR-2008 06:38	bkg		0.0080	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.006315 Std Deviation : 0.004136

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0100		
2-MAR-2008 06:38	bkg		0.0120		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.042065 Std Deviation : 0.030112

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0750		
2-MAR-2008 06:38	bkg		0.0880		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.043942 Std Deviation : 0.031876

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg 0.0900 | | |
 2-MAR-2008 06:38 bkg 0.0830 | | |

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.041399 Std Deviation : 0.029875

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.0850		
2-MAR-2008 06:38 bkg			0.0770		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.038065 Std Deviation : 0.030459

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.0810		
2-MAR-2008 06:38 bkg			0.0730		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.034189 Std Deviation : 0.027389

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0770		
2-MAR-2008 06:38	bkg		0.0650		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.011262 Std Deviation : 0.008557

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0200		
2-MAR-2008 06:38	bkg		0.0240		

Quality Assurance Report. Generated 25-MAR-2008 17:52:32.86

QA Filename : \$DISK1:[ALP2.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.171595 Std Deviation : 0.003015

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		0.1663		
1-MAR-2008 05:27	chk		0.1744		

3-FEB-2008 10:57	chk		0.1663		
1-MAR-2008 05:27	chk		0.1744		

-- 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-JAN-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 9.561905 Std Deviation : 0.274729

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		9.3333		
1-MAR-2008 05:27	chk		9.3333		

3-FEB-2008 10:57	chk		9.3333		
1-MAR-2008 05:27	chk		9.3333		

-- 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-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
Mean : 353.147064 Std Deviation : 0.881260

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		352.6472	
1-MAR-2008 05:27	chk		353.0833	

3-FEB-2008 10:57	chk		352.6472	
1-MAR-2008 05:27	chk		353.0833	

-- 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-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.175214 Std Deviation : 0.001472

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
Quality Assurance Multi-Test Full Report (continued)				
				Page : 2
3-FEB-2008 10:57	chk		0.1710	In
1-MAR-2008 05:27	chk		0.1752	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		0.1710	In
1-MAR-2008 05:27	chk		0.1752	

3-FEB-2008 10:57	chk		0.1710	In
1-MAR-2008 05:27	chk		0.1752	

-- Multi-Test Full Report --

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

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 0.000000 Upper Bound : 10.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 7.271707 Std Deviation : 0.187083

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		7.3835	
1-MAR-2008 05:27	chk		7.2254	

Quality Assurance Report. Generated 25-MAR-2008 17:52:33.54

QA Filename : \$DISK1:[ALP2.QA]GROUP_1_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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.003200 Std Deviation : 0.001936

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0020	
2-MAR-2008 06:38	bkg		0.0030	

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.008349 Std Deviation : 0.004331

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06 bkg          0.0030  | | |
2-MAR-2008 06:38 bkg          0.0030  | | |

```

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001900 Std Deviation : 0.001518

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0020	
2-MAR-2008 06:38	bkg		0.0030	

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4-FEB-2008 06:06 bkg          0.0020  | | |
2-MAR-2008 06:38 bkg          0.0030  | | |

```

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.005599 Std Deviation : 0.002927

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0080	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0080	

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-----
4-FEB-2008 06:06 bkg          0.0010  | | |
2-MAR-2008 06:38 bkg          0.0080  | | |

```

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.007099 Std Deviation : 0.004127

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0050	

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.006749 Std Deviation : 0.003998

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0040	

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.004199 Std Deviation : 0.002764

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	

2-MAR-2008 06:38 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002600 Std Deviation : 0.001667

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

4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0010	

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001950 Std Deviation : 0.001356

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

4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0010	

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.004299 Std Deviation : 0.002637

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0020		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.005199 Std Deviation : 0.002966

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0020		
2-MAR-2008 06:38	bkg		0.0080		

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.006149 Std Deviation : 0.002519

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg          0.0040  | | |
2-MAR-2008 06:38 bkg          0.0090  | | |
```

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.008199 Std Deviation : 0.002628

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0050	
2-MAR-2008 06:38	bkg		0.0130	

```
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4-FEB-2008 06:06 bkg          0.0050  | | |
2-MAR-2008 06:38 bkg          0.0130  | | |
```

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.065842 Std Deviation : 0.009288

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0720	
2-MAR-2008 06:38	bkg		0.0700	

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4-FEB-2008 06:06 bkg          0.0720  | | |
2-MAR-2008 06:38 bkg          0.0700  | | |
```

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.074041 Std Deviation : 0.008795

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0830		
2-MAR-2008 06:38	bkg		0.0740		

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.070741 Std Deviation : 0.008480

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0780		
2-MAR-2008 06:38	bkg		0.0690		

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.061242 Std Deviation : 0.008916

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0650		
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2-MAR-2008 06:38 bkg 0.0640 | | |

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.054793 Std Deviation : 0.008652

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0550	
2-MAR-2008 06:38	bkg		0.0610	

-- 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 : 8-JAN-2007 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.017998 Std Deviation : 0.004701

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0240	
2-MAR-2008 06:38	bkg		0.0090	

Quality Assurance Report. Generated 25-MAR-2008 17:48:59.06

QA Filename : \$DISK1:[ALP1.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.209973 Std Deviation : 0.003743

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		0.2108		
1-MAR-2008 05:27	chk		0.2105		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00

Mean : 8.085318 Std Deviation : 0.364501

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		8.0000		
1-MAR-2008 05:27	chk		8.8333	In	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 347.785919 Std Deviation : 0.827112

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		347.2517	
1-MAR-2008 05:27	chk		347.6919	

3-FEB-2008 10:57	chk		347.2517	
1-MAR-2008 05:27	chk		347.6919	

-- Multi-Test Full Report --

Description : Average Efficiency
Parameter Units : Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.178120 Std Deviation : 0.002073

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		0.1768	
1-MAR-2008 05:27	chk		0.1772	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		0.1768	
1-MAR-2008 05:27	chk		0.1772	

3-FEB-2008 10:57	chk		0.1768	
1-MAR-2008 05:27	chk		0.1772	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.470274 Std Deviation : 0.075398

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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3-FEB-2008 10:57	chk	7.4526	
1-MAR-2008 05:27	chk	7.2761	In

Quality Assurance Report. Generated 25-MAR-2008 17:48:59.73

QA Filename : \$DISK1:[ALP1.QA]GROUP_1_BKG.QAF;4

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.004193 Std Deviation : 0.003317

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0040	
2-MAR-2008 06:38	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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.005231 Std Deviation : 0.004339

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0030	
2-MAR-2008 06:38	bkg		0.0050	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002007 Std Deviation : 0.001930

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.005781 Std Deviation : 0.004661

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
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4-FEB-2008 06:06	bkg		0.0040		
2-MAR-2008 06:38	bkg		0.0020		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.005366 Std Deviation : 0.004078

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0020	
2-MAR-2008 06:38	bkg		0.0030	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.004927 Std Deviation : 0.003625

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0020	
2-MAR-2008 06:38	bkg		0.0030	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002782 Std Deviation : 0.002133

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001276 Std Deviation : 0.001235

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0020		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000939 Std Deviation : 0.001081

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001651 Std Deviation : 0.001560

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0020	
2-MAR-2008 06:38	bkg		0.0010	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.003089 Std Deviation : 0.002401

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0070	
2-MAR-2008 06:38	bkg		0.0050	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.003808 Std Deviation : 0.002803

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
4-FEB-2008 06:06	bkg		0.0060	
2-MAR-2008 06:38	bkg		0.0080	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.005583 Std Deviation : 0.003924

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0120		
2-MAR-2008 06:38	bkg		0.0130		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.057361 Std Deviation : 0.033696

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.1230		
2-MAR-2008 06:38	bkg		0.0940		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.057357 Std Deviation : 0.033500

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg 0.1210 | | |
 2-MAR-2008 06:38 bkg 0.0850 | | |

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.054167 Std Deviation : 0.031411

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.1150		
2-MAR-2008 06:38 bkg			0.0820		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.048145 Std Deviation : 0.029931

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.0890		
2-MAR-2008 06:38 bkg			0.0920		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.043625 Std Deviation : 0.027278

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0850		
2-MAR-2008 06:38	bkg		0.0870		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.014975 Std Deviation : 0.009436

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0200		
2-MAR-2008 06:38	bkg		0.0230		

Quality Assurance Report. Generated 25-MAR-2008 18:32:38.70

QA Filename : \$DISK1:[ALP11.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.426378 Std Deviation : 0.004584

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.4213		
1-MAR-2008 05:27	chk		0.4262		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 8.180556 Std Deviation : 0.289357

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		8.0000		
1-MAR-2008 05:27	chk		8.3333		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 341.434998 Std Deviation : 1.133752

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		342.0939		
1-MAR-2008 05:27	chk		342.1916		

3-FEB-2008 10:58	chk		342.0939		
1-MAR-2008 05:27	chk		342.1916		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.429114 Std Deviation : 0.002704

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.4312		
1-MAR-2008 05:27	chk		0.4293		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.4312		
1-MAR-2008 05:27	chk		0.4293		

3-FEB-2008 10:58	chk		0.4312		
1-MAR-2008 05:27	chk		0.4293		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 6.419388 Std Deviation : 0.043074

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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3-FEB-2008 10:58  chk          6.4344  | | |
1-MAR-2008 05:27  chk          6.4528  | | |

```

Quality Assurance Report. Generated 25-MAR-2008 18:32:39.34

QA Filename : \$DISK1:[ALP11.QA]GROUP_1_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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000849 Std Deviation : 0.000949

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

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4-FEB-2008 06:07  bkg          0.0000  | | |
2-MAR-2008 06:38  bkg          0.0020  | | |

```

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.001302 Std Deviation : 0.001119

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

-----
4-FEB-2008 06:07  bkg          0.0010  | | |
2-MAR-2008 06:38  bkg          0.0020  | | |

```

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000623 Std Deviation : 0.000790

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0010		
2-MAR-2008 06:38	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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001132 Std Deviation : 0.001092

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
Quality Assurance Multi-Test Full Report (continued)					
					Page : 2
4-FEB-2008 06:07	bkg		0.0020		
2-MAR-2008 06:38	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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.001377 Std Deviation : 0.001417

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0000		
2-MAR-2008 06:38	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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001358 Std Deviation : 0.001415

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0000		
2-MAR-2008 06:38	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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001283 Std Deviation : 0.001321

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0020		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001207 Std Deviation : 0.001349

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:07	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001019 Std Deviation : 0.001248

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:07	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002075 Std Deviation : 0.001651

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:07	bkg		0.0030	
2-MAR-2008 06:38	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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.004999 Std Deviation : 0.003345

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:07	bkg		0.0050	
2-MAR-2008 06:38	bkg		0.0070	

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.005999 Std Deviation : 0.003857

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
4-FEB-2008 06:07	bkg		0.0060	
2-MAR-2008 06:38	bkg		0.0060	

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.006716 Std Deviation : 0.004129

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0090		
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2-MAR-2008 06:38	bkg		0.0070		
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-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.032939 Std Deviation : 0.021276

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0590		
------------------	-----	--	--------	--	--

2-MAR-2008 06:38	bkg		0.0500		
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-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.032921 Std Deviation : 0.021390

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07 bkg 0.0610 | | |
 2-MAR-2008 06:38 bkg 0.0560 | | |

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.031506 Std Deviation : 0.020583

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

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

4-FEB-2008 06:07 bkg			0.0590		
2-MAR-2008 06:38 bkg			0.0550		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.026751 Std Deviation : 0.017883

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07 bkg			0.0440		
2-MAR-2008 06:38 bkg			0.0560		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.018036 Std Deviation : 0.011937

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0300		
2-MAR-2008 06:38	bkg		0.0300		

-- 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 : 31-JAN-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.009452 Std Deviation : 0.006921

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0100		
2-MAR-2008 06:38	bkg		0.0200		

RADIUM 228
SAMPLE AND QC DATA

Lot No., Due Date: F8A290183; 02/28/2008
Client, Site: 1418995; LANDWELL - Tronox Parcel H
QC Batch No., Method Test: 8042385; RRA228 Ra-228 by GPC
SDG, Matrix: ;

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

First Level Review _____ **Date** _____

Data Review Checklist
RADIOCHEMISTRY
 Second Level Review

Batch Number: 804 2385

Review Item	Yes (✓)	No (✓)	NA (✓)
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 within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other			
1. Are all Non-conformances 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: Eino Ojeda Date: 3/2/8

2/27/2008 1:52:57 PM

1418995, Landwell Company
Landwell Company

Sample Preparation/Analysis

D9 Ra-226/228 PrpRC5013/5032, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Balance Id: 1120373922

Pipet #:

Sep1 DT/Tm Tech: 3/2/08

Sep2 DT/Tm Tech: 3/11/08

Prep Tech: ,Barcott

AnalytDueDate: 02/25/2008

pCi/g

PM, Quote: JAE, 78254

Batch: 8042385
SEQ Batch, Test: 8042383, D9TE

Work Order, Lot, Sample Date Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 KF8N1-1-AF F8A290183-1-SAMP		1.01g.in	RATA30248 02/07/08	1"		3x50	JA	1419	1/11/08	
	1.0000									31.6
01/28/2008 07:00	AmtRec: 500SL	#Containers: 1								
2 KF8N4-1-AF F8A290183-2-SAMP		1.00g.in	RATA30249 02/07/08							
01/28/2008 07:15	AmtRec: 500SL	#Containers: 1								
3 KF8N5-1-AF F8A290183-3-SAMP		1.01g.in	RATA30250 02/07/08							
	1.0000									
01/28/2008 07:55	AmtRec: 500SL	#Containers: 1								
4 KF8N6-1-AF F8A290183-4-SAMP		1.03g.in	RATA30251 02/07/08							
	1.0000									
01/28/2008 07:55	AmtRec: 500SL	#Containers: 1								

2/27/2008 1:52:58 PM

Sample Preparation/Analysis

Balance Id: 1120373922

1418995, Landwell Company
Landwell Company

D9 Ra-226/228 PprRC5013/5032, SepRC5005
TF Radium-228 by GPC

Pipet #:

Analyte Date: 02/25/2008

01 STANDARD TEST SET

Sep1 DT/Tm Tech:

pCi/g

PM, Quote: JAE, 78254

Sep2 DT/Tm Tech:

Prep Tech: ,Barcotti

Batch: 8042385
SEQ Batch, Test: 8042383, D9TE

Work Order, Lot, Sample Date Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
5 KF8N8-1-AF F8A290183-5-SAMP	1.00g.in	1.00g.in	RATA30252 02/07/08	1"		3x50	4B	1419	J/11/08/RC	
		✓ 9224				30.5	4A	URB	3/1/08	
6 KF8N9-1-AF F8A290183-6-SAMP	1.01g.in	1.01g.in	RATA30253 02/07/08					1419	J/11/08/RC	
		✓ 8875				31.4	4C	URB	3/1/08	
7 KF8PD-1-AF F8A290183-7-SAMP	1.01g.in	1.01g.in	RATA30254 02/07/08					1419	J/11/08/RC	
		✓ 1.0000				30.6	4D	URB	3/1/08	
8 KF8PE-1-AF F8A290183-8-SAMP	1.00g.in	1.00g.in	RATA30255 02/07/08	1.5"				1419	J/11/08/RC	
		✓ 1.0000				31.2	5C	URB	3/1/08	

2/27/2008 1:52:58 PM

Sample Preparation/Analysis

Balance Id: 1120373922

1418995, Landwell Company
Landwell Company

D9 Ra-226/228 PrpRC5013/5032, SepRC5005
TF Radium-228 by GPC

Pipet #:

AnalyteDate: 02/25/2008

Sep1 DT/Tm Tech:

Batch: 8042385 pCi/g

PM, Quote: JAE, 78254

SEQ Batch, Test: 8042383, D9TE 8042383, D9TE

Sep2 DT/Tm Tech:

Prep Tech: ,Barcoti

Work Order, Lot, Sample Date Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst. Init/Date	Comments:
9 KF8PG-1-AJ F8A290183-9-SAMP		1.02g.in	RATA30256 02/07/08	1.5"		3x50	5D	1411	3/11/08	
		✓ 1.0000					5D	0613	3/12/08	
01/28/2008 09:15			AmtRec: 2X500SL	#Containers: 2				Scr:	Alpha:	Beta:
10 KF8PG-1-AL-X F8A290183-9-DUP		1.02g.in	RATA30257 02/07/08				6A	1411	3/11/08	
		✓ 1.0000					6A	0613	3/12/08	
01/28/2008 09:15			AmtRec: 2X500SL	#Containers: 2				Scr:	Alpha:	Beta:
11 KGXJK-1-AA-B J8B110000-385-BLK		1.01g.in	RATA30258 02/07/08				6C	1411	3/11/08	
		✓ 1.9759					6C	0613	3/12/08	
01/28/2008 07:00			AmtRec: #Containers: 1					Scr:	Alpha:	Beta:
12 KGXJK-1-AC-C J8B110000-385-LCS		1.00g.in	RASC4701 01/21/08				6D	1419	3/11/08	
		✓ 1.0000					6D	0613	3/12/08	
01/28/2008 07:00			AmtRec: #Containers: 1					Scr:	Alpha:	Beta:

Sample Preparation/Analysis

Balance Id:1120373922

D9 Ra-226/228 PrpRC5013/5032, SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Pipet #:

AnalytDueDate: 02/25/2008

Sep1 DT/Tm Tech:

Batch: 8042385 pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,Barcotl



Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
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Comments:

All Clients for Batch:

1418995, Landwell Company

Landwell Company

JAE, 78254

KF8NX1AF-SAMP Constituent List:

KGXJK1AA-BLK:	RDL:	pCi/g	LCL:20	UCL:115	RPD:35	RA-228	RDL:2	pCi/g	LCL:	UCL:	RPD:
Ba-133	RDL:2	pCi/g	LCL:	UCL:	RPD:						
RA-228DA											
KGXJK1AC-LCS:	RDL:	pCi/g	LCL:20	UCL:115	RPD:35	Ra-226	RDL:	pCi/g	LCL:70	UCL:130	RPD:35
Ba-133	RDL:2	pCi/g	LCL:70	UCL:130	RPD:35	RA-228DA	RDL:2	pCi/g	LCL:70	UCL:130	RPD:35

KF8NX1AF-SAMP Calc Info:

Uncert Level (#s): 4	Decay to SaDt: N	Blk Subt.: N	Sci.Not.: N	ODRs: B
KGXJK1AA-BLK:				
Uncert Level (#s): 4	Decay to SaDt: N	Blk Subt.: N	Sci.Not.: N	ODRs: B
KGXJK1AC-LCS:				
Uncert Level (#s): 4	Decay to SaDt: N	Blk Subt.: N	Sci.Not.: N	ODRs: B

Approved By

Date:

ICOC Fraction Transfer/Status Report

ByDate: 3/13/2007, 3/17/2008, Batch: '8042385', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
8042385				
AC	Rev1C	Barcotl	2/27/2008 1:57:18 PM	
SC		wagarr	IsBatched	2/12/2008 7:52:00 AM
SC		Barcotl	InPrep	2/27/2008 1:57:18 PM
SC		Barcotl	Prep1C	2/27/2008 1:57:32 PM
SC		LucasD	Sep1C	3/3/2008 3:38:54 PM
SC		ClarkR	InCnt1	3/11/2008 11:39:03 AM
SC		McGinnisT	Sep2C	3/11/2008 11:51:03 AM
SC		ClarkR	CalcC	3/12/2008 10:22:09 AM
SC		mcginnist	Rev1C	3/12/2008 3:11:46 PM
AC		Barcotl	2/27/2008 1:57:32 PM	ICOC_RADCALC v4.8.32
AC		LucasD	3/3/2008 3:38:54 PM	RICH-RC-5032 REVISION 3
AC		ClarkR	3/11/2008 11:39:03	RICH-RC-5032 REVISION 3
AC		McGinnisT	3/11/2008 11:51:03	RICH-RC-5005 REVISION 6
AC		ClarkR	3/12/2008 10:22:09	RICH-RC-5005 REVISION 6
AC		mcginnist	3/12/2008 3:11:46 PM	RICH-RD-0003 REVISION 5
				RICH-RC-0002 REV 8

AC: Accepting Entry; SC: Status Change

TAL Richland

Richland Wa.

Rpt DB Transfer log (Batch Results)

SDG or Batch Isotope	Rpt Db Id Method	RTst Qc	LotSample Analysis Date	Client Id Result	Matrix Cnt Uncert	Received Date Tot uncert mqa	Sample Date Units	Expected Yield	Volumes	
8035233	9KF8N410		F8A2901832	TSB-HJ-10-10'	SOLID	1/29/2008 9:20:00	1/28/2008 7:15:00 AM			
RA-226	D9TE	0	3/10/2008 2:28:00 PM	2.3694E+00	1.297E-01	2.774E-01	1.137E-01	pCi/g	0.984	1.0E+0
RA-228	D9TF	0	3/12/2008 6:18:22 AM	1.1742E+00	1.425E-01	1.583E-01	4.147E-01	pCi/g	0.878	1.0E+0
U-234	KWSR	0	2/25/2008 12:06:41 PM	3.0559E+00	1.428E-01	2.935E-01	3.196E-02	PCI/G	0.938	1.0E+0
U-235	KWSR	0	2/25/2008 12:06:41 PM	7.206E-02	2.217E-02	2.298E-02	3.196E-02	PCI/G	0.938	1.0E+0
U-238	KWSR	0	2/25/2008 12:06:41 PM	2.4888E+00	1.289E-01	2.454E-01	3.196E-02	PCI/G	0.938	1.0E+0
8035233	9KF8N510		F8A2901833	TSB-HR-06-0'	SOLID	1/29/2008 9:20:00	1/28/2008 7:55:00 AM			
RA-226	D9TE	0	3/10/2008 2:36:00 PM	7.1134E-01	7.365E-02	1.052E-01	1.405E-01	pCi/g	1.0	1.01E+0
RA-228	D9TF	0	3/12/2008 6:18:22 AM	1.6268E+00	1.551E-01	1.81E-01	3.692E-01	pCi/g	0.887	1.01E+0
U-234	KWSR	0	2/25/2008 12:06:47 PM	1.3532E+00	9.077E-02	1.446E-01	4.165E-02	PCI/G	0.978	1.01E+0
U-235	KWSR	0	2/25/2008 12:06:47 PM	2.9101E-02	1.361E-02	1.382E-02	2.904E-02	PCI/G	0.978	1.01E+0
U-238	KWSR	0	2/25/2008 12:06:47 PM	1.2319E+00	8.663E-02	1.341E-01	4.165E-02	PCI/G	0.978	1.01E+0
8035233	9KF8N610		F8A2901834	TSB-HR-06-0' FD	SOLID	1/29/2008 9:20:00	1/28/2008 7:55:00 AM			
RA-226	D9TE	0	3/10/2008 2:36:00 PM	6.9822E-01	7.341E-02	1.029E-01	1.198E-01	pCi/g	1.0	1.03E+0
RA-228	D9TF	0	3/12/2008 6:18:22 AM	1.1671E+00	1.379E-01	1.572E-01	3.83E-01	pCi/g	0.898	1.03E+0
U-234	KWSR	0	2/25/2008 12:06:49 PM	1.2898E+00	8.969E-02	1.399E-01	4.564E-02	PCI/G	0.947	1.02E+0
U-235	KWSR	0	2/25/2008 12:06:49 PM	1.1162E-02	8.856E-03	8.905E-03	2.97E-02	PCI/G	0.947	1.02E+0
U-238	KWSR	0	2/25/2008 12:06:49 PM	1.1521E+00	8.458E-02	1.279E-01	2.97E-02	PCI/G	0.947	1.02E+0
8035233	9KF8N810		F8A2901835	TSB-HR-06-10'	SOLID	1/29/2008 9:20:00	1/28/2008 8:11:00 AM			
RA-226	D9TE	0	3/10/2008 2:40:00 PM	2.098E+00	1.402E-01	2.606E-01	1.516E-01	pCi/g	0.922	1.0E+0
RA-228	D9TF	0	3/12/2008 6:18:31 AM	1.581E+00	1.796E-01	2.061E-01	5.278E-01	pCi/g	0.818	1.0E+0
U-234	KWSR	0	2/25/2008 12:06:58 PM	2.8653E+00	1.306E-01	2.715E-01	3.749E-02	PCI/G	0.891	1.03E+0
U-235	KWSR	0	2/25/2008 12:06:58 PM	5.8209E-02	1.882E-02	1.943E-02	2.845E-02	PCI/G	0.891	1.03E+0
U-238	KWSR	0	2/25/2008 12:06:58 PM	2.4935E+00	1.219E-01	2.404E-01	4.636E-02	PCI/G	0.891	1.03E+0
8035233	9KF8N910		F8A2901836	TSB-HJ-08-0'	SOLID	1/29/2008 9:20:00	1/28/2008 8:30:00 AM			
RA-226	D9TE	0	3/10/2008 2:46:01 PM	1.4379E+00	1.335E-01	1.937E-01	1.789E-01	pCi/g	0.887	1.01E+0
RA-228	D9TF	0	3/12/2008 6:18:31 AM	1.3971E+00	1.612E-01	1.829E-01	4.39E-01	pCi/g	0.81	1.01E+0
U-234	KWSR	0	2/25/2008 12:07:00 PM	1.2032E+00	8.552E-02	1.316E-01	2.91E-02	PCI/G	0.968	1.0E+0
U-235	KWSR	0	2/25/2008 12:07:00 PM	4.74E-02	1.723E-02	1.768E-02	2.91E-02	PCI/G	0.968	1.0E+0
U-238	KWSR	0	2/25/2008 12:07:00 PM	9.7108E-01	7.688E-02	1.115E-01	2.91E-02	PCI/G	0.968	1.0E+0
8035233	9KF8NX10		F8A2901831	TSB-HJ-10-0'	SOLID	1/29/2008 9:20:00	1/28/2008 7:00:00 AM			
RA-226	D9TE	0	3/10/2008 2:35:00 PM	1.2236E+00	8.769E-02	1.471E-01	1.112E-01	pCi/g	1.0	1.01E+0
RA-228	D9TF	0	3/12/2008 6:18:12 AM	1.9073E+00	1.67E-01	1.997E-01	3.99E-01	pCi/g	0.919	1.01E+0
U-234	KWSR	0	2/25/2008 12:06:34 PM	1.2855E+00	9.227E-02	1.419E-01	3.733E-02	PCI/G	0.877	1.02E+0
U-235	KWSR	0	2/25/2008 12:06:34 PM	5.2848E-02	1.873E-02	1.925E-02	3.164E-02	PCI/G	0.877	1.02E+0
U-238	KWSR	0	2/25/2008 12:06:34 PM	1.1283E+00	8.64E-02	1.281E-01	3.164E-02	PCI/G	0.877	1.02E+0
8035233	9KF8PD10		F8A2901837	TSB-HJ-08-10'	SOLID	1/29/2008 9:20:00	1/28/2008 8:40:00 AM			
RA-226	D9TE	0	3/10/2008 2:42:00 PM	1.8001E+00	1.057E-01	2.062E-01	9.882E-02	pCi/g	1.0	1.01E+0
RA-228	D9TF	0	3/12/2008 6:18:31 AM	1.1596E+00	1.42E-01	1.6E-01	3.965E-01	pCi/g	0.89	1.01E+0
U-234	KWSR	0	2/25/2008 12:07:11 PM	2.9267E+00	1.317E-01	2.766E-01	2.839E-02	PCI/G	0.988	1.03E+0
U-235	KWSR	0	2/25/2008 12:07:11 PM	9.3645E-02	2.374E-02	2.498E-02	2.839E-02	PCI/G	0.988	1.03E+0
U-238	KWSR	0	2/25/2008 12:07:11 PM	2.3577E+00	1.182E-01	2.288E-01	2.839E-02	PCI/G	0.988	1.03E+0
8035233	9KF8PE10		F8A2901838	TSB-HR-05-0'	SOLID	1/29/2008 9:20:00	1/28/2008 9:00:00 AM			
RA-226	D9TE	0	3/10/2008 2:38:00 PM	1.538E+00	1.091E-01	1.958E-01	1.31E-01	pCi/g	1.0	1.0E+0
RA-228	D9TF	0	3/12/2008 6:18:39 AM	1.302E+00	1.556E-01	1.733E-01	5.239E-01	pCi/g	0.907	1.0E+0
U-234	KWSR	0	2/25/2008 12:07:18 PM	1.2114E+00	8.654E-02	1.329E-01	2.96E-02	PCI/G	0.929	1.01E+0
U-235	KWSR	0	2/25/2008 12:07:18 PM	4.9444E-02	1.752E-02	1.8E-02	2.96E-02	PCI/G	0.929	1.01E+0
U-238	KWSR	0	2/25/2008 12:07:18 PM	1.2299E+00	8.72E-02	1.345E-01	2.96E-02	PCI/G	0.929	1.01E+0
8035233	9KF8PG10		F8A2901839	TSB-HR-05-10'	SOLID	1/29/2008 9:20:00	1/28/2008 9:15:00 AM			
RA-226	D9TE	0	3/10/2008 3:09:00 PM	1.4824E+00	9.363E-02	1.703E-01	9.921E-02	pCi/g	1.0	1.02E+0
RA-228	D9TF	0	3/12/2008 6:18:39 AM	1.0596E+00	1.487E-01	1.626E-01	5.336E-01	pCi/g	0.875	1.02E+0
U-234	KWSR	0	2/25/2008 12:07:29 PM	2.0549E+00	1.175E-01	2.09E-01	3.216E-02	PCI/G	0.861	1.03E+0

8042385, **Samples Inserted | Updated | NotUpdated => 3 | 0 | 9,
 **Results Inserted | ReTestInserted | Updated | NotInserted => 12 | 0 | 0 | 0.
 **Diff RptDb | Qlims => .

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 mga	Units	Expected Yield	Volumes
U-235	KWSR	0	2/25/2008 12:07:29 PM	8.7299E-02	2.425E-02	2.534E-02	3.216E-02	PCI/G	0.861	1.03E+0
U-238	KWSR	0	2/25/2008 12:07:29 PM	1.7124E+00	1.072E-01	1.796E-01	3.216E-02	PCI/G	0.861	1.03E+0
8035233	KF8PG1LR		F8A2901839	TSB-HR-05-10' DUP	Unk	1/29/2008 9:20:00	1/28/2008 9:15:00 AM			
RA-228	D9TF	0 R	3/12/2008 6:18:50 AM	1.258E+00	1.557E-01	1.721E-01	5.277E-01	pCi/g	0.913	1.02E+0
8035233	KGXJK1AB		J8B110000385	INTRA-LAB BLANK	Unk	1/29/2008 9:20:00	1/28/2008 7:00:00 AM			
RA-228	D9TF	0 B	3/12/2008 6:18:50 AM	1.9892E-01	1.057E-01	1.132E-01	4.99E-01	pCi/g	0.874	1.01E+0
8035233	KGXJK1CS		J8B110000385	INTRA-LAB CHECK	Unk	1/29/2008 9:20:00	1/28/2008 7:00:00 AM			
RA-228	D9TF	0 S	3/12/2008 6:18:50 AM	3.8338E+00	2.233E-01	3.146E-01	5.33E-01	pCi/g	4.9935E+00 0.904	1.0E+0

8042385, **Samples Inserted | Updated | NotUpdated => 3 | 0 | 9,
 **Results Inserted | ReTestInserted | Updated | NotInserted => 12 | 0 | 0 | 0.
 **Diff RptDb | Qtimes => .

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC Trc Yld	LCS Yld
Ra-228 by GPC Ra-226/Ra-228 Deem With Out Blk Subt. *CntU: 0+1, + *SystU, MDCCConst:2.71													
Calc	TF	Unk	KF8NX1AF	RA-228	2.32E+00	(3.71E-01)		pCi/g	R	2.68E-01	6.21E-01	92%	
Calc	TF	Unk	KF8NX1AF	RA-228	1.56E+00	(3.09E-01)		pCi/g	R	2.97E-01	6.89E-01	92%	
Calc	TF	Unk	KF8NX1AF	RA-228	1.85E+00	(3.55E-01)		pCi/g	R	3.30E-01	7.64E-01	92%	
Calc	TF	Unk	KF8NX1AF	RA-228	1.91E+00	(2.00E-01)		pCi/g	A	1.72E-01	3.99E-01	92%	
Calc	TF	Unk	KF8NX1AF	RA-228	2.70E+00	(1.34E+00)		pCi/g	R	2.28E+00	5.21E+00	92%	
Calc	TF	Unk	KF8N41AF	RA-228	1.19E+00	(2.60E-01)		pCi/g	R	2.79E-01	6.45E-01	88%	
Calc	TF	Unk	KF8N41AF	RA-228	1.39E+00	(2.96E-01)		pCi/g	R	3.10E-01	7.16E-01	88%	
Calc	TF	Unk	KF8N41AF	RA-228	9.48E-01	(2.65E-01)		pCi/g	R	3.44E-01	7.94E-01	88%	
Calc	TF	Unk	KF8N41AF	RA-228	1.17E+00	(1.58E-01)		pCi/g	A	1.80E-01	4.15E-01	88%	
Calc	TF	Unk	KF8N41AF	RA-228	3.04E-01	(9.94E-01)	U4	pCi/g	R	2.10E+00	4.85E+00	88%	
Calc	TF	Unk	KF8N51AF	RA-228	1.41E+00	(2.76E-01)		pCi/g	R	2.45E-01	5.74E-01	89%	
Calc	TF	Unk	KF8N51AF	RA-228	1.92E+00	(3.43E-01)		pCi/g	R	2.71E-01	6.37E-01	89%	
Calc	TF	Unk	KF8N51AF	RA-228	1.55E+00	(3.19E-01)		pCi/g	R	3.01E-01	7.07E-01	89%	
Calc	TF	Unk	KF8N51AF	RA-228	1.63E+00	(1.81E-01)		pCi/g	A	1.57E-01	3.69E-01	89%	
Calc	TF	Unk	KF8N51AF	RA-228	1.23E+00	(1.08E+00)	U4	pCi/g	R	2.04E+00	4.70E+00	89%	
Calc	TF	Unk	KF8N61AF	RA-228	9.20E-01	(2.28E-01)		pCi/g	R	2.57E-01	5.96E-01	90%	
Calc	TF	Unk	KF8N61AF	RA-228	1.52E+00	(3.10E-01)		pCi/g	R	2.85E-01	6.61E-01	90%	
Calc	TF	Unk	KF8N61AF	RA-228	1.06E+00	(2.73E-01)		pCi/g	R	3.17E-01	7.34E-01	90%	
Calc	TF	Unk	KF8N61AF	RA-228	1.17E+00	(1.57E-01)		pCi/g	A	1.65E-01	3.83E-01	90%	
Calc	TF	Unk	KF8N61AF	RA-228	2.84E+00	(1.18E+00)		pCi/g	R	1.81E+00	4.23E+00	90%	
Calc	TF	Unk	KF8N81AF	RA-228	1.65E+00	(3.45E-01)		pCi/g	R	3.63E-01	8.21E-01	82%	
Calc	TF	Unk	KF8N81AF	RA-228	1.63E+00	(3.62E-01)		pCi/g	R	4.03E-01	9.11E-01	82%	
Calc	TF	Unk	KF8N81AF	RA-228	1.46E+00	(3.64E-01)		pCi/g	R	4.47E-01	1.01E+00	82%	
Calc	TF	Unk	KF8N81AF	RA-228	1.58E+00	(2.06E-01)		pCi/g	A	2.33E-01	5.28E-01	82%	
Calc	TF	Unk	KF8N81AF	RA-228	2.27E+00	(1.32E+00)		pCi/g	R	2.31E+00	5.29E+00	82%	
Calc	TF	Unk	KF8N91AF	RA-228	1.38E+00	(2.97E-01)		pCi/g	R	2.94E-01	6.83E-01	81%	
Calc	TF	Unk	KF8N91AF	RA-228	1.29E+00	(3.04E-01)		pCi/g	R	3.26E-01	7.58E-01	81%	
Calc	TF	Unk	KF8N91AF	RA-228	1.52E+00	(3.47E-01)		pCi/g	R	3.62E-01	8.41E-01	81%	
Calc	TF	Unk	KF8N91AF	RA-228	1.40E+00	(1.83E-01)		pCi/g	A	1.89E-01	4.39E-01	81%	
Calc	TF	Unk	KF8N91AF	RA-228	2.47E+00	(1.36E+00)		pCi/g	R	2.34E+00	5.38E+00	81%	
Calc	TF	Unk	KF8PD1AF	RA-228	1.17E+00	(2.63E-01)		pCi/g	R	2.64E-01	6.17E-01	89%	
Calc	TF	Unk	KF8PD1AF	RA-228	1.23E+00	(2.84E-01)		pCi/g	R	2.93E-01	6.84E-01	89%	
Calc	TF	Unk	KF8PD1AF	RA-228	1.08E+00	(2.83E-01)		pCi/g	R	3.25E-01	7.59E-01	89%	
Calc	TF	Unk	KF8PD1AF	RA-228	1.16E+00	(1.60E-01)		pCi/g	A	1.70E-01	3.97E-01	89%	
Calc	TF	Unk	KF8PD1AF	RA-228	8.04E-01	(1.06E+00)	U4	pCi/g	R	2.12E+00	4.88E+00	89%	
Calc	TF	Unk	KF8PE1AF	RA-228	1.26E+00	(2.76E-01)		pCi/g	R	3.74E-01	8.15E-01	91%	
Calc	TF	Unk	KF8PE1AF	RA-228	1.03E+00	(2.74E-01)		pCi/g	R	4.15E-01	9.04E-01	91%	

() - (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

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC	Trc Yld	LCS Yld
Calc	TF	Unk	KF8PE1AF	RA-228	1.61E+00	(3.45E-01)		pCi/g	R	4.60E-01	1.00E+00		91%	
Calc	TF	Unk	KF8PE1AF	RA-228	1.30E+00	(1.73E-01)		pCi/g	A	2.40E-01	5.24E-01	✓	91%	
Calc	TF	Unk	KF8PE1AF	RA-228	2.06E+00	(1.37E+00)	U4	pCi/g	R	2.65E+00	5.80E+00		91%	
Calc	TF	Unk	KF8PG1AJ	RA-228	1.22E+00	(2.77E-01)		pCi/g	R	3.79E-01	8.30E-01		88%	
Calc	TF	Unk	KF8PG1AJ	RA-228	1.12E+00	(2.86E-01)		pCi/g	R	4.21E-01	9.21E-01		88%	
Calc	TF	Unk	KF8PG1AJ	RA-228	8.47E-01	(2.83E-01)		pCi/g	R	4.67E-01	1.02E+00		88%	
Calc	TF	Unk	KF8PG1AJ	RA-228	1.06E+00	(1.63E-01)		pCi/g	A	2.44E-01	5.34E-01	✓	88%	
Calc	TF	Unk	KF8PG1AJ	RA-228	1.52E+00	(1.37E+00)	U4	pCi/g	R	2.73E+00	5.99E+00		88%	
Calc	TF	Unk	KF8PG1AL	RA-228	1.19E+00	(2.72E-01)		pCi/g	R	3.76E-01	8.21E-01	R	91%	
Calc	TF	Unk	KF8PG1AL	RA-228	1.01E+00	(2.74E-01)		pCi/g	R	4.17E-01	9.11E-01	R	91%	
Calc	TF	Unk	KF8PG1AL	RA-228	1.57E+00	(3.43E-01)		pCi/g	R	4.63E-01	1.01E+00	R	91%	
Calc	TF	Unk	KF8PG1AL	RA-228	1.26E+00	(1.72E-01)		pCi/g	A	2.42E-01	5.28E-01	✓R	91%	
Calc	TF	Unk	KF8PG1AL	RA-228	-7.02E-01	(1.22E+00)	U4	pCi/g	R	2.78E+00	6.07E+00	R	91%	
Calc	TF	Unk	KGXJK1AA	RA-228	2.98E-01	(1.86E-01)	U4	pCi/g	R	3.52E-01	7.76E-01	B	87%	
Calc	TF	Unk	KGXJK1AA	RA-228	3.61E-01	(2.09E-01)		pCi/g	R	3.91E-01	8.61E-01	B	87%	
Calc	TF	Unk	KGXJK1AA	RA-228	-6.19E-02	(1.92E-01)	U4	pCi/g	R	4.33E-01	9.56E-01	B	87%	
Calc	TF	Unk	KGXJK1AA	RA-228	1.99E-01	(1.13E-01)		pCi/g	A	2.26E-01	4.99E-01	✓B	87%	
Calc	TF	Unk	KGXJK1AA	RA-228	3.25E+00	(1.43E+00)		pCi/g	R	2.50E+00	5.54E+00	B	87%	
Calc	TF	Unk	KGXJK1AC	RA-228	3.06E+00	(4.49E-01)		pCi/g	R	3.79E-01	8.29E-01	S	90%	61%
Calc	TF	Unk	KGXJK1AC	RA-228	4.42E+00	(5.96E-01)		pCi/g	R	4.21E-01	9.20E-01	S	90%	88%
Calc	TF	Unk	KGXJK1AC	RA-228	4.03E+00	(5.78E-01)		pCi/g	R	4.67E-01	1.02E+00	S	90%	81%
Calc	TF	Unk	KGXJK1AC	RA-228	3.83E+00	(3.15E-01)		pCi/g	A	2.44E-01	5.33E-01	✓S	90%	77%
Calc	TF	Unk	KGXJK1AC	RA-228	1.99E+00	(1.46E+00)	U4	pCi/g	R	2.87E+00	6.26E+00	S	90%	40%

REC= 0.84

JK

JK

ck

Tom D ME

3/12/08

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

Alpha Beta, Ra-228 by GPC , Calculated Results Detailed Report

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol	
1	Calc	TF	Unk	*STLE	Ra228WoBS	KF8N41AF	✓	pCi/g		01/28/08 07:00	03/12/08 06:18	03/03/08 15:28	✓	RATA30248	✓	g	✓	
1418995	TSB-HJ-10-0'							Unk		31.6	31.6	03/11/08 08:45	100%	RATA30248	Alq	1.01 g		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/11/08 12:43	RA-228	87	107	GPC3A	1	N	N	4.6667E-01	1.0000E+00	N	92%	N		1.4951E+00	4.5045E-01	1.0117E+00	
			50	400			Y		(4.765E-03)	(0.000E+00)		7%			(0.000E+00)	0.990099		
1	03/11/08 13:38	RA-228	58	107	GPC3A	1	N	N	4.6667E-01	1.0000E+00	N	92%	N		1.6591E+00	4.5045E-01	1.0117E+00	
			50	400			Y		(4.765E-03)	(0.000E+00)		7%			(0.000E+00)	0.990099		
2	03/11/08 14:34	RA-228	61	107	GPC3A	1	N	N	4.6667E-01	1.0000E+00	N	92%	N		1.8413E+00	4.5045E-01	1.0117E+00	
			50	400			Y		(4.765E-03)	(0.000E+00)		7%			(0.000E+00)	0.990099		
3	03/12/08 06:18	RA-228	28	134	GPC2C	1	N	N	4.4692E-01	1.0000E+00	N	92%	N		1.0910E+01	4.5045E-01	1.0117E+00	
			50	400			N		(1.174E-02)	(0.000E+00)		7%			(0.000E+00)	0.990099		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EntFct	LCSYld,EFctU	IDC/ILcC	BIK/LcC/MDC	StdDVMdC/LcC				
03/12/08	RA-228	R	2.317258			1.47250E+00	5.135489	5.135489	1.01 G	92%		0.620534						
			(0.37117)			(1.8633E-01)	(0.776503)	(0.776503)	(0.017321)			0.267779						
03/12/08	RA-228	R	1.558645			8.92500E-01	3.454258	3.454258	1.01 G	92%		0.68863						
			(0.308845)			(1.5450E-01)	(0.659656)	(0.659656)	(0.017321)			0.297164						
03/12/08	RA-228	R	1.846025			9.52500E-01	4.091147	4.091147	1.01 G	92%		0.764222						
			(0.354753)			(1.5833E-01)	(0.755873)	(0.755873)	(0.017321)			0.329785						
03/12/08	RA-228	A	1.907309			1.10583E+00	4.226965	4.226965	1.01 G	92%		0.399023						
			(0.199723)			(9.6843E-02)	(0.42288)	(0.42288)	(0.01)			0.172191						
03/12/08	RA-228	R	2.697919			2.25000E-01	5.979107	5.979107	1.01 G	92%		5.213805						
			(1.342635)			(1.0972E-01)	(2.958706)	(2.958706)	(0.017321)			2.283309						

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol	
2	Calc	TF	Unk	*STLE	Ra228WoBS	KF8N41AF	✓	pCi/g		01/28/08 07:15	03/12/08 06:18	03/03/08 15:28	✓	RATA30249	✓	g	✓	
1418995	TSB-HJ-10-10'							Unk		30.7	30.7	03/11/08 08:45	98%	RATA30249	Alq	1.00 g		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/11/08 12:43	RA-228	51	112	GPC3C	1	N	N	4.8396E-01	1.0000E+00	N	88%	N		1.4951E+00	4.5045E-01	1.0117E+00	
			50	400			Y		(7.226E-03)	(0.000E+00)		7%			(0.000E+00)	1.00		
1	03/11/08 13:38	RA-228	53	112	GPC3C	1	N	N	4.8396E-01	1.0000E+00	N	88%	N		1.6591E+00	4.5045E-01	1.0117E+00	
			50	400			Y		(7.226E-03)	(0.000E+00)		7%			(0.000E+00)	1.00		
2	03/11/08 14:34	RA-228	38	112	GPC3C	1	N	N	4.8396E-01	1.0000E+00	N	88%	N		1.8413E+00	4.5045E-01	1.0117E+00	
			50	400			Y		(7.226E-03)	(0.000E+00)		7%			(0.000E+00)	1.00		

0 - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

Page 1
 RecCnt:2
 RADCALC v4.8.29
 TA Richland

Batch Nbr: 8042385

Alpha Beta, Ra-228 by GPC, Calculated Results

3/12/2008 10:20:59 AM

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnrFct	LCSYld,EFctU	IDC/ILcC	BIK/LcC/MDC	StdDWMdC/LcC
3	03/12/08 06:18	RA-228	15	110	GPC3A 1	7.4000E-01	2.603719	2.603719	1.00 G	88%	1.0913E+01	4.5045E-01	1.0117E+00	
			50	400		(1.4526E-01)	(0.553281)	(0.553281)	(0.017321)	7%	(0.000E+00)	1.00		
			R			7.8000E-01	3.045629	3.045629	1.00 G	88%	0.715663			
			R			(1.4799E-01)	(0.628751)	(0.628751)	(0.017321)		0.309792			
			R			4.8000E-01	2.079971	2.079971	1.00 G	88%	0.794223			
			R			(1.2610E-01)	(0.572023)	(0.572023)	(0.017321)		0.343798			
			A			6.6666E-01	2.576439	2.576439	1.00 G	88%	0.414688			
			A			(8.0998E-02)	(0.338076)	(0.338076)	(0.01)		0.179507			
			R		U4	2.5000E-02	0.666164	0.666164	1.00 G	88%	4.846009			
			R			(8.1777E-02)	(2.179741)	(2.179741)	(0.017321)		2.095152			

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sept1/Sept2 Date	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
3	Calc	TF	Unk	*STLE	Ra228WoBS	KF8N51AF		pci/g		01/28/08 07:55	03/12/08 06:18	03/03/08 15:28					
								Unk		30.5		03/11/08 08:45	RIATA30250	Alq	100%	1.01 g	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/11/08 12:43	RA-228	56	89	GPC3D 1	1	N	N	4.8293E-01	1.0000E+00	N	89%	N	1.4951E+00	4.5045E-01	1.0117E+00		
			50	400			Y	Y	(8.181E-03)	(0.000E+00)		7%		(0.000E+00)	0.990099			
1	03/11/08 13:38	RA-228	66	89	GPC3D 1	1	N	N	4.8293E-01	1.0000E+00	N	89%	N	1.6591E+00	4.5045E-01	1.0117E+00		
			50	400			Y	Y	(8.181E-03)	(0.000E+00)		7%		(0.000E+00)	0.990099			
2	03/11/08 14:34	RA-228	51	89	GPC3D 1	1	N	N	4.8293E-01	1.0000E+00	N	89%	N	1.8413E+00	4.5045E-01	1.0117E+00		
			50	400			Y	Y	(8.181E-03)	(0.000E+00)		7%		(0.000E+00)	0.990099			
3	03/12/08 06:18	RA-228	20	117	GPC3C 1	1	N	N	4.8398E-01	1.0000E+00	N	89%	N	1.0913E+01	4.5045E-01	1.0117E+00		
			50	400			N	N	(7.226E-03)	(0.000E+00)		7%		(0.000E+00)	0.990099			

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnrFct	LCSYld,EFctU	IDC/ILcC	BIK/LcC/MDC	StdDWMdC/LcC
	03/12/08	RA-228	R	1.414026		8.97500E-01	3.133794	3.133794	1.01 G	89%	0.574108			
			R	(0.275573)		(1.5151E-01)	(0.587836)	(0.587836)	(0.017321)		0.244503			
			R	1.918878		1.09750E+00	4.252658	4.252658	1.01 G	89%	0.637109			
			R	(0.342511)		(1.6418E-01)	(0.725031)	(0.725031)	(0.017321)		0.271334			
			R	1.547417		7.97500E-01	3.429416	3.429416	1.01 G	89%	0.707046			
			R	(0.318748)		(1.4476E-01)	(0.682762)	(0.682762)	(0.017321)		0.301119			
			A	1.626774		9.30833E-01	3.605289	3.605289	1.01 G	89%	0.36917			
			A	(0.181002)		(8.8737E-02)	(0.385484)	(0.385484)	(0.01)		0.157223			
			R	1.233589	U4	1.07500E-01	2.733906	2.733906	1.01 G	89%	4.703207			
			R	(1.078922)		(9.3441E-02)	(2.386759)	(2.386759)	(0.017321)		2.041837			

- (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
iDC - Instrument Detection Level in Conc Units, MLC - 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

Batch Nbr: 8042385

Alpha Beta, Ra-228 by GPC, Calculated Results

3/12/2008 10:20:59 AM

Sq	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		
4	Calc	TF Unk	*STLE	Ra228WoBS	KF8N61AF	✓	pCi/g		01/28/08 07:55	03/12/08 06:18	03/03/08 15:28	✓	1	100%	1.03 g	✓		
1418995	TSB-HR-06-0'	FD					Unk		30.9	30.9	03/11/08 08:45		RATA30251	Alq	1.03 g			
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/11/08 12:44	RA-228	44	70	GPC4A	1	N	N	4.8930E-01	1.0000E+00	N	90%	N	1.4963E+00	4.5045E-01	1.0117E+00		
			50	260			Y	(2.442E-02)	(0.000E+00)		7%			(0.000E+00)	0.970874			
1	03/11/08 13:39	RA-228	59	70	GPC4A	1	N	N	4.8930E-01	1.0000E+00	N	90%	N	1.6605E+00	4.5045E-01	1.0117E+00		
			50	260			Y	(2.442E-02)	(0.000E+00)		7%			(0.000E+00)	0.970874			
2	03/11/08 14:34	RA-228	42	70	GPC4A	1	N	N	4.8930E-01	1.0000E+00	N	90%	N	1.8428E+00	4.5045E-01	1.0117E+00		
			50	260			Y	(2.442E-02)	(0.000E+00)		7%			(0.000E+00)	0.970874			
3	03/12/08 06:18	RA-228	25	98	GPC3D	1	N	N	4.8299E-01	1.0000E+00	N	90%	N	1.0913E+01	4.5045E-01	1.0117E+00		
			50	400			N	(8.182E-03)	(0.000E+00)		7%			(0.000E+00)	0.970874			
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EntFct	LCSYld,EFctU	IDC/ILcC	BIkLcC/MDC	StdDvMdc/LcC				
03/12/08	RA-228	R	0.920036			6.10769E-01	2.07938	2.07938	1.03 G	90%	0.595639							
			(0.2284)			(1.3651E-01)	(0.50442)	(0.50442)	(0.017321)		0.25715							
03/12/08	RA-228	R	1.522496			9.10769E-01	3.441003	3.441003	1.03 G	90%	0.661002							
			(0.309677)			(1.5696E-01)	(0.675955)	(0.675955)	(0.017321)		0.285369							
03/12/08	RA-228	R	1.058868			5.70769E-01	2.393155	2.393155	1.03 G	90%	0.733561							
			(0.272893)			(1.3355E-01)	(0.603709)	(0.603709)	(0.017321)		0.316694							
03/12/08	RA-228	A	1.167134			6.97436E-01	2.637846	2.637846	1.03 G	90%	0.383015							
			(0.157246)			(8.2399E-02)	(0.345739)	(0.345739)	(0.01)		0.165355							
03/12/08	RA-228	R	2.838039			2.55000E-01	6.41427	6.41427	1.03 G	90%	4.225896							
			(1.179328)			(1.0302E-01)	(2.643842)	(2.643842)	(0.017321)		1.812413							

(1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

RecCnt:5
 RADCALC v4.8.29
 TA Richland

Alpha Beta, Ra-228 by GPC, Calculated Results

Batch Nbr: 8042385

Sq	CalcDate, TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld, EnFct	LCSYld, EFctU	IDC/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
03/12/08	RA-228	R	1.64774	9.31538E-01	3.615613	(0.731868)	3.615613	(0.731868)	1.00 G	82%	0.820858	0.362709		
			(0.344741)	(1.6702E-01)	(0.731868)		(0.731868)		(0.017321)					
03/12/08	RA-228	R	1.632264	8.31538E-01	3.581653	(0.77049)	3.581653	(0.77049)	1.00 G	82%	0.910936	0.402511		
			(0.361601)	(1.6092E-01)	(0.77049)		(0.77049)		(0.017321)					
03/12/08	RA-228	R	1.462893	6.71538E-01	3.210005	(0.780711)	3.210005	(0.780711)	1.00 G	82%	1.010931	0.446695		
			(0.364116)	(1.5065E-01)	(0.780711)		(0.780711)		(0.017321)					
03/12/08	RA-228	A	1.580966	8.11538E-01	3.46909	(0.439545)	3.46909	(0.439545)	1.00 G	82%	0.527838	0.233233		
			(0.20607)	(9.2185E-02)	(0.439545)		(0.439545)		(0.01)					
03/12/08	RA-228	R	2.274141	1.82500E-01	4.990115	(2.879455)	4.990115	(2.879455)	1.00 G	82%	5.292754	2.310055		
			(1.317758)	(1.0389E-01)	(2.879455)		(2.879455)		(0.017321)					

Sq Status Method Matrix Protocol Equation Set Wrk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PpWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol

Sq	Calc	TF	Unk	*STLE Ra228WoBS	KF8N91AF	pc/g	Unk	01/28/08 08:30	03/12/08 06:18	03/03/08 15:28	03/11/08 08:45	RATA30253 Alq	89%	1	g	1.01 g	g	
1418995	TSB-HJ-08-0			F8A290183-6					31.4									

Sq	CalcDate, TrcAct	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/Vol/Adj	Decay	Abn
0	03/11/08 12:44	RA-228	52	67	GPC4C 1	1	N	N	4.7370E-01	1.0000E+00	N	81%	N	1.4963E+00	4.5045E-01	1.0117E+00		
			50	260			Y		(2.034E-02)	(0.000E+00)		6%		(0.000E+00)	0.990099			
1	03/11/08 13:39	RA-228	46	67	GPC4C 1	1	N	N	4.7370E-01	1.0000E+00	N	81%	N	1.6605E+00	4.5045E-01	1.0117E+00		
			50	260			Y		(2.034E-02)	(0.000E+00)		6%		(0.000E+00)	0.990099			
2	03/11/08 14:34	RA-228	48	67	GPC4C 1	1	N	N	4.7370E-01	1.0000E+00	N	81%	N	1.8428E+00	4.5045E-01	1.0117E+00		
			50	260			Y		(2.034E-02)	(0.000E+00)		6%		(0.000E+00)	0.990099			
3	03/12/08 06:18	RA-228	25	123	GPC4C 1	1	N	N	4.7370E-01	1.0000E+00	N	81%	N	1.0916E+01	4.5045E-01	1.0117E+00		
			50	400			N		(2.034E-02)	(0.000E+00)		6%		(0.000E+00)	0.990099			

Sq	CalcDate, TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld, EnFct	LCSYld, EFctU	IDC/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
03/12/08	RA-228	R	1.3764	7.82308E-01	3.050432	(0.638766)	3.050432	(0.638766)	1.01 G	81%	0.682695	0.293842		
			(0.297262)	(1.4762E-01)	(0.638766)		(0.638766)		(0.017321)					
03/12/08	RA-228	R	1.293144	6.62308E-01	2.865916	(0.656346)	2.865916	(0.656346)	1.01 G	81%	0.757612	0.326087		
			(0.303939)	(1.3925E-01)	(0.656346)		(0.656346)		(0.017321)					
03/12/08	RA-228	R	1.521767	7.02308E-01	3.372599	(0.747919)	3.372599	(0.747919)	1.01 G	81%	0.840776	0.361882		
			(0.346927)	(1.4210E-01)	(0.747919)		(0.747919)		(0.017321)					
03/12/08	RA-228	A	1.397104	7.15641E-01	3.096315	(0.394151)	3.096315	(0.394151)	1.01 G	81%	0.438995	0.18895		
			(0.182909)	(8.2579E-02)	(0.394151)		(0.394151)		(0.01)					
03/12/08	RA-228	R	2.470802	1.92500E-01	5.475886	(2.993504)	5.475886	(2.993504)	1.01 G	81%	5.376234	2.34167		
			(1.357014)	(1.0377E-01)	(2.993504)		(2.993504)		(0.017321)					

() - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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
 RecCnt:7 RADCALC v4.8.29
 TA Richland

Alpha Beta, Ra-228 by GPC , Calculated Results

Batch Nbr: 8042385

3/12/2008 10:21:00 AM

Sq	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol				
7	Calc	TF Unk	*STLE Ra228WoBS KF8PD1AF	✓	Unk	30.6	01/28/08 08:40	03/12/08 06:18	03/03/08 15:28	03/11/08 08:45	RATA30254 Alq	100%	1.01 g	✓				
1418995,TSB-HJ-08-10'																		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/11/08 12:44	RA-228	48	63	GPC4D	1	N	N	4.6515E-01	1.0000E+00	N	89%	N	1.4963E+00	4.5045E-01	1.0117E+00		
			50	260			Y		(2.241E-02)	(0.000E+00)		7%		(0.000E+00)	0.990099			
1	03/11/08 13:39	RA-228	46	63	GPC4D	1	N	N	4.6515E-01	1.0000E+00	N	89%	N	1.6605E+00	4.5045E-01	1.0117E+00		
			50	260			Y		(2.241E-02)	(0.000E+00)		7%		(0.000E+00)	0.990099			
2	03/11/08 14:34	RA-228	39	63	GPC4D	1	N	N	4.6515E-01	1.0000E+00	N	89%	N	1.8428E+00	4.5045E-01	1.0117E+00		
			50	260			Y		(2.241E-02)	(0.000E+00)		7%		(0.000E+00)	0.990099			
3	03/12/08 06:18	RA-228	18	117	GPC4D	1	N	N	4.6515E-01	1.0000E+00	N	89%	N	1.0916E+01	4.5045E-01	1.0117E+00		
			50	400			N		(2.241E-02)	(0.000E+00)		7%		(0.000E+00)	0.990099			
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rtt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC				
03/12/08	RA-228	R	1.171117			7.17692E-01	2.59548	2.59548	1.01 G	89%	0.616661							
			(0.263437)			(1.4189E-01)	(0.567492)	(0.567492)	(0.017321)		0.264266							
03/12/08	RA-228	R	1.227197			6.77692E-01	2.719768	2.719768	1.01 G	89%	0.684331							
			(0.284139)			(1.3904E-01)	(0.613091)	(0.613091)	(0.017321)		0.293266							
03/12/08	RA-228	R	1.080561			5.37692E-01	2.394786	2.394786	1.01 G	89%	0.759451							
			(0.283216)			(1.2858E-01)	(0.614779)	(0.614779)	(0.017321)		0.325458							
03/12/08	RA-228	A	1.159625			6.44359E-01	2.570011	2.570011	1.01 G	89%	0.396533							
			(0.159981)			(7.8878E-02)	(0.345749)	(0.345749)	(0.01)		0.169931							
03/12/08	RA-228	R	0.803537			6.75000E-02	1.780833	1.780833	1.01 G	89%	4.879034							
			(1.063664)			(8.9058E-02)	(2.355458)	(2.355458)	(0.017321)		2.11817							
Sq	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol				
8	Calc	TF Unk	*STLE Ra228WoBS KF8PE1AF	✓	Unk	31.2	01/28/08 09:00	03/12/08 06:18	03/03/08 15:28	03/11/08 08:45	RATA30255 Alq	100%	1.00 g	✓				
1418995,TSB-HR-05-0'																		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/11/08 12:44	RA-228	91	327	GPC5C	1.5	N	N	5.9907E-01	1.0000E+00	N	91%	N	1.4973E+00	4.5045E-01	1.0117E+00		
			50	400			Y		(1.374E-02)	(0.000E+00)		7%		(0.000E+00)	1.00			
1	03/11/08 13:39	RA-228	78	327	GPC5C	1.5	N	N	5.9907E-01	1.0000E+00	N	91%	N	1.6616E+00	4.5045E-01	1.0117E+00		
			50	400			Y		(1.374E-02)	(0.000E+00)		7%		(0.000E+00)	1.00			
2	03/11/08 14:34	RA-228	93	327	GPC5C	1.5	N	N	5.9907E-01	1.0000E+00	N	91%	N	1.8440E+00	4.5045E-01	1.0117E+00		
			50	400			Y		(1.374E-02)	(0.000E+00)		7%		(0.000E+00)	1.00			
3	03/12/08 06:18	RA-228	50	310	GPC5C	1.5	N	N	5.9907E-01	1.0000E+00	N	91%	N	1.0919E+01	4.5045E-01	1.0117E+00		
			50	400			N		(1.374E-02)	(0.000E+00)		7%		(0.000E+00)	1.00			

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

Batch Nbr: 8042385

Alpha Beta, Ra-228 by GPC, Calculated Results

3/12/2008 10:21:00 AM

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BIK/LcC/MDC	StdDvMdc/LcC
03/12/08	RA-228	R	1.258968 (0.275763)	1.00250E+00 (1.9607E-01)	2.762568 (0.587187)	2.762568 (0.587187)	2.762568 (0.587187)	1.00 G (0.017321)	91%	0.814759	0.373569	0.904197	0.414576	
03/12/08	RA-228	R	1.03481 (0.273835)	7.42500E-01 (1.8233E-01)	2.270694 (0.588744)	2.270694 (0.588744)	2.270694 (0.588744)	1.00 G (0.017321)	91%	1.00342	0.46007	0.523922	0.240219	
03/12/08	RA-228	R	1.612353 (0.345191)	1.04250E+00 (1.9810E-01)	3.538003 (0.733955)	3.538003 (0.733955)	3.538003 (0.733955)	1.00 G (0.017321)	91%	5.798198	2.652488			
03/12/08	RA-228	A	1.302044 (0.173265)	9.29167E-01 (1.1102E-01)	2.857088 (0.369699)	2.857088 (0.369699)	2.857088 (0.369699)	1.00 G (0.01)	91%					
03/12/08	RA-228	R	2.060579 (1.371577)	2.25000E-01 (1.4811E-01)	4.52155 (3.00014)	4.52155 (3.00014)	4.52155 (3.00014)	1.00 G (0.017321)	91%					

Sq Status Method Matrix Protocol Equation Set Wrk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial MuIt/EntYld Total/Analy Vol Final/Count Vol

9	Calc	TF	Unk	*STLE Ra228WoBS KF8PG1AJ	pCi/g	Unk	01/28/08 09:15	03/12/08 06:18	03/03/08 15:28	03/11/08 08:45	RATA30256 Alq	100%	1.02 g	✓		
1418995	TSB-HR-05-10			F8A290183-9			30.1									
0	03/11/08 12:44	RA-228	84	304	GPC5D	1.5	N	N	5.7814E-01	1.0000E+00	N	88%	N	1.4973E+00	4.5045E-01	1.0117E+00
			50	400			Y		(1.331E-02)	(0.000E+00)		7%		(0.000E+00)	0.980392	
1	03/11/08 13:39	RA-228	76	304	GPC5D	1.5	N	N	5.7814E-01	1.0000E+00	N	88%	N	1.6616E+00	4.5045E-01	1.0117E+00
			50	400			Y		(1.331E-02)	(0.000E+00)		7%		(0.000E+00)	0.980392	
2	03/11/08 14:34	RA-228	64	304	GPC5D	1.5	N	N	5.7814E-01	1.0000E+00	N	88%	N	1.8440E+00	4.5045E-01	1.0117E+00
			50	400			Y		(1.331E-02)	(0.000E+00)		7%		(0.000E+00)	0.980392	
3	03/12/08 06:18	RA-228	45	297	GPC5D	1.5	N	N	5.7814E-01	1.0000E+00	N	88%	N	1.0919E+01	4.5045E-01	1.0117E+00
			50	400			N		(1.331E-02)	(0.000E+00)		7%		(0.000E+00)	0.980392	

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BIK/LcC/MDC	StdDvMdc/LcC
03/12/08	RA-228	R	1.216601 (0.276522)	9.20000E-01 (1.8841E-01)	2.723001 (0.601979)	2.723001 (0.601979)	2.723001 (0.601979)	1.02 G (0.017321)	88%	0.829789	0.379283	0.920876	0.420917	
03/12/08	RA-228	R	1.115341 (0.285753)	7.60000E-01 (1.7972E-01)	2.49636 (0.625842)	2.49636 (0.625842)	2.49636 (0.625842)	1.02 G (0.017321)	88%	1.02193	0.467107	0.533586	0.243893	
03/12/08	RA-228	R	0.846871 (0.282682)	5.20000E-01 (1.6583E-01)	1.89547 (0.624734)	1.89547 (0.624734)	1.89547 (0.624734)	1.02 G (0.017321)	88%	5.987209	2.733888			
03/12/08	RA-228	A	1.059604 (0.162627)	7.33333E-01 (1.0290E-01)	2.371611 (0.356581)	2.371611 (0.356581)	2.371611 (0.356581)	1.02 G (0.01)	88%					
03/12/08	RA-228	R	1.518858 (1.367117)	1.57500E-01 (1.4091E-01)	3.399514 (3.054618)	3.399514 (3.054618)	3.399514 (3.054618)	1.02 G (0.017321)	88%					

0 - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPV
 IDC - Instrument Detection Level in Conc Units, MLC - 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
 RecCnt:10
 RADCALC v4.8.29
 TA Richland

Alpha Beta, Ra-228 by GPC, Calculated Results

Sq	Calc	TF	Unk	Method	Matrix	Protocol	Equation	Set	Wrk	Ord	Units/Matrix	QC/BB	Sa/On	Date	AnalysisDate	PptWt	Sep1/Sep2	Date	QC/Tracer	Vial	Multi/Ent	Yld	Total/Analy	Vol	Final/Count	Vol			
10						*STLE	Ra228WoBS	KF8PG1AL	✓	pc/g	✓	R	01/28/08	09:15	03/12/08	06:18	03/03/08	15:28	✓	1	✓	100%	✓	1.02 g	✓	g			
	1418995	TSB-HR-05-10	DUP								Unk				31.4	✓	03/11/08	08:45		RATA30257	Alq								
Sq	Cnt	Date	Parameter	Sample	Cnt	Bkgrnd	Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc	Yld	Fct	Ent	Blk	Value	Ingr	Fct	Conv	Fct/Vol	Adj	Decay	Abn		
0	03/11/08	12:44	RA-228	86	316	GPC6A	1.5	N	N	5.7082E-01	1.0000E+00	N	91%	N	1.4984E+00	4.5045E-01	1.0117E+00	(0.000E+00)	0.980392										
1	03/11/08	13:40	RA-228	50	400	GPC6A	1.5	Y	Y	(1.254E-02)	(0.000E+00)	N	7%	N	1.6628E+00	4.5045E-01	1.0117E+00	(0.000E+00)	0.980392										
2	03/11/08	14:35	RA-228	75	316	GPC6A	1.5	N	N	5.7082E-01	1.0000E+00	N	91%	N	1.8454E+00	4.5045E-01	1.0117E+00	(0.000E+00)	0.980392										
3	03/12/08	06:18	RA-228	50	400	GPC6A	1.5	Y	Y	(1.254E-02)	(0.000E+00)	N	7%	N	1.0923E+01	4.5045E-01	1.0117E+00	(0.000E+00)	0.980392										
Sq	CalcDate	TrcAct	Parameter	Avg	Sa	Act	Total	U	Q	Net	Cnt	Rt	Dpm	Wo	Blk	Dpm-Blk	Vol	Used	TrcYld	EntFct	LCSYld	EFctU	IDC	ILcC	BIK	LcC/MDC	Std	DW	MdC/LcC
03/12/08	RA-228	R	1.194943	0.30000E-01	2.674526	2.674526	1.02 G	91%	0.820651										0.375728										
03/12/08	RA-228	R	1.012377	(1.9072E-01)	(0.591664)	(0.591664)	(0.017321)	91%	0.910706										0.416959										
03/12/08	RA-228	R	1.566581	(0.343251)	(0.745622)	(0.745622)	(0.017321)	91%	1.010676										0.462729										
03/12/08	RA-228	A	1.257967	(0.172112)	(0.375207)	(0.375207)	(0.01)	91%	0.527704										0.241605										
03/12/08	RA-228	R	-0.702464	(1.217313)	(2.72333)	(2.72333)	(0.017321)	91%	6.068096										2.781876										

Sq	Calc	TF	Unk	Method	Matrix	Protocol	Equation	Set	Wrk	Ord	Units/Matrix	QC/BB	Sa/On	Date	AnalysisDate	PptWt	Sep1/Sep2	Date	QC/Tracer	Vial	Multi/Ent	Yld	Total/Analy	Vol	Final/Count	Vol	
11						*STLE	Ra228WoBS	KGXJK1AA	✓	pc/g	✓	B	01/28/08	07:00	03/03/08	15:28	✓	1	✓	98%	✓	1.01 g	✓	g			
	0	INTRA-LAB	BLANK								Unk				30.8	✓	03/11/08	08:45		RATA30258	Alq						
Sq	Cnt	Date	Parameter	Sample	Cnt	Bkgrnd	Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc	Yld	Fct	Ent	Blk	Value	Ingr	Fct	Conv	Fct/Vol	Adj	Decay	Abn
0	03/11/08	12:44	RA-228	43	255	GPC6C	1.5	N	N	5.7757E-01	1.0000E+00	N	87%	N	1.4984E+00	4.5045E-01	1.0117E+00	(0.000E+00)	0.990099								
1	03/11/08	13:40	RA-228	50	400	GPC6C	1.5	Y	Y	(1.580E-02)	(0.000E+00)	N	7%	N	1.6628E+00	4.5045E-01	1.0117E+00	(0.000E+00)	0.990099								
2	03/11/08	14:35	RA-228	44	255	GPC6C	1.5	N	N	5.7757E-01	1.0000E+00	N	87%	N	1.8454E+00	4.5045E-01	1.0117E+00	(0.000E+00)	0.990099								
3	03/12/08	06:18	RA-228	50	400	GPC6C	1.5	Y	Y	(1.580E-02)	(0.000E+00)	N	7%	N	1.0923E+01	4.5045E-01	1.0117E+00	(0.000E+00)	0.990099								

Alpha Beta, Ra-228 by GPC, Calculated Results

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BkLcC/MDC	StdDvMdc/LcC
03/12/08	RA-228	R	0.298094	0.186056	U4	2.22500E-01	0.660634	0.660634	1.01 G	87%	0.776062	0.776062		
				(0.186056)		(1.3709E-01)	(0.410855)	(0.410855)	(0.017321)			0.351933		
03/12/08	RA-228	R	0.360541	0.209093		2.42500E-01	0.799029	0.799029	1.01 G	87%	0.861224	0.861224		
				(0.209093)		(1.3854E-01)	(0.461461)	(0.461461)	(0.017321)			0.390553		
03/12/08	RA-228	R	-0.061874		U4	-3.75000E-02	-0.137125	-0.137125	1.01 G	87%	0.955762	0.955762		
				(0.192473)		(1.1659E-01)	(0.426496)	(0.426496)	(0.017321)			0.433424		
03/12/08	RA-228	A	0.198921			1.42500E-01	0.440846	0.440846	1.01 G	87%	0.499032	0.499032		
				(0.113227)		(7.5705E-02)	(0.250255)	(0.250255)	(0.01)			0.226304		
03/12/08	RA-228	R	3.247238			3.32500E-01	7.196505	7.196505	1.01 G	87%	5.53501	5.53501		
				(1.429259)		(1.4254E-01)	(3.144589)	(3.144589)	(0.017321)			2.50433		

Sq Status Method Matrix Protocol Equation Set Wrk Ord Units/Matrix QC/BB Sai/On Date AnalysisDate/PrtWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol

12	Calc	TF	Unk	*STLE	Ra228WoBS	KGXJK1AC	pci/g	S	01/28/08	07:00	03/12/08	06:18	03/03/08	15:28	RASC4701	1	g	1.00 g	✓
0	JNTRA-LAB	CHECK					Unk				31.1	✓	03/11/08	08:45	RASC4701	Alq	100%		

Sq	CalcDate,TrcAct	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/11/08	12:44	RA-228	155	308	GPC6D	1.5	N	N	5.7524E-01	1.0000E+00	N	90%	N	1.4984E+00	4.5045E-01	1.0117E+00	
				50	400			Y	(1.350E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		
1	03/11/08	13:40	RA-228	190	308	GPC6D	1.5	N	N	5.7524E-01	1.0000E+00	N	90%	N	1.6628E+00	4.5045E-01	1.0117E+00	
				50	400			Y	(1.350E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		
2	03/11/08	14:35	RA-228	163	308	GPC6D	1.5	N	N	5.7524E-01	1.0000E+00	N	90%	N	1.8454E+00	4.5045E-01	1.0117E+00	
				50	400			Y	(1.350E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		
3	03/12/08	06:18	RA-228	52	333	GPC6D	1.5	N	N	5.7524E-01	1.0000E+00	N	90%	N	1.0923E+01	4.5045E-01	1.0117E+00	
				50	400			N	(1.350E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BkLcC/MDC	StdDvMdc/LcC
03/12/08	RA-228	R	3.059501	0.448875		2.33000E+00	6.713311	6.713311	1.00 G	90%	61%	0.828888		
				(0.448875)		(2.5283E-01)	(0.918653)	(0.918653)	(0.017321)			0.379084		
03/12/08	RA-228	R	4.415271	0.596276		3.03000E+00	9.688208	9.688208	1.00 G	90%	88%	0.919848		
				(0.596276)		(2.7915E-01)	(1.203761)	(1.203761)	(0.017321)			0.420684		
03/12/08	RA-228	R	4.026685	0.577613		2.49000E+00	8.835554	8.835554	1.00 G	90%	81%	1.020821		
				(0.577613)		(2.5908E-01)	(1.178042)	(1.178042)	(0.017321)			0.466863		
03/12/08	RA-228	A	3.833819	0.314584		2.61667E+00	8.412358	8.412358	1.00 G	90%	77%	0.533001		
				(0.314584)		(1.5238E-01)	(0.639509)	(0.639509)	(0.01)			0.243763		
03/12/08	RA-228	R	1.986149	1.461105	U4	2.07500E-01	4.358107	4.358107	1.00 G	90%	40%	6.261989		
				(1.461105)		(1.5127E-01)	(3.197726)	(3.197726)	(0.017321)			2.873305		

RecCnt:12
RADCALC v4.8.29
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(1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
IDC - Instrument Detection Level in Conc Units, MDC - Method Decision Level in Conc Units, MLC - Method Decision Level in Conc Units, Y-90 Count, All Result Digits May Not be Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time
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

UST Number: KF8NX1AF Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 3-A File: [quad3.sample.A]KF8NX1AF.180
Dish Size: 1 Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.A_1;6071

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00087	0050	01247	1920	11-MAR-2008 12:43:36.13
2	00000	00058	0050	01239	1920	11-MAR-2008 13:38:51.80
3	00000	00061	0050	01252	1920	11-MAR-2008 14:34:07.60

Bkg File: [quad3.bkgrnd]2008-03-11_0301.A_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00107	0400	0.27	10003	1920	11-MAR-2008 03:01:32.64 ✓

UST Number: KF8NX1AF Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 2-C File: [quad2.sample.C]KF8NX1AF.430
Dish Size: 1 Bkg File: \$DISK1:[QUAD2.BKGRND]CURRENT.C_1;4155

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00028	0050	01157	1810	12-MAR-2008 06:18:12.17

Bkg File: [quad2.bkgrnd]2008-03-12_0302.C_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00134	0400	0.34	09330	1810	12-MAR-2008 03:02:33.54

UST Number: KF8N41AF Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 3-C File: [quad3.sample.C]KF8N41AF.180
Dish Size: 1 Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.C_1;6084

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00051	0050	01247	1920	11-MAR-2008 12:43:36.13
2	00000	00053	0050	01239	1920	11-MAR-2008 13:38:51.80
3	00000	00038	0050	01252	1920	11-MAR-2008 14:34:07.60

Bkg File: [quad3.bkgrnd]2008-03-11_0301.C_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00112	0400	0.28	10003	1920	11-MAR-2008 03:01:32.64 ✓

UST Number: KF8N41AF Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 3-A File: [quad3.sample.A]KF8N41AF.430
Dish Size: 1 Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.A_1;6072

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00015	0050	01235	1920	12-MAR-2008 06:18:22.29

Bkg File: [quad3.bkgrnd]2008-03-12_0303.A_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00110	0400	0.28	09965	1920	12-MAR-2008 03:03:18.08

UST Number: KF8N51AF Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 3-D File: [quad3.sample.D]KF8N51AF.180
Dish Size: 1 Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.D_1;6069

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00056	0050	01247	1920	11-MAR-2008 12:43:36.13
2	00000	00066	0050	01239	1920	11-MAR-2008 13:38:51.80
3	00000	00051	0050	01252	1920	11-MAR-2008 14:34:07.60

Bkg File: [quad3.bkgrnd]2008-03-11_0301.D_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00089	0400	0.22	10003	1920	11-MAR-2008 03:01:32.64 ✓

UST Number: KF8N51AF Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 3-C File: [quad3.sample.C]KF8N51AF.430
Dish Size: 1 Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.C_1;6085

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00020	0050	01235	1920	12-MAR-2008 06:18:22.29

Bkg File: [quad3.bkgrnd]2008-03-12_0303.C_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00117	0400	0.29	09965	1920	12-MAR-2008 03:03:18.08

UST Number: KF8N61AF Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 4-A File: [quad4.sample.A]KF8N61AF.180
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.A_1;6083

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00044	0050	01219	1850	11-MAR-2008 12:44:03.09
2	00000	00059	0050	01200	1850	11-MAR-2008 13:39:18.82
3	00000	00042	0050	01213	1850	11-MAR-2008 14:34:34.47

Bkg File: [quad4.bkgrnd]2008-03-11_0036.A_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00070	0260	0.27	06289	1850	11-MAR-2008 00:36:13.55 ✓

UST Number: KF8N61AF Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 3-D File: [quad3.sample.D]KF8N61AF.430
Dish Size: 1 Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.D_1;6070

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00025	0050	01235	1920	12-MAR-2008 06:18:22.29

Bkg File: [quad3.bkgrnd]2008-03-12_0303.D_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00098	0400	0.25	09965	1920	12-MAR-2008 03:03:18.08

UST Number: KF8N81AF Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 4-B File: [quad4.sample.B]KF8N81AF.180
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.B_1;6082

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00066	0050	01219	1850	11-MAR-2008 12:44:03.09
2	00000	00061	0050	01200	1850	11-MAR-2008 13:39:18.82
3	00000	00053	0050	01213	1850	11-MAR-2008 14:34:34.47

Bkg File: [quad4.bkgrnd]2008-03-11_0036.B_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00101	0260	0.39	06289	1850	11-MAR-2008 00:36:13.55 ✓

UST Number: KF8N81AF Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 4-A File: [quad4.sample.A]KF8N81AF.430
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.A_1;6084

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00025	0050	01208	1850	12-MAR-2008 06:18:31.13

Bkg File: [quad4.bkgrnd]2008-03-12_0303.A_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00127	0400	0.32	09681	1850	12-MAR-2008 03:03:31.03

UST Number: KF8N91AF Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 4-C File: [quad4.sample.C]KF8N91AF.180
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.C_1;6085

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00052	0050	01219	1850	11-MAR-2008 12:44:03.09
2	00000	00046	0050	01200	1850	11-MAR-2008 13:39:18.82
3	00000	00048	0050	01213	1850	11-MAR-2008 14:34:34.47

Bkg File: [quad4.bkgrnd]2008-03-11_0036.C_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00067	0260	0.26	06289	1850	11-MAR-2008 00:36:13.55 ✓

UST Number: KF8N91AF Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 4-C File: [quad4.sample.C]KF8N91AF.430
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.C_1;6086

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00025	0050	01208	1850	12-MAR-2008 06:18:31.13

Bkg File: [quad4.bkgrnd]2008-03-12_0303.C_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00123	0400	0.31	09681	1850	12-MAR-2008 03:03:31.03

UST Number: KF8PD1AF Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 4-D File: [quad4.sample.D]KF8PD1AF.180
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.D_1;6099

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00048	0050	01219	1850	11-MAR-2008 12:44:03.09
2	00000	00046	0050	01200	1850	11-MAR-2008 13:39:18.82
3	00000	00039	0050	01213	1850	11-MAR-2008 14:34:34.47

Bkg File: [quad4.bkgrnd]2008-03-11_0036.D_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00063	0260	0.24	06289	1850	11-MAR-2008 00:36:13.55 ✓

UST Number: KF8PD1AF Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 4-D File: [quad4.sample.D]KF8PD1AF.430
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.D_1;6100

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00018	0050	01208	1850	12-MAR-2008 06:18:31.13

Bkg File: [quad4.bkgrnd]2008-03-12_0303.D_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00117	0400	0.29	09681	1850	12-MAR-2008 03:03:31.03

UST Number: KF8PE1AF Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 5-C File: [quad5.sample.C]KF8PE1AF.180
Dish Size: 15 Bkg File: \$DISK1:[QUAD5.BKGRND]CURRENT.C_15;6142

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00091	0050	01284	1800	11-MAR-2008 12:44:23.56
2	00000	00078	0050	01260	1800	11-MAR-2008 13:39:39.17
3	00000	00093	0050	01266	1800	11-MAR-2008 14:34:54.84

Bkg File: [quad5.bkgrnd]2008-03-11_0302.C_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00327	0400	0.82	10247	1800	11-MAR-2008 03:02:27.87 ✓

UST Number: KF8PE1AF Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 5-C File: [quad5.sample.C]KF8PE1AF.430
Dish Size: 15 Bkg File: \$DISK1:[QUAD5.BKGRND]CURRENT.C_15;6143

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00050	0050	01282	1800	12-MAR-2008 06:18:39.19

Bkg File: [quad5.bkgrnd]2008-03-12_0305.C_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00310	0400	0.78	10213	1800	12-MAR-2008 03:05:51.74

UST Number: KF8PG1AJ Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 5-D File: [quad5.sample.D]KF8PG1AJ.180
Dish Size: 15 Bkg File: \$DISK1:[QUAD5.BKGRND]CURRENT.D_15;6195

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00084	0050	01284	1800	11-MAR-2008 12:44:23.56
2	00000	00076	0050	01260	1800	11-MAR-2008 13:39:39.17
3	00000	00064	0050	01266	1800	11-MAR-2008 14:34:54.84

Bkg File: [quad5.bkgrnd]2008-03-11_0302.D_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00304	0400	0.76	10247	1800	11-MAR-2008 03:02:27.87 ✓

UST Number: KF8PG1AJ Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 5-D File: [quad5.sample.D]KF8PG1AJ.430
Dish Size: 15 Bkg File: \$DISK1:[QUAD5.BKGRND]CURRENT.D_15;6196

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00045	0050	01282	1800	12-MAR-2008 06:18:39.19

Bkg File: [quad5.bkgrnd]2008-03-12_0305.D_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00297	0400	0.74	10213	1800	12-MAR-2008 03:05:51.74

UST Number: KF8PG1AL Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 6-A File: [quad6.sample.A]KF8PG1AL.180
Dish Size: 15 Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.A_15;6146

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00086	0050	01297	1800	11-MAR-2008 12:44:47.02
2	00000	00075	0050	01291	1800	11-MAR-2008 13:40:02.64
3	00000	00089	0050	01292	1800	11-MAR-2008 14:35:18.31

Bkg File: [quad6.bkgrnd]2008-03-11_0257.A_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00316	0400	0.79	10388	1800	11-MAR-2008 02:57:33.36 ✓

UST Number: KF8PG1AL Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 6-A File: [quad6.sample.A]KF8PG1AL.430
Dish Size: 15 Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.A_15;6147

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00037	0050	01301	1800	12-MAR-2008 06:18:50.21

Bkg File: [quad6.bkgrnd]2008-03-12_0300.A_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00326	0400	0.82	10353	1800	12-MAR-2008 03:00:54.15

UST Number: KGXJK1AA Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 6-C File: [quad6.sample.C]KGXJK1AA.180
Dish Size: 15 Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.C_15;6149

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00043	0050	01297	1800	11-MAR-2008 12:44:47.02
2	00000	00044	0050	01291	1800	11-MAR-2008 13:40:02.64
3	00000	00030	0050	01292	1800	11-MAR-2008 14:35:18.31

Bkg File: [quad6.bkgrnd]2008-03-11_0257.C_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00255	0400	0.64	10388	1800	11-MAR-2008 02:57:33.36 ✓

UST Number: KGXJK1AA Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 6-C File: [quad6.sample.C]KGXJK1AA.430
Dish Size: 15 Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.C_15;6150

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00047	0050	01301	1800	12-MAR-2008 06:18:50.21

Bkg File: [quad6.bkgrnd]2008-03-12_0300.C_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00243	0400	0.61	10353	1800	12-MAR-2008 03:00:54.15

UST Number: KGXJK1AC Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 6-D File: [quad6.sample.D]KGXJK1AC.180
Dish Size: 15 Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.D_15;6148

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00155	0050	01297	1800	11-MAR-2008 12:44:47.02
2	00000	00190	0050	01291	1800	11-MAR-2008 13:40:02.64
3	00000	00163	0050	01292	1800	11-MAR-2008 14:35:18.31

Bkg File: [quad6.bkgrnd]2008-03-11_0257.D_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00308	0400	0.77	10388	1800	11-MAR-2008 02:57:33.36 /

UST Number: KGXJK1AC Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 6-D File: [quad6.sample.D]KGXJK1AC.430
Dish Size: 15 Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.D_15;6149

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00052	0050	01301	1800	12-MAR-2008 06:18:50.21

Bkg File: [quad6.bkgrnd]2008-03-12_0300.D_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00333	0400	0.83	10353	1800	12-MAR-2008 03:00:54.15

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: Ra22606A100		Ref: 11/1/2001	2.1060E+01	± 3.234E-01	DPM/G	
RASC4701	RA-226	3.0098E+00 ± 4.631E-02 DPM	0.1433 g	1/21/2008 1/21/2008	Armstron	2.1003E+01 ± 3.225E-01 DPM/G
		3.0098E+000 ± 3.010E+000 (1)	3.0098E+000 , 3.0098E+000			

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

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 = $\sqrt{(\% \text{ error of Source Activity})^2 + (\% \text{ error of Wt. Used})^2 + (\% \text{ error of Dilution Wt.})^2}$

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

Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
	Parent Standard: RA22806A000		Ref: 12/15/2003	4.4881E+02 ± 1.482E+01	DPM/G	
RASC4701	RA-228	1.1140E+01 ± 3.699E-01 DPM	0.0407 g	1/21/2008 1/21/2008	Armstron	2.7370E+02 ± 9.038E+00 DPM/G
		1.1140E+001 ± 1.114E+001 (1)		1.1140E+001 , 1.1140E+001		

Ra22806A000

Ra22806A000
Ref. 6076
448.81 ± 14.82
dpm/g
4/11/2007 DVF

ISOTOPE DILUTION RECORD

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>7/7/2004</u>
3) Source Identification Number / Ref. Number	<u>new source</u>		
4) Source Activity (dpm ± dpm/g)	<u>4.5507E+04</u>	±	<u>1.502E+03</u>
5) Percent error of Source Activity	<u>3.3</u>	%	
6) Weight of Source Material used (g)	<u>5.0063</u>		
7) (% Error) of Weight of Source Material used	<u>0.0959</u>	%	
8) Diluent	<u>1M HCL</u>		
9) Total Weight of the Dilution (g)	<u>507.61</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.0591</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>4.4881E+02</u>	±	<u>1.482E+01</u>
12) Total Uncertainty	<u>3.302</u>	%	
13) Dilution Identification Number / Ref. Number	<u>RA22806A000</u>		<u>6076</u>
14) Calibration Reference Date	<u>12/15/2003</u>		
15) Isotope Inventory File update by/date	<u>tda</u>		<u>3/30/2006</u>
16) Reviewed by/date	<u></u>		<u></u>
17) Location	<u>QCLAB</u>	18) Exhausted	<u></u>

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

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 Analytix
 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 _____

RADIUM 228
CONTINUING CALIBRATION

Quality Assurance Report.

Generated 26-MAR-2008 13:38:25.26

QA Filename : \$DISK1:[QUAD5.QA]CHK.QAF;2

-- Multi-Test Full Report --

Description : quad 5a 1.5" beta %eff

Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 46.000000 Upper Bound : 50.500000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 48.478981 Std Deviation : 0.707291

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 04:50	CHK		47.9000		
12-FEB-2008 05:12	CHK		47.7000		
13-FEB-2008 05:12	CHK		48.0000		
14-FEB-2008 05:45	CHK		49.3000		
15-FEB-2008 04:46	CHK		49.5000		
18-FEB-2008 05:37	CHK		47.6000		
19-FEB-2008 04:56	CHK		49.4000		
20-FEB-2008 04:48	CHK		48.7000		
21-FEB-2008 04:44	CHK		47.1000		
22-FEB-2008 04:49	CHK		48.3000		
25-FEB-2008 04:51	CHK		48.7000		
26-FEB-2008 04:44	CHK		47.7000		
27-FEB-2008 04:48	CHK		48.4000		
28-FEB-2008 04:49	CHK		47.8000		
29-FEB-2008 04:47	CHK		48.4000		
3-MAR-2008 04:51	CHK		47.6000		
4-MAR-2008 04:50	CHK		49.0000		
5-MAR-2008 04:52	CHK		48.1000		
6-MAR-2008 05:12	CHK		48.3000		
7-MAR-2008 04:48	CHK		48.2000		
8-MAR-2008 08:07	CHK		48.3000		

10-MAR-2008 05:25	CHK	49.0000	
11-MAR-2008 05:40	CHK	49.3000	
12-MAR-2008 05:06	CHK	48.6000	
13-MAR-2008 05:04	CHK	48.5000	
14-MAR-2008 05:43	CHK	48.6000	
17-MAR-2008 06:26	CHK	48.7000	
18-MAR-2008 05:02	CHK	48.3000	
19-MAR-2008 04:55	CHK	48.3000	
20-MAR-2008 05:06	CHK	50.0000	In
21-MAR-2008 05:02	CHK	49.0000	
24-MAR-2008 06:46	CHK	47.7000	
25-MAR-2008 05:06	CHK	47.4000	

-- Multi-Test Full Report --

Description : quad 5b 1.5" beta %eff
 Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 50.000000 Upper Bound : 54.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 51.994267 Std Deviation : 0.690247

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
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11-FEB-2008 04:50	CHK	51.6000	
12-FEB-2008 05:12	CHK	50.6000	In
13-FEB-2008 05:12	CHK	51.6000	
14-FEB-2008 05:45	CHK	51.4000	
15-FEB-2008 04:46	CHK	51.3000	
18-FEB-2008 05:37	CHK	51.5000	
19-FEB-2008 04:56	CHK	50.9000	
20-FEB-2008 04:48	CHK	52.0000	
21-FEB-2008 04:44	CHK	51.8000	
22-FEB-2008 04:49	CHK	51.9000	

25-FEB-2008 04:51	CHK	51.3000			
26-FEB-2008 04:44	CHK	52.6000			
27-FEB-2008 04:48	CHK	51.0000			
28-FEB-2008 04:49	CHK	51.0000			
29-FEB-2008 04:47	CHK	51.3000			
3-MAR-2008 04:51	CHK	51.2000			
4-MAR-2008 04:50	CHK	50.8000			
5-MAR-2008 04:52	CHK	52.1000			
6-MAR-2008 05:12	CHK	51.4000			
7-MAR-2008 04:48	CHK	50.6000	In		
8-MAR-2008 08:07	CHK	50.6000	In		
10-MAR-2008 05:25	CHK	51.2000			
11-MAR-2008 05:40	CHK	51.6000			
12-MAR-2008 05:06	CHK	52.4000			
13-MAR-2008 05:04	CHK	51.5000			
14-MAR-2008 05:43	CHK	52.6000			
17-MAR-2008 06:26	CHK	53.4000	In		
18-MAR-2008 05:02	CHK	52.2000			
19-MAR-2008 04:55	CHK	51.7000			
20-MAR-2008 05:06	CHK	51.9000			
21-MAR-2008 05:02	CHK	51.8000			
24-MAR-2008 06:46	CHK	51.8000			
25-MAR-2008 05:06	CHK	52.7000			

-- Multi-Test Full Report --

Description : quad 5c 1.5" beta %eff
 Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 49.000000 Upper Bound : 53.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 51.110191 Std Deviation : 0.711642

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

11-FEB-2008 04:50	CHK	50.5000			
12-FEB-2008 05:12	CHK	50.9000			
13-FEB-2008 05:12	CHK	51.1000			

14-FEB-2008 05:45 CHK 51.4000 | | |
 15-FEB-2008 04:46 CHK 50.2000 | | |

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

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

 18-FEB-2008 05:37 CHK 50.6000 | | |
 19-FEB-2008 04:56 CHK 50.2000 | | |
 20-FEB-2008 04:48 CHK 51.1000 | | |
 21-FEB-2008 04:44 CHK 51.1000 | | |
 22-FEB-2008 04:49 CHK 51.7000 | | |
 25-FEB-2008 04:51 CHK 50.7000 | | |
 26-FEB-2008 04:44 CHK 50.6000 | | |
 27-FEB-2008 04:48 CHK 51.3000 | | |
 28-FEB-2008 04:49 CHK 50.3000 | | |
 29-FEB-2008 04:47 CHK 50.6000 | | |
 3-MAR-2008 04:51 CHK 50.3000 | | |
 4-MAR-2008 04:50 CHK 50.7000 | | |
 5-MAR-2008 04:52 CHK 51.1000 | | |
 6-MAR-2008 05:12 CHK 51.1000 | | |
 7-MAR-2008 04:48 CHK 51.3000 | | |
 8-MAR-2008 08:07 CHK 49.8000 | | |
 10-MAR-2008 05:25 CHK 50.0000 | | |
 11-MAR-2008 05:40 CHK 50.9000 | | |
 12-MAR-2008 05:06 CHK 50.0000 | | |
 13-MAR-2008 05:04 CHK 51.4000 | | |
 14-MAR-2008 05:43 CHK 51.0000 | | |
 17-MAR-2008 06:26 CHK 50.7000 | | |
 18-MAR-2008 05:02 CHK 50.3000 | | |
 19-MAR-2008 04:55 CHK 51.1000 | | |
 20-MAR-2008 05:06 CHK 51.2000 | | |
 21-MAR-2008 05:02 CHK 51.0000 | | |
 24-MAR-2008 06:46 CHK 49.9000 | | |
 25-MAR-2008 05:06 CHK 51.1000 | | |

-- Multi-Test Full Report --

Description : quad 5d 1.5" beta %eff

Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 46.250000 Upper Bound : 52.250000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 49.508228 Std Deviation : 1.110400

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 04:50	CHK		50.2000		
12-FEB-2008 05:12	CHK		48.8000		
13-FEB-2008 05:12	CHK		49.7000		
14-FEB-2008 05:45	CHK		50.2000		
15-FEB-2008 04:46	CHK		49.8000		
18-FEB-2008 05:37	CHK		50.0000		
19-FEB-2008 04:56	CHK		49.7000		
20-FEB-2008 04:48	CHK		50.2000		
21-FEB-2008 04:44	CHK		49.3000		
22-FEB-2008 04:49	CHK		49.8000		

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
25-FEB-2008 04:51	CHK		49.1000		
26-FEB-2008 04:44	CHK		48.5000		
27-FEB-2008 04:48	CHK		49.4000		
28-FEB-2008 04:49	CHK		49.0000		
29-FEB-2008 04:47	CHK		50.2000		
3-MAR-2008 04:51	CHK		49.1000		
4-MAR-2008 04:50	CHK		50.2000		
5-MAR-2008 04:52	CHK		50.2000		
6-MAR-2008 05:12	CHK		50.0000		
7-MAR-2008 04:48	CHK		49.3000		
8-MAR-2008 08:07	CHK		46.7000	In	
10-MAR-2008 05:25	CHK		50.3000		
11-MAR-2008 05:40	CHK		48.6000		
12-MAR-2008 05:06	CHK		49.4000		
13-MAR-2008 05:04	CHK		50.8000		
14-MAR-2008 05:43	CHK		50.1000		
17-MAR-2008 06:26	CHK		49.7000		
18-MAR-2008 05:02	CHK		50.3000		
19-MAR-2008 04:55	CHK		49.6000		
20-MAR-2008 05:06	CHK		50.5000		
21-MAR-2008 05:02	CHK		47.1000	In	

24-MAR-2008 06:46 CHK 46.8000 |In| |
 25-MAR-2008 05:06 CHK 49.8000 | | |

Quality Assurance Report. Generated 26-MAR-2008 11:22:02.67

QA Filename : \$DISK1:[QUAD5.QA]BKG_15.QAF;2

-- Multi-Test Full Report --

Description : quad 5a 1.5" 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 0.631483 Std Deviation : 0.047239

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-JAN-2008 02:21	BKG		0.6200		
12-JAN-2008 03:04	BKG		0.6200		
12-JAN-2008 20:40	BKG		0.6100		
13-JAN-2008 21:48	BKG		0.6000		
15-JAN-2008 04:09	BKG		0.6300		
16-JAN-2008 02:31	BKG		0.6000		
17-JAN-2008 02:51	BKG		0.6300		
18-JAN-2008 03:38	BKG		0.6500		
19-JAN-2008 02:18	BKG		0.7000		
19-JAN-2008 15:44	BKG		0.7000		
20-JAN-2008 13:40	BKG		0.6500		
22-JAN-2008 02:15	BKG		0.7000		
23-JAN-2008 01:55	BKG		0.6400		
24-JAN-2008 03:37	BKG		0.7300	In	
25-JAN-2008 02:58	BKG		0.6800		
25-JAN-2008 23:31	BKG		0.6800		
27-JAN-2008 19:17	BKG		0.6500		
29-JAN-2008 01:42	BKG		0.7100		
30-JAN-2008 01:56	BKG		0.7400	In	
31-JAN-2008 02:16	BKG		0.6600		
1-FEB-2008 02:46	BKG		0.7400	In	
2-FEB-2008 00:10	BKG		0.6700		

2-FEB-2008 13:27	BKG	0.5900	
3-FEB-2008 18:37	BKG	0.7400	In
5-FEB-2008 02:41	BKG	0.7200	
5-FEB-2008 23:23	BKG	0.6300	
7-FEB-2008 03:54	BKG	0.6400	
8-FEB-2008 01:54	BKG	0.6400	
8-FEB-2008 23:21	BKG	0.7000	
9-FEB-2008 13:58	BKG	0.6700	
10-FEB-2008 19:27	BKG	0.6600	
12-FEB-2008 02:11	BKG	0.7100	
13-FEB-2008 02:08	BKG	0.5700	
14-FEB-2008 02:31	BKG	0.7100	
14-FEB-2008 23:17	BKG	0.6500	
16-FEB-2008 01:36	BKG	0.6800	
16-FEB-2008 15:12	BKG	0.7200	
17-FEB-2008 14:28	BKG	0.6900	
19-FEB-2008 02:08	BKG	0.7200	
19-FEB-2008 23:27	BKG	0.7400	In
21-FEB-2008 03:20	BKG	0.7300	In

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
22-FEB-2008 03:22	BKG		0.7100	
22-FEB-2008 23:18	BKG		0.7700	In
23-FEB-2008 18:49	BKG		0.6800	
24-FEB-2008 19:17	BKG		0.8100	Ac
26-FEB-2008 04:14	BKG		0.7000	
27-FEB-2008 01:51	BKG		0.8000	Ac
28-FEB-2008 03:05	BKG		0.8100	Ac
29-FEB-2008 03:58	BKG		0.6900	
29-FEB-2008 23:16	BKG		0.8200	Ac
1-MAR-2008 12:16	BKG		0.8400	Ac
2-MAR-2008 14:03	BKG		0.6200	
4-MAR-2008 02:44	BKG		0.8100	Ac
5-MAR-2008 00:59	BKG		0.7700	In
6-MAR-2008 00:46	BKG		0.8500	Ac
6-MAR-2008 00:46	BKG		0.8000	Ac
7-MAR-2008 02:47	BKG		0.7600	In
7-MAR-2008 23:29	BKG		0.7800	Ac
8-MAR-2008 17:08	BKG		0.7900	Ac
9-MAR-2008 16:42	BKG		0.7500	In
11-MAR-2008 03:02	BKG		0.7900	Ac

12-MAR-2008 03:05	BKG	0.8000	Ac	
13-MAR-2008 02:53	BKG	1.1000	Ac	
14-MAR-2008 05:20	BKG	0.8300	Ac	
14-MAR-2008 23:35	BKG	0.8700	Ac	
15-MAR-2008 23:29	BKG	0.7400	In	
16-MAR-2008 16:08	BKG	0.7600	In	
18-MAR-2008 03:37	BKG	0.8300	Ac	
19-MAR-2008 02:47	BKG	0.8400	Ac	
20-MAR-2008 01:52	BKG	0.8900	Ac	
21-MAR-2008 04:16	BKG	0.8400	Ac	
21-MAR-2008 23:22	BKG	0.8100	Ac	
23-MAR-2008 19:56	BKG	0.8400	Ac	

-- Multi-Test Full Report --

Description : quad 5b 1.5" 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 0.745714 Std Deviation : 0.049665

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-JAN-2008 02:21	BKG		0.6500		
12-JAN-2008 03:04	BKG		0.7400		
12-JAN-2008 20:40	BKG		0.7500		
13-JAN-2008 21:48	BKG		0.7600		
15-JAN-2008 04:09	BKG		0.7700		
16-JAN-2008 02:31	BKG		0.8900	In	
17-JAN-2008 02:51	BKG		0.6800		
18-JAN-2008 03:38	BKG		0.7600		
19-JAN-2008 02:18	BKG		0.7500		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
19-JAN-2008 15:44	BKG		0.7400		
20-JAN-2008 13:40	BKG		0.6900		
22-JAN-2008 02:15	BKG		0.7700		
23-JAN-2008 01:55	BKG		0.7700		

24-JAN-2008 03:37	BKG	0.8700	In	
25-JAN-2008 02:58	BKG	0.7400		
25-JAN-2008 23:31	BKG	0.8700	In	
27-JAN-2008 19:17	BKG	0.8600	In	
29-JAN-2008 01:42	BKG	0.8800	In	
30-JAN-2008 01:56	BKG	0.8400		
31-JAN-2008 02:16	BKG	0.8100		
1-FEB-2008 02:46	BKG	0.7600		
2-FEB-2008 00:10	BKG	0.7400		
2-FEB-2008 13:27	BKG	0.8200		
3-FEB-2008 18:37	BKG	0.8000		
5-FEB-2008 02:41	BKG	0.7500		
5-FEB-2008 23:23	BKG	0.8600	In	
7-FEB-2008 03:54	BKG	0.8600	In	
8-FEB-2008 01:54	BKG	0.8800	In	
8-FEB-2008 23:21	BKG	0.8400		
9-FEB-2008 13:58	BKG	0.7400		
10-FEB-2008 19:27	BKG	0.7900		
12-FEB-2008 02:11	BKG	0.7700		
13-FEB-2008 02:08	BKG	0.8000		
14-FEB-2008 02:31	BKG	0.8000		
14-FEB-2008 23:17	BKG	0.8700	In	
16-FEB-2008 01:36	BKG	0.7600		
16-FEB-2008 15:12	BKG	0.7800		
17-FEB-2008 14:28	BKG	0.8700	In	
19-FEB-2008 02:08	BKG	0.8300		
19-FEB-2008 23:27	BKG	0.8800	In	
21-FEB-2008 03:20	BKG	0.9000	Ac	
22-FEB-2008 03:22	BKG	0.8100		
22-FEB-2008 23:18	BKG	0.8800	In	
23-FEB-2008 18:49	BKG	0.9100	Ac	
24-FEB-2008 19:17	BKG	0.9400	Ac	
26-FEB-2008 04:14	BKG	0.8000		
27-FEB-2008 01:51	BKG	0.8300		
28-FEB-2008 03:05	BKG	0.9900	Ac	
29-FEB-2008 03:58	BKG	0.9000	Ac	
29-FEB-2008 23:16	BKG	0.8800	In	
1-MAR-2008 12:16	BKG	0.8400		
2-MAR-2008 14:03	BKG	0.8800	In	
4-MAR-2008 02:44	BKG	0.9200	Ac	
5-MAR-2008 00:59	BKG	0.9500	Ac	
6-MAR-2008 00:46	BKG	0.8200		
6-MAR-2008 00:46	BKG	0.8300		

7-MAR-2008 02:47	BKG	0.9100	Ac	
7-MAR-2008 23:29	BKG	0.9400	Ac	
8-MAR-2008 17:08	BKG	0.8200		
9-MAR-2008 16:42	BKG	0.8700	In	
11-MAR-2008 03:02	BKG	0.9100	Ac	
12-MAR-2008 03:05	BKG	0.9300	Ac	
13-MAR-2008 02:53	BKG	1.0400	Ac	
14-MAR-2008 05:20	BKG	0.9200	Ac	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
14-MAR-2008 23:35	BKG		0.8900	In
15-MAR-2008 23:29	BKG		1.0300	Ac
16-MAR-2008 16:08	BKG		0.9400	Ac
18-MAR-2008 03:37	BKG		0.9500	Ac
19-MAR-2008 02:47	BKG		0.9100	Ac
20-MAR-2008 01:52	BKG		0.9900	Ac
21-MAR-2008 04:16	BKG		1.1000	Ac
21-MAR-2008 23:22	BKG		0.9000	Ac
23-MAR-2008 19:56	BKG		1.0400	Ac

-- Multi-Test Full Report --

Description : quad 5c 1.5" 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
Mean : 0.706209 Std Deviation : 0.052458

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 02:21	BKG		0.7300	
12-JAN-2008 03:04	BKG		0.7400	
12-JAN-2008 20:40	BKG		0.7900	
13-JAN-2008 21:48	BKG		0.8000	
15-JAN-2008 04:09	BKG		0.7200	
16-JAN-2008 02:31	BKG		0.8200	In
17-JAN-2008 02:51	BKG		0.7200	
18-JAN-2008 03:38	BKG		0.7000	

19-JAN-2008 02:18	BKG	0.7200	
19-JAN-2008 15:44	BKG	0.7100	
20-JAN-2008 13:40	BKG	0.7000	
22-JAN-2008 02:15	BKG	0.8100	
23-JAN-2008 01:55	BKG	0.7300	
24-JAN-2008 03:37	BKG	0.7100	
25-JAN-2008 02:58	BKG	0.7500	
25-JAN-2008 23:31	BKG	0.7800	
27-JAN-2008 19:17	BKG	0.8200	In
29-JAN-2008 01:42	BKG	0.7500	
30-JAN-2008 01:56	BKG	0.7400	
31-JAN-2008 02:16	BKG	0.7200	
1-FEB-2008 02:46	BKG	0.7700	
2-FEB-2008 00:10	BKG	0.7900	
2-FEB-2008 13:27	BKG	0.7500	
3-FEB-2008 18:37	BKG	0.7200	
5-FEB-2008 02:41	BKG	0.6600	
5-FEB-2008 23:23	BKG	0.7700	
7-FEB-2008 03:54	BKG	0.7700	
8-FEB-2008 01:54	BKG	0.7700	
8-FEB-2008 23:21	BKG	0.6300	
9-FEB-2008 13:58	BKG	0.7300	
10-FEB-2008 19:27	BKG	0.7000	
12-FEB-2008 02:11	BKG	0.6600	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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13-FEB-2008 02:08	BKG	0.6700	
14-FEB-2008 02:31	BKG	0.8100	
14-FEB-2008 23:17	BKG	0.7100	
16-FEB-2008 01:36	BKG	0.7500	
16-FEB-2008 15:12	BKG	0.7600	
17-FEB-2008 14:28	BKG	0.6700	
19-FEB-2008 02:08	BKG	0.6600	
19-FEB-2008 23:27	BKG	0.7100	
21-FEB-2008 03:20	BKG	0.7900	
22-FEB-2008 03:22	BKG	0.7500	
22-FEB-2008 23:18	BKG	0.7100	
23-FEB-2008 18:49	BKG	0.7000	
24-FEB-2008 19:17	BKG	0.7600	
26-FEB-2008 04:14	BKG	0.7500	
27-FEB-2008 01:51	BKG	0.6000	In

28-FEB-2008 03:05	BKG	0.7200	
29-FEB-2008 03:58	BKG	0.8000	
29-FEB-2008 23:16	BKG	0.8200	In
1-MAR-2008 12:16	BKG	0.7000	
2-MAR-2008 14:03	BKG	0.6400	
4-MAR-2008 02:44	BKG	0.6000	In
5-MAR-2008 00:59	BKG	0.6500	
6-MAR-2008 00:46	BKG	0.8000	
6-MAR-2008 00:46	BKG	0.8300	In
7-MAR-2008 02:47	BKG	0.7700	
7-MAR-2008 23:29	BKG	0.7000	
8-MAR-2008 17:08	BKG	0.8100	
9-MAR-2008 16:42	BKG	0.7000	
11-MAR-2008 03:02	BKG	0.8200	In
12-MAR-2008 03:05	BKG	0.7800	
13-MAR-2008 02:53	BKG	0.9000	Ac
14-MAR-2008 05:20	BKG	0.7400	
14-MAR-2008 23:35	BKG	0.7200	
15-MAR-2008 23:29	BKG	0.7100	
16-MAR-2008 16:08	BKG	0.7800	
18-MAR-2008 03:37	BKG	0.7400	
19-MAR-2008 02:47	BKG	0.7000	
20-MAR-2008 01:52	BKG	0.6600	
21-MAR-2008 04:16	BKG	0.7200	
21-MAR-2008 23:22	BKG	0.6700	
23-MAR-2008 19:56	BKG	0.8300	In

-- Multi-Test Full Report --

Description : quad 5d 1.5" 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 0.633681 Std Deviation : 0.043699

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 6

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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11-JAN-2008 02:21	BKG	0.7000			
12-JAN-2008 03:04	BKG	0.6100			
12-JAN-2008 20:40	BKG	0.6600			
13-JAN-2008 21:48	BKG	0.5900			
15-JAN-2008 04:09	BKG	0.5800			
16-JAN-2008 02:31	BKG	0.7700	Ac		
17-JAN-2008 02:51	BKG	0.7500	In		
18-JAN-2008 03:38	BKG	0.6600			
19-JAN-2008 02:18	BKG	0.6600			
19-JAN-2008 15:44	BKG	0.7300	In		
20-JAN-2008 13:40	BKG	0.5300	In		
22-JAN-2008 02:15	BKG	0.7000			
23-JAN-2008 01:55	BKG	0.6500			
24-JAN-2008 03:37	BKG	0.7300	In		
25-JAN-2008 02:58	BKG	0.5800			
25-JAN-2008 23:31	BKG	0.7400	In		
27-JAN-2008 19:17	BKG	0.7000			
29-JAN-2008 01:42	BKG	0.7200			
30-JAN-2008 01:56	BKG	0.6500			
31-JAN-2008 02:16	BKG	0.6900			
1-FEB-2008 02:46	BKG	0.7000			
2-FEB-2008 00:10	BKG	0.6900			
2-FEB-2008 13:27	BKG	0.7200			
3-FEB-2008 18:37	BKG	0.6600			
5-FEB-2008 02:41	BKG	0.7200			
5-FEB-2008 23:23	BKG	0.6800			
7-FEB-2008 03:54	BKG	0.7000			
8-FEB-2008 01:54	BKG	0.6800			
8-FEB-2008 23:21	BKG	0.6500			
9-FEB-2008 13:58	BKG	0.6500			
10-FEB-2008 19:27	BKG	0.7600	In		
12-FEB-2008 02:11	BKG	0.6600			
13-FEB-2008 02:08	BKG	0.7500	In		
14-FEB-2008 02:31	BKG	0.6400			
14-FEB-2008 23:17	BKG	0.6500			
16-FEB-2008 01:36	BKG	0.6500			
16-FEB-2008 15:12	BKG	0.7000			
17-FEB-2008 14:28	BKG	0.7900	Ac		
19-FEB-2008 02:08	BKG	0.7100			
19-FEB-2008 23:27	BKG	0.6900			
21-FEB-2008 03:20	BKG	0.7200			
22-FEB-2008 03:22	BKG	0.7500	In		

22-FEB-2008 23:18	BKG	0.7100	
23-FEB-2008 18:49	BKG	0.6700	
24-FEB-2008 19:17	BKG	0.6700	
26-FEB-2008 04:14	BKG	0.5900	
27-FEB-2008 01:51	BKG	0.6900	
28-FEB-2008 03:05	BKG	0.6600	
29-FEB-2008 03:58	BKG	0.6700	
29-FEB-2008 23:16	BKG	0.6600	
1-MAR-2008 12:16	BKG	0.6600	
2-MAR-2008 14:03	BKG	0.7000	
4-MAR-2008 02:44	BKG	0.6500	
5-MAR-2008 00:59	BKG	0.7300	In
6-MAR-2008 00:46	BKG	0.7400	In

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
6-MAR-2008 00:46	BKG		0.7000	
7-MAR-2008 02:47	BKG		0.6300	
7-MAR-2008 23:29	BKG		0.6900	
8-MAR-2008 17:08	BKG		0.7300	In
9-MAR-2008 16:42	BKG		0.6300	
11-MAR-2008 03:02	BKG		0.7600	In
12-MAR-2008 03:05	BKG		0.7400	In
13-MAR-2008 02:53	BKG		1.0500	Ac
14-MAR-2008 05:20	BKG		0.6500	
14-MAR-2008 23:35	BKG		0.7000	
15-MAR-2008 23:29	BKG		0.7300	In
16-MAR-2008 16:08	BKG		0.7200	
18-MAR-2008 03:37	BKG		0.7100	
19-MAR-2008 02:47	BKG		0.6000	
20-MAR-2008 01:52	BKG		0.6800	
21-MAR-2008 04:16	BKG		0.7300	In
21-MAR-2008 23:22	BKG		0.6700	
23-MAR-2008 19:56	BKG		0.7900	Ac

Quality Assurance Report.

Generated 26-MAR-2008 10:16:54.98

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 : 45.000000 Upper Bound : 49.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 47.033131 Std Deviation : 0.670365

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-JAN-2008 04:39	CHK		46.1000		
12-JAN-2008 06:31	CHK		46.1000		
13-JAN-2008 09:01	CHK		45.6000	In	
14-JAN-2008 04:54	CHK		46.7000		
15-JAN-2008 04:44	CHK		47.0000		
16-JAN-2008 04:44	CHK		46.6000		
17-JAN-2008 04:40	CHK		46.5000		
18-JAN-2008 04:50	CHK		46.8000		
19-JAN-2008 05:07	CHK		46.4000		
21-JAN-2008 05:37	CHK		46.5000		
22-JAN-2008 04:47	CHK		46.5000		
23-JAN-2008 04:46	CHK		46.4000		
24-JAN-2008 04:49	CHK		46.6000		
25-JAN-2008 04:58	CHK		46.6000		
28-JAN-2008 10:20	CHK		47.0000		
29-JAN-2008 05:01	CHK		47.5000		
30-JAN-2008 04:44	CHK		47.3000		
31-JAN-2008 04:28	CHK		46.9000		
1-FEB-2008 04:36	CHK		47.5000		
2-FEB-2008 04:45	CHK		47.1000		
4-FEB-2008 05:28	CHK		46.3000		

5-FEB-2008 04:50	CHK	47.6000	
6-FEB-2008 04:43	CHK	47.5000	
7-FEB-2008 04:51	CHK	46.2000	
8-FEB-2008 04:50	CHK	46.7000	
11-FEB-2008 04:45	CHK	46.7000	
12-FEB-2008 05:07	CHK	47.1000	
13-FEB-2008 05:12	CHK	46.8000	
14-FEB-2008 05:44	CHK	45.6000	In
15-FEB-2008 04:41	CHK	47.3000	
16-FEB-2008 06:17	CHK	46.9000	
18-FEB-2008 05:32	CHK	45.9000	
19-FEB-2008 04:56	CHK	47.2000	
20-FEB-2008 04:43	CHK	46.6000	
21-FEB-2008 04:48	CHK	47.4000	
22-FEB-2008 04:49	CHK	48.1000	
23-FEB-2008 09:32	CHK	46.9000	
25-FEB-2008 04:51	CHK	47.1000	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
26-FEB-2008 04:44	CHK		46.7000	
27-FEB-2008 04:44	CHK		47.9000	
28-FEB-2008 04:49	CHK		47.0000	
29-FEB-2008 04:47	CHK		46.9000	
3-MAR-2008 04:56	CHK		46.9000	
4-MAR-2008 04:49	CHK		47.2000	
5-MAR-2008 04:57	CHK		46.6000	
6-MAR-2008 05:12	CHK		47.0000	
7-MAR-2008 04:47	CHK		47.4000	
8-MAR-2008 08:07	CHK		46.1000	
10-MAR-2008 05:21	CHK		46.3000	
11-MAR-2008 05:39	CHK		46.5000	
12-MAR-2008 05:06	CHK		46.2000	
13-MAR-2008 05:04	CHK		47.4000	
14-MAR-2008 05:38	CHK		47.1000	
17-MAR-2008 06:26	CHK		46.6000	
18-MAR-2008 05:02	CHK		47.5000	
19-MAR-2008 04:50	CHK		47.5000	
20-MAR-2008 05:06	CHK		47.1000	
21-MAR-2008 05:02	CHK		46.5000	

-- Multi-Test Full Report --

Description : quad 4b 1" beta %eff
 Parameter Units : percent Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 42.500000 Upper Bound : 46.500000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 44.585278 Std Deviation : 0.701518

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 04:39	CHK		44.4000	
12-JAN-2008 06:31	CHK		44.5000	
13-JAN-2008 09:01	CHK		44.6000	
14-JAN-2008 04:54	CHK		43.8000	
15-JAN-2008 04:44	CHK		44.9000	
16-JAN-2008 04:44	CHK		44.1000	
17-JAN-2008 04:40	CHK		44.0000	
18-JAN-2008 04:50	CHK		44.6000	
19-JAN-2008 05:07	CHK		45.0000	
21-JAN-2008 05:37	CHK		44.5000	
22-JAN-2008 04:47	CHK		43.7000	
23-JAN-2008 04:46	CHK		44.0000	
24-JAN-2008 04:49	CHK		44.4000	
25-JAN-2008 04:58	CHK		43.7000	
28-JAN-2008 10:20	CHK		44.7000	
29-JAN-2008 05:01	CHK		44.5000	
30-JAN-2008 04:44	CHK		44.1000	
31-JAN-2008 04:28	CHK		44.1000	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
1-FEB-2008 04:36	CHK		44.0000	
2-FEB-2008 04:45	CHK		44.8000	
4-FEB-2008 05:28	CHK		44.3000	
5-FEB-2008 04:50	CHK		44.6000	
6-FEB-2008 04:43	CHK		44.4000	
7-FEB-2008 04:51	CHK		44.6000	

8-FEB-2008 04:50	CHK	45.5000	
11-FEB-2008 04:45	CHK	45.3000	
12-FEB-2008 05:07	CHK	43.2000	
13-FEB-2008 05:12	CHK	45.0000	
14-FEB-2008 05:44	CHK	43.2000	
15-FEB-2008 04:41	CHK	43.6000	
16-FEB-2008 06:17	CHK	43.8000	
18-FEB-2008 05:32	CHK	43.6000	
19-FEB-2008 04:56	CHK	44.5000	
20-FEB-2008 04:43	CHK	44.8000	
21-FEB-2008 04:48	CHK	44.9000	
22-FEB-2008 04:49	CHK	45.1000	
23-FEB-2008 09:32	CHK	43.7000	
25-FEB-2008 04:51	CHK	44.0000	
26-FEB-2008 04:44	CHK	44.4000	
27-FEB-2008 04:44	CHK	45.1000	
28-FEB-2008 04:49	CHK	44.3000	
29-FEB-2008 04:47	CHK	44.6000	
3-MAR-2008 04:56	CHK	44.3000	
4-MAR-2008 04:49	CHK	45.3000	
5-MAR-2008 04:57	CHK	44.5000	
6-MAR-2008 05:12	CHK	44.0000	
7-MAR-2008 04:47	CHK	44.0000	
8-MAR-2008 08:07	CHK	45.3000	
10-MAR-2008 05:21	CHK	44.1000	
11-MAR-2008 05:39	CHK	44.2000	
12-MAR-2008 05:06	CHK	43.0000	In
13-MAR-2008 05:04	CHK	44.7000	
14-MAR-2008 05:38	CHK	44.6000	
17-MAR-2008 06:26	CHK	44.6000	
18-MAR-2008 05:02	CHK	44.8000	
19-MAR-2008 04:50	CHK	44.3000	
20-MAR-2008 05:06	CHK	45.2000	
21-MAR-2008 05:02	CHK	44.7000	

-- Multi-Test Full Report --

Description : quad 4c 1" beta %eff

Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 40.500000 Upper Bound : 45.500000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 43.111656 Std Deviation : 0.835508

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-JAN-2008 04:39	CHK		43.2000		
12-JAN-2008 06:31	CHK		42.2000		
13-JAN-2008 09:01	CHK		41.7000		
14-JAN-2008 04:54	CHK		42.8000		
15-JAN-2008 04:44	CHK		42.5000		
16-JAN-2008 04:44	CHK		41.8000		
17-JAN-2008 04:40	CHK		43.5000		
18-JAN-2008 04:50	CHK		43.2000		
19-JAN-2008 05:07	CHK		42.4000		
21-JAN-2008 05:37	CHK		42.7000		
22-JAN-2008 04:47	CHK		42.8000		
23-JAN-2008 04:46	CHK		43.5000		
24-JAN-2008 04:49	CHK		43.6000		
25-JAN-2008 04:58	CHK		42.7000		
28-JAN-2008 10:20	CHK		43.2000		
29-JAN-2008 05:01	CHK		43.4000		
30-JAN-2008 04:44	CHK		44.1000		
31-JAN-2008 04:28	CHK		43.0000		
1-FEB-2008 04:36	CHK		43.1000		
2-FEB-2008 04:45	CHK		44.5000		
4-FEB-2008 05:28	CHK		43.1000		
5-FEB-2008 04:50	CHK		43.1000		
6-FEB-2008 04:43	CHK		42.9000		
7-FEB-2008 04:51	CHK		43.0000		
8-FEB-2008 04:50	CHK		42.9000		
11-FEB-2008 04:45	CHK		43.3000		
12-FEB-2008 05:07	CHK		42.4000		
13-FEB-2008 05:12	CHK		42.6000		
14-FEB-2008 05:44	CHK		43.0000		
15-FEB-2008 04:41	CHK		43.1000		
16-FEB-2008 06:17	CHK		42.7000		

18-FEB-2008 05:32	CHK	43.3000	
19-FEB-2008 04:56	CHK	42.7000	
20-FEB-2008 04:43	CHK	43.1000	
21-FEB-2008 04:48	CHK	42.9000	
22-FEB-2008 04:49	CHK	42.9000	
23-FEB-2008 09:32	CHK	44.1000	
25-FEB-2008 04:51	CHK	42.5000	
26-FEB-2008 04:44	CHK	43.4000	
27-FEB-2008 04:44	CHK	42.9000	
28-FEB-2008 04:49	CHK	42.8000	
29-FEB-2008 04:47	CHK	42.9000	
3-MAR-2008 04:56	CHK	43.2000	
4-MAR-2008 04:49	CHK	43.4000	
5-MAR-2008 04:57	CHK	42.8000	
6-MAR-2008 05:12	CHK	41.9000	
7-MAR-2008 04:47	CHK	42.7000	
8-MAR-2008 08:07	CHK	43.0000	
10-MAR-2008 05:21	CHK	42.1000	
11-MAR-2008 05:39	CHK	43.2000	
12-MAR-2008 05:06	CHK	42.5000	
13-MAR-2008 05:04	CHK	43.4000	
14-MAR-2008 05:38	CHK	43.3000	
17-MAR-2008 06:26	CHK	43.3000	
18-MAR-2008 05:02	CHK	43.1000	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
19-MAR-2008 04:50	CHK		43.3000	
20-MAR-2008 05:06	CHK		42.7000	
21-MAR-2008 05:02	CHK		42.1000	

-- Multi-Test Full Report --

Description : quad 4d 1" beta %eff
 Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 41.500000 Upper Bound : 45.750000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 43.676220 Std Deviation : 0.681559

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 04:39	CHK		43.9000	
12-JAN-2008 06:31	CHK		43.1000	
13-JAN-2008 09:01	CHK		42.2000	In
14-JAN-2008 04:54	CHK		43.9000	
15-JAN-2008 04:44	CHK		44.1000	
16-JAN-2008 04:44	CHK		43.0000	
17-JAN-2008 04:40	CHK		43.9000	
18-JAN-2008 04:50	CHK		44.1000	
19-JAN-2008 05:07	CHK		44.5000	
21-JAN-2008 05:37	CHK		42.2000	In
22-JAN-2008 04:47	CHK		42.8000	
23-JAN-2008 04:46	CHK		42.5000	
24-JAN-2008 04:49	CHK		43.6000	
25-JAN-2008 04:58	CHK		44.1000	
28-JAN-2008 10:20	CHK		43.5000	
29-JAN-2008 05:01	CHK		43.5000	
30-JAN-2008 04:44	CHK		44.0000	
31-JAN-2008 04:28	CHK		43.7000	
1-FEB-2008 04:36	CHK		43.7000	
2-FEB-2008 04:45	CHK		43.4000	
4-FEB-2008 05:28	CHK		43.4000	
5-FEB-2008 04:50	CHK		43.7000	
6-FEB-2008 04:43	CHK		44.4000	
7-FEB-2008 04:51	CHK		42.9000	
8-FEB-2008 04:50	CHK		44.0000	
11-FEB-2008 04:45	CHK		43.9000	
12-FEB-2008 05:07	CHK		42.9000	
13-FEB-2008 05:12	CHK		43.6000	
14-FEB-2008 05:44	CHK		43.5000	
15-FEB-2008 04:41	CHK		43.6000	
16-FEB-2008 06:17	CHK		43.9000	
18-FEB-2008 05:32	CHK		44.0000	
19-FEB-2008 04:56	CHK		43.5000	
20-FEB-2008 04:43	CHK		43.9000	
21-FEB-2008 04:48	CHK		44.0000	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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22-FEB-2008 04:49  CHK          43.9000  | | |
23-FEB-2008 09:32  CHK          43.3000  | | |
25-FEB-2008 04:51  CHK          43.0000  | | |
26-FEB-2008 04:44  CHK          43.1000  | | |
27-FEB-2008 04:44  CHK          44.4000  | | |
28-FEB-2008 04:49  CHK          43.3000  | | |
29-FEB-2008 04:47  CHK          44.0000  | | |
 3-MAR-2008 04:56  CHK          43.0000  | | |
 4-MAR-2008 04:49  CHK          43.5000  | | |
 5-MAR-2008 04:57  CHK          43.2000  | | |
 6-MAR-2008 05:12  CHK          43.5000  | | |
 7-MAR-2008 04:47  CHK          42.8000  | | |
 8-MAR-2008 08:07  CHK          43.2000  | | |
10-MAR-2008 05:21  CHK          43.1000  | | |
11-MAR-2008 05:39  CHK          44.0000  | | |
12-MAR-2008 05:06  CHK          43.4000  | | |
13-MAR-2008 05:04  CHK          44.0000  | | |
14-MAR-2008 05:38  CHK          44.8000  | | |
17-MAR-2008 06:26  CHK          44.9000  | | |
18-MAR-2008 05:02  CHK          43.7000  | | |
19-MAR-2008 04:50  CHK          45.0000  | | |
20-MAR-2008 05:06  CHK          43.9000  | | |
21-MAR-2008 05:02  CHK          43.1000  | | |

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Quality Assurance Report.

Generated 26-MAR-2008 10:16:56.26

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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 0.284807 Std Deviation : 0.044989

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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11-JAN-2008 02:20	BKG	0.3000			
12-JAN-2008 03:00	BKG	0.2600			
12-JAN-2008 20:40	BKG	0.3000			
13-JAN-2008 21:38	BKG	0.3100			
15-JAN-2008 02:38	BKG	0.2500			
16-JAN-2008 02:26	BKG	0.3100			
17-JAN-2008 02:56	BKG	0.2600			
18-JAN-2008 02:07	BKG	0.3000			
19-JAN-2008 02:18	BKG	0.3400			
19-JAN-2008 15:43	BKG	0.3000			
20-JAN-2008 13:40	BKG	0.2700			
22-JAN-2008 02:15	BKG	0.2900			
23-JAN-2008 01:56	BKG	0.2900			
24-JAN-2008 03:37	BKG	0.2600			
25-JAN-2008 02:58	BKG	0.2600			
25-JAN-2008 23:31	BKG	0.3000			
27-JAN-2008 19:17	BKG	0.3500			
29-JAN-2008 01:42	BKG	0.2800			
30-JAN-2008 01:56	BKG	0.2900			
31-JAN-2008 02:16	BKG	0.2700			
1-FEB-2008 02:34	BKG	0.3000			
2-FEB-2008 00:10	BKG	0.3300			
2-FEB-2008 13:26	BKG	0.3200			
3-FEB-2008 18:42	BKG	0.3000			
5-FEB-2008 02:46	BKG	0.2900			
6-FEB-2008 01:44	BKG	0.3100			
7-FEB-2008 01:22	BKG	0.3600			
8-FEB-2008 01:54	BKG	0.3000			
8-FEB-2008 23:20	BKG	0.2600			
9-FEB-2008 13:58	BKG	0.3000			
10-FEB-2008 19:26	BKG	0.2800			
12-FEB-2008 02:11	BKG	0.2100			
13-FEB-2008 02:08	BKG	0.2200			
14-FEB-2008 02:26	BKG	0.2900			
14-FEB-2008 23:17	BKG	0.3000			
16-FEB-2008 01:36	BKG	0.2600			
16-FEB-2008 15:12	BKG	0.2400			
17-FEB-2008 14:28	BKG	0.2800			
19-FEB-2008 01:53	BKG	0.2800			
19-FEB-2008 23:27	BKG	0.3000			
21-FEB-2008 02:19	BKG	0.2400			

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
22-FEB-2008 03:22	BKG		0.2900	
22-FEB-2008 23:18	BKG		0.2500	
23-FEB-2008 18:49	BKG		0.4600	Ac
24-FEB-2008 19:17	BKG		0.2900	
26-FEB-2008 04:14	BKG		0.3100	
27-FEB-2008 01:51	BKG		0.2900	
28-FEB-2008 03:05	BKG		0.3300	
29-FEB-2008 03:58	BKG		0.2700	
29-FEB-2008 23:16	BKG		0.2600	
1-MAR-2008 12:16	BKG		0.3100	
2-MAR-2008 14:03	BKG		0.3100	
4-MAR-2008 02:44	BKG		0.2600	
5-MAR-2008 01:24	BKG		0.2400	
6-MAR-2008 03:42	BKG		0.4000	In
7-MAR-2008 02:47	BKG		0.3500	
7-MAR-2008 23:29	BKG		0.2800	
8-MAR-2008 17:08	BKG		0.3500	
9-MAR-2008 16:41	BKG		0.2800	
11-MAR-2008 00:36	BKG		0.2700	
12-MAR-2008 03:03	BKG		0.3200	
13-MAR-2008 02:53	BKG		0.6400	Ac
14-MAR-2008 03:59	BKG		0.3200	
14-MAR-2008 23:35	BKG		0.3000	
15-MAR-2008 23:29	BKG		0.3700	
16-MAR-2008 16:08	BKG		0.2300	
18-MAR-2008 03:37	BKG		0.3200	
19-MAR-2008 03:26	BKG		0.3300	
20-MAR-2008 01:52	BKG		0.3100	
21-MAR-2008 03:33	BKG		0.3700	
21-MAR-2008 23:22	BKG		0.2900	
23-MAR-2008 19:56	BKG		0.3800	In

-- 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 0.271823 Std Deviation : 0.039784

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 02:20	BKG		0.3200	
12-JAN-2008 03:00	BKG		0.2800	
12-JAN-2008 20:40	BKG		0.3600	In
13-JAN-2008 21:38	BKG		0.2500	
15-JAN-2008 02:38	BKG		0.3000	
16-JAN-2008 02:26	BKG		0.2300	
17-JAN-2008 02:56	BKG		0.2400	
18-JAN-2008 02:07	BKG		0.2700	
19-JAN-2008 02:18	BKG		0.2200	
19-JAN-2008 15:43	BKG		0.2900	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
20-JAN-2008 13:40	BKG		0.2600	
22-JAN-2008 02:15	BKG		0.3000	
23-JAN-2008 01:56	BKG		0.2900	
24-JAN-2008 03:37	BKG		0.2400	
25-JAN-2008 02:58	BKG		0.3300	
25-JAN-2008 23:31	BKG		0.2400	
27-JAN-2008 19:17	BKG		0.2900	
29-JAN-2008 01:42	BKG		0.2800	
30-JAN-2008 01:56	BKG		0.3000	
31-JAN-2008 02:16	BKG		0.2700	
1-FEB-2008 02:34	BKG		0.3100	
2-FEB-2008 00:10	BKG		0.2900	
2-FEB-2008 13:26	BKG		0.3400	
3-FEB-2008 18:42	BKG		0.3100	
5-FEB-2008 02:46	BKG		0.2900	
6-FEB-2008 01:44	BKG		0.2700	
7-FEB-2008 01:22	BKG		0.3200	
8-FEB-2008 01:54	BKG		0.2500	
8-FEB-2008 23:20	BKG		0.3000	
9-FEB-2008 13:58	BKG		0.2900	
10-FEB-2008 19:26	BKG		0.3300	
12-FEB-2008 02:11	BKG		0.3500	
13-FEB-2008 02:08	BKG		0.3400	
14-FEB-2008 02:26	BKG		0.3700	In
14-FEB-2008 23:17	BKG		0.3000	

16-FEB-2008 01:36	BKG	0.2700	
16-FEB-2008 15:12	BKG	0.3300	
17-FEB-2008 14:28	BKG	0.2500	
19-FEB-2008 01:53	BKG	0.3600	In
19-FEB-2008 23:27	BKG	0.3100	
21-FEB-2008 02:19	BKG	0.3800	In
22-FEB-2008 03:22	BKG	0.3500	
22-FEB-2008 23:18	BKG	0.3900	In
23-FEB-2008 18:49	BKG	0.3500	
24-FEB-2008 19:17	BKG	0.3300	
26-FEB-2008 04:14	BKG	0.3000	
27-FEB-2008 01:51	BKG	0.3300	
28-FEB-2008 03:05	BKG	0.3300	
29-FEB-2008 03:58	BKG	0.3100	
29-FEB-2008 23:16	BKG	0.3400	
1-MAR-2008 12:16	BKG	0.3100	
2-MAR-2008 14:03	BKG	0.3600	In
4-MAR-2008 02:44	BKG	0.3600	In
5-MAR-2008 01:24	BKG	0.3700	In
6-MAR-2008 03:42	BKG	0.3400	
7-MAR-2008 02:47	BKG	0.3300	
7-MAR-2008 23:29	BKG	0.3300	
8-MAR-2008 17:08	BKG	0.3700	In
9-MAR-2008 16:41	BKG	0.3300	
11-MAR-2008 00:36	BKG	0.3900	In
12-MAR-2008 03:03	BKG	0.4100	Ac
13-MAR-2008 02:53	BKG	0.4000	Ac
14-MAR-2008 03:59	BKG	0.4000	Ac
14-MAR-2008 23:35	BKG	0.4200	Ac
15-MAR-2008 23:29	BKG	0.4100	Ac

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
16-MAR-2008 16:08	BKG		0.3700	In
18-MAR-2008 03:37	BKG		0.4200	Ac
19-MAR-2008 03:26	BKG		0.3500	
20-MAR-2008 01:52	BKG		0.4100	Ac
21-MAR-2008 03:33	BKG		0.3800	In
21-MAR-2008 23:22	BKG		0.4300	Ac
23-MAR-2008 19:56	BKG		0.4400	Ac

-- 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 0.286685 Std Deviation : 0.041820

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-JAN-2008 02:20	BKG		0.3700		
12-JAN-2008 03:00	BKG		0.3300		
12-JAN-2008 20:40	BKG		0.3400		
13-JAN-2008 21:38	BKG		0.2900		
15-JAN-2008 02:38	BKG		0.2500		
16-JAN-2008 02:26	BKG		0.2600		
17-JAN-2008 02:56	BKG		0.3600		
18-JAN-2008 02:07	BKG		0.3900	In	
19-JAN-2008 02:18	BKG		0.3000		
19-JAN-2008 15:43	BKG		0.3100		
20-JAN-2008 13:40	BKG		0.2900		
22-JAN-2008 02:15	BKG		0.3300		
23-JAN-2008 01:56	BKG		0.2900		
24-JAN-2008 03:37	BKG		0.3100		
25-JAN-2008 02:58	BKG		0.3400		
25-JAN-2008 23:31	BKG		0.3000		
27-JAN-2008 19:17	BKG		0.2800		
29-JAN-2008 01:42	BKG		0.3600		
30-JAN-2008 01:56	BKG		0.3300		
31-JAN-2008 02:16	BKG		0.2900		
1-FEB-2008 02:34	BKG		0.3000		
2-FEB-2008 00:10	BKG		0.2600		
2-FEB-2008 13:26	BKG		0.3400		
3-FEB-2008 18:42	BKG		0.3300		
5-FEB-2008 02:46	BKG		0.3000		
6-FEB-2008 01:44	BKG		0.3500		
7-FEB-2008 01:22	BKG		0.3500		
8-FEB-2008 01:54	BKG		0.2800		
8-FEB-2008 23:20	BKG		0.2900		
9-FEB-2008 13:58	BKG		0.2500		
10-FEB-2008 19:26	BKG		0.2900		

12-FEB-2008 02:11	BKG	0.2600	
13-FEB-2008 02:08	BKG	0.3200	
14-FEB-2008 02:26	BKG	0.3100	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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14-FEB-2008 23:17	BKG		0.2700	
16-FEB-2008 01:36	BKG		0.3200	
16-FEB-2008 15:12	BKG		0.3200	
17-FEB-2008 14:28	BKG		0.2800	
19-FEB-2008 01:53	BKG		0.2200	
19-FEB-2008 23:27	BKG		0.3900	In
21-FEB-2008 02:19	BKG		0.3400	
22-FEB-2008 03:22	BKG		0.2700	
22-FEB-2008 23:18	BKG		0.2900	
23-FEB-2008 18:49	BKG		0.3300	
24-FEB-2008 19:17	BKG		0.2400	
26-FEB-2008 04:14	BKG		0.2900	
27-FEB-2008 01:51	BKG		0.2800	
28-FEB-2008 03:05	BKG		0.3200	
29-FEB-2008 03:58	BKG		0.2700	
29-FEB-2008 23:16	BKG		0.2900	
1-MAR-2008 12:16	BKG		0.2400	
2-MAR-2008 14:03	BKG		0.2300	
4-MAR-2008 02:44	BKG		0.2900	
5-MAR-2008 01:24	BKG		0.2700	
6-MAR-2008 03:42	BKG		0.3200	
7-MAR-2008 02:47	BKG		0.3300	
7-MAR-2008 23:29	BKG		0.2700	
8-MAR-2008 17:08	BKG		0.2800	
9-MAR-2008 16:41	BKG		0.2100	
11-MAR-2008 00:36	BKG		0.2600	
12-MAR-2008 03:03	BKG		0.3100	
13-MAR-2008 02:53	BKG		0.4100	In
14-MAR-2008 03:59	BKG		0.2400	
14-MAR-2008 23:35	BKG		0.2700	
15-MAR-2008 23:29	BKG		0.2700	
16-MAR-2008 16:08	BKG		0.3200	
18-MAR-2008 03:37	BKG		0.3300	
19-MAR-2008 03:26	BKG		0.3000	
20-MAR-2008 01:52	BKG		0.2400	
21-MAR-2008 03:33	BKG		0.3300	

21-MAR-2008 23:22 BKG 0.2800 | | |
 23-MAR-2008 19:56 BKG 0.3700 | | |

-- 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 0.285525 Std Deviation : 0.040075

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-JAN-2008 02:20	BKG		0.2700		
12-JAN-2008 03:00	BKG		0.2800		
12-JAN-2008 20:40	BKG		0.2800		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
13-JAN-2008 21:38	BKG		0.3200		
15-JAN-2008 02:38	BKG		0.2700		
16-JAN-2008 02:26	BKG		0.3100		
17-JAN-2008 02:56	BKG		0.2900		
18-JAN-2008 02:07	BKG		0.2600		
19-JAN-2008 02:18	BKG		0.2900		
19-JAN-2008 15:43	BKG		0.2600		
20-JAN-2008 13:40	BKG		0.2900		
22-JAN-2008 02:15	BKG		0.3000		
23-JAN-2008 01:56	BKG		0.3000		
24-JAN-2008 03:37	BKG		0.3600		
25-JAN-2008 02:58	BKG		0.3200		
25-JAN-2008 23:31	BKG		0.3000		
27-JAN-2008 19:17	BKG		0.3300		
29-JAN-2008 01:42	BKG		0.2900		
30-JAN-2008 01:56	BKG		0.2800		
31-JAN-2008 02:16	BKG		0.3300		
1-FEB-2008 02:34	BKG		0.3600		
2-FEB-2008 00:10	BKG		0.3600		
2-FEB-2008 13:26	BKG		0.3800	In	

3-FEB-2008 18:42	BKG	0.2900	
5-FEB-2008 02:46	BKG	0.2900	
6-FEB-2008 01:44	BKG	0.3100	
7-FEB-2008 01:22	BKG	0.3300	
8-FEB-2008 01:54	BKG	0.2900	
8-FEB-2008 23:20	BKG	0.2700	
9-FEB-2008 13:58	BKG	0.2800	
10-FEB-2008 19:26	BKG	0.3000	
12-FEB-2008 02:11	BKG	0.3200	
13-FEB-2008 02:08	BKG	0.2800	
14-FEB-2008 02:26	BKG	0.2600	
14-FEB-2008 23:17	BKG	0.3100	
16-FEB-2008 01:36	BKG	0.2400	
16-FEB-2008 15:12	BKG	0.3000	
17-FEB-2008 14:28	BKG	0.2700	
19-FEB-2008 01:53	BKG	0.3000	
19-FEB-2008 23:27	BKG	0.3400	
21-FEB-2008 02:19	BKG	0.3200	
22-FEB-2008 03:22	BKG	0.2800	
22-FEB-2008 23:18	BKG	0.2500	
23-FEB-2008 18:49	BKG	0.2800	
24-FEB-2008 19:17	BKG	0.2700	
26-FEB-2008 04:14	BKG	0.2600	
27-FEB-2008 01:51	BKG	0.3000	
28-FEB-2008 03:05	BKG	0.2700	
29-FEB-2008 03:58	BKG	0.2900	
29-FEB-2008 23:16	BKG	0.3000	
1-MAR-2008 12:16	BKG	0.2500	
2-MAR-2008 14:03	BKG	0.3200	
4-MAR-2008 02:44	BKG	0.2800	
5-MAR-2008 01:24	BKG	0.2900	
6-MAR-2008 03:42	BKG	1.0000	Ac
7-MAR-2008 02:47	BKG	0.2700	
7-MAR-2008 23:29	BKG	0.2900	
8-MAR-2008 17:08	BKG	0.2900	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
9-MAR-2008 16:41	BKG		0.3000	
11-MAR-2008 00:36	BKG		0.2400	
12-MAR-2008 03:03	BKG		0.2900	
13-MAR-2008 02:53	BKG		0.2700	

14-MAR-2008 03:59	BKG	0.3100			
14-MAR-2008 23:35	BKG	0.2900			
15-MAR-2008 23:29	BKG	0.3100			
16-MAR-2008 16:08	BKG	0.2800			
18-MAR-2008 03:37	BKG	0.3300			
19-MAR-2008 03:26	BKG	0.3100			
20-MAR-2008 01:52	BKG	0.3400			
21-MAR-2008 03:33	BKG	0.2800			
21-MAR-2008 23:22	BKG	0.2700			
23-MAR-2008 19:56	BKG	0.2900			

Quality Assurance Report.

Generated 26-MAR-2008 09:22:55.40

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 : 40.750000 Upper Bound : 44.250000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 42.493210 Std Deviation : 0.568328

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-JAN-2008 04:39	CHK		43.3000		
12-JAN-2008 06:31	CHK		41.7000		
13-JAN-2008 09:03	CHK		41.7000		
14-JAN-2008 04:49	CHK		42.0000		
15-JAN-2008 04:44	CHK		41.6000		
16-JAN-2008 04:44	CHK		41.9000		
17-JAN-2008 04:40	CHK		42.9000		
18-JAN-2008 04:50	CHK		42.7000		
19-JAN-2008 05:11	CHK		43.0000		
21-JAN-2008 05:37	CHK		41.9000		
22-JAN-2008 04:52	CHK		42.9000		
23-JAN-2008 04:46	CHK		42.2000		
24-JAN-2008 04:49	CHK		42.0000		
25-JAN-2008 04:58	CHK		43.1000		
28-JAN-2008 10:20	CHK		43.0000		
29-JAN-2008 05:01	CHK		42.7000		
30-JAN-2008 04:49	CHK		42.6000		
31-JAN-2008 04:32	CHK		42.4000		
1-FEB-2008 04:41	CHK		42.3000		
2-FEB-2008 04:49	CHK		43.2000		
4-FEB-2008 05:33	CHK		42.5000		

5-FEB-2008 04:54	CHK	42.2000			
6-FEB-2008 04:48	CHK	42.4000			
7-FEB-2008 04:51	CHK	42.1000			
8-FEB-2008 04:45	CHK	42.9000			
11-FEB-2008 04:45	CHK	42.2000			
12-FEB-2008 05:12	CHK	42.3000			
13-FEB-2008 05:17	CHK	42.0000			
14-FEB-2008 05:44	CHK	41.6000			
15-FEB-2008 04:46	CHK	41.8000			
16-FEB-2008 06:21	CHK	42.5000			
18-FEB-2008 05:37	CHK	41.7000			
19-FEB-2008 04:56	CHK	42.4000			
20-FEB-2008 04:48	CHK	41.8000			
21-FEB-2008 04:43	CHK	42.3000			
22-FEB-2008 04:49	CHK	42.8000			
23-FEB-2008 09:32	CHK	42.7000			
25-FEB-2008 04:51	CHK	42.3000			

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
26-FEB-2008 04:44	CHK		41.6000		
27-FEB-2008 04:48	CHK		42.4000		
28-FEB-2008 04:49	CHK		42.6000		
29-FEB-2008 04:47	CHK		42.8000		
3-MAR-2008 04:51	CHK		42.4000		
4-MAR-2008 04:49	CHK		42.2000		
5-MAR-2008 04:57	CHK		41.9000		
6-MAR-2008 05:12	CHK		43.0000		
7-MAR-2008 04:52	CHK		42.4000		
8-MAR-2008 08:07	CHK		41.5000		
10-MAR-2008 05:26	CHK		42.6000		
11-MAR-2008 05:39	CHK		42.0000		
12-MAR-2008 05:06	CHK		41.9000		
13-MAR-2008 05:09	CHK		42.9000		
14-MAR-2008 05:43	CHK		42.7000		
17-MAR-2008 06:21	CHK		42.7000		
18-MAR-2008 05:01	CHK		43.4000		
19-MAR-2008 04:55	CHK		43.0000		
20-MAR-2008 05:06	CHK		43.0000		
21-MAR-2008 05:02	CHK		42.0000		

-- Multi-Test Full Report --

Description : quad 3b 1" beta %eff
 Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 42.500000 Upper Bound : 46.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 44.279629 Std Deviation : 0.561734

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 04:39	CHK		44.9000	
12-JAN-2008 06:31	CHK		44.1000	
13-JAN-2008 09:03	CHK		44.2000	
14-JAN-2008 04:49	CHK		44.3000	
15-JAN-2008 04:44	CHK		44.4000	
16-JAN-2008 04:44	CHK		43.7000	
17-JAN-2008 04:40	CHK		44.8000	
18-JAN-2008 04:50	CHK		44.4000	
19-JAN-2008 05:11	CHK		44.3000	
21-JAN-2008 05:37	CHK		44.3000	
22-JAN-2008 04:52	CHK		43.4000	
23-JAN-2008 04:46	CHK		43.5000	
24-JAN-2008 04:49	CHK		44.4000	
25-JAN-2008 04:58	CHK		43.4000	
28-JAN-2008 10:20	CHK		43.9000	
29-JAN-2008 05:01	CHK		44.1000	
30-JAN-2008 04:49	CHK		45.5000	In
31-JAN-2008 04:32	CHK		44.8000	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
1-FEB-2008 04:41	CHK		43.7000	
2-FEB-2008 04:49	CHK		44.0000	
4-FEB-2008 05:33	CHK		44.1000	
5-FEB-2008 04:54	CHK		43.9000	
6-FEB-2008 04:48	CHK		44.7000	
7-FEB-2008 04:51	CHK		44.1000	

8-FEB-2008 04:45	CHK	44.5000			
11-FEB-2008 04:45	CHK	44.6000			
12-FEB-2008 05:12	CHK	44.0000			
13-FEB-2008 05:17	CHK	44.1000			
14-FEB-2008 05:44	CHK	44.5000			
15-FEB-2008 04:46	CHK	44.1000			
16-FEB-2008 06:21	CHK	44.7000			
18-FEB-2008 05:37	CHK	44.4000			
19-FEB-2008 04:56	CHK	44.9000			
20-FEB-2008 04:48	CHK	44.4000			
21-FEB-2008 04:43	CHK	44.6000			
22-FEB-2008 04:49	CHK	44.8000			
23-FEB-2008 09:32	CHK	44.6000			
25-FEB-2008 04:51	CHK	43.8000			
26-FEB-2008 04:44	CHK	44.2000			
27-FEB-2008 04:48	CHK	44.3000			
28-FEB-2008 04:49	CHK	44.3000			
29-FEB-2008 04:47	CHK	44.6000			
3-MAR-2008 04:51	CHK	43.8000			
4-MAR-2008 04:49	CHK	44.2000			
5-MAR-2008 04:57	CHK	44.4000			
6-MAR-2008 05:12	CHK	43.9000			
7-MAR-2008 04:52	CHK	44.5000			
8-MAR-2008 08:07	CHK	44.1000			
10-MAR-2008 05:26	CHK	44.0000			
11-MAR-2008 05:39	CHK	43.5000			
12-MAR-2008 05:06	CHK	43.8000			
13-MAR-2008 05:09	CHK	44.1000			
14-MAR-2008 05:43	CHK	44.4000			
17-MAR-2008 06:21	CHK	44.6000			
18-MAR-2008 05:01	CHK	44.1000			
19-MAR-2008 04:55	CHK	43.8000			
20-MAR-2008 05:06	CHK	43.8000			
21-MAR-2008 05:02	CHK	44.8000			

-- Multi-Test Full Report --

Description : quad 3c 1" beta %eff

Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 44.250000 Upper Bound : 46.750000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 45.761112 Std Deviation : 0.520302

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-JAN-2008 04:39	CHK		45.5000		
12-JAN-2008 06:31	CHK		44.7000	In	
13-JAN-2008 09:03	CHK		45.2000		
14-JAN-2008 04:49	CHK		45.3000		
15-JAN-2008 04:44	CHK		46.3000		
16-JAN-2008 04:44	CHK		45.3000		
17-JAN-2008 04:40	CHK		45.6000		
18-JAN-2008 04:50	CHK		46.5000		
19-JAN-2008 05:11	CHK		45.5000		
21-JAN-2008 05:37	CHK		45.3000		
22-JAN-2008 04:52	CHK		45.5000		
23-JAN-2008 04:46	CHK		45.2000		
24-JAN-2008 04:49	CHK		46.7000		
25-JAN-2008 04:58	CHK		45.4000		
28-JAN-2008 10:20	CHK		45.3000		
29-JAN-2008 05:01	CHK		46.2000		
30-JAN-2008 04:49	CHK		44.8000		
31-JAN-2008 04:32	CHK		46.5000		
1-FEB-2008 04:41	CHK		45.6000		
2-FEB-2008 04:49	CHK		45.3000		
4-FEB-2008 05:33	CHK		45.5000		
5-FEB-2008 04:54	CHK		46.4000		
6-FEB-2008 04:48	CHK		45.5000		
7-FEB-2008 04:51	CHK		45.8000		
8-FEB-2008 04:45	CHK		46.2000		
11-FEB-2008 04:45	CHK		45.4000		
12-FEB-2008 05:12	CHK		45.1000		
13-FEB-2008 05:17	CHK		45.3000		
14-FEB-2008 05:44	CHK		46.3000		
15-FEB-2008 04:46	CHK		45.8000		
16-FEB-2008 06:21	CHK		45.6000		

18-FEB-2008 05:37	CHK	45.4000	
19-FEB-2008 04:56	CHK	45.4000	
20-FEB-2008 04:48	CHK	45.4000	
21-FEB-2008 04:43	CHK	45.1000	
22-FEB-2008 04:49	CHK	45.9000	
23-FEB-2008 09:32	CHK	44.9000	
25-FEB-2008 04:51	CHK	45.2000	
26-FEB-2008 04:44	CHK	45.1000	
27-FEB-2008 04:48	CHK	44.4000	In
28-FEB-2008 04:49	CHK	45.3000	
29-FEB-2008 04:47	CHK	47.0000	Ab In
3-MAR-2008 04:51	CHK	45.8000	
4-MAR-2008 04:49	CHK	45.9000	
5-MAR-2008 04:57	CHK	45.0000	
6-MAR-2008 05:12	CHK	45.3000	
7-MAR-2008 04:52	CHK	46.2000	
8-MAR-2008 08:07	CHK	44.9000	
10-MAR-2008 05:26	CHK	45.0000	
11-MAR-2008 05:39	CHK	45.2000	
12-MAR-2008 05:06	CHK	45.7000	
13-MAR-2008 05:09	CHK	45.6000	
14-MAR-2008 05:43	CHK	46.4000	
17-MAR-2008 06:21	CHK	45.5000	
18-MAR-2008 05:01	CHK	45.6000	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
19-MAR-2008 04:55	CHK		45.4000	
20-MAR-2008 05:06	CHK		46.4000	
21-MAR-2008 05:02	CHK		45.7000	

-- Multi-Test Full Report --

Description : quad 3d 1" beta %eff
 Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 45.000000 Upper Bound : 48.500000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 46.732925 Std Deviation : 0.554304

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 04:39	CHK		46.2000	
12-JAN-2008 06:31	CHK		46.6000	
13-JAN-2008 09:03	CHK		46.6000	
14-JAN-2008 04:49	CHK		46.6000	
15-JAN-2008 04:44	CHK		45.9000	
16-JAN-2008 04:44	CHK		45.1000	In
17-JAN-2008 04:40	CHK		46.7000	
18-JAN-2008 04:50	CHK		46.6000	
19-JAN-2008 05:11	CHK		47.3000	
21-JAN-2008 05:37	CHK		46.2000	
22-JAN-2008 04:52	CHK		46.0000	
23-JAN-2008 04:46	CHK		47.5000	
24-JAN-2008 04:49	CHK		47.4000	
25-JAN-2008 04:58	CHK		46.7000	
28-JAN-2008 10:20	CHK		46.3000	
29-JAN-2008 05:01	CHK		46.5000	
30-JAN-2008 04:49	CHK		46.2000	
31-JAN-2008 04:32	CHK		46.9000	
1-FEB-2008 04:41	CHK		46.7000	
2-FEB-2008 04:49	CHK		46.7000	
4-FEB-2008 05:33	CHK		46.8000	
5-FEB-2008 04:54	CHK		47.4000	
6-FEB-2008 04:48	CHK		46.9000	
7-FEB-2008 04:51	CHK		46.5000	
8-FEB-2008 04:45	CHK		46.6000	
11-FEB-2008 04:45	CHK		46.7000	
12-FEB-2008 05:12	CHK		46.7000	
13-FEB-2008 05:17	CHK		46.5000	
14-FEB-2008 05:44	CHK		46.1000	
15-FEB-2008 04:46	CHK		46.8000	
16-FEB-2008 06:21	CHK		47.2000	
18-FEB-2008 05:37	CHK		46.6000	
19-FEB-2008 04:56	CHK		46.7000	
20-FEB-2008 04:48	CHK		46.7000	
21-FEB-2008 04:43	CHK		47.5000	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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22-FEB-2008 04:49  CHK          47.1000  | | |
23-FEB-2008 09:32  CHK          45.5000  |In| |
25-FEB-2008 04:51  CHK          46.8000  | | |
26-FEB-2008 04:44  CHK          46.6000  | | |
27-FEB-2008 04:48  CHK          46.9000  | | |
28-FEB-2008 04:49  CHK          46.0000  | | |
29-FEB-2008 04:47  CHK          47.0000  | | |
 3-MAR-2008 04:51  CHK          45.7000  | | |
 4-MAR-2008 04:49  CHK          46.3000  | | |
 5-MAR-2008 04:57  CHK          46.8000  | | |
 6-MAR-2008 05:12  CHK          46.8000  | | |
 7-MAR-2008 04:52  CHK          46.2000  | | |
 8-MAR-2008 08:07  CHK          46.8000  | | |
10-MAR-2008 05:26  CHK          46.5000  | | |
11-MAR-2008 05:39  CHK          46.6000  | | |
12-MAR-2008 05:06  CHK          46.6000  | | |
13-MAR-2008 05:09  CHK          47.2000  | | |
14-MAR-2008 05:43  CHK          46.6000  | | |
17-MAR-2008 06:21  CHK          46.6000  | | |
18-MAR-2008 05:01  CHK          46.6000  | | |
19-MAR-2008 04:55  CHK          46.7000  | | |
20-MAR-2008 05:06  CHK          46.7000  | | |
21-MAR-2008 05:02  CHK          46.8000  | | |

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Quality Assurance Report.

Generated 26-MAR-2008 09:22:56.69

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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 0.227838 Std Deviation : 0.046796

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

11-JAN-2008 02:20	BKG	0.2800		
12-JAN-2008 02:59	BKG	0.2200		
12-JAN-2008 20:45	BKG	0.3400	In	
13-JAN-2008 21:38	BKG	0.2300		
15-JAN-2008 04:08	BKG	0.2100		
16-JAN-2008 02:25	BKG	0.2900		
17-JAN-2008 02:55	BKG	0.2300		
18-JAN-2008 03:42	BKG	2.6500	Ac	R
19-JAN-2008 02:12	BKG	0.2600		
19-JAN-2008 15:43	BKG	0.1600		
20-JAN-2008 13:39	BKG	0.2300		
22-JAN-2008 02:15	BKG	0.2200		
23-JAN-2008 01:52	BKG	0.2500		
24-JAN-2008 03:41	BKG	0.2600		
25-JAN-2008 02:18	BKG	0.2200		
25-JAN-2008 23:31	BKG	0.2400		
27-JAN-2008 19:12	BKG	0.2100		
29-JAN-2008 01:41	BKG	0.1800		
30-JAN-2008 01:56	BKG	0.2300		
31-JAN-2008 02:15	BKG	0.2500		
1-FEB-2008 02:34	BKG	0.9700	Ac	
2-FEB-2008 00:10	BKG	0.2300		
2-FEB-2008 13:21	BKG	0.2200		
3-FEB-2008 18:42	BKG	0.2200		
5-FEB-2008 02:45	BKG	0.2200		
6-FEB-2008 01:44	BKG	0.2600		
7-FEB-2008 00:57	BKG	0.3500	In	
8-FEB-2008 01:59	BKG	0.2100		
8-FEB-2008 23:20	BKG	0.2400		
9-FEB-2008 13:52	BKG	0.2200		
10-FEB-2008 19:21	BKG	0.1800		
12-FEB-2008 02:16	BKG	0.2700		
13-FEB-2008 02:07	BKG	0.3000		
14-FEB-2008 02:31	BKG	0.2400		
14-FEB-2008 23:14	BKG	0.1800		
16-FEB-2008 01:36	BKG	0.2500		
16-FEB-2008 15:06	BKG	0.3200		
17-FEB-2008 14:27	BKG	0.2600		
19-FEB-2008 01:53	BKG	0.2200		
19-FEB-2008 23:27	BKG	0.2900		
21-FEB-2008 03:19	BKG	0.2700		

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
22-FEB-2008 03:22	BKG		0.2400		
22-FEB-2008 23:18	BKG		0.3000		
23-FEB-2008 18:49	BKG		0.3400	In	
24-FEB-2008 19:17	BKG		0.2500		
26-FEB-2008 04:14	BKG		0.2200		
27-FEB-2008 01:51	BKG		0.2600		
28-FEB-2008 02:59	BKG		0.2200		
29-FEB-2008 03:58	BKG		0.2600		
29-FEB-2008 23:15	BKG		0.2700		
1-MAR-2008 12:15	BKG		0.2700		
2-MAR-2008 13:57	BKG		0.2600		
4-MAR-2008 02:44	BKG		0.2500		
5-MAR-2008 03:55	BKG		0.2700		
6-MAR-2008 01:11	BKG		0.7400	Ac	
6-MAR-2008 01:11	BKG		0.5500	Ac	
7-MAR-2008 02:42	BKG		0.3400	In	
7-MAR-2008 23:29	BKG		0.2900		
8-MAR-2008 17:08	BKG		0.2600		
9-MAR-2008 16:36	BKG		0.2200		
11-MAR-2008 03:01	BKG		0.2700		
12-MAR-2008 03:03	BKG		0.2800		
13-MAR-2008 02:47	BKG		0.3200		
14-MAR-2008 02:39	BKG		0.2700		
14-MAR-2008 23:30	BKG		0.2900		
15-MAR-2008 23:29	BKG		0.2600		
16-MAR-2008 13:42	BKG		0.2900		
18-MAR-2008 03:37	BKG		0.3200		
19-MAR-2008 03:26	BKG		0.3400	In	
20-MAR-2008 01:51	BKG		0.2900		
21-MAR-2008 03:33	BKG		0.2800		
21-MAR-2008 23:20	BKG		0.2600		
23-MAR-2008 20:01	BKG		0.2800		

-- 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 0.268811 Std Deviation : 0.056469

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-JAN-2008 02:20	BKG		0.2700		
12-JAN-2008 02:59	BKG		0.2700		
12-JAN-2008 20:45	BKG		0.3500		
13-JAN-2008 21:38	BKG		0.2500		
15-JAN-2008 04:08	BKG		0.2200		
16-JAN-2008 02:25	BKG		0.3700		
17-JAN-2008 02:55	BKG		0.3400		
18-JAN-2008 03:42	BKG		0.3600		
19-JAN-2008 02:12	BKG		0.2700		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
19-JAN-2008 15:43	BKG		0.2900		
20-JAN-2008 13:39	BKG		0.2900		
22-JAN-2008 02:15	BKG		0.3000		
23-JAN-2008 01:52	BKG		0.3100		
24-JAN-2008 03:41	BKG		0.3300		
25-JAN-2008 02:18	BKG		0.2800		
25-JAN-2008 23:31	BKG		0.2700		
27-JAN-2008 19:12	BKG		0.2700		
29-JAN-2008 01:41	BKG		0.3100		
30-JAN-2008 01:56	BKG		0.3400		
31-JAN-2008 02:15	BKG		0.2900		
1-FEB-2008 02:34	BKG		0.3400		
2-FEB-2008 00:10	BKG		0.3500		
2-FEB-2008 13:21	BKG		0.3300		
3-FEB-2008 18:42	BKG		0.3800		
5-FEB-2008 02:45	BKG		0.2900		
6-FEB-2008 01:44	BKG		0.3600		
7-FEB-2008 00:57	BKG		0.4400	Ac	
8-FEB-2008 01:59	BKG		0.3300		
8-FEB-2008 23:20	BKG		0.3200		
9-FEB-2008 13:52	BKG		0.3100		
10-FEB-2008 19:21	BKG		0.3500		
12-FEB-2008 02:16	BKG		0.3600		
13-FEB-2008 02:07	BKG		0.3400		
14-FEB-2008 02:31	BKG		0.3300		

14-FEB-2008 23:14	BKG	0.2900	
16-FEB-2008 01:36	BKG	0.3600	
16-FEB-2008 15:06	BKG	0.4000	In
17-FEB-2008 14:27	BKG	0.3700	
19-FEB-2008 01:53	BKG	0.3200	
19-FEB-2008 23:27	BKG	0.4000	In
21-FEB-2008 03:19	BKG	0.4200	In
22-FEB-2008 03:22	BKG	0.4200	In
22-FEB-2008 23:18	BKG	0.3900	In
23-FEB-2008 18:49	BKG	0.3600	
24-FEB-2008 19:17	BKG	0.3500	
26-FEB-2008 04:14	BKG	0.3700	
27-FEB-2008 01:51	BKG	0.3900	In
28-FEB-2008 02:59	BKG	0.4100	In
29-FEB-2008 03:58	BKG	0.4000	In
29-FEB-2008 23:15	BKG	0.4500	Ac
1-MAR-2008 12:15	BKG	0.4200	In
2-MAR-2008 13:57	BKG	0.3600	
4-MAR-2008 02:44	BKG	0.3900	In
5-MAR-2008 03:55	BKG	0.4000	In
6-MAR-2008 01:11	BKG	0.5700	Ac
6-MAR-2008 01:11	BKG	0.4900	Ac
7-MAR-2008 02:42	BKG	0.3600	
7-MAR-2008 23:29	BKG	0.4300	In
8-MAR-2008 17:08	BKG	0.3800	
9-MAR-2008 16:36	BKG	0.4300	In
11-MAR-2008 03:01	BKG	0.4800	Ac
12-MAR-2008 03:03	BKG	0.4400	Ac
13-MAR-2008 02:47	BKG	0.5100	Ac
14-MAR-2008 02:39	BKG	0.4200	In

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
14-MAR-2008 23:30	BKG		0.4600	Ac
15-MAR-2008 23:29	BKG		0.5500	Ac
16-MAR-2008 13:42	BKG		0.4900	Ac
18-MAR-2008 03:37	BKG		0.5400	Ac
19-MAR-2008 03:26	BKG		0.6000	Ac
20-MAR-2008 01:51	BKG		0.5400	Ac
21-MAR-2008 03:33	BKG		0.5900	Ac
21-MAR-2008 23:20	BKG		0.5600	Ac
23-MAR-2008 20:01	BKG		0.5300	Ac

-- 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 0.280973 Std Deviation : 0.046894

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-JAN-2008 02:20	BKG		0.3100		
12-JAN-2008 02:59	BKG		0.2500		
12-JAN-2008 20:45	BKG		0.2500		
13-JAN-2008 21:38	BKG		0.2500		
15-JAN-2008 04:08	BKG		0.2500		
16-JAN-2008 02:25	BKG		0.3100		
17-JAN-2008 02:55	BKG		0.3800	In	
18-JAN-2008 03:42	BKG		0.3300		
19-JAN-2008 02:12	BKG		0.2800		
19-JAN-2008 15:43	BKG		0.3400		
20-JAN-2008 13:39	BKG		0.2700		
22-JAN-2008 02:15	BKG		0.2700		
23-JAN-2008 01:52	BKG		0.2900		
24-JAN-2008 03:41	BKG		0.3500		
25-JAN-2008 02:18	BKG		0.2800		
25-JAN-2008 23:31	BKG		0.2800		
27-JAN-2008 19:12	BKG		0.2600		
29-JAN-2008 01:41	BKG		0.3000		
30-JAN-2008 01:56	BKG		0.2900		
31-JAN-2008 02:15	BKG		0.3400		
1-FEB-2008 02:34	BKG		0.2600		
2-FEB-2008 00:10	BKG		0.3100		
2-FEB-2008 13:21	BKG		0.2600		
3-FEB-2008 18:42	BKG		0.3000		
5-FEB-2008 02:45	BKG		0.3200		
6-FEB-2008 01:44	BKG		0.2900		
7-FEB-2008 00:57	BKG		0.3400		
8-FEB-2008 01:59	BKG		0.2600		
8-FEB-2008 23:20	BKG		0.2700		

9-FEB-2008 13:52	BKG	0.3000	
10-FEB-2008 19:21	BKG	0.2600	
12-FEB-2008 02:16	BKG	0.2700	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
13-FEB-2008 02:07	BKG		0.3300	
14-FEB-2008 02:31	BKG		0.2100	
14-FEB-2008 23:14	BKG		0.2800	
16-FEB-2008 01:36	BKG		0.2400	
16-FEB-2008 15:06	BKG		0.2700	
17-FEB-2008 14:27	BKG		0.2400	
19-FEB-2008 01:53	BKG		0.2700	
19-FEB-2008 23:27	BKG		0.3200	
21-FEB-2008 03:19	BKG		0.3100	
22-FEB-2008 03:22	BKG		0.2700	
22-FEB-2008 23:18	BKG		0.2600	
23-FEB-2008 18:49	BKG		0.2400	
24-FEB-2008 19:17	BKG		0.3100	
26-FEB-2008 04:14	BKG		0.2900	
27-FEB-2008 01:51	BKG		0.2800	
28-FEB-2008 02:59	BKG		0.2400	
29-FEB-2008 03:58	BKG		0.2800	
29-FEB-2008 23:15	BKG		0.2900	
1-MAR-2008 12:15	BKG		0.2800	
2-MAR-2008 13:57	BKG		0.2600	
4-MAR-2008 02:44	BKG		0.2600	
5-MAR-2008 03:55	BKG		0.2700	
6-MAR-2008 01:11	BKG		0.3000	
6-MAR-2008 01:11	BKG		0.3200	
7-MAR-2008 02:42	BKG		0.3300	
7-MAR-2008 23:29	BKG		0.2600	
8-MAR-2008 17:08	BKG		0.2500	
9-MAR-2008 16:36	BKG		0.2100	
11-MAR-2008 03:01	BKG		0.2800	
12-MAR-2008 03:03	BKG		0.2900	
13-MAR-2008 02:47	BKG		0.2800	
14-MAR-2008 02:39	BKG		0.2800	
14-MAR-2008 23:30	BKG		0.2100	
15-MAR-2008 23:29	BKG		0.2300	
16-MAR-2008 13:42	BKG		0.2600	
18-MAR-2008 03:37	BKG		0.2600	

19-MAR-2008 03:26	BKG	0.2600			
20-MAR-2008 01:51	BKG	0.3100			
21-MAR-2008 03:33	BKG	0.3100			
21-MAR-2008 23:20	BKG	0.2700			
23-MAR-2008 20:01	BKG	0.2500			

-- 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 0.253459 Std Deviation : 0.052315

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 6

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-JAN-2008 02:20	BKG	0.2800			
12-JAN-2008 02:59	BKG	0.2800			
12-JAN-2008 20:45	BKG	0.2900			
13-JAN-2008 21:38	BKG	0.2500			
15-JAN-2008 04:08	BKG	0.2600			
16-JAN-2008 02:25	BKG	0.3200			
17-JAN-2008 02:55	BKG	0.3000			
18-JAN-2008 03:42	BKG	0.3600	In		
19-JAN-2008 02:12	BKG	0.3000			
19-JAN-2008 15:43	BKG	0.2400			
20-JAN-2008 13:39	BKG	0.2900			
22-JAN-2008 02:15	BKG	0.2600			
23-JAN-2008 01:52	BKG	0.2300			
24-JAN-2008 03:41	BKG	0.3200			
25-JAN-2008 02:18	BKG	0.2800			
25-JAN-2008 23:31	BKG	0.2200			
27-JAN-2008 19:12	BKG	0.3200			
29-JAN-2008 01:41	BKG	0.2400			
30-JAN-2008 01:56	BKG	0.2900			
31-JAN-2008 02:15	BKG	0.2400			

1-FEB-2008 02:34	BKG	0.2400	
2-FEB-2008 00:10	BKG	0.2500	
2-FEB-2008 13:21	BKG	0.2700	
3-FEB-2008 18:42	BKG	0.1900	
5-FEB-2008 02:45	BKG	0.2400	
6-FEB-2008 01:44	BKG	0.2700	
7-FEB-2008 00:57	BKG	0.3400	
8-FEB-2008 01:59	BKG	0.2500	
8-FEB-2008 23:20	BKG	0.2500	
9-FEB-2008 13:52	BKG	0.2300	
10-FEB-2008 19:21	BKG	0.2500	
12-FEB-2008 02:16	BKG	0.2600	
13-FEB-2008 02:07	BKG	0.2600	
14-FEB-2008 02:31	BKG	0.2800	
14-FEB-2008 23:14	BKG	0.2300	
16-FEB-2008 01:36	BKG	0.2600	
16-FEB-2008 15:06	BKG	0.2500	
17-FEB-2008 14:27	BKG	0.2300	
19-FEB-2008 01:53	BKG	0.2000	
19-FEB-2008 23:27	BKG	0.3000	
21-FEB-2008 03:19	BKG	0.2300	
22-FEB-2008 03:22	BKG	0.2500	
22-FEB-2008 23:18	BKG	0.2200	
23-FEB-2008 18:49	BKG	0.2200	
24-FEB-2008 19:17	BKG	0.2300	
26-FEB-2008 04:14	BKG	0.2300	
27-FEB-2008 01:51	BKG	0.2700	
28-FEB-2008 02:59	BKG	0.2800	
29-FEB-2008 03:58	BKG	0.2400	
29-FEB-2008 23:15	BKG	0.2700	
1-MAR-2008 12:15	BKG	0.2100	
2-MAR-2008 13:57	BKG	0.2500	
4-MAR-2008 02:44	BKG	0.2600	
5-MAR-2008 03:55	BKG	0.2900	
6-MAR-2008 01:11	BKG	0.9300	Ac

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
6-MAR-2008 01:11	BKG	0.6700	Ac	
7-MAR-2008 02:42	BKG	0.2900		
7-MAR-2008 23:29	BKG	0.2800		
8-MAR-2008 17:08	BKG	0.2700		

9-MAR-2008 16:36 BKG	0.2200			
11-MAR-2008 03:01 BKG	0.2200			
12-MAR-2008 03:03 BKG	0.2500			
13-MAR-2008 02:47 BKG	0.2700			
14-MAR-2008 02:39 BKG	0.2500			
14-MAR-2008 23:30 BKG	0.2200			
15-MAR-2008 23:29 BKG	0.2300			
16-MAR-2008 13:42 BKG	0.3000			
18-MAR-2008 03:37 BKG	0.2700			
19-MAR-2008 03:26 BKG	0.2300			
20-MAR-2008 01:51 BKG	0.3000			
21-MAR-2008 03:33 BKG	0.2500			
21-MAR-2008 23:20 BKG	0.2600			
23-MAR-2008 20:01 BKG	0.2300			

Quality Assurance Report.

Generated 26-MAR-2008 11:24:30.75

QA Filename : \$DISK1:[QUAD6.QA]CHK.QAF;2

-- Multi-Test Full Report --

Description : quad 6a 1.5" beta %eff

Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 44.000000 Upper Bound : 49.250000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 46.656689 Std Deviation : 0.904850

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-JAN-2008 04:34	CHK		45.8000		
12-JAN-2008 06:31	CHK		47.1000		
13-JAN-2008 09:02	CHK		44.3000	In	
14-JAN-2008 04:54	CHK		47.3000		
15-JAN-2008 04:39	CHK		45.9000		
16-JAN-2008 04:39	CHK		45.1000		
17-JAN-2008 04:40	CHK		46.1000		
18-JAN-2008 04:50	CHK		46.2000		
21-JAN-2008 05:37	CHK		46.2000		
22-JAN-2008 04:52	CHK		45.2000		
23-JAN-2008 04:41	CHK		45.9000		
24-JAN-2008 04:49	CHK		45.3000		
25-JAN-2008 04:58	CHK		45.7000		
28-JAN-2008 10:20	CHK		45.8000		
29-JAN-2008 05:01	CHK		46.2000		
30-JAN-2008 04:44	CHK		45.0000		
31-JAN-2008 04:33	CHK		46.2000		
1-FEB-2008 04:36	CHK		45.4000		
2-FEB-2008 04:44	CHK		46.6000		
4-FEB-2008 05:33	CHK		44.6000	In	
5-FEB-2008 04:49	CHK		45.1000		

6-FEB-2008 04:43	CHK	45.9000	
7-FEB-2008 04:46	CHK	45.4000	
8-FEB-2008 04:45	CHK	46.1000	
11-FEB-2008 04:45	CHK	45.5000	
12-FEB-2008 05:12	CHK	46.5000	
13-FEB-2008 05:17	CHK	44.4000	In
14-FEB-2008 05:45	CHK	46.6000	
15-FEB-2008 04:41	CHK	46.6000	
18-FEB-2008 05:37	CHK	46.8000	
19-FEB-2008 04:51	CHK	47.0000	
20-FEB-2008 04:48	CHK	45.7000	
21-FEB-2008 04:44	CHK	46.2000	
22-FEB-2008 04:49	CHK	46.6000	
25-FEB-2008 04:46	CHK	45.4000	
26-FEB-2008 04:44	CHK	44.9000	
27-FEB-2008 04:48	CHK	46.6000	
28-FEB-2008 04:49	CHK	45.7000	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
29-FEB-2008 04:47	CHK		45.5000	
3-MAR-2008 04:51	CHK		45.7000	
4-MAR-2008 04:50	CHK		45.0000	
5-MAR-2008 04:57	CHK		46.3000	
6-MAR-2008 05:07	CHK		45.6000	
7-MAR-2008 04:53	CHK		44.8000	In
8-MAR-2008 08:02	CHK		46.0000	
10-MAR-2008 05:20	CHK		45.0000	
11-MAR-2008 05:35	CHK		46.5000	
12-MAR-2008 05:01	CHK		46.3000	
13-MAR-2008 05:04	CHK		46.6000	
14-MAR-2008 05:43	CHK		46.6000	
17-MAR-2008 06:26	CHK		49.2000	In
18-MAR-2008 04:57	CHK		46.4000	
19-MAR-2008 04:55	CHK		45.9000	
20-MAR-2008 05:06	CHK		45.2000	
21-MAR-2008 05:02	CHK		47.5000	

-- Multi-Test Full Report --

Description : quad 6b 1.5" beta %eff

Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 50.000000 Upper Bound : 54.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 52.041027 Std Deviation : 0.696986

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 04:34	CHK		51.4000	
12-JAN-2008 06:31	CHK		50.7000	
13-JAN-2008 09:02	CHK		51.2000	
14-JAN-2008 04:54	CHK		51.4000	
15-JAN-2008 04:39	CHK		50.9000	
16-JAN-2008 04:39	CHK		51.9000	
17-JAN-2008 04:40	CHK		51.2000	
18-JAN-2008 04:50	CHK		52.0000	
21-JAN-2008 05:37	CHK		52.0000	
22-JAN-2008 04:52	CHK		51.1000	
23-JAN-2008 04:41	CHK		50.6000	In
24-JAN-2008 04:49	CHK		51.4000	
25-JAN-2008 04:58	CHK		51.3000	
28-JAN-2008 10:20	CHK		51.4000	
29-JAN-2008 05:01	CHK		51.0000	
30-JAN-2008 04:44	CHK		51.3000	
31-JAN-2008 04:33	CHK		52.6000	
1-FEB-2008 04:36	CHK		51.9000	
2-FEB-2008 04:44	CHK		51.1000	
4-FEB-2008 05:33	CHK		52.2000	
5-FEB-2008 04:49	CHK		52.5000	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
6-FEB-2008 04:43	CHK		52.3000	
7-FEB-2008 04:46	CHK		52.1000	
8-FEB-2008 04:45	CHK		51.7000	
11-FEB-2008 04:45	CHK		53.0000	
12-FEB-2008 05:12	CHK		51.2000	
13-FEB-2008 05:17	CHK		52.0000	

14-FEB-2008 05:45	CHK	51.9000			
15-FEB-2008 04:41	CHK	51.6000			
18-FEB-2008 05:37	CHK	51.8000			
19-FEB-2008 04:51	CHK	52.1000			
20-FEB-2008 04:48	CHK	52.2000			
21-FEB-2008 04:44	CHK	52.9000			
22-FEB-2008 04:49	CHK	51.7000			
25-FEB-2008 04:46	CHK	51.0000			
26-FEB-2008 04:44	CHK	51.5000			
27-FEB-2008 04:48	CHK	51.4000			
28-FEB-2008 04:49	CHK	51.2000			
29-FEB-2008 04:47	CHK	51.3000			
3-MAR-2008 04:51	CHK	52.3000			
4-MAR-2008 04:50	CHK	51.4000			
5-MAR-2008 04:57	CHK	50.7000			
6-MAR-2008 05:07	CHK	51.0000			
7-MAR-2008 04:53	CHK	51.3000			
8-MAR-2008 08:02	CHK	51.7000			
10-MAR-2008 05:20	CHK	50.9000			
11-MAR-2008 05:35	CHK	52.1000			
12-MAR-2008 05:01	CHK	52.1000			
13-MAR-2008 05:04	CHK	53.2000			
14-MAR-2008 05:43	CHK	52.8000			
17-MAR-2008 06:26	CHK	52.0000			
18-MAR-2008 04:57	CHK	51.8000			
19-MAR-2008 04:55	CHK	51.1000			
20-MAR-2008 05:06	CHK	51.5000			
21-MAR-2008 05:02	CHK	52.4000			

-- Multi-Test Full Report --

Description : quad 6c 1.5" beta %eff

Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 50.000000 Upper Bound : 54.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 51.875000 Std Deviation : 0.608396

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 04:34	CHK		52.0000	
12-JAN-2008 06:31	CHK		49.6000	Be Ac
13-JAN-2008 09:02	CHK		51.6000	
14-JAN-2008 04:54	CHK		51.9000	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
15-JAN-2008 04:39	CHK		50.3000	In
16-JAN-2008 04:39	CHK		50.6000	In
17-JAN-2008 04:40	CHK		51.8000	
18-JAN-2008 04:50	CHK		51.8000	
21-JAN-2008 05:37	CHK		51.2000	
22-JAN-2008 04:52	CHK		50.9000	
23-JAN-2008 04:41	CHK		50.7000	
24-JAN-2008 04:49	CHK		50.8000	
25-JAN-2008 04:58	CHK		51.4000	
28-JAN-2008 10:20	CHK		51.4000	
29-JAN-2008 05:01	CHK		52.3000	
30-JAN-2008 04:44	CHK		52.8000	
31-JAN-2008 04:33	CHK		52.4000	
1-FEB-2008 04:36	CHK		51.1000	
2-FEB-2008 04:44	CHK		51.4000	
4-FEB-2008 05:33	CHK		52.0000	
5-FEB-2008 04:49	CHK		51.6000	
6-FEB-2008 04:43	CHK		51.8000	
7-FEB-2008 04:46	CHK		52.1000	
8-FEB-2008 04:45	CHK		51.6000	
11-FEB-2008 04:45	CHK		52.6000	
12-FEB-2008 05:12	CHK		51.5000	
13-FEB-2008 05:17	CHK		52.1000	
14-FEB-2008 05:45	CHK		51.4000	
15-FEB-2008 04:41	CHK		51.2000	
18-FEB-2008 05:37	CHK		51.6000	
19-FEB-2008 04:51	CHK		51.3000	
20-FEB-2008 04:48	CHK		51.4000	
21-FEB-2008 04:44	CHK		52.1000	
22-FEB-2008 04:49	CHK		51.6000	
25-FEB-2008 04:46	CHK		51.6000	
26-FEB-2008 04:44	CHK		50.7000	
27-FEB-2008 04:48	CHK		51.5000	

28-FEB-2008 04:49	CHK	51.7000	
29-FEB-2008 04:47	CHK	50.8000	
3-MAR-2008 04:51	CHK	51.8000	
4-MAR-2008 04:50	CHK	51.1000	
5-MAR-2008 04:57	CHK	52.1000	
6-MAR-2008 05:07	CHK	51.3000	
7-MAR-2008 04:53	CHK	52.3000	
8-MAR-2008 08:02	CHK	52.0000	
10-MAR-2008 05:20	CHK	51.6000	
11-MAR-2008 05:35	CHK	51.3000	
12-MAR-2008 05:01	CHK	51.1000	
13-MAR-2008 05:04	CHK	52.7000	
14-MAR-2008 05:43	CHK	51.6000	
17-MAR-2008 06:26	CHK	52.7000	
18-MAR-2008 04:57	CHK	51.6000	
19-MAR-2008 04:55	CHK	52.2000	
20-MAR-2008 05:06	CHK	51.7000	
21-MAR-2008 05:02	CHK	53.3000	In

-- Multi-Test Full Report --

Description : quad 6d 1.5" beta %eff

Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 49.000000 Upper Bound : 53.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 51.031212 Std Deviation : 0.623766

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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11-JAN-2008 04:34	CHK	50.9000	
12-JAN-2008 06:31	CHK	49.9000	
13-JAN-2008 09:02	CHK	50.2000	
14-JAN-2008 04:54	CHK	50.1000	

15-JAN-2008 04:39	CHK	51.2000			
16-JAN-2008 04:39	CHK	50.8000			
17-JAN-2008 04:40	CHK	51.2000			
18-JAN-2008 04:50	CHK	50.1000			
21-JAN-2008 05:37	CHK	50.7000			
22-JAN-2008 04:52	CHK	50.7000			
23-JAN-2008 04:41	CHK	51.2000			
24-JAN-2008 04:49	CHK	50.3000			
25-JAN-2008 04:58	CHK	49.9000			
28-JAN-2008 10:20	CHK	51.6000			
29-JAN-2008 05:01	CHK	50.3000			
30-JAN-2008 04:44	CHK	50.9000			
31-JAN-2008 04:33	CHK	50.7000			
1-FEB-2008 04:36	CHK	50.7000			
2-FEB-2008 04:44	CHK	50.6000			
4-FEB-2008 05:33	CHK	50.5000			
5-FEB-2008 04:49	CHK	50.6000			
6-FEB-2008 04:43	CHK	51.7000			
7-FEB-2008 04:46	CHK	51.2000			
8-FEB-2008 04:45	CHK	50.2000			
11-FEB-2008 04:45	CHK	50.4000			
12-FEB-2008 05:12	CHK	49.7000	In		
13-FEB-2008 05:17	CHK	49.9000			
14-FEB-2008 05:45	CHK	50.6000			
15-FEB-2008 04:41	CHK	51.7000			
18-FEB-2008 05:37	CHK	50.0000			
19-FEB-2008 04:51	CHK	50.7000			
20-FEB-2008 04:48	CHK	50.8000			
21-FEB-2008 04:44	CHK	50.8000			
22-FEB-2008 04:49	CHK	50.4000			
25-FEB-2008 04:46	CHK	51.2000			
26-FEB-2008 04:44	CHK	50.5000			
27-FEB-2008 04:48	CHK	50.5000			
28-FEB-2008 04:49	CHK	50.7000			
29-FEB-2008 04:47	CHK	51.2000			
3-MAR-2008 04:51	CHK	51.2000			
4-MAR-2008 04:50	CHK	50.5000			
5-MAR-2008 04:57	CHK	49.6000	In		
6-MAR-2008 05:07	CHK	50.3000			
7-MAR-2008 04:53	CHK	51.0000			
8-MAR-2008 08:02	CHK	49.8000			
10-MAR-2008 05:20	CHK	51.7000			
11-MAR-2008 05:35	CHK	51.4000			

12-MAR-2008 05:01	CHK	51.0000	
13-MAR-2008 05:04	CHK	51.0000	
14-MAR-2008 05:43	CHK	50.8000	
17-MAR-2008 06:26	CHK	52.3000	In
18-MAR-2008 04:57	CHK	51.3000	
19-MAR-2008 04:55	CHK	50.2000	
20-MAR-2008 05:06	CHK	51.4000	
21-MAR-2008 05:02	CHK	51.1000	

Quality Assurance Report.

Generated 26-MAR-2008 11:24:32.13

QA Filename : \$DISK1:[QUAD6.QA]BKG_15.QAF;2

-- Multi-Test Full Report --

Description : quad 6a 1.5" 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 0.790939 Std Deviation : 0.059448

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 02:21	BKG		0.6900	
12-JAN-2008 03:05	BKG		0.7200	
12-JAN-2008 20:45	BKG		0.7300	
13-JAN-2008 21:48	BKG		0.7400	
15-JAN-2008 04:09	BKG		0.7300	
16-JAN-2008 02:26	BKG		0.8000	
17-JAN-2008 02:55	BKG		0.8200	
18-JAN-2008 02:08	BKG		0.8500	
19-JAN-2008 02:18	BKG		0.7200	
19-JAN-2008 15:44	BKG		0.7600	
20-JAN-2008 13:40	BKG		0.8100	
22-JAN-2008 02:15	BKG		0.7500	
23-JAN-2008 01:51	BKG		0.8600	
24-JAN-2008 02:11	BKG		0.7400	
25-JAN-2008 02:59	BKG		0.8500	
25-JAN-2008 23:31	BKG		0.7800	

27-JAN-2008 19:17	BKG	0.8300	
29-JAN-2008 01:37	BKG	0.8100	
30-JAN-2008 01:56	BKG	0.7800	
31-JAN-2008 02:16	BKG	0.7300	
1-FEB-2008 02:46	BKG	0.8500	
2-FEB-2008 00:10	BKG	0.7600	
2-FEB-2008 13:27	BKG	0.7700	
3-FEB-2008 18:42	BKG	0.8500	
5-FEB-2008 02:41	BKG	0.7300	
6-FEB-2008 01:44	BKG	0.7700	
7-FEB-2008 03:54	BKG	0.8800	
8-FEB-2008 01:55	BKG	0.7600	
8-FEB-2008 23:21	BKG	0.8400	
9-FEB-2008 13:59	BKG	0.9000	
10-FEB-2008 19:27	BKG	0.7900	
12-FEB-2008 02:16	BKG	0.7300	
13-FEB-2008 02:08	BKG	0.9300	In
14-FEB-2008 02:31	BKG	0.7600	
14-FEB-2008 23:17	BKG	0.7900	
16-FEB-2008 01:31	BKG	0.8500	
16-FEB-2008 15:12	BKG	0.7800	
17-FEB-2008 14:28	BKG	0.7500	
19-FEB-2008 02:09	BKG	0.7900	
19-FEB-2008 23:27	BKG	0.8100	
21-FEB-2008 03:20	BKG	0.9500	In

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
22-FEB-2008 03:23	BKG		0.8700	
22-FEB-2008 23:18	BKG		0.7700	
23-FEB-2008 18:45	BKG		0.7600	
24-FEB-2008 19:17	BKG		0.8200	
26-FEB-2008 04:10	BKG		0.7400	
27-FEB-2008 01:51	BKG		0.7900	
28-FEB-2008 03:05	BKG		0.8500	
29-FEB-2008 03:59	BKG		0.8000	
29-FEB-2008 23:16	BKG		0.7800	
1-MAR-2008 12:16	BKG		0.7100	
2-MAR-2008 13:58	BKG		0.7400	
4-MAR-2008 00:24	BKG		0.6900	
4-MAR-2008 00:24	BKG		0.7200	
5-MAR-2008 03:56	BKG		0.7900	

6-MAR-2008 00:47	BKG	0.8900	
6-MAR-2008 00:47	BKG	0.8300	
7-MAR-2008 02:47	BKG	0.8800	
7-MAR-2008 23:29	BKG	0.8200	
8-MAR-2008 17:08	BKG	0.8400	
9-MAR-2008 16:42	BKG	0.7800	
11-MAR-2008 02:57	BKG	0.7900	
12-MAR-2008 03:00	BKG	0.8200	
13-MAR-2008 02:13	BKG	0.7400	
14-MAR-2008 05:20	BKG	0.9100	In
14-MAR-2008 23:36	BKG	0.8700	
15-MAR-2008 23:29	BKG	0.8200	
16-MAR-2008 16:08	BKG	0.7500	
18-MAR-2008 03:37	BKG	0.8600	
19-MAR-2008 02:22	BKG	0.7900	
20-MAR-2008 01:34	BKG	0.8200	
21-MAR-2008 04:16	BKG	0.9300	In
21-MAR-2008 23:22	BKG	0.8300	
23-MAR-2008 20:02	BKG	0.8400	

-- Multi-Test Full Report --

Description : quad 6b 1.5" 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 0.762541 Std Deviation : 0.051803

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 02:21	BKG		0.7600	
12-JAN-2008 03:05	BKG		0.8100	
12-JAN-2008 20:45	BKG		0.7600	
13-JAN-2008 21:48	BKG		0.8000	
15-JAN-2008 04:09	BKG		0.7100	
16-JAN-2008 02:26	BKG		0.7800	
17-JAN-2008 02:55	BKG		0.7800	
18-JAN-2008 02:08	BKG		0.7000	

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
19-JAN-2008 02:18	BKG		0.8200	
19-JAN-2008 15:44	BKG		0.8100	
20-JAN-2008 13:40	BKG		0.8300	
22-JAN-2008 02:15	BKG		0.7900	
23-JAN-2008 01:51	BKG		0.7600	
24-JAN-2008 02:11	BKG		0.8000	
25-JAN-2008 02:59	BKG		0.9800	Ac
25-JAN-2008 23:31	BKG		0.7900	
27-JAN-2008 19:17	BKG		0.7700	
29-JAN-2008 01:37	BKG		0.7200	
30-JAN-2008 01:56	BKG		0.8500	
31-JAN-2008 02:16	BKG		0.8400	
1-FEB-2008 02:46	BKG		0.8800	In
2-FEB-2008 00:10	BKG		0.7900	
2-FEB-2008 13:27	BKG		0.8200	
3-FEB-2008 18:42	BKG		0.8600	
5-FEB-2008 02:41	BKG		0.8000	
6-FEB-2008 01:44	BKG		0.8200	
7-FEB-2008 03:54	BKG		0.8600	
8-FEB-2008 01:55	BKG		0.8000	
8-FEB-2008 23:21	BKG		0.8400	
9-FEB-2008 13:59	BKG		0.8100	
10-FEB-2008 19:27	BKG		0.8200	
12-FEB-2008 02:16	BKG		0.9300	Ac
13-FEB-2008 02:08	BKG		0.7900	
14-FEB-2008 02:31	BKG		0.8900	In
14-FEB-2008 23:17	BKG		0.8700	In
16-FEB-2008 01:31	BKG		0.8600	
16-FEB-2008 15:12	BKG		0.7500	
17-FEB-2008 14:28	BKG		0.8500	
19-FEB-2008 02:09	BKG		0.8600	
19-FEB-2008 23:27	BKG		0.7800	
21-FEB-2008 03:20	BKG		0.8800	In
22-FEB-2008 03:23	BKG		0.9000	In
22-FEB-2008 23:18	BKG		0.9300	Ac
23-FEB-2008 18:45	BKG		0.8200	
24-FEB-2008 19:17	BKG		0.9800	Ac
26-FEB-2008 04:10	BKG		0.9200	Ac
27-FEB-2008 01:51	BKG		0.9100	In
28-FEB-2008 03:05	BKG		1.0300	Ac
29-FEB-2008 03:59	BKG		0.9300	Ac

29-FEB-2008 23:16	BKG	0.8400	
1-MAR-2008 12:16	BKG	0.9000	In
2-MAR-2008 13:58	BKG	0.8600	
4-MAR-2008 00:24	BKG	0.9800	Ac
4-MAR-2008 00:24	BKG	0.9600	Ac
5-MAR-2008 03:56	BKG	0.9300	Ac
6-MAR-2008 00:47	BKG	0.9900	Ac
6-MAR-2008 00:47	BKG	0.9200	Ac
7-MAR-2008 02:47	BKG	0.8500	
7-MAR-2008 23:29	BKG	1.0100	Ac
8-MAR-2008 17:08	BKG	0.8400	
9-MAR-2008 16:42	BKG	0.8800	In
11-MAR-2008 02:57	BKG	0.9500	Ac
12-MAR-2008 03:00	BKG	1.0000	Ac

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
13-MAR-2008 02:13	BKG		0.9500	Ac
14-MAR-2008 05:20	BKG		1.0800	Ac
14-MAR-2008 23:36	BKG		1.0900	Ac
15-MAR-2008 23:29	BKG		0.9100	In
16-MAR-2008 16:08	BKG		0.9800	Ac
18-MAR-2008 03:37	BKG		0.9800	Ac
19-MAR-2008 02:22	BKG		1.0400	Ac
20-MAR-2008 01:34	BKG		1.0100	Ac
21-MAR-2008 04:16	BKG		1.1000	Ac
21-MAR-2008 23:22	BKG		0.9700	Ac
23-MAR-2008 20:02	BKG		1.1000	Ac

-- Multi-Test Full Report --

Description : quad 6c 1.5" 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 0.657514 Std Deviation : 0.045411

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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11-JAN-2008 02:21	BKG	0.7000	
12-JAN-2008 03:05	BKG	0.6400	
12-JAN-2008 20:45	BKG	0.6200	
13-JAN-2008 21:48	BKG	0.6500	
15-JAN-2008 04:09	BKG	0.6500	
16-JAN-2008 02:26	BKG	0.7300	
17-JAN-2008 02:55	BKG	0.6100	
18-JAN-2008 02:08	BKG	0.5900	
19-JAN-2008 02:18	BKG	0.6700	
19-JAN-2008 15:44	BKG	0.6200	
20-JAN-2008 13:40	BKG	0.6900	
22-JAN-2008 02:15	BKG	0.6400	
23-JAN-2008 01:51	BKG	0.6600	
24-JAN-2008 02:11	BKG	0.6900	
25-JAN-2008 02:59	BKG	0.6600	
25-JAN-2008 23:31	BKG	0.6700	
27-JAN-2008 19:17	BKG	0.6700	
29-JAN-2008 01:37	BKG	0.6300	
30-JAN-2008 01:56	BKG	0.6200	
31-JAN-2008 02:16	BKG	0.7100	
1-FEB-2008 02:46	BKG	0.6400	
2-FEB-2008 00:10	BKG	0.6100	
2-FEB-2008 13:27	BKG	0.7100	
3-FEB-2008 18:42	BKG	0.6500	
5-FEB-2008 02:41	BKG	0.6500	
6-FEB-2008 01:44	BKG	0.5500	In
7-FEB-2008 03:54	BKG	0.7200	
8-FEB-2008 01:55	BKG	0.5900	
8-FEB-2008 23:21	BKG	0.5800	
9-FEB-2008 13:59	BKG	0.6100	

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
10-FEB-2008 19:27	BKG		0.5900	
12-FEB-2008 02:16	BKG		0.6100	
13-FEB-2008 02:08	BKG		0.6500	
14-FEB-2008 02:31	BKG		0.7200	
14-FEB-2008 23:17	BKG		0.6000	
16-FEB-2008 01:31	BKG		0.6700	
16-FEB-2008 15:12	BKG		0.6400	
17-FEB-2008 14:28	BKG		0.6300	
19-FEB-2008 02:09	BKG		0.7100	

19-FEB-2008 23:27 BKG	0.7300	
21-FEB-2008 03:20 BKG	0.7000	
22-FEB-2008 03:23 BKG	0.7600	In
22-FEB-2008 23:18 BKG	0.6100	
23-FEB-2008 18:45 BKG	0.5800	
24-FEB-2008 19:17 BKG	0.6800	
26-FEB-2008 04:10 BKG	0.6200	
27-FEB-2008 01:51 BKG	0.6500	
28-FEB-2008 03:05 BKG	0.6600	
29-FEB-2008 03:59 BKG	0.7100	
29-FEB-2008 23:16 BKG	0.6100	
1-MAR-2008 12:16 BKG	0.6200	
2-MAR-2008 13:58 BKG	0.6400	
4-MAR-2008 00:24 BKG	0.7400	
4-MAR-2008 00:24 BKG	0.7200	
5-MAR-2008 03:56 BKG	0.6400	
6-MAR-2008 00:47 BKG	0.6100	
6-MAR-2008 00:47 BKG	0.6900	
7-MAR-2008 02:47 BKG	0.7800	In
7-MAR-2008 23:29 BKG	0.6800	
8-MAR-2008 17:08 BKG	0.6500	
9-MAR-2008 16:42 BKG	0.6100	
11-MAR-2008 02:57 BKG	0.6400	
12-MAR-2008 03:00 BKG	0.6100	
13-MAR-2008 02:13 BKG	0.7400	
14-MAR-2008 05:20 BKG	0.6600	
14-MAR-2008 23:36 BKG	0.6200	
15-MAR-2008 23:29 BKG	0.6100	
16-MAR-2008 16:08 BKG	0.6300	
18-MAR-2008 03:37 BKG	0.6500	
19-MAR-2008 02:22 BKG	0.6200	
20-MAR-2008 01:34 BKG	0.7200	
21-MAR-2008 04:16 BKG	0.6800	
21-MAR-2008 23:22 BKG	0.5900	
23-MAR-2008 20:02 BKG	0.6400	

-- Multi-Test Full Report --

Description : quad 6d 1.5" 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 0.732431 Std Deviation : 0.050174

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

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

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

 11-JAN-2008 02:21 BKG 0.7600 | | |
 12-JAN-2008 03:05 BKG 0.7800 | | |
 12-JAN-2008 20:45 BKG 0.7800 | | |
 13-JAN-2008 21:48 BKG 0.7500 | | |
 15-JAN-2008 04:09 BKG 0.8100 | | |
 16-JAN-2008 02:26 BKG 0.6800 | | |
 17-JAN-2008 02:55 BKG 0.7700 | | |
 18-JAN-2008 02:08 BKG 0.8000 | | |
 19-JAN-2008 02:18 BKG 0.8000 | | |
 19-JAN-2008 15:44 BKG 0.7600 | | |
 20-JAN-2008 13:40 BKG 0.7700 | | |
 22-JAN-2008 02:15 BKG 0.7700 | | |
 23-JAN-2008 01:51 BKG 0.7300 | | |
 24-JAN-2008 02:11 BKG 0.8800 |In| |
 25-JAN-2008 02:59 BKG 0.7800 | | |
 25-JAN-2008 23:31 BKG 0.8200 | | |
 27-JAN-2008 19:17 BKG 0.9100 |Ac| |
 29-JAN-2008 01:37 BKG 0.7700 | | |
 30-JAN-2008 01:56 BKG 0.8500 |In| |
 31-JAN-2008 02:16 BKG 0.8200 | | |
 1-FEB-2008 02:46 BKG 0.7800 | | |
 2-FEB-2008 00:10 BKG 0.7300 | | |
 2-FEB-2008 13:27 BKG 0.8400 |In| |
 3-FEB-2008 18:42 BKG 0.8000 | | |
 5-FEB-2008 02:41 BKG 0.7700 | | |
 6-FEB-2008 01:44 BKG 0.7500 | | |
 7-FEB-2008 03:54 BKG 0.8000 | | |
 8-FEB-2008 01:55 BKG 0.8300 | | |
 8-FEB-2008 23:21 BKG 0.7600 | | |
 9-FEB-2008 13:59 BKG 0.7500 | | |
 10-FEB-2008 19:27 BKG 0.7300 | | |
 12-FEB-2008 02:16 BKG 0.6900 | | |
 13-FEB-2008 02:08 BKG 0.7800 | | |

14-FEB-2008 02:31	BKG	0.7400	
14-FEB-2008 23:17	BKG	0.7500	
16-FEB-2008 01:31	BKG	0.7700	
16-FEB-2008 15:12	BKG	0.7800	
17-FEB-2008 14:28	BKG	0.8100	
19-FEB-2008 02:09	BKG	0.7100	
19-FEB-2008 23:27	BKG	0.7500	
21-FEB-2008 03:20	BKG	0.8300	
22-FEB-2008 03:23	BKG	0.7900	
22-FEB-2008 23:18	BKG	0.7700	
23-FEB-2008 18:45	BKG	0.6900	
24-FEB-2008 19:17	BKG	0.7900	
26-FEB-2008 04:10	BKG	0.7300	
27-FEB-2008 01:51	BKG	0.6600	
28-FEB-2008 03:05	BKG	0.8500	In
29-FEB-2008 03:59	BKG	0.7100	
29-FEB-2008 23:16	BKG	0.8200	
1-MAR-2008 12:16	BKG	0.7900	
2-MAR-2008 13:58	BKG	0.7100	
4-MAR-2008 00:24	BKG	0.7900	
4-MAR-2008 00:24	BKG	0.7600	
5-MAR-2008 03:56	BKG	0.7500	

Quality Assurance Multi-Test Full Report (continued)

Page : 7

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
6-MAR-2008 00:47	BKG	0.8400	In	
6-MAR-2008 00:47	BKG	0.8500	In	
7-MAR-2008 02:47	BKG	0.7500		
7-MAR-2008 23:29	BKG	0.7600		
8-MAR-2008 17:08	BKG	0.8600	In	
9-MAR-2008 16:42	BKG	0.7600		
11-MAR-2008 02:57	BKG	0.7700		
12-MAR-2008 03:00	BKG	0.8300		
13-MAR-2008 02:13	BKG	0.8300		
14-MAR-2008 05:20	BKG	0.7700		
14-MAR-2008 23:36	BKG	0.8900	Ac	
15-MAR-2008 23:29	BKG	0.7600		
16-MAR-2008 16:08	BKG	0.7400		
18-MAR-2008 03:37	BKG	0.7300		
19-MAR-2008 02:22	BKG	0.9000	Ac	
20-MAR-2008 01:34	BKG	0.7700		
21-MAR-2008 04:16	BKG	0.7700		

21-MAR-2008 23:22 BKG
23-MAR-2008 20:02 BKG

0.7700 | | |
0.7800 | | |

RADIUM 226
SAMPLE AND QC DATA

Lot No., Due Date: F8A290183; 02/28/2008
Client, Site: 1418995; LANDWELL - Tronox Parcel H
QC Batch No., Method Test: 8042383; RRA2267 Ra-226 by ASC-7
SDG, Matrix: ;

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

First Level Review Thomas D MEJ **Date** 3/12/08

Data Review Checklist
RADIOCHEMISTRY
 Second Level Review

Batch Number: 804 2383

Review Item	Yes (✓)	No (✓)	NA (✓)
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 within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other			
1. Are all Non-conformances 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: Erike Jord Date: 3/12/18

2/27/2008 1:54:15 PM

1418995, Landwell Company
Landwell Company

AnalyteDueDate: 02/25/2008

Batch: 8042383
SEQ Batch, Test: 8042385, D9TF

Sample Preparation/Analysis

D9 Ra-226/228 PrpRC5013/5032, SepRC5005
TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow
01 STANDARD TEST SET

Balance Id:1120373922

Pipet #:

Sep1 DT/Tm Tech: 3/3/08 15:28 DL

Sep2 DT/Tm Tech:

PM, Quote: JAE, 78254

pCi/g

Prep Tech: ,Barcotl

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Int/Date	Comments:
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1 KF8NX-1-AE 1.01g.in RATA30248 02/07/08 #Containers: 1
 F8A290183-1-SAMP 7.4902 = 1.0000
 8.597
 3-4-08 15:17 SB
 3-10-08 10:36 SB
 Alpha: (031)
 185N 3/3/08DL
 Scr: G4 Beta:

01/28/2008 07:00 AmtRec: 500SL RATA30249 02/07/08 #Containers: 1
 2 KF8N4-1-AE 1.00g.in 7.4953 = 1.0164
 7.374
 3-4-08 15:17 SB
 3-10-08 10:28 SB
 Alpha: (053)
 185N 3/3/08DL
 Scr: G4 Beta:

01/28/2008 07:15 AmtRec: 500SL RATA30250 02/07/08 #Containers: 1
 3 KF8N5-1-AE 1.01g.in 7.4902 = 1.0000
 7.635
 3-4-08 15:17 SB
 3-10-08 10:36 SB
 Alpha: (066)
 185N 3/3/08DL
 Scr: G4 Beta:

01/28/2008 07:55 AmtRec: 500SL RATA30251 02/07/08 #Containers: 1
 4 KF8N6-1-AE 1.03g.in 7.4798 = 1.0000
 7.779
 3-4-08 15:17 SB
 3-10-08 10:36 SB
 Alpha: (007)
 185N 3/3/08DL
 Scr: G4 Beta:

01/28/2008 07:55 AmtRec: 500SL #Containers: 1

2/27/2008 1:54:16 PM

1418995, Landwell Company
Landwell Company

Analyte Due Date: 02/25/2008

Batch: 8042383
SEQ Batch, Test: 8042385, D9TF

Sample Preparation/Analysis

D9 Ra-226/228 PprRC5013/5032, SepRC5005
TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow
01 STANDARD TEST SET

Balance Id: 1120373922

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

PM, Quote: JAE, 78254

pCi/g

Prep Tech: ,Barcott

Work Order, Lot, Sample Date Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
5 KF8N8-1-AE F8A290183-5-SAMP	1.00g.in	RATA30252 02/07/08				7.4850 6.904	610	1858	3/3/0808	3-4-08 15:17 SB
6 KF8N9-1-AE F8A290183-6-SAMP	1.01g.in	RATA30253 02/07/08				7.4591 6.620	613	1854	3/3/0808	ESC (069) Alpha 3-4-08 15:17 SB
7 KF8PD-1-AE F8A290183-7-SAMP	1.01g.in	RATA30254 02/07/08				7.4643 7.653	65	1859	3/3/0808	FSA (157) Alpha 3-4-08 15:17 SB
8 KF8PE-1-AE F8A290183-8-SAMP	1.00g.in	RATA30255 02/07/08				7.4591 7.60	61	1859	3/3/0808	GAB (042) Alpha 3-4-08 15:17 SB
										H5B (124) Alpha 3-4-08 15:17 SB

2/27/2008 1:54:16 PM **Sample Preparation/Analysis** Balance Id: 1120373922 **H**
 1418995, Landwell Company Pipet #: _____
 Landwell Company D9 Ra-226/228 PprRC5013/5032, SepRC5005
 TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow
Analyte Due Date: 02/25/2008 01 STANDARD TEST SET Sep1 DT/Tm Tech: _____
 Sep2 DT/Tm Tech: _____

Batch: 8042383 pCi/g PM, Quote: JAE, 78254
 SEQ Batch, Test: 8042385, D9TF 8042385, D9TF

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
9 KF8PG-1-AH	1.02g.in	RATA30256	02/07/08				678	2021	3/3/0800	
F8A290183-9-SAMP				7.4953 ✓	1.0000					3-4-08 15:44 SB
				8.304						JUA (122) Alpha 3-10-08 11:09 SB
01/28/2008 09:15		AmtRec: 2X500SL	#Containers: 2							Beta:
10 KF8PG-1-AK-X	1.02g.in	RATA30257	02/07/08				674	2021	3/3/0800	
F8A290183-9-DUP				7.4850 ✓	1.0000					3-4-08 15:44 SB
				7.844						KME (106) Alpha 3-10-08 11:01 SB
01/28/2008 09:15		AmtRec: 2X500SL	#Containers: 2							Beta:
11 KGXJG-1-AA-B	1.01g.in	RATA30258	02/07/08				65	2022	3/3/0800	
J8B110000-383-BLK				7.5005 ✓	1.0247					3-4-08 15:44 SB
				7.320						LMD (062) Alpha 3-10-08 11:10 SB
01/28/2008 07:00		AmtRec:	#Containers: 1							Beta:
12 KGXJG-1-AC-C	1.00g.in	RASC4701	01/21/08				911	2022	3/3/0800	
J8B110000-383-LCS				7.5127 ✓	1.0000					3-4-08 15:44 SB
				7.64						PMA (924) Alpha 3-10-08 11:11 SB
01/28/2008 07:00		AmtRec:	#Containers: 1							Beta:

Sample Preparation/Analysis

Balance Id:1120373922

D9 Ra-226/228 PrpRC5013/5032, SepRC5005

TE Ba-133 by Nai & Ra-226 by Alpha Scint 7 day ingrow

AnalyseDueDate: 02/25/2008

Sep1 DT/Tm Tech:

pCi/g

Batch: 8042383
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: ,Barcotl



Work Order, Lot, Sample Date Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
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Comments:

All Clients for Batch:

1418995, Landwell Company

Landwell Company

JAE, 78254

KF8NX1AE-SAMP Constituent List:

KGXJG1AA-BLK: Ba-133	RDL:	pCi/g	LCL:20	RPD:35	Ra-226	RDL:1	pCi/g	LCL:	UCL:	RPD:
KGXJG1AC-LCS: Ba-133	RDL:	pCi/g	LCL:20	RPD:35	Ra-226	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35

KF8NX1AE-SAMP Calc Info:

Uncert Level (#s): 4	Decay to SaDt: N	Blk Subt.: N	Sci.Not.: N	ODRs: B
KGXJG1AA-BLK:	Decay to SaDt: N	Blk Subt.: N	Sci.Not.: N	ODRs: B
KGXJG1AC-LCS:	Decay to SaDt: N	Blk Subt.: N	Sci.Not.: N	ODRs: B

Approved By

Date:

ICOC Fraction Transfer/Status Report

ByDate: 3/13/2007, 3/17/2008, Batch: '8042383', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
8042383				
AC		Rev1C	Barcotl 2/27/2008 1:56:16 PM	
SC		wagarr	IsBatched 2/12/2008 7:52:00 AM	ICOC_RADCALC v4.8.32
SC		Barcotl	InPrep 2/27/2008 1:56:16 PM	RICH-RC-5032 REVISION 3
SC		Barcotl	Prep1C 2/27/2008 1:56:34 PM	RICH-RC-5032 REVISION 3
SC		LucasD	Sep1C 3/3/2008 3:38:50 PM	RICH-RC-5005 REVISION 6
SC		DAWKINSO	InCnt1 3/3/2008 5:35:55 PM	RICH-RD-0007 REVISION 6
SC		DAWKINSO	Cnt1C 3/3/2008 10:10:41 PM	RICH-RD-0007 REVISION 6
SC		BairdS	InSep2 3/4/2008 3:45:52 PM	RICH-RC-5005 REVISION 6
SC		BairdS	CalcC 3/10/2008 4:31:31 PM	RICH-RC-5005 REVISION 6
SC		mcginnist	Rev1C 3/12/2008 3:09:17 PM	RICH-RC-0002 REV 8
AC		Barcotl	2/27/2008 1:56:34 PM	
AC		LucasD	3/3/2008 3:38:50 PM	
AC		DAWKINSO	3/3/2008 5:35:55 PM	
AC		DAWKINSO	3/3/2008 10:10:41 PM	
AC		BairdS	3/4/2008 3:45:52 PM	
AC		BairdS	3/10/2008 4:31:31 PM	
AC		mcginnist	3/12/2008 3:09:17 PM	

AC: Accepting Entry; SC: Status Change

TAL Richland

Richland Wa.

Rpt DB Transfer log (Batch Results)

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 Units	Expected	Yield	Volumes
8035233	9KF8N410		F8A2901832	TSB-HJ-10-10'	SOLID	1/29/2008 9:20:00	1/28/2008 7:15:00 AM			
RA-226	D9TE	0	3/10/2008 2:28:00 PM	2.3694E+00	1.297E-01	2.774E-01	1.137E-01	pCi/g	0.984	1.0E+0
U-234	KWSR	0	2/25/2008 12:06:41	PM3.0559E+00	1.428E-01	2.935E-01	3.196E-02	PCI/G	0.938	1.0E+0
U-235	KWSR	0	2/25/2008 12:06:41	PM7.206E-02	2.217E-02	2.298E-02	3.196E-02	PCI/G	0.938	1.0E+0
U-238	KWSR	0	2/25/2008 12:06:41	PM2.4888E+00	1.289E-01	2.454E-01	3.196E-02	PCI/G	0.938	1.0E+0
8035233	9KF8N510		F8A2901833	TSB-HR-06-0'	SOLID	1/29/2008 9:20:00	1/28/2008 7:55:00 AM			
RA-226	D9TE	0	3/10/2008 2:36:00 PM	7.1134E-01	7.365E-02	1.052E-01	1.405E-01	pCi/g	1.0	1.01E+0
U-234	KWSR	0	2/25/2008 12:06:47	PM1.3532E+00	9.077E-02	1.446E-01	4.165E-02	PCI/G	0.978	1.01E+0
U-235	KWSR	0	2/25/2008 12:06:47	PM2.9101E-02	1.361E-02	1.382E-02	2.904E-02	PCI/G	0.978	1.01E+0
U-238	KWSR	0	2/25/2008 12:06:47	PM1.2319E+00	8.663E-02	1.341E-01	4.165E-02	PCI/G	0.978	1.01E+0
8035233	9KF8N610		F8A2901834	TSB-HR-06-0' FD	SOLID	1/29/2008 9:20:00	1/28/2008 7:55:00 AM			
RA-226	D9TE	0	3/10/2008 2:36:00 PM	6.9822E-01	7.341E-02	1.029E-01	1.198E-01	pCi/g	1.0	1.03E+0
U-234	KWSR	0	2/25/2008 12:06:49	PM1.2898E+00	8.969E-02	1.399E-01	4.564E-02	PCI/G	0.947	1.02E+0
U-235	KWSR	0	2/25/2008 12:06:49	PM1.1162E-02	8.856E-03	8.905E-03	2.97E-02	PCI/G	0.947	1.02E+0
U-238	KWSR	0	2/25/2008 12:06:49	PM1.1521E+00	8.458E-02	1.279E-01	2.97E-02	PCI/G	0.947	1.02E+0
8035233	9KF8N810		F8A2901835	TSB-HR-06-10'	SOLID	1/29/2008 9:20:00	1/28/2008 8:11:00 AM			
RA-226	D9TE	0	3/10/2008 2:40:00 PM	2.098E+00	1.402E-01	2.606E-01	1.516E-01	pCi/g	0.922	1.0E+0
U-234	KWSR	0	2/25/2008 12:06:58	PM2.8653E+00	1.306E-01	2.715E-01	3.749E-02	PCI/G	0.891	1.03E+0
U-235	KWSR	0	2/25/2008 12:06:58	PM5.8209E-02	1.882E-02	1.943E-02	2.845E-02	PCI/G	0.891	1.03E+0
U-238	KWSR	0	2/25/2008 12:06:58	PM2.4935E+00	1.219E-01	2.404E-01	4.636E-02	PCI/G	0.891	1.03E+0
8035233	9KF8N910		F8A2901836	TSB-HJ-08-0'	SOLID	1/29/2008 9:20:00	1/28/2008 8:30:00 AM			
RA-226	D9TE	0	3/10/2008 2:46:01 PM	1.4379E+00	1.335E-01	1.937E-01	1.789E-01	pCi/g	0.887	1.01E+0
U-234	KWSR	0	2/25/2008 12:07:00	PM1.2032E+00	8.552E-02	1.316E-01	2.91E-02	PCI/G	0.968	1.0E+0
U-235	KWSR	0	2/25/2008 12:07:00	PM4.74E-02	1.723E-02	1.768E-02	2.91E-02	PCI/G	0.968	1.0E+0
U-238	KWSR	0	2/25/2008 12:07:00	PM9.7108E-01	7.688E-02	1.115E-01	2.91E-02	PCI/G	0.968	1.0E+0
8035233	9KF8NX10		F8A2901831	TSB-HJ-10-0'	SOLID	1/29/2008 9:20:00	1/28/2008 7:00:00 AM			
RA-226	D9TE	0	3/10/2008 2:35:00 PM	1.2236E+00	8.769E-02	1.471E-01	1.112E-01	pCi/g	1.0	1.01E+0
U-234	KWSR	0	2/25/2008 12:06:34	PM1.2855E+00	9.227E-02	1.419E-01	3.733E-02	PCI/G	0.877	1.02E+0
U-235	KWSR	0	2/25/2008 12:06:34	PM5.2848E-02	1.873E-02	1.925E-02	3.164E-02	PCI/G	0.877	1.02E+0
U-238	KWSR	0	2/25/2008 12:06:34	PM1.1283E+00	8.64E-02	1.281E-01	3.164E-02	PCI/G	0.877	1.02E+0
8035233	9KF8PD10		F8A2901837	TSB-HJ-08-10'	SOLID	1/29/2008 9:20:00	1/28/2008 8:40:00 AM			
RA-226	D9TE	0	3/10/2008 2:42:00 PM	1.8001E+00	1.057E-01	2.062E-01	9.882E-02	pCi/g	1.0	1.01E+0
U-234	KWSR	0	2/25/2008 12:07:11	PM2.9267E+00	1.317E-01	2.766E-01	2.839E-02	PCI/G	0.988	1.03E+0
U-235	KWSR	0	2/25/2008 12:07:11	PM9.3645E-02	2.374E-02	2.498E-02	2.839E-02	PCI/G	0.988	1.03E+0
U-238	KWSR	0	2/25/2008 12:07:11	PM2.3577E+00	1.182E-01	2.288E-01	2.839E-02	PCI/G	0.988	1.03E+0
8035233	9KF8PE10		F8A2901838	TSB-HR-05-0'	SOLID	1/29/2008 9:20:00	1/28/2008 9:00:00 AM			
RA-226	D9TE	0	3/10/2008 2:38:00 PM	1.538E+00	1.091E-01	1.958E-01	1.31E-01	pCi/g	1.0	1.0E+0
U-234	KWSR	0	2/25/2008 12:07:18	PM1.2114E+00	8.654E-02	1.329E-01	2.96E-02	PCI/G	0.929	1.01E+0
U-235	KWSR	0	2/25/2008 12:07:18	PM4.9444E-02	1.752E-02	1.8E-02	2.96E-02	PCI/G	0.929	1.01E+0
U-238	KWSR	0	2/25/2008 12:07:18	PM1.2299E+00	8.72E-02	1.345E-01	2.96E-02	PCI/G	0.929	1.01E+0
8035233	9KF8PG10		F8A2901839	TSB-HR-05-10'	SOLID	1/29/2008 9:20:00	1/28/2008 9:15:00 AM			
RA-226	D9TE	0	3/10/2008 3:09:00 PM	1.4824E+00	9.363E-02	1.703E-01	9.921E-02	pCi/g	1.0	1.02E+0
U-234	KWSR	0	2/25/2008 12:07:29	PM2.0549E+00	1.175E-01	2.09E-01	3.216E-02	PCI/G	0.861	1.03E+0
U-235	KWSR	0	2/25/2008 12:07:29	PM8.7299E-02	2.425E-02	2.534E-02	3.216E-02	PCI/G	0.861	1.03E+0
U-238	KWSR	0	2/25/2008 12:07:29	PM1.7124E+00	1.072E-01	1.796E-01	3.216E-02	PCI/G	0.861	1.03E+0
8035233	KF8PG1KR		F8A2901839	TSB-HR-05-10' DUP	SOIL	1/29/2008 9:20:00	1/28/2008 9:15:00 AM			
RA-226	D9TE	0 R	3/10/2008 3:01:00 PM	1.7334E+00	1.029E-01	2.008E-01	9.706E-02	pCi/g	1.0	1.02E+0
8035233	KGXJG1AB		J8B110000383	INTRA-LAB BLANK	SOIL	1/29/2008 9:20:00	1/28/2008 7:00:00 AM			
RA-226	D9TE	0 B	3/10/2008 3:10:00 PM	4.811E-02	3.049E-02	3.087E-02	1.031E-01	pCi/g	0.976	1.01E+0
8035233	KGXJG1CS		J8B110000383	INTRA-LAB CHECK	SOIL	1/29/2008 9:20:00	1/28/2008 7:00:00 AM			
RA-226	D9TE	0 S	3/10/2008 3:11:00 PM	1.3615E+00	9.152E-02	1.703E-01	9.32E-02	pCi/g	1.3557E+00 1.0	1.0E+0

8042383, **Samples Inserted | Updated | NotUpdated => 3 | 0 | 9,
 **Results Inserted | ReTestInserted | Updated | NotInserted => 12 | 0 | 0 | 0.
 **Diff RptDb | Qtimes => .

Alpha Beta, Ra-226 by ASC-7 , Results Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC	Trc Yld	LCS Yld	
Ra-226 by ASC-7			Richland Standard Ra-226/Ra-228 Deem Wo Blk Subt. *CntU: 0+1, + *SystU, `MDCConst:2.71												
Calc	TE	SOIL	KF8NX1AE	RA-226	1.22E+00	(1.47E-01)		pCi/g	R	4.80E-02	1.11E-01	✓	100%		
Calc	TE	SOIL	KF8N41AE	RA-226	2.37E+00	(2.77E-01)		pCi/g	R	4.77E-02	1.14E-01	✓	98%		
Calc	TE	SOIL	KF8N51AE	RA-226	7.11E-01	(1.05E-01)		pCi/g	R	6.25E-02	1.40E-01	✓	100%		
Calc	TE	SOIL	KF8N61AE	RA-226	6.98E-01	(1.03E-01)		pCi/g	R	5.12E-02	1.20E-01	✓	100%		
Calc	TE	SOIL	KF8N81AE	RA-226	2.10E+00	(2.61E-01)		pCi/g	R	6.40E-02	1.52E-01	✓	92%		
Calc	TE	SOIL	KF8N91AE	RA-226	1.44E+00	(1.94E-01)		pCi/g	R	7.45E-02	1.79E-01	✓	89%		
Calc	TE	SOIL	KF8PD1AE	RA-226	1.80E+00	(2.06E-01)		pCi/g	R	4.15E-02	9.88E-02	✓	100%		
Calc	TE	SOIL	KF8PE1AE	RA-226	1.54E+00	(1.96E-01)		pCi/g	R	5.60E-02	1.31E-01	✓	100%		
Calc	TE	SOIL	KF8PG1AH	RA-226	1.48E+00	(1.70E-01)		pCi/g	R	4.22E-02	9.92E-02	✓	100%	REK=	
Calc	TE	SOIL	KF8PG1AK	RA-226	1.73E+00	(2.01E-01)		pCi/g	R	4.07E-02	9.71E-02	✓	100%	0.95	
Calc	TE	SOIL	KGXJG1AA	RA-226	4.81E-02	(3.09E-02)	U4	pCi/g	R	4.33E-02	1.03E-01	✓	98%	B	
Calc	TE	SOIL	KGXJG1AC	RA-226	1.36E+00	(1.70E-01)		pCi/g	R	3.88E-02	9.32E-02	✓	100%	100%	

Tom DMEJ 3/12/08

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

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk	Ord	Units/Matrix	QC/BB	Sa/On	Date	AnalysisDate/PptWt	Sep1/Sep2	Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy	Vol	Final/Count	
1	Calc	TE	SOIL	*STLE	Ra226WoBS	KF8N1AE	✓	pCi/g	SOIL			01/28/08	07:00	03/10/08	14:35	03/04/08	15:17	✓	RATA30248	✓	1	g
														03/10/08	10:35					100%	✓	1.01 g
Sq	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn					
0	RA-226	230	16	ASC8HC	ASC	N	N	2.5053E+00	1.0000E+00	N	100%	N		1.5861E+00	4.5045E-01	1.0000E+00						
		50	60			Y		(2.656E-02)	(0.000E+00)		8%			(0.000E+00)	0.990099							
Sq	CalcDate,TrcAct	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC											
	03/10/08	R	1.223612		4.33333E+00	2.743468	2.743468	1.01 G	100%		0.111195											
			(0.14705)		(3.1056E-01)	(0.296097)	(0.296097)	(0.017321)			0.047974											
2	Calc	TE	SOIL	*STLE	Ra226WoBS	KF8N41AE	✓	pCi/g	SOIL			01/28/08	07:15	03/10/08	14:28	03/04/08	15:17	✓	RATA30249	✓	1	g
														03/10/08	10:28							
Sq	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn					
0	RA-226	359	11	ASCASB	ASC	N	N	2.1454E+00	1.0000E+00	N	98%	N		1.5869E+00	4.5045E-01	1.0000E+00						
		50	60			Y		(8.882E-02)	(0.000E+00)		8%			(0.000E+00)	1.00							
Sq	CalcDate,TrcAct	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC											
	03/10/08	R	2.36944		6.99667E+00	5.259936	5.259936	1.00 G	98%		0.11371											
			(0.277435)		(3.8296E-01)	(0.554413)	(0.554413)	(0.01)			0.047706											
3	Calc	TE	SOIL	*STLE	Ra226WoBS	KF8N51AE	✓	pCi/g	SOIL			01/28/08	07:55	03/10/08	14:36	03/04/08	15:17	✓	RATA30250	✓	1	g
														03/10/08	10:36							
Sq	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn					
0	RA-226	145	26	ASCBMA	ASC	N	N	2.4529E+00	1.0000E+00	N	100%	N		1.5860E+00	4.5045E-01	1.0000E+00						
		50	60			Y		(1.136E-01)	(0.000E+00)		8%			(0.000E+00)	0.990099							
Sq	CalcDate,TrcAct	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC											
	03/10/08	R	0.711337		2.46667E+00	1.594892	1.594892	1.01 G	100%		0.140467											
			(0.10518)		(2.5539E-01)	(0.221358)	(0.221358)	(0.0101)			0.062456											
4	Calc	TE	SOIL	*STLE	Ra226WoBS	KF8N61AE	✓	pCi/g	SOIL			01/28/08	07:55	03/10/08	14:36	03/04/08	15:17	✓	RATA30251	✓	1	g
														03/10/08	10:36							
Sq	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn					
0	RA-226	120	14	ASCCSB	ASC	N	N	2.1524E+00	1.0000E+00	N	100%	N		1.5860E+00	4.5045E-01	1.0000E+00						
		50	60			Y		(8.782E-02)	(0.000E+00)		8%			(0.000E+00)	0.970874							
Sq	CalcDate,TrcAct	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC											
	03/10/08	R	0.711337		2.46667E+00	1.594892	1.594892	1.01 G	100%		0.140467											
			(0.10518)		(2.5539E-01)	(0.221358)	(0.221358)	(0.0101)			0.062456											

Alpha Beta, Ra-226 by ASC-7, Calculated Results

3/10/2008 4:27:29 PM

Batch Nbr: 8042383

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlCc/MDC	StdDvMdc/LcC				
03/10/08	RA-226		R	0.698219		2.16667E+00	1.59648	1.59648	1.03 G	100%		0.119832						
				(0.102896)		(2.2779E-01)	(0.220741)	(0.220741)	(0.0103)			0.051213						
Protocol Equation Set Wk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol																		
5	Calc	TE	SOIL	*STLE	Ra226WoBS	KF8N81AE	pCi/g		03/10/08 14:40	03/04/08 15:17								
							SOIL											
1418995,TSB-HR-06-10																		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	BIK Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/10/08 14:40	RA-226	251	12	ASCESC	ASC	N	N	1.7791E+00	1.0000E+00	N	92%	N		1.5856E+00	4.5045E-01	1.0000E+00	
			50	60			Y		(7.882E-02)	(0.0000E+00)		7%			(0.0000E+00)	1.00		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlCc/MDC	StdDvMdc/LcC				
03/10/08	RA-226		R	2.097956		4.82000E+00	4.657266	4.657266	1.00 G	92%		0.151598						
				(0.260582)		(3.2208E-01)	(0.527476)	(0.527476)	(0.01)			0.064041						
Protocol Equation Set Wk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol																		
6	Calc	TE	SOIL	*STLE	Ra226WoBS	KF8N91AE	pCi/g		03/10/08 14:46	03/04/08 15:17								
							SOIL											
1418995,TSB-HJ-08-0																		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	BIK Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/10/08 14:46	RA-226	138	10	ASCFS	ASC	N	N	1.4366E+00	1.0000E+00	N	89%	N		1.5849E+00	4.5045E-01	1.0000E+00	
			50	60			Y		(3.319E-02)	(0.0000E+00)		7%			(0.0000E+00)	0.990099		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlCc/MDC	StdDvMdc/LcC				
03/10/08	RA-226		R	1.437861		2.59333E+00	3.223837	3.223837	1.01 G	89%		0.178902						
				(0.193735)		(2.4079E-01)	(0.402068)	(0.402068)	(0.0101)			0.07447						
Protocol Equation Set Wk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol																		
7	Calc	TE	SOIL	*STLE	Ra226WoBS	KF8P1AE	pCi/g		03/10/08 14:42	03/04/08 15:17								
							SOIL											
1418995,TSB-HJ-08-10																		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	BIK Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/10/08 14:42	RA-226	315	11	ASCGAB	ASC	N	N	2.4026E+00	1.0000E+00	N	100%	N		1.5854E+00	4.5045E-01	1.0000E+00	
			50	60			Y		(6.223E-02)	(0.0000E+00)		8%			(0.0000E+00)	0.990099		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlCc/MDC	StdDvMdc/LcC				
03/10/08	RA-226		R	1.800101		6.11667E+00	4.036016	4.036016	1.01 G	100%		0.098816						
				(0.20619)		(3.5924E-01)	(0.413967)	(0.413967)	(0.0101)			0.041457						
Protocol Equation Set Wk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol																		
8	Calc	TE	SOIL	*STLE	Ra226WoBS	KF8PE1AE	pCi/g		03/10/08 14:38	03/04/08 15:17								
							SOIL											
1418995,TSB-HR-05-0																		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	BIK Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/10/08 14:38	RA-226	251	12	ASCESC	ASC	N	N	1.7791E+00	1.0000E+00	N	92%	N		1.5856E+00	4.5045E-01	1.0000E+00	
			50	60			Y		(7.882E-02)	(0.0000E+00)		7%			(0.0000E+00)	1.00		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlCc/MDC	StdDvMdc/LcC				
03/10/08	RA-226		R	2.097956		4.82000E+00	4.657266	4.657266	1.00 G	92%		0.151598						
				(0.260582)		(3.2208E-01)	(0.527476)	(0.527476)	(0.01)			0.064041						

() - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - Method Decision Level in Conc Units, MDC - Minimum Detectable Concentration
 Sr-89 - Counts are Derived from the Combination of Each Sr-8990 and Y-90 Count, All Result Digits May Not be Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:8

RADCALC v4.8.29
 TA Richland

Batch Nbr: 8042383

Alpha Beta, Ra-226 by ASC-7 , Calculated Results

3/10/2008 4:27:29 PM

0	03/10/08 14:38	RA-226	230	✓	14	ASCHSB ASC	N	N	2.0281E+00	1.0000E+00	N	100%	N	1.5858E+00	4.5045E-01	1.0000E+00			
			50		60		Y		(9.471E-02)	(0.000E+00)		8%		(0.000E+00)	1.00				
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlCc/MDC	StdDvMdc/LcC					
	03/10/08	RA-226	R	1.538037		4.36667E+00	3.414298	3.414298	1.00 G	100%	0.130976								
				(0.195819)		(3.0966E-01)	(0.398315)	(0.398315)	(0.01)		0.055976								
Sq	Status Method Matrix	Protocol Equation Set	Wrk Ord	Units/Matrix	QC/BB Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol								
9	Calc TE SOIL	*STLE Ra226WoBS KF8PG1AH	✓	pCi/g	SOIL	01/28/08 09:15	03/10/08 15:09	RATA30256	✓	1	9								
	1418995,TSB+HR-05-10	F8A290183-9						RATA30256	Alq	100%	1.02 G	✓							
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn	
0	03/10/08 15:09	RA-226	280	✓	13	ASCJUA ASC	N	N	2.5427E+00	1.0000E+00	N	100%	N	1.5854E+00	4.5045E-01	1.0000E+00			
			50		60		Y		(3.636E-02)	(0.000E+00)		8%		(0.000E+00)	0.980392				
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlCc/MDC	StdDvMdc/LcC					
	03/10/08	RA-226	R	1.482364		5.38333E+00	3.356524	3.356524	1.02 G	100%	0.099213								
				(0.170271)		(3.4002E-01)	(0.345474)	(0.345474)	(0.0102)		0.042169								
Sq	Status Method Matrix	Protocol Equation Set	Wrk Ord	Units/Matrix	QC/BB Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol								
10	Calc TE SOIL	*STLE Ra226WoBS KF8PG1AK	✓	pCi/g	SOIL	01/28/08 09:15	03/10/08 15:01	RATA30257	✓	1	g								
	1418995,TSB+HR-05-10' DUP	F8A290183-9						RATA30257	Alq	100%	1.02 G	✓							
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn	
0	03/10/08 15:01	RA-226	309	✓	11	ASCKME ASC	N	N	2.4235E+00	1.0000E+00	N	100%	N	1.5862E+00	4.5045E-01	1.0000E+00			
			50		60		Y		(7.270E-02)	(0.000E+00)		8%		(0.000E+00)	0.980392				
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlCc/MDC	StdDvMdc/LcC					
	03/10/08	RA-226	R	1.733389		5.99667E+00	3.924921	3.924921	1.02 G	100%	0.097058								
				(0.20082)		(3.5589E-01)	(0.408307)	(0.408307)	(0.0102)		0.04072								
Sq	Status Method Matrix	Protocol Equation Set	Wrk Ord	Units/Matrix	QC/BB Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol								
11	Calc TE SOIL	*STLE Ra226WoBS KGXJG1AA	✓	pCi/g	SOIL	01/28/08 07:00	03/10/08 15:10	RATA30258	✓	1	g								
	0,INTRA-LAB BLANK	J8B110000-383						RATA30258	Alq	98%	1.01 G	✓							
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn	
0	03/10/08 15:10	RA-226	17	✓	11	ASCLMD ASC	N	N	2.3593E+00	1.0000E+00	N	98%	N	1.5852E+00	4.5045E-01	1.0000E+00			
			50		60		Y		(7.691E-02)	(0.000E+00)		8%		(0.000E+00)	0.990099				
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlCc/MDC	StdDvMdc/LcC					
	03/10/08	RA-226	R	0.04811		1.56667E-01	0.107868	0.107868	1.01 G	98%	0.103111								
				(0.030866)		(9.9275E-02)	(0.068985)	(0.068985)	(0.0101)		0.043259								

() (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 Significant, Date/Time - mmm/dd/yy hh:mm, 24hr Time

Page 3

RecCnt:12

RADCALC v4.8.29
TA Richland

Batch Nbr: 8042383

Alpha Beta, Ra-226 by ASC-7 , Calculated Results

3/10/2008 4:27:29 PM

Sq Status Method Matrix Wrk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PatWt Sep1/Sep2 Date QC/Tracer Vial Mult/EntYid Total/Analy Vol Final/Count Vol

12 Calc TE SOIL *STLE Ra226WoBS KGXJG1AC ✓ pci/g SOIL 01/28/08 07:00 03/10/08 15:11 03/04/08 15:44 ✓ RASC4701 ✓ 1 03/10/08 11:11 RASC4701 Alq 100% ✓ 1.00 G v

0 INTRA-LAB CHECK

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Bik Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/10/08 15:11	RA-226	244	10	ASCPMA	ASC	N	N	2.4720E+00	1.0000E+00	N	100%	N	1.5851E+00	1.5851E+00	4.5045E-01	1.0000E+00	
			50	✓			Y		(1.140E-01)	(0.000E+00)		8%		(0.000E+00)	1.00			

Sq	CalcDate,TrcAct	Parameter	Avg Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bik	Dpm-Bik	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BikLcC/MDC	StdDvMdc/LcC
03/10/08	RA-226	R	1.36148		4.71333E+00	3.022358	3.022358	1.00 G	100%	100%	0.093205		
			(0.170286)		(3.1682E-01)	(0.345179)	(0.345179)	(0.01)			0.038797		

0 - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KF8NX1AE Isotope: RA-226
Client: STL Matrix Code: 341
Batch Nbr: 8042383 Activity Unit: PCI/G Multiplier: 1.0
Technician: SB

Analysis Size: 1.01 Analysis Unit: G

 Report Date: 10-MAR-2008 15:25:00.59
 First Separation Date: 4-MAR-2008 15:17:00.00
 Second Separation Date: 10-MAR-2008 10:35:00.00

Detector ID: 8 Cell ID: 8HC

Bkg Date: 5-MAR-2008 08:55:23.74
 Bkg Counts: 000016 Bkg Duration: 000060.0

Count Date: 10-MAR-2008 14:35:00.23
 Counts: 000230 Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KF8N41AE Isotope: RA-226
Client: STL Matrix Code: 341
Batch Nbr: 8042383 Activity Unit: PCI/G Multiplier: 1.0164
Technician: SB
Analysis Size: 1.00 Analysis Unit: G
 Report Date: 10-MAR-2008 15:18:00.84
 First Separation Date: 4-MAR-2008 15:17:00.00
 Second Separation Date: 10-MAR-2008 10:28:00.00
Detector ID: 10 Cell ID: ASB
Bkg Date: 5-MAR-2008 08:55:40.22
 Bkg Counts: 000011 Bkg Duration: 000060.0
Count Date: 10-MAR-2008 14:28:00.24
 Counts: 000359 Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KF8N51AE Isotope: RA-226
Client: STL Matrix Code: 341
Batch Nbr: 8042383 Activity Unit: PCI/G Multiplier: 1.0
Technician: SB
Analysis Size: 1.01 Analysis Unit: G
 Report Date: 10-MAR-2008 15:26:00.92
 First Separation Date: 4-MAR-2008 15:17:00.00
 Second Separation Date: 10-MAR-2008 10:36:00.00
Detector ID: 11 Cell ID: BMA
Bkg Date: 26-FEB-2008 08:45:06.08
 Bkg Counts: 000026 Bkg Duration: 000060.0
Count Date: 10-MAR-2008 14:36:00.32
 Counts: 000145 Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KF8N61AE

Isotope: RA-226

Client: STL

Matrix Code: 341

Batch Nbr: 8042383
Technician: SB

Activity Unit: PCI/G

Multiplier: 1.0

Analysis Size: 1.03

Analysis Unit: G

Report Date: 10-MAR-2008 15:26:00.96

First Separation Date: 4-MAR-2008 15:17:00.00

Second Separation Date: 10-MAR-2008 10:36:00.00

Detector ID: 12

Cell ID: CSB

Bkg Date: 4-MAR-2008 09:03:34.65

Bkg Counts: 000014

Bkg Duration: 000060.0

Count Date: 10-MAR-2008 14:36:00.36

Counts: 000120

Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KF8N81AE Isotope: RA-226
Client: STL Matrix Code: 341
Batch Nbr: 8042383 Activity Unit: PCI/G Multiplier: 1.0842
Technician: SB
Analysis Size: 1.00 Analysis Unit: G
 Report Date: 10-MAR-2008 15:30:00.60
 First Separation Date: 4-MAR-2008 15:17:00.00
 Second Separation Date: 10-MAR-2008 10:40:00.00
Detector ID: 14 Cell ID: ESC
Bkg Date: 11-FEB-2008 08:37:18.82
 Bkg Counts: 000012 Bkg Duration: 000060.0
Count Date: 10-MAR-2008 14:40:00.26
 Counts: 000251 Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KF8N91AE Isotope: RA-226
Client: STL Matrix Code: 341
Batch Nbr: 8042383 Activity Unit: PCI/G Multiplier: 1.1268
Technician: SB
Analysis Size: 1.01 Analysis Unit: G
 Report Date: 10-MAR-2008 15:36:00.99
 First Separation Date: 4-MAR-2008 15:17:00.00
 Second Separation Date: 10-MAR-2008 10:46:00.00
Detector ID: 15 Cell ID: FSA
Bkg Date: 4-MAR-2008 09:04:04.92
 Bkg Counts: 000010 Bkg Duration: 000060.0
Count Date: 10-MAR-2008 14:46:00.61
 Counts: 000138 Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KF8PD1AE Isotope: RA-226
Client: STL Matrix Code: 341
Batch Nbr: 8042383 Activity Unit: PCI/G Multiplier: 1.0
Technician: SB
Analysis Size: 1.01 Analysis Unit: G
 Report Date: 10-MAR-2008 15:32:00.60
 First Separation Date: 4-MAR-2008 15:17:00.00
 Second Separation Date: 10-MAR-2008 10:42:00.00
Detector ID: 16 Cell ID: GAB
Bkg Date: 5-MAR-2008 08:56:37.36
 Bkg Counts: 000011 Bkg Duration: 000060.0
Count Date: 10-MAR-2008 14:42:00.25
 Counts: 000315 Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KF8PE1AE Isotope: RA-226
Client: STL Matrix Code: 341
Batch Nbr: 8042383 Activity Unit: PCI/G Multiplier: 1.0
Technician: SB
Analysis Size: 1.00 Analysis Unit: G
 Report Date: 10-MAR-2008 15:28:00.64
 First Separation Date: 4-MAR-2008 15:17:00.00
 Second Separation Date: 10-MAR-2008 10:38:00.00
Detector ID: 17 Cell ID: HSB
Bkg Date: 5-MAR-2008 08:56:50.64
 Bkg Counts: 000014 Bkg Duration: 000060.0
Count Date: 10-MAR-2008 14:38:00.28
 Counts: 000230 Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KF8PG1AH Isotope: RA-226
Client: STL Matrix Code: 341
Batch Nbr: 8042383 Activity Unit: PCI/G Multiplier: 1.0
Technician: SB
Analysis Size: 1.02 Analysis Unit: G
 Report Date: 10-MAR-2008 15:59:00.66
 First Separation Date: 4-MAR-2008 15:44:00.00
 Second Separation Date: 10-MAR-2008 11:09:00.00
Detector ID: 18 Cell ID: JUA
Bkg Date: 6-MAR-2008 08:35:14.63
 Bkg Counts: 000013 Bkg Duration: 000060.0
Count Date: 10-MAR-2008 15:09:00.29
 Counts: 000280 Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KF8PG1AK Isotope: RA-226
Client: STL Matrix Code: 341
Batch Nbr: 8042383 Activity Unit: PCI/G Multiplier: 1.0
Technician: SB
Analysis Size: 1.02 Analysis Unit: G
 Report Date: 10-MAR-2008 15:51:00.79
 First Separation Date: 4-MAR-2008 15:44:00.00
 Second Separation Date: 10-MAR-2008 11:01:00.00
Detector ID: 19 Cell ID: KME
Bkg Date: 5-MAR-2008 08:57:06.30
 Bkg Counts: 000011 Bkg Duration: 000060.0
Count Date: 10-MAR-2008 15:01:00.39
 Counts: 000309 Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KGXJG1AA Isotope: RA-226
Client: STL Matrix Code: 341
Batch Nbr: 8042383 Activity Unit: PCI/G Multiplier: 1.0247
Technician: SB
Analysis Size: 1.01 Analysis Unit: G
Report Date: 10-MAR-2008 16:00:00.63
First Separation Date: 4-MAR-2008 15:44:00.00
Second Separation Date: 10-MAR-2008 11:10:00.00
Detector ID: 20 Cell ID: LMD
Bkg Date: 5-MAR-2008 08:57:23.70
Bkg Counts: 000011 Bkg Duration: 000060.0
Count Date: 10-MAR-2008 15:10:00.28
Counts: 000017 Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

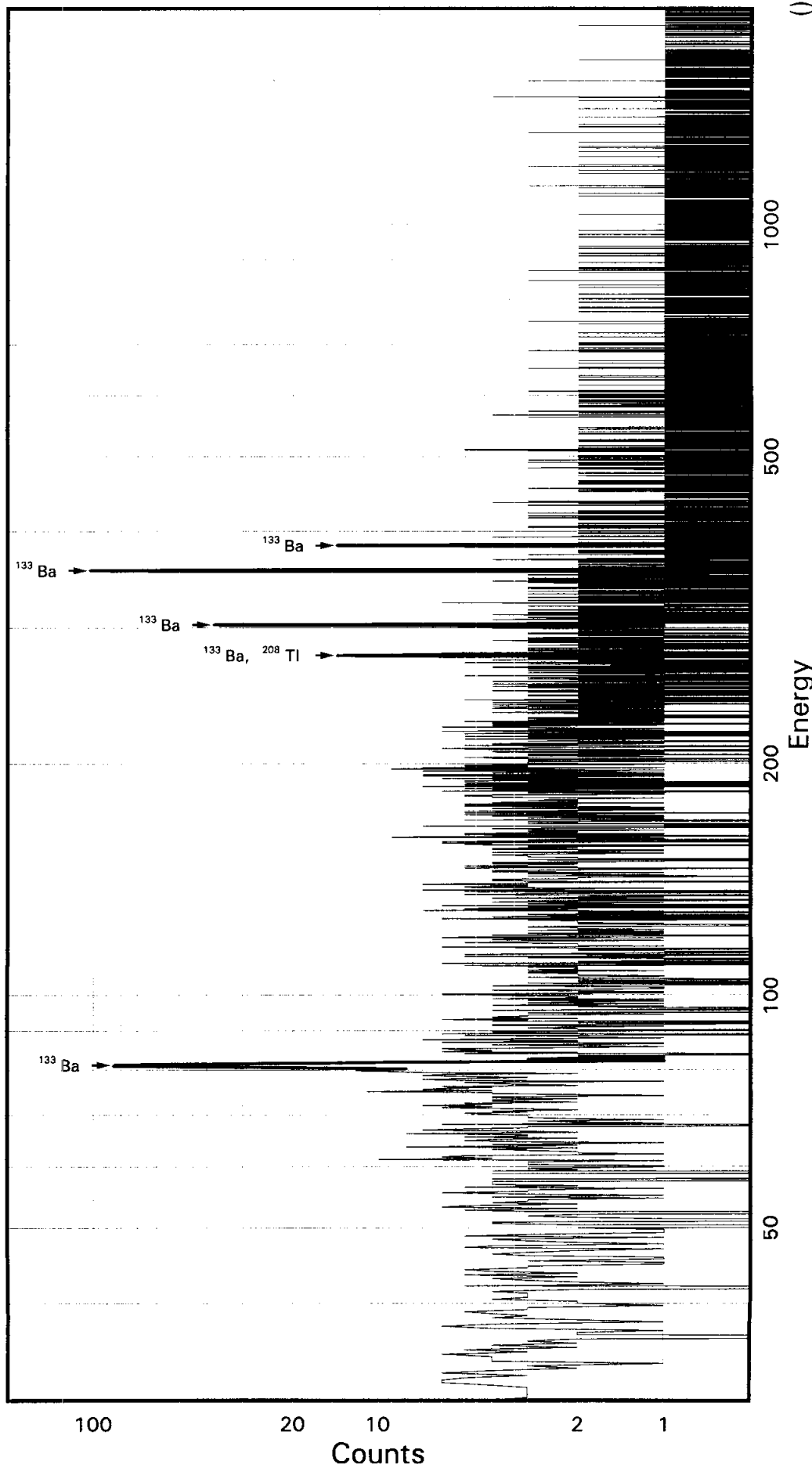
Sample ID: KGXJG1AC Isotope: RA-226
Client: STL Matrix Code: 341
Batch Nbr: 8042383 Activity Unit: PCI/G Multiplier: 1.0
Technician: SB
Analysis Size: 1.00 Analysis Unit: G
 Report Date: 10-MAR-2008 16:01:00.76
 First Separation Date: 4-MAR-2008 15:44:00.00
 Second Separation Date: 10-MAR-2008 11:11:00.00
Detector ID: 23 Cell ID: PMA
Bkg Date: 20-FEB-2008 09:03:45.94
 Bkg Counts: 000010 Bkg Duration: 000060.0
Count Date: 10-MAR-2008 15:11:00.27
 Counts: 000244 Count Duration: 000050.0

End of Report ✓

TAL Richland WA.
BA133

Sample ID: KF8NX1AE
Detector ID: GER11 1

Batch ID: 8042383



Acquisition Start: 3-MAR-2008 18:27:43.34
Preset Live Time: 0 00:30:00.00
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:
Offset: -1.01800E+00
Slope: 2.31722E-01
Quadrature: 3.06988E-08

SAMPLE IDENTIFICATION: KF8NX1AE

CONFIGURATION ID: GER11:KF8NX1AE_030381827
TITLE : BA133
SAMPLE ID : KF8NX1AE

REPORT DATE: 03-MAR-08
ACQUIRE DATE: 03-MAR-08 18:27:43
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00
CALIB DATE: 3-MAR-2008 05:00:34.29
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:01

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY: BA133T15

UNITS: SAMPL
SAMPLE TYPE:

ENERGY OFFSET: -.1018E+01 keV
ENERGY SLOPE: 2.3172E-01 keV/C
ENERGY Q COEFF: 3.0699E-08 keV/C²
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 1.8748E-01 keV
FWHM SLOPE: 4.1720E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]QRL.NLB


```

Configuration      : $DISK1:[GER11.SAMPLE]KF8NX1AE_030381827.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date : 3-MAR-2008 18:27:43
Sample ID        : KF8NX1AE               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:01.01   0.1%
Start energy     :      1.30              End energy      : 1899.31
Sensitivity      :      5.00              Gaussian       : 10.00
Critical level   : No
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	81.23	264	65	0.71	354.93	350	14	1.47E-01	9.5	
2	0	160.95	12	14	0.41	698.92	693	8	6.69E-03	61.0	
3	0	276.39	75	8	1.09	1196.99	1190	15	4.14E-02	14.1	
4	0	302.77	144	11	0.78	1310.75	1304	16	7.98E-02	9.9	
5	0	355.81	492	13	1.06	1539.58	1531	17	2.73E-01	4.8	
6	0	383.53	65	12	1.25	1659.14	1653	15	3.62E-02	16.8	

Flag: "*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER11.SAMPLE]KF8NX1AE_030381827.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 18:27:43
 Sample ID : KF8NX1AE Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:01.01 0.1%
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
BA-133	81.00	264	33.00	2.880E+00	9.267E+02	9.309E+02	10.98
	276.40	75	6.90	3.084E+00	1.167E+03	1.172E+03	15.08
	302.84	144	17.80	3.088E+00	8.712E+02	8.752E+02	11.29
	356.00	492	62.05*	3.090E+00	8.558E+02	8.597E+02	7.22
	383.85	65	8.70	3.090E+00	8.076E+02	8.113E+02	17.61

Flag: "*" = Keyline

Unidentified Energy Lines

Sample ID : KF8NX1AE

Page : 2

Acquisition date : 3-MAR-2008 18:27:43

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
C	160.95	12	14	0.41	698.92	693	8	6.69E-03	61.0	3.03E+00	

Flags: "T" = Tentatively associated

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (DPM/SAMPL)	1-Sigma %Error	Rejected by
TL-208	1.41E+10Y	0.00	277.35	6.80	1.184E+03	15.08	Abun.
			510.84	21.60	---	Not Found	---
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
		% Abundances Found =		5.44			

Flag: "*" = Keyline

Configuration : \$DISK1:[GER11.SAMPLE]KF8NX1AE_030381827.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
 Analyses by : MINACT V2.8
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 18:27:43
 Sample ID : KF8NX1AE Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:01.01 0.1%
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BA-133	8.597E+02	6.204E+01	3.697E+01	7.394E-01	23.253

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	3.382E+01	6.241E+01	2.558E+02	5.131E+00	0.132
NA-22	-1.009E+00	3.060E+00	1.258E+01	2.652E-01	-0.080
K-40	4.742E+00	4.993E+01	2.418E+02	5.157E+00	0.020
SC-46	6.794E+00	5.054E+00	2.310E+01	4.820E-01	0.294
CR-51	-8.088E+01	1.022E+02	3.626E+02	7.255E+00	-0.223
MN-54	4.807E+00	4.078E+00	1.864E+01	3.816E-01	0.258
CO-57	6.403E+01	7.474E+01	2.865E+02	5.903E+00	0.223
CO-58	4.292E+00	3.754E+00	1.861E+01	3.804E-01	0.231
FE-59	-1.507E+01	8.989E+00	2.733E+01	5.695E-01	-0.551
CO-60	-3.507E+00	3.839E+00	1.382E+01	2.924E-01	-0.254
ZN-65	2.159E+00	7.220E+00	3.120E+01	6.508E-01	0.069
SE-75	-1.675E+01	1.249E+01	4.264E+01	8.553E-01	-0.393
SR-85	-1.727E+01	8.266E+00	2.482E+01	4.985E-01	-0.696
Y-88	1.418E+00	2.405E+00	1.295E+01	2.824E-01	0.110
NB-94	-9.080E-02	3.163E+00	1.329E+01	2.727E-01	-0.007
NB-95	-3.649E-02	3.527E+00	1.657E+01	3.378E-01	-0.002
TC-95M	2.188E+01	1.504E+01	6.012E+01	1.214E+00	0.364
ZR-95	-5.940E+00	6.986E+00	2.637E+01	5.371E-01	-0.225
ZRNB-95	2.010E-01	5.683E+00	2.683E+01	5.468E-01	0.007
RH-101	2.089E+01	1.382E+01	5.359E+01	1.084E+00	0.390
RH-102M	2.182E+00	4.943E+00	2.015E+01	4.041E-01	0.108
RU-103	-4.757E+00	7.696E+00	2.815E+01	5.650E-01	-0.169
RU-106DA	-1.759E+01	4.099E+01	1.580E+02	3.193E+00	-0.111
AG-108M	-1.272E+01	5.950E+00	1.803E+01	3.611E-01	-0.706
AG-110M	-3.498E+00	4.713E+00	1.761E+01	3.617E-01	-0.199
SN-113DA	-4.580E+00	7.239E+00	2.740E+01	5.482E-01	-0.167
SB-124	-2.981E+00	6.210E+00	2.334E+01	4.711E-01	-0.128

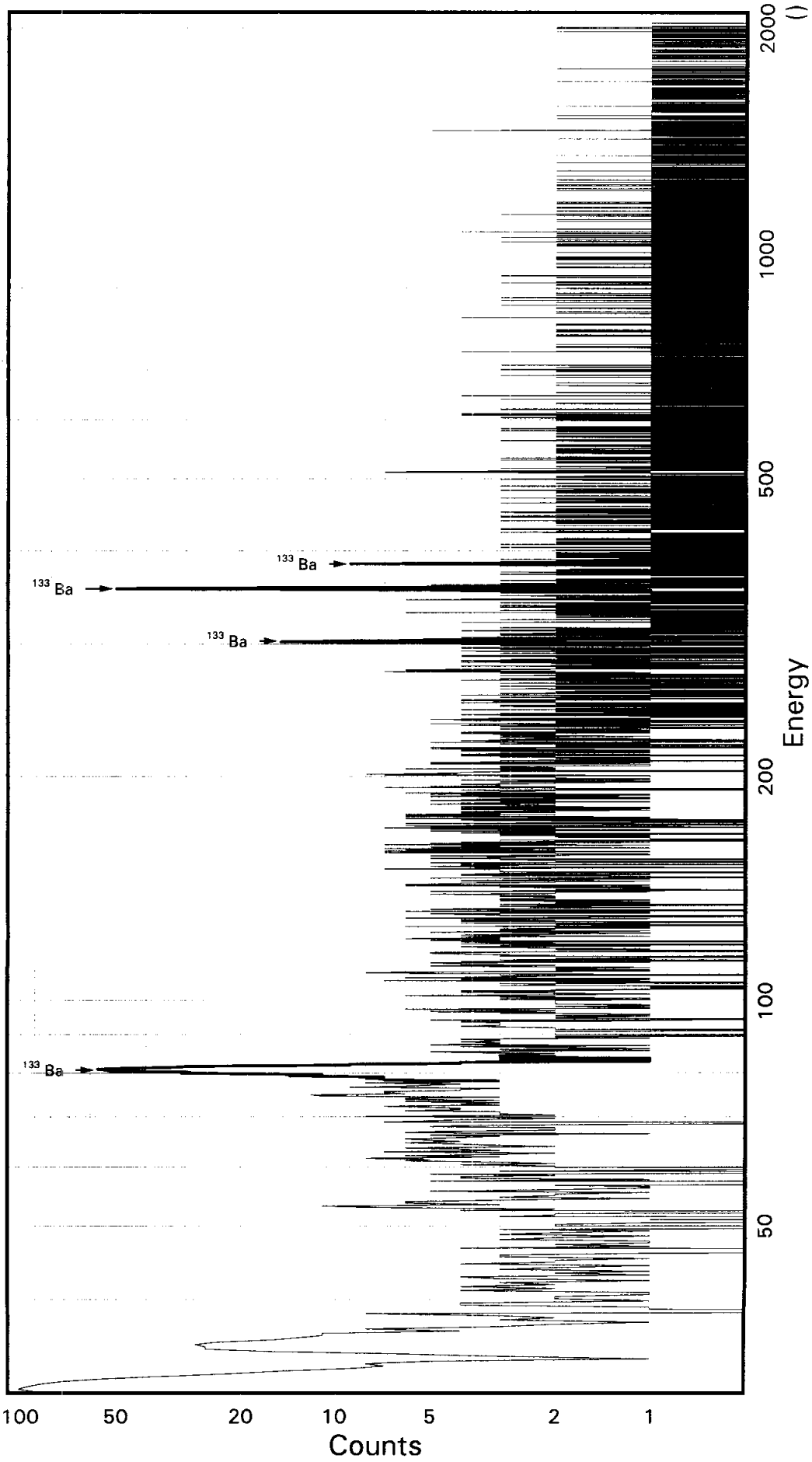
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	-1.294E-01		1.268E+01	5.205E+01	1.042E+00	-0.002
SN-126DA	6.298E+00		3.797E+00	1.806E+01	3.657E-01	0.349
I-131	-4.670E+01		6.070E+01	2.119E+02	4.239E+00	-0.220
CS-134	-5.108E+00		4.129E+00	1.420E+01	2.900E-01	-0.360
CS-137DA	3.738E+00		4.297E+00	1.927E+01	3.903E-01	0.194
LA-138	3.374E+00		3.484E+00	1.852E+01	3.944E-01	0.182
CE-139	-9.487E+00		9.538E+00	3.348E+01	6.824E-01	-0.283
BA-140	-1.809E+01		6.957E+01	2.633E+02	5.295E+00	-0.069
BALA-140	-1.873E+01		1.370E+01	3.484E+01	7.493E-01	-0.538
CE-141	-2.637E+01		2.712E+01	9.004E+01	1.848E+00	-0.293
CE-144	3.288E+00		6.815E+01	2.501E+02	5.159E+00	0.013
CEPR-144	8.462E+00		1.364E+02	5.012E+02	1.034E+01	0.017
PM-144	2.349E+00		3.637E+00	1.626E+01	3.283E-01	0.144
PM-146	3.396E+00		6.256E+00	2.655E+01	5.320E-01	0.128
EU-152	2.849E+01		2.171E+01	9.015E+01	1.803E+00	0.316
EU-154	-9.404E+00		9.588E+00	3.463E+01	7.299E-01	-0.272
EU-155	-2.016E+01		2.931E+01	1.049E+02	2.200E+00	-0.192
HF-181	1.100E+01		7.893E+00	3.534E+01	7.090E-01	0.311
BI-207	-1.019E+01		5.111E+00	1.587E+01	3.196E-01	-0.642
TL-208	-8.568E+00		4.902E+00	1.550E+01	3.124E-01	-0.553
BI-210M	1.993E+01		1.243E+01	5.237E+01	1.050E+00	0.381
BI-212	-4.058E+01		5.989E+01	2.183E+02	6.669E+00	-0.186
PB-212	-1.932E+00		1.527E+01	5.531E+01	1.112E+00	-0.035
BI-214	9.229E+00		1.187E+01	4.836E+01	9.763E-01	0.191
PB-214	1.311E+01		1.615E+01	6.270E+01	1.254E+00	0.209
RA-223	2.044E+01		4.364E+01	1.729E+02	3.466E+00	0.118
RA-224DA	-1.981E+00		1.566E+01	5.672E+01	1.140E+00	-0.035
RA-226DA	9.230E+00		1.187E+01	4.837E+01	9.764E-01	0.191
AC-227DA	4.236E+01		6.392E+01	2.430E+02	4.886E+00	0.174
AC-228	2.740E+01		1.576E+01	7.262E+01	1.494E+00	0.377
RA-228DA	2.762E+01		1.589E+01	7.323E+01	1.507E+00	0.377
TH-228DA	-2.446E+01		1.399E+01	4.423E+01	8.917E-01	-0.553
TH-232DA	6.986E+01		4.861E+01	2.015E+02	4.031E+00	0.347
TH-234DA	-1.593E+02		3.786E+02	1.594E+03	3.299E+01	-0.100
U-234DA	3.139E+01		3.118E+01	1.270E+02	2.542E+00	0.247
U-235HP	-1.055E+02		7.027E+01	2.222E+02	4.564E+00	-0.475
NP-237DA	5.678E-02		1.845E+01	6.882E+01	1.377E+00	0.001
U-238DA	1.311E+01		1.615E+01	6.270E+01	1.254E+00	0.209
U-238DHP	-1.326E+01		2.198E+02	7.831E+02	1.724E+01	-0.017
AM-241HP	1.852E+01		1.556E+01	6.540E+01	1.450E+00	0.283

TAL Richland WA.
BA133

Batch ID: 8042383

Sample ID: KF8N41AE
Detector ID: GER14 1



Energy Coefficients:
Offset: -6.54434E-01
Slope: 2.48234E-01
Quadrature: -9.45127E-10

Acquisition Start: 3-MAR-2008 18:27:53.72
Preset Live Time: 0 00:30:00.00
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KF8N41AE

CONFIGURATION ID: GER14:KF8N41AE_030381827
TITLE : BA133
SAMPLE ID : KF8N41AE

REPORT DATE: 03-MAR-08 SAMPLE DATE: 7-FEB-2008 12:00:00.00
ACQUIRE DATE: 03-MAR-08 18:27:53 CALIB DATE: 3-MAR-2008 05:01:20.48
ELAPSED LIVE TIME: 1800.0 Sec ELAPSED LIVE TIME: 0 00:30:00
PRESET LIVE TIME: 0 00:30:00 ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00 UNITS: SAMPL
SAMPLE GEOMETRY: BA133T15 SAMPLE TYPE:

ENERGY OFFSET: -.6544E+00 keV FWHM OFFSET: 1.0769E+00 keV
ENERGY SLOPE: 2.4823E-01 keV/C FWHM SLOPE: 2.7502E-02 sqr keV
ENERGY Q COEFF: -.9451E-09 keV/C² ITERATIONS: 10
PEAK SENSITIVITY: 5.000 GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 % HALF-LIFE RATIO: 8.00
ENERGY TOLERANCE: 1.500 keV ACTIVITY MULTIPLIER: 2.2200E+06
VARIABLE PEAK WIDTH: 3.00 LIBRARY: [NUC_LIBR]QRL.NLB

Configuration : \$DISK1:[GER14.SAMPLE]KF8N41AE_030381827.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 18:27:53
 Sample ID : KF8N41AE Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.44 0.0%
 Start energy : 19.20 End energy : 2032.82
 Sensitivity : 5.00 Gaussian : 10.00
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	30.77	600	151	1.51	126.58	119	19	3.33E-01	6.8	
2	0	35.00	155	41	1.31	143.63	137	15	8.62E-02	12.1	
3	0	80.79	355	87	1.65	328.09	317	27	1.97E-01	9.0	
4	0	109.00	17	27	2.08	441.74	433	14	9.26E-03	71.5	
5	0	302.96	69	35	1.20	1223.11	1211	21	3.83E-02	21.8	
6	0	356.06	266	15	1.08	1437.03	1426	22	1.48E-01	6.9	
7	0	383.83	38	0	0.92	1548.87	1540	16	2.11E-02	16.2	

Flag: "*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER14.SAMPLE]KF8N41AE_030381827.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 18:27:53
 Sample ID : KF8N41AE Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.44 0.0%
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
BA-133	81.00	355	33.00	1.818E+00	1.975E+03	1.984E+03	10.56
	276.40	-----	6.90	1.945E+00	-----	Line Not Found	-----
	302.84	69	17.80	1.948E+00	6.625E+02	6.656E+02	22.50
	356.00	266	62.05*	1.949E+00	7.340E+02	7.374E+02	8.73
	383.85	38	8.70	1.949E+00	7.471E+02	7.505E+02	17.09

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : KF8N41AE

Page : 2
Acquisition date : 3-MAR-2008 18:27:53

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	30.77	600	151	1.51	126.58	119	19	3.33E-01	6.8	1.61E+00	
0	35.00	155	41	1.31	143.63	137	15	8.62E-02	12.1	1.64E+00	
0	109.00	17	27	2.08	441.74	433	14	9.26E-03	71.5	1.86E+00	

Flags: "T" = Tentatively associated

Rejected Report
Sample ID : KF8N41AE

Page : 3
Acquisition date : 3-MAR-2008 18:27:53

Flag: "*" = Keyline

```

Configuration      : $DISK1:[GER14.SAMPLE]KF8N41AE_030381827.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by       : MINACT V2.8
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date : 3-MAR-2008 18:27:53
Sample ID         : KF8N41AE               Sample quantity  : 1.0000 SAMPL
Sample type       :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00          Elapsed real time: 0 00:30:00.44   0.0%
Peak Width (FWHM):      3.00              Confidence level :      5.00 %
Energy tolerance :      1.50              Half life ratio :      8.00
Errors propagatd: Yes                    Systematic Error :      5.00 %
Efficiency type  : Empirical               Efficiencies at  : Peak Energy
Abundance limit  :      80.00             WTM error limit :      3.00
    
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BA-133	7.374E+02	6.437E+01	7.438E+01	1.488E+00	9.914

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-7.141E+01	1.057E+02	3.811E+02	7.643E+00	-0.187
NA-22	-2.307E+00	6.750E+00	2.586E+01	5.446E-01	-0.089
K-40	-9.905E+01	8.739E+01	4.269E+02	9.094E+00	-0.232
SC-46	1.359E+01	7.723E+00	3.694E+01	7.702E-01	0.368
CR-51	-2.111E+01	1.717E+02	6.389E+02	1.278E+01	-0.033
MN-54	5.189E+00	7.727E+00	3.222E+01	6.595E-01	0.161
CO-57	-1.615E+02	1.586E+02	5.296E+02	1.091E+01	-0.305
CO-58	2.004E+00	5.995E+00	2.691E+01	5.498E-01	0.074
FE-59	-9.366E+00	1.322E+01	5.020E+01	1.045E+00	-0.187
CO-60	1.196E-01	3.588E+00	1.692E+01	3.576E-01	0.007
ZN-65	-1.893E+01	1.370E+01	4.540E+01	9.464E-01	-0.417
SE-75	-1.363E+01	2.293E+01	8.051E+01	1.615E+00	-0.169
SR-85	-3.030E+01	1.875E+01	6.060E+01	1.217E+00	-0.500
Y-88	1.172E-01	4.359E+00	2.049E+01	4.464E-01	0.006
NB-94	-4.619E+00	7.969E+00	2.891E+01	5.930E-01	-0.160
NB-95	3.333E+00	1.128E+01	4.615E+01	9.403E-01	0.072
TC-95M	-4.479E-01	3.474E+01	1.239E+02	2.503E+00	-0.004
ZR-95	-6.396E+00	1.347E+01	5.202E+01	1.059E+00	-0.123
ZRNB-95	5.863E+00	1.803E+01	7.395E+01	1.507E+00	0.079
RH-101	-7.794E+01	2.463E+01	7.296E+01	1.475E+00	-1.068
RH-102M	-1.318E+01	8.511E+00	2.753E+01	5.522E-01	-0.479
RU-103	1.088E+01	1.484E+01	6.018E+01	1.208E+00	0.181
RU-106DA	4.165E+01	7.735E+01	3.217E+02	6.498E+00	0.129
AG-108M	-1.065E+01	9.404E+00	3.226E+01	6.461E-01	-0.330
AG-110M	-1.954E+01	1.167E+01	3.656E+01	7.506E-01	-0.534
SN-113DA	-8.229E+00	1.795E+01	6.526E+01	1.306E+00	-0.126
SB-124	1.957E+01	1.394E+01	5.754E+01	1.161E+00	0.340

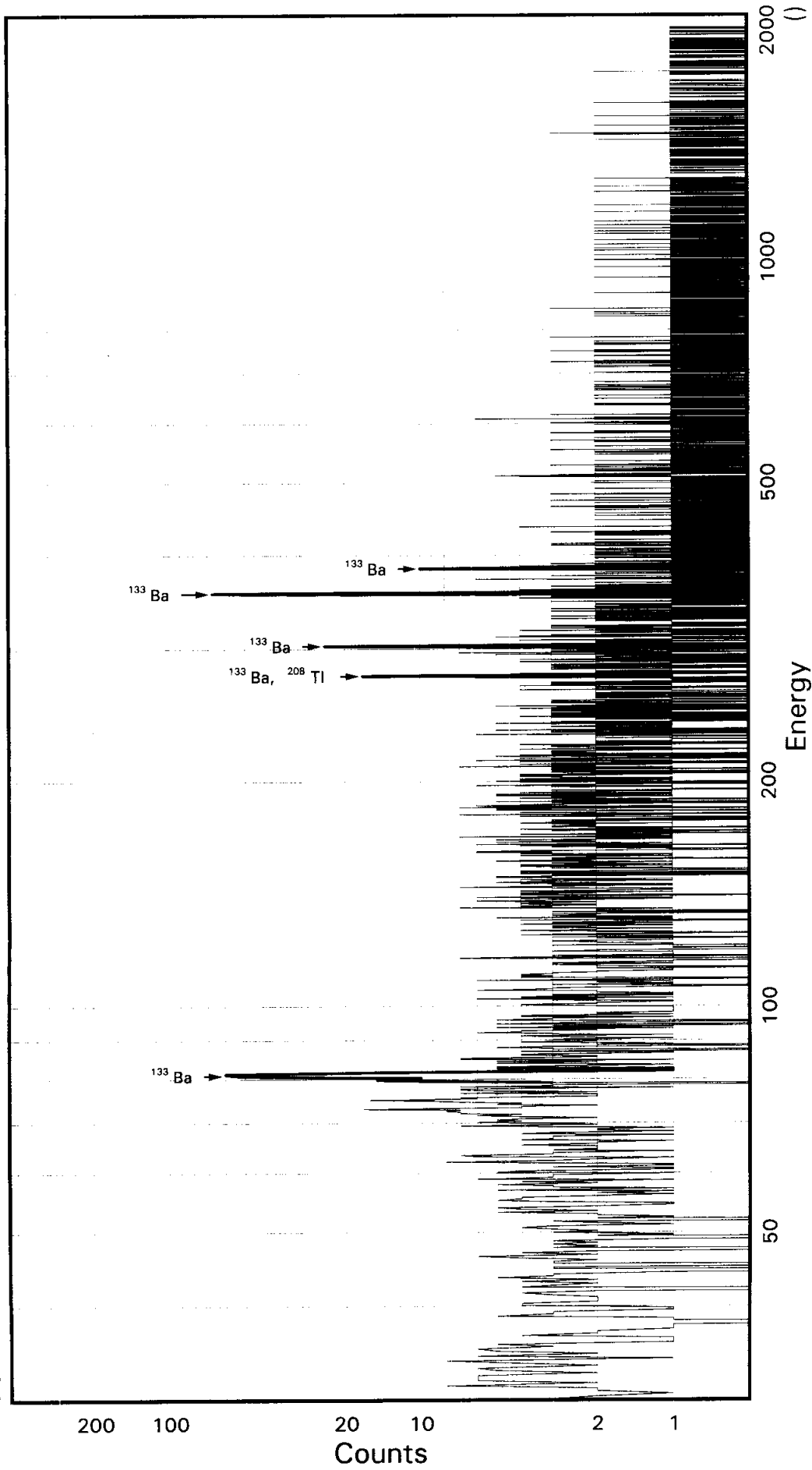
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	-2.863E+01		3.608E+01	1.267E+02	2.537E+00	-0.226
SN-126DA	-2.764E+00		6.912E+00	2.636E+01	5.337E-01	-0.105
I-131	1.032E+02		1.148E+02	4.564E+02	9.129E+00	0.226
CS-134	-4.482E+00		8.461E+00	3.143E+01	6.415E-01	-0.143
CS-137DA	-9.823E+00		7.265E+00	2.445E+01	4.951E-01	-0.402
LA-138	8.194E-02		5.413E+00	2.530E+01	5.382E-01	0.003
CE-139	-6.728E+01		2.208E+01	6.562E+01	1.337E+00	-1.025
BA-140	-1.985E+02		1.449E+02	4.766E+02	9.583E+00	-0.417
BALA-140	3.028E+01		2.147E+01	1.405E+02	3.017E+00	0.216
CE-141	3.862E+01		5.555E+01	2.086E+02	4.278E+00	0.185
CE-144	-8.355E+01		1.591E+02	5.471E+02	1.128E+01	-0.153
CEPR-144	-1.685E+02		3.181E+02	1.094E+03	2.255E+01	-0.154
PM-144	5.397E+00		8.577E+00	3.515E+01	7.098E-01	0.154
PM-146	-1.325E+01		1.486E+01	5.185E+01	1.039E+00	-0.256
EU-152	2.020E+01		4.319E+01	1.657E+02	3.314E+00	0.122
EU-154	-6.408E+00		1.876E+01	7.187E+01	1.513E+00	-0.089
EU-155	-7.678E+01		9.171E+01	2.579E+02	5.406E+00	-0.298
HF-181	2.143E+01		1.641E+01	6.851E+01	1.374E+00	0.313
BI-207	1.160E+01		8.999E+00	3.760E+01	7.572E-01	0.309
TL-208	-1.142E+00		1.178E+01	4.438E+01	8.944E-01	-0.026
BI-210M	-1.578E+01		2.410E+01	8.412E+01	1.687E+00	-0.188
BI-212	-5.267E+01		8.353E+01	3.170E+02	9.683E+00	-0.166
PB-212	1.243E+00		3.012E+01	1.095E+02	2.201E+00	0.011
BI-214	-5.498E+00		2.323E+01	9.015E+01	1.820E+00	-0.061
PB-214	1.543E+00		3.629E+01	1.198E+02	2.397E+00	0.013
RA-223	3.984E+01		9.204E+01	3.438E+02	6.892E+00	0.116
RA-224DA	1.274E+00		3.088E+01	1.123E+02	2.257E+00	0.011
RA-226DA	-5.349E+00		2.324E+01	9.023E+01	1.821E+00	-0.059
AC-227DA	1.098E+02		1.156E+02	4.432E+02	8.911E+00	0.248
AC-228	-1.577E+01		2.978E+01	1.105E+02	2.273E+00	-0.143
RA-228DA	-1.590E+01		3.003E+01	1.114E+02	2.292E+00	-0.143
TH-228DA	-3.261E+00		3.362E+01	1.267E+02	2.553E+00	-0.026
TH-232DA	1.371E+02		9.139E+01	3.715E+02	7.431E+00	0.369
TH-234DA	-1.852E+03		9.717E+02	2.928E+03	6.057E+01	-0.633
U-234DA	1.388E+01		7.084E+01	2.576E+02	5.159E+00	0.054
U-235HP	2.518E+02		1.529E+02	5.837E+02	1.198E+01	0.431
NP-237DA	7.518E+00		3.466E+01	1.272E+02	2.545E+00	0.059
U-238DA	1.543E+00		3.629E+01	1.198E+02	2.397E+00	0.013
U-238DHP	9.103E+02		5.421E+02	2.048E+03	4.503E+01	0.444
AM-241HP	-4.182E+01		5.062E+01	1.744E+02	3.861E+00	-0.240

TAL Richland WA.
BA133

Batch ID: 8042383

Sample ID: KF8N51AE
Detector ID: GER4 1



Energy Coefficients:
Offset: 1.27597E-02
Slope: 2.48601E-01
Quadrature: 2.10830E-08

Acquisition Start: 3-MAR-2008 18:28:03.29
Preset Live Time: 0 00:30:00.00
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KF8N51AE

CONFIGURATION ID: GER4:KF8N51AE_030381828
TITLE : BA133
SAMPLE ID : KF8N51AE

REPORT DATE: 03-MAR-08
ACQUIRE DATE: 03-MAR-08 18:28:03
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00
CALIB DATE: 3-MAR-2008 05:11:53.91
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY: BA133T15

UNITS: SAMPL
SAMPLE TYPE:

ENERGY OFFSET: 1.2760E-02 keV
ENERGY SLOPE: 2.4860E-01 keV/C
ENERGY Q COEFF: 2.1083E-08 keV/C²
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 2.7461E-01 keV
FWHM SLOPE: 4.7109E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]QRL.NLB

Configuration : \$DISK1:[GER4.SAMPLE]KF8N51AE_030381828.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 18:28:03
 Sample ID : KF8N51AE Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.41 0.0%
 Start energy : 19.90 End energy : 2037.97
 Sensitivity : 5.00 Gaussian : 10.00
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	74.79*	29	99	2.29	300.79	286	28	1.61E-02	100.7	
2	0	80.90	261	34	0.90	325.38	318	15	1.45E-01	7.9	
3	0	276.26	53	16	0.54	1111.11	1100	21	2.97E-02	23.0	
4	0	302.82	74	16	0.66	1217.91	1210	13	4.12E-02	16.1	
5	0	355.89	314	0	1.09	1431.36	1422	20	1.74E-01	5.6	
6	0	383.82	46	0	0.99	1543.67	1538	11	2.56E-02	14.7	

Flag: "*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER4.SAMPLE]KF8N51AE_030381828.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 18:28:03
 Sample ID : KF8N51AE Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.41 0.0%
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
BA-133	81.00	261	33.00	2.054E+00	1.283E+03	1.289E+03	9.65
	276.40	53	6.90	2.214E+00	1.166E+03	1.172E+03	23.69
	302.84	74	17.80	2.217E+00	6.269E+02	6.297E+02	17.02
	356.00	314	62.05*	2.220E+00	7.600E+02	7.635E+02	7.81
	383.85	46	8.70	2.219E+00	7.942E+02	7.979E+02	15.70

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : KF8N51AE

Page : 2
Acquisition date : 3-MAR-2008 18:28:03

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	74.79	29	99	2.29	300.79	286	28	1.61E-02	****	2.04E+00	

Flags: "T" = Tentatively associated

Rejected Report
Sample ID : KF8N51AE

Page : 3
Acquisition date : 3-MAR-2008 18:28:03

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (DPM/SAMPL)	1-Sigma %Error	Rejected by
TL-208	1.41E+10Y	0.00	277.35	6.80	1.183E+03	23.69	Abun.
			510.84	21.60	---	Not Found	---
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
		% Abundances Found =		5.44			

Flag: "*" = Keyline

Configuration : \$DISK1:[GER4.SAMPLE]KF8N51AE_030381828.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
 Analyses by : MINACT V2.8
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 18:28:03
 Sample ID : KF8N51AE Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.41 0.0%
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BA-133	7.635E+02	5.963E+01	5.593E+01	1.122E+00	13.652

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	2.636E+00	7.961E+01	3.182E+02	6.383E+00	0.008
NA-22	7.667E+00	3.550E+00	2.078E+01	4.401E-01	0.369
K-40	-6.670E+01	8.195E+01	3.776E+02	8.103E+00	-0.177
SC-46	-1.087E+01	7.192E+00	2.540E+01	5.322E-01	-0.428
CR-51	2.136E+02	1.679E+02	6.895E+02	1.601E+01	0.310
MN-54	7.341E+00	4.748E+00	2.370E+01	4.862E-01	0.310
CO-57	1.071E+02	1.196E+02	4.576E+02	1.097E+01	0.234
CO-58	1.369E+00	5.743E+00	2.510E+01	5.142E-01	0.055
FE-59	-2.080E+01	1.247E+01	3.820E+01	7.991E-01	-0.544
CO-60	-3.245E+00	4.570E+00	1.734E+01	3.687E-01	-0.187
ZN-65	-2.731E-01	1.161E+01	4.692E+01	9.826E-01	-0.006
SE-75	-4.405E+00	1.614E+01	5.896E+01	1.372E+00	-0.075
SR-85	-1.658E+01	1.240E+01	4.121E+01	8.282E-01	-0.402
Y-88	-1.936E+00	1.939E+00	5.294E+00	1.164E-01	-0.366
NB-94	6.908E-01	4.505E+00	1.936E+01	3.982E-01	0.036
NB-95	4.834E-01	6.993E+00	3.039E+01	6.206E-01	0.016
TC-95M	1.924E+01	2.062E+01	8.117E+01	1.904E+00	0.237
ZR-95	6.130E+00	1.395E+01	5.776E+01	1.179E+00	0.106
ZRNB-95	7.696E-01	1.114E+01	4.841E+01	9.885E-01	0.016
RH-101	3.907E+00	1.401E+01	5.337E+01	1.254E+00	0.073
RH-102M	1.304E+01	6.840E+00	3.138E+01	6.295E-01	0.416
RU-103	-2.629E+00	1.024E+01	3.968E+01	7.968E-01	-0.066
RU-106DA	-4.561E+01	4.796E+01	1.753E+02	3.545E+00	-0.260
AG-108M	-1.074E+01	7.037E+00	2.342E+01	4.691E-01	-0.458
AG-110M	-2.412E+00	6.898E+00	2.742E+01	5.648E-01	-0.088
SN-113DA	-1.105E+01	1.366E+01	4.783E+01	9.570E-01	-0.231
SB-124	6.892E+00	8.892E+00	3.758E+01	7.589E-01	0.183

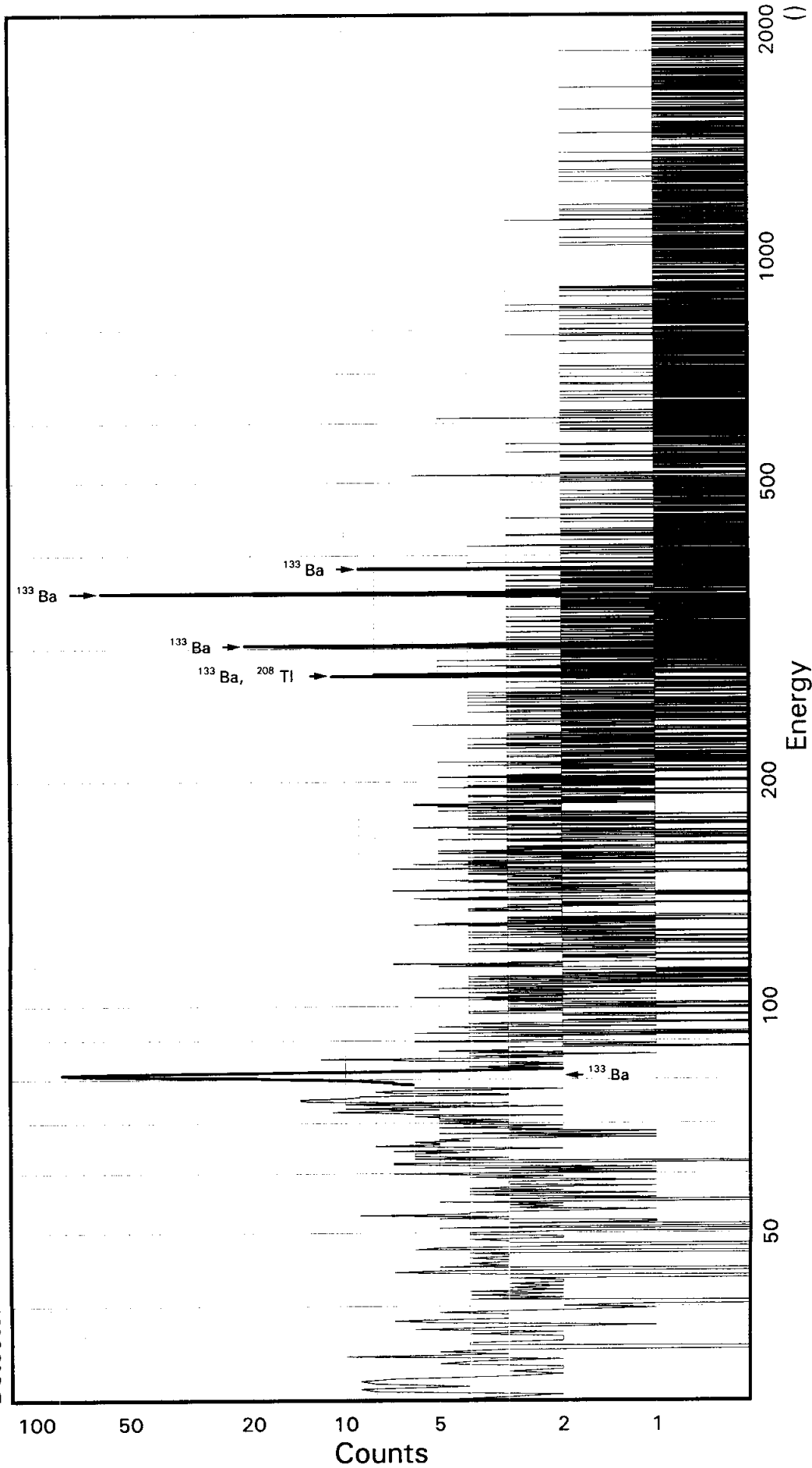
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	4.084E+00		2.385E+01	9.507E+01	1.904E+00	0.043
SN-126DA	2.546E+00		6.403E+00	2.614E+01	5.302E-01	0.097
I-131	-2.766E+01		8.469E+01	3.128E+02	6.256E+00	-0.088
CS-134	5.369E+00		5.417E+00	2.563E+01	5.245E-01	0.209
CS-137DA	-1.748E+00		6.449E+00	2.525E+01	5.119E-01	-0.069
LA-138	4.652E+00		5.984E+00	2.895E+01	6.201E-01	0.161
CE-139	1.734E+01		1.565E+01	6.040E+01	1.431E+00	0.287
BA-140	2.013E+01		8.000E+01	3.352E+02	6.744E+00	0.060
BALA-140	1.336E+01		3.549E+01	1.609E+02	3.484E+00	0.083
CE-141	4.495E+01		4.005E+01	1.555E+02	3.713E+00	0.289
CE-144	-1.062E+02		9.955E+01	3.412E+02	8.192E+00	-0.311
CEPR-144	-2.124E+02		1.991E+02	6.825E+02	1.638E+01	-0.311
PM-144	8.285E+00		6.179E+00	2.798E+01	5.657E-01	0.296
PM-146	-1.091E+01		8.221E+00	2.799E+01	5.610E-01	-0.390
EU-152	-5.565E+01		2.787E+01	8.558E+01	1.986E+00	-0.650
EU-154	2.253E+01		1.015E+01	5.902E+01	1.250E+00	0.382
EU-155	6.568E+01		4.791E+01	1.969E+02	4.816E+00	0.333
HF-181	2.705E+01		1.100E+01	5.320E+01	1.067E+00	0.509
BI-207	7.052E+00		6.900E+00	2.911E+01	5.867E-01	0.242
TL-208	8.125E+00		8.485E+00	3.747E+01	7.558E-01	0.217
BI-210M	6.150E+00		1.819E+01	6.893E+01	1.604E+00	0.089
BI-212	1.038E+02		9.024E+01	3.984E+02	1.218E+01	0.261
PB-212	-6.372E-01		2.271E+01	8.911E+01	2.079E+00	-0.007
BI-214	2.486E+00		1.404E+01	6.288E+01	1.271E+00	0.040
PB-214	3.291E+01		2.427E+01	9.939E+01	2.306E+00	0.331
RA-223	1.110E+02		6.881E+01	2.812E+02	6.544E+00	0.395
RA-224DA	-6.534E-01		2.329E+01	9.138E+01	2.132E+00	-0.007
RA-226DA	2.618E+00		1.406E+01	6.297E+01	1.272E+00	0.042
AC-227DA	-7.594E+01		9.320E+01	3.234E+02	7.549E+00	-0.235
AC-228	-6.524E+00		1.751E+01	7.883E+01	1.627E+00	-0.083
RA-228DA	-6.579E+00		1.765E+01	7.949E+01	1.640E+00	-0.083
TH-228DA	2.319E+01		2.422E+01	1.069E+02	2.157E+00	0.217
TH-232DA	-9.134E+01		6.381E+01	2.123E+02	4.927E+00	-0.430
TH-234DA	7.351E+02		6.304E+02	3.143E+03	6.529E+01	0.234
U-234DA	8.388E+00		5.247E+01	1.984E+02	4.609E+00	0.042
U-235HP	3.372E+01		1.095E+02	4.061E+02	9.702E+00	0.083
NP-237DA	4.777E+01		2.374E+01	1.022E+02	2.373E+00	0.467
U-238DA	3.291E+01		2.427E+01	9.939E+01	2.306E+00	0.331
U-238DHP	-1.040E+02		3.047E+02	1.154E+03	2.975E+01	-0.090
AM-241HP	2.732E+01		3.097E+01	1.217E+02	3.163E+00	0.224

TAL Richland WA.
BA133

Sample ID: KF8N61AE
Detector ID: GER7 1

Batch ID: 8042383



Energy Coefficients:
Offset: 6.72111E-01
Slope: 2.49186E-01
Quadrature: 1.59922E-07

Acquisition Start: 3-MAR-2008 18:28:12.81
Preset Live Time: 0 00:30:00.00
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION:

KF8N61AE

CONFIGURATION ID: GER7:KF8N61AE_030381828

TITLE : BA133

SAMPLE ID : KF8N61AE

REPORT DATE: 03-MAR-08

ACQUIRE DATE: 03-MAR-08 18:28:12

ELAPSED LIVE TIME: 1800.0 Sec

PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00

CALIB DATE: 3-MAR-2008 05:18:53.96

ELAPSED LIVE TIME: 0 00:30:00

ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00

SAMPLE GEOMETRY: BA133T15

UNITS: SAMPL

SAMPLE TYPE:

ENERGY OFFSET: 6.7211E-01 keV

ENERGY SLOPE: 2.4919E-01 keV/C

ENERGY Q COEFF: 1.5992E-07 keV/C²

PEAK SENSITIVITY: 5.000

FWHM OFFSET: 5.4343E-01 keV

FWHM SLOPE: 3.5511E-02 sqr keV

ITERATIONS: 10

GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 %

ENERGY TOLERANCE: 1.500 keV

VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00

ACTIVITY MULTIPLIER: 2.2200E+06

LIBRARY: [NUC_LIBR]QRL.NLB

Configuration : \$DISK1:[GER7.SAMPLE]KF8N61AE_030381828.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 18:28:12
 Sample ID : KF8N61AE Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.21 0.0%
 Start energy : 20.61 End energy : 2052.74
 Sensitivity : 5.00 Gaussian : 10.00
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	81.02	313	73	0.88	322.36	313	17	1.74E-01	8.4	
2	0	276.69	62	10	1.85	1106.91	1099	19	3.42E-02	17.5	
3	0	302.82	80	16	1.01	1211.61	1205	13	4.43E-02	15.3	
4	0	355.95	298	10	1.08	1424.47	1414	22	1.65E-01	6.4	
5	0	383.73	38	3	1.03	1535.72	1528	14	2.10E-02	19.3	

Flag: "*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER7.SAMPLE]KF8N61AE_030381828.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 18:28:12
 Sample ID : KF8N61AE Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.21 0.0%
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
BA-133	81.00	313	33.00	1.909E+00	1.655E+03	1.662E+03	10.03
	276.40	62	6.90	2.061E+00	1.442E+03	1.448E+03	18.33
	302.84	80	17.80	2.064E+00	7.244E+02	7.278E+02	16.20
	356.00	298	62.05*	2.065E+00	7.743E+02	7.779E+02	8.40
	383.85	38	8.70	2.065E+00	7.025E+02	7.058E+02	20.01

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : KF8N61AE

Page : 2
Acquisition date : 3-MAR-2008 18:28:12

None

Flags: "T" = Tentatively associated

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (DPM/SAMPL)	1-Sigma %Error	Rejected by
TL-208	1.41E+10Y	0.00	277.35	6.80	1.463E+03	18.33	Abun.
			510.84	21.60	---	Not Found	---
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
		% Abundances Found =		5.44			

Flag: "*" = Keyline

```

Configuration      : $DISK1:[GER7.SAMPLE]KF8N61AE_030381828.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by       : MINACT V2.8
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date : 3-MAR-2008 18:28:12
Sample ID        : KF8N61AE               Sample quantity  : 1.0000 SAMPL
Sample type      :                         Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.21   0.0%
Peak Width (FWHM):      3.00              Confidence level :      5.00 %
Energy tolerance :      1.50              Half life ratio  :      8.00
Errors propagatd: Yes                    Systematic Error :      5.00 %
Efficiency type  : Empirical              Efficiencies at  : Peak Energy
Abundance limit  :      80.00             WTM error limit  :      3.00
    
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BA-133	7.779E+02	6.535E+01	6.116E+01	1.223E+00	12.719

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-6.361E+01	7.128E+01	2.588E+02	5.193E+00	-0.246
NA-22	-1.698E+00	3.880E+00	1.618E+01	3.432E-01	-0.105
K-40	-8.423E+01	6.920E+01	3.164E+02	6.798E+00	-0.266
SC-46	1.092E+01	7.699E+00	3.630E+01	7.612E-01	0.301
CR-51	1.508E+02	1.493E+02	6.215E+02	1.243E+01	0.243
MN-54	-6.128E+00	7.446E+00	2.630E+01	5.398E-01	-0.233
CO-57	2.351E+01	1.214E+02	4.537E+02	9.379E+00	0.052
CO-58	-1.116E+01	5.861E+00	1.567E+01	3.211E-01	-0.712
FE-59	2.214E+01	9.973E+00	5.801E+01	1.214E+00	0.382
CO-60	-3.510E-02	4.262E+00	1.865E+01	3.972E-01	-0.002
ZN-65	-1.177E+01	1.220E+01	4.298E+01	9.008E-01	-0.274
SE-75	-2.596E+01	1.866E+01	6.278E+01	1.260E+00	-0.414
SR-85	-4.015E+01	1.478E+01	4.264E+01	8.569E-01	-0.942
Y-88	2.033E+00	3.698E+00	1.957E+01	4.311E-01	0.104
NB-94	-3.113E+00	3.222E+00	1.221E+01	2.514E-01	-0.255
NB-95	8.664E+00	8.346E+00	3.899E+01	7.964E-01	0.222
TC-95M	4.255E+01	2.173E+01	8.930E+01	1.806E+00	0.476
ZR-95	-4.820E+00	1.034E+01	4.126E+01	8.422E-01	-0.117
ZRNB-95	1.328E+01	1.321E+01	6.161E+01	1.259E+00	0.216
RH-101	1.217E+01	1.613E+01	6.135E+01	1.242E+00	0.198
RH-102M	3.540E+00	5.982E+00	2.599E+01	5.214E-01	0.136
RU-103	-5.451E+00	9.922E+00	3.757E+01	7.543E-01	-0.145
RU-106DA	-3.456E+01	7.142E+01	2.708E+02	5.476E+00	-0.128
AG-108M	-1.275E+00	7.276E+00	2.848E+01	5.705E-01	-0.045
AG-110M	5.186E+00	6.858E+00	3.218E+01	6.631E-01	0.161
SN-113DA	1.303E+01	1.266E+01	5.449E+01	1.090E+00	0.239
SB-124	9.153E+00	9.202E+00	3.997E+01	8.074E-01	0.229

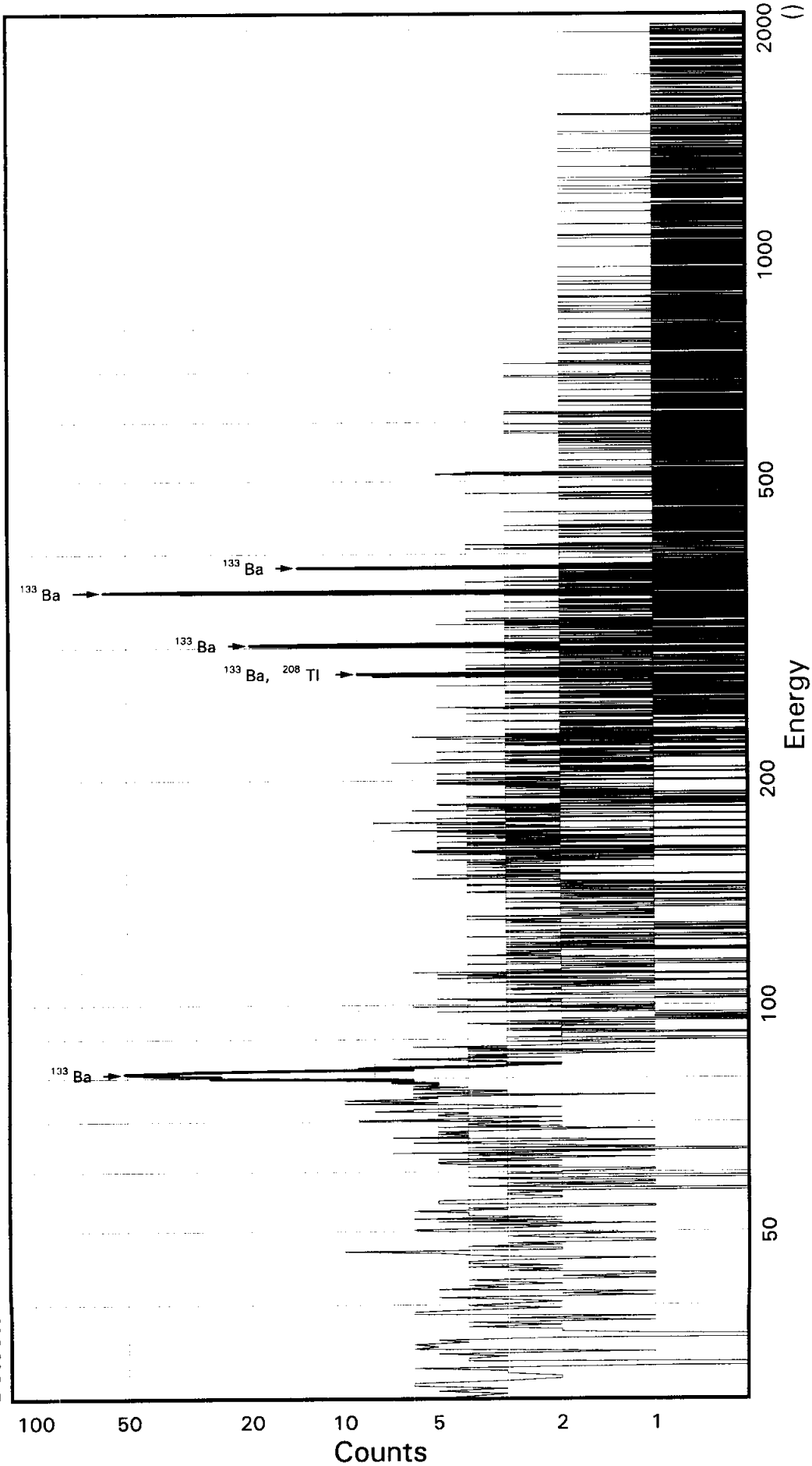
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	-3.138E+01		2.563E+01	8.824E+01	1.767E+00	-0.356
SN-126DA	1.830E+00		5.375E+00	2.308E+01	4.681E-01	0.079
I-131	-1.239E+02		8.855E+01	2.886E+02	5.771E+00	-0.429
CS-134	-9.805E+00		5.504E+00	1.564E+01	3.201E-01	-0.627
CS-137DA	8.463E+00		6.157E+00	2.943E+01	5.968E-01	0.288
LA-138	-1.090E+01		7.549E+00	2.408E+01	5.165E-01	-0.453
CE-139	-2.003E+01		1.435E+01	4.756E+01	9.714E-01	-0.421
BA-140	-5.763E+01		1.039E+02	3.835E+02	7.718E+00	-0.150
BALA-140	-4.259E+01		2.470E+01	3.899E+01	8.455E-01	-1.093
CE-141	-4.107E+01		4.431E+01	1.532E+02	3.154E+00	-0.268
CE-144	-1.380E+02		1.071E+02	3.640E+02	7.537E+00	-0.379
CEPR-144	-2.760E+02		2.142E+02	7.281E+02	1.507E+01	-0.379
PM-144	1.015E+01		7.536E+00	3.314E+01	6.700E-01	0.306
PM-146	-4.683E+00		7.825E+00	3.008E+01	6.028E-01	-0.156
EU-152	4.534E+00		3.115E+01	1.196E+02	2.392E+00	0.038
EU-154	-4.717E+00		1.078E+01	4.497E+01	9.536E-01	-0.105
EU-155	1.026E+01		6.347E+01	2.288E+02	4.827E+00	0.045
HF-181	5.966E+00		9.338E+00	4.167E+01	8.361E-01	0.143
BI-207	4.690E+00		5.630E+00	2.501E+01	5.043E-01	0.187
TL-208	-3.893E+00		7.057E+00	2.715E+01	5.478E-01	-0.143
BI-210M	6.539E+00		1.612E+01	6.428E+01	1.290E+00	0.102
BI-212	5.222E+00		7.178E+01	3.063E+02	9.364E+00	0.017
PB-212	1.417E+01		2.288E+01	9.566E+01	1.924E+00	0.148
BI-214	2.210E+01		1.924E+01	8.409E+01	1.699E+00	0.263
PB-214	6.486E+00		2.907E+01	1.019E+02	2.039E+00	0.064
RA-223	-2.142E+00		5.916E+01	2.276E+02	4.565E+00	-0.009
RA-224DA	1.453E+01		2.347E+01	9.810E+01	1.973E+00	0.148
RA-226DA	2.224E+01		1.926E+01	8.417E+01	1.701E+00	0.264
AC-227DA	-1.631E+02		8.628E+01	2.792E+02	5.617E+00	-0.584
AC-228	1.689E+00		2.359E+01	1.014E+02	2.093E+00	0.017
RA-228DA	1.703E+00		2.379E+01	1.022E+02	2.110E+00	0.017
TH-228DA	-1.111E+01		2.014E+01	7.750E+01	1.564E+00	-0.143
TH-232DA	3.290E+01		6.838E+01	2.686E+02	5.373E+00	0.122
TH-234DA	2.562E+02		5.779E+02	2.775E+03	5.768E+01	0.092
U-234DA	-1.555E+01		5.029E+01	1.841E+02	3.687E+00	-0.084
U-235HP	1.767E+02		1.074E+02	4.369E+02	9.000E+00	0.404
NP-237DA	2.138E+01		2.419E+01	9.773E+01	1.956E+00	0.219
U-238DA	6.486E+00		2.907E+01	1.019E+02	2.039E+00	0.064
U-238DHP	-2.069E+01		4.446E+02	1.612E+03	3.589E+01	-0.013
AM-241HP	-3.610E+01		4.013E+01	1.384E+02	3.105E+00	-0.261

TAL Richland WA.
BA133

Batch ID: 8042383

Sample ID: KF8N81AE
Detector ID: GER10 1



Energy Coefficients:
Offset: 1.46448E+01
Slope: 2.47302E-01
Quadrature: -6.39859E-09

Acquisition Start: 3-MAR-2008 18:28:47.94
Preset Live Time: 0 00:30:00.00
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KF8N81AE

CONFIGURATION ID: GER10:KF8N81AE_030381828
TITLE : BA133
SAMPLE ID : KF8N81AE

REPORT DATE: 03-MAR-08
ACQUIRE DATE: 03-MAR-08 18:28:47
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00
CALIB DATE: 3-MAR-2008 05:13:52.76
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY: BA133T15

UNITS: SAMPL
SAMPLE TYPE:

ENERGY OFFSET: 1.4645E+01 keV
ENERGY SLOPE: 2.4730E-01 keV/C
ENERGY Q COEFF: -.6399E-08 keV/C²
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 1.1049E+00 keV
FWHM SLOPE: 2.7867E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]QRL.NLB


```

Configuration      : $DISK1:[GER10.SAMPLE]KF8N81AE_030381828.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date : 3-MAR-2008 18:28:47
Sample ID        : KF8N81AE               Sample quantity  : 1.0000 SAMPL
Sample type      :                       Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.22   0.0%
Start energy     :      17.12             End energy       :      2040.11
Sensitivity      :      5.00             Gaussian        :      10.00
Critical level   : No
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	81.00	287	87	1.24	268.30	257	22	1.59E-01	10.2	
2	1	275.63	21	14	1.55	1055.37	1050	18	1.15E-02	39.1	4.13E+00
3	1	277.03	49	17	1.57	1061.00	1050	18	2.73E-02	20.6	
4	0	302.69	127	13	1.76	1164.78	1154	19	7.07E-02	10.5	
5	0	356.07	338	14	1.62	1380.64	1370	21	1.88E-01	5.9	
6	0	383.94	42	13	0.52	1493.34	1485	20	2.31E-02	23.9	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : $DISK1:[GER10.SAMPLE]KF8N81AE_030381828.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00  Acquisition date : 3-MAR-2008 18:28:47
Sample ID        : KF8N81AE                Sample quantity  : 1.0000 SAMPL
Sample type      :                          Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00          Elapsed real time: 0 00:30:00.22    0.0%
Energy tolerance  :      1.50              Half life ratio  :      8.00
Errors propagated: Yes                    Systematic Error :      5.00 %
Efficiency type   : Empirical              Efficiencies at  : Peak Energy
Abundance limit  :      80.00
    
```

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
BA-133	81.00	287	33.00	2.478E+00	1.170E+03	1.175E+03	11.57
	276.40	49	6.90	2.637E+00	9.014E+02	9.055E+02	21.29
	302.84	127	17.80	2.640E+00	9.033E+02	9.074E+02	11.84
	356.00	338	62.05*	2.642E+00	6.873E+02	6.904E+02	8.01
	383.85	42	8.70	2.641E+00	6.044E+02	6.071E+02	24.53

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : KF8N81AE

Page : 2
Acquisition date : 3-MAR-2008 18:28:47

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
1	275.63	21	14	1.55	1055.37	1050	18	1.15E-02	39.1	2.64E+00	

Flags: "T" = Tentatively associated

Rejected Report
Sample ID : KF8N81AE

Page : 3
Acquisition date : 3-MAR-2008 18:28:47

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (DPM/SAMPL)	1-Sigma %Error	Rejected by
TL-208	1.41E+10Y	0.00	277.35	6.80	9.146E+02	21.29	Abun.
			510.84	21.60	---	Not Found	---
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
		% Abundances Found =		5.44			

Flag: "*" = Keyline

```

Configuration      : $DISK1:[GER10.SAMPLE]KF8N81AE_030381828.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by       : MINACT V2.8
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date : 3-MAR-2008 18:28:47
Sample ID        : KF8N81AE               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.22   0.0%
Peak Width (FWHM):      3.00             Confidence level :      5.00 %
Energy tolerance :      1.50             Half life ratio  :      8.00
Errors propagatd: Yes                    Systematic Error :      5.00 %
Efficiency type  : Empirical              Efficiencies at  : Peak Energy
Abundance limit  :      80.00            WTM error limit  :      3.00
    
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BA-133	6.904E+02	5.528E+01	5.275E+01	1.055E+00	13.088

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-2.352E+01	7.500E+01	2.806E+02	5.626E+00	-0.084
NA-22	1.403E+00	2.992E+00	1.451E+01	3.043E-01	0.097
K-40	-3.544E+01	4.062E+01	1.881E+02	3.988E+00	-0.188
SC-46	-3.998E-02	4.667E+00	1.958E+01	4.068E-01	-0.002
CR-51	2.169E+02	1.633E+02	6.542E+02	1.309E+01	0.332
MN-54	-1.081E+00	4.438E+00	1.786E+01	3.649E-01	-0.061
CO-57	-5.845E+01	9.093E+01	3.231E+02	6.637E+00	-0.181
CO-58	-1.942E+00	5.743E+00	2.264E+01	4.619E-01	-0.086
FE-59	-1.123E+01	1.255E+01	4.472E+01	9.283E-01	-0.251
CO-60	-5.280E+00	3.772E+00	1.243E+01	2.616E-01	-0.425
ZN-65	-5.871E+00	6.936E+00	2.575E+01	5.350E-01	-0.228
SE-75	-2.267E+01	1.639E+01	5.356E+01	1.074E+00	-0.423
SR-85	-2.733E+01	1.268E+01	4.015E+01	8.061E-01	-0.681
Y-88	3.238E+00	2.296E+00	1.502E+01	3.250E-01	0.216
NB-94	-2.317E+00	4.764E+00	1.820E+01	3.727E-01	-0.127
NB-95	-7.311E-01	9.645E+00	3.690E+01	7.508E-01	-0.020
TC-95M	3.074E+00	2.214E+01	8.008E+01	1.616E+00	0.038
ZR-95	2.465E+00	1.116E+01	4.577E+01	9.307E-01	0.054
ZRNB-95	-1.164E+00	1.536E+01	5.877E+01	1.196E+00	-0.020
RH-101	1.387E+01	1.672E+01	6.197E+01	1.252E+00	0.224
RH-102M	-6.041E+00	6.203E+00	2.146E+01	4.303E-01	-0.282
RU-103	-7.705E+00	9.419E+00	3.331E+01	6.685E-01	-0.231
RU-106DA	-8.104E+01	4.710E+01	1.463E+02	2.952E+00	-0.554
AG-108M	-1.672E+00	8.437E+00	3.092E+01	6.190E-01	-0.054
AG-110M	-1.481E+01	7.065E+00	2.054E+01	4.210E-01	-0.721
SN-113DA	-6.900E+00	9.370E+00	3.398E+01	6.797E-01	-0.203
SB-124	-1.011E+00	8.676E+00	3.299E+01	6.652E-01	-0.031

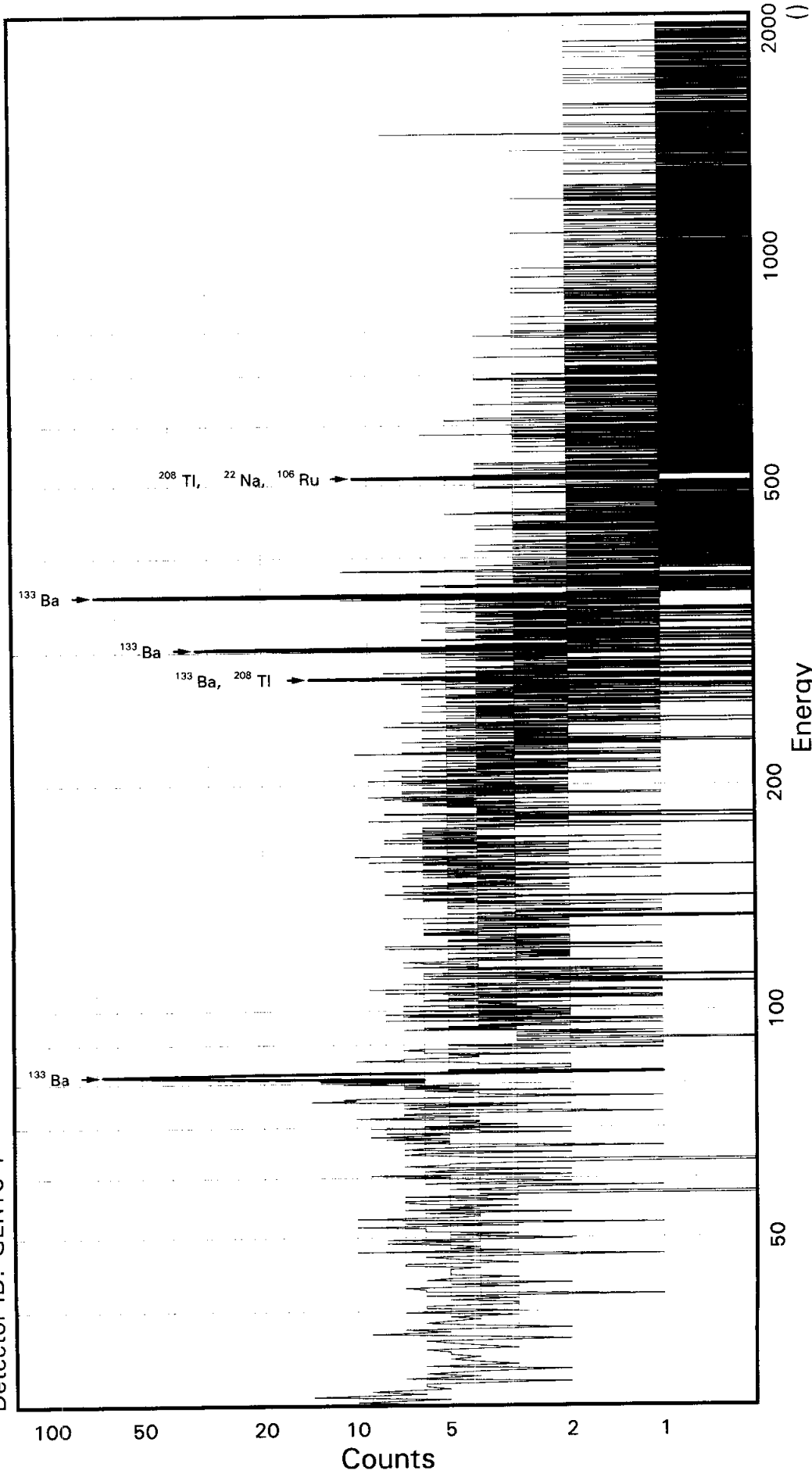
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	-1.348E+01		2.134E+01	7.685E+01	1.538E+00	-0.175
SN-126DA	-5.161E+00		4.064E+00	1.374E+01	2.779E-01	-0.376
I-131	-8.151E+01		9.076E+01	3.148E+02	6.296E+00	-0.259
CS-134	-3.741E+00		6.698E+00	2.443E+01	4.980E-01	-0.153
CS-137DA	4.669E+00		4.020E+00	1.986E+01	4.016E-01	0.235
LA-138	4.005E+00		2.840E+00	1.858E+01	3.933E-01	0.216
CE-139	2.481E+00		1.660E+01	6.012E+01	1.223E+00	0.041
BA-140	-8.232E+01		8.181E+01	2.905E+02	5.839E+00	-0.283
BALA-140	1.111E+01		1.112E+01	8.167E+01	1.745E+00	0.136
CE-141	-5.372E+01		3.957E+01	1.327E+02	2.716E+00	-0.405
CE-144	-1.870E+01		9.809E+01	3.563E+02	7.328E+00	-0.052
CEPR-144	-3.741E+01		1.962E+02	7.125E+02	1.466E+01	-0.052
PM-144	1.426E+01		6.703E+00	2.988E+01	6.029E-01	0.477
PM-146	1.140E+01		8.880E+00	3.817E+01	7.647E-01	0.299
EU-152	1.565E+01		2.886E+01	1.123E+02	2.246E+00	0.139
EU-154	3.900E+00		8.315E+00	4.031E+01	8.455E-01	0.097
EU-155	-2.726E+01		5.188E+01	1.797E+02	3.754E+00	-0.152
HF-181	1.533E+01		1.021E+01	4.480E+01	8.984E-01	0.342
BI-207	-2.445E+00		6.524E+00	2.429E+01	4.890E-01	-0.101
TL-208	6.114E-01		6.719E+00	2.650E+01	5.338E-01	0.023
BI-210M	-1.819E-01		1.701E+01	6.201E+01	1.243E+00	-0.003
BI-212	2.109E+01		7.156E+01	2.959E+02	9.032E+00	0.071
PB-212	9.117E+00		2.125E+01	7.895E+01	1.586E+00	0.115
BI-214	1.134E+01		1.396E+01	5.692E+01	1.148E+00	0.199
PB-214	-6.920E+00		2.432E+01	8.054E+01	1.611E+00	-0.086
RA-223	5.252E+01		6.226E+01	2.401E+02	4.812E+00	0.219
RA-224DA	9.349E+00		2.179E+01	8.096E+01	1.627E+00	0.115
RA-226DA	1.134E+01		1.396E+01	5.692E+01	1.148E+00	0.199
AC-227DA	2.219E+00		8.453E+01	3.065E+02	6.159E+00	0.007
AC-228	5.056E+00		1.539E+01	6.587E+01	1.352E+00	0.077
RA-228DA	5.099E+00		1.552E+01	6.642E+01	1.363E+00	0.077
TH-228DA	1.745E+00		1.918E+01	7.564E+01	1.524E+00	0.023
TH-232DA	-1.650E+01		6.211E+01	2.283E+02	4.565E+00	-0.072
TH-234DA	1.969E+02		6.020E+02	2.624E+03	5.414E+01	0.075
U-234DA	3.127E+01		4.631E+01	1.767E+02	3.538E+00	0.177
U-235HP	5.363E+00		1.010E+02	3.689E+02	7.557E+00	0.015
NP-237DA	-4.538E+00		2.129E+01	7.881E+01	1.577E+00	-0.058
U-238DA	-6.920E+00		2.432E+01	8.054E+01	1.611E+00	-0.086
U-238DHP	3.197E+01		3.582E+02	1.279E+03	2.792E+01	0.025
AM-241HP	-5.340E+01		3.470E+01	1.138E+02	2.500E+00	-0.469

TAL Richland WA.
BA133

Batch ID: 8042383

Sample ID: KF8N91AE
Detector ID: GER13 1



Energy Coefficients:
Offset: -5.63981E-01
Slope: 2.50883E-01
Quadrature: -1.19039E-07

Acquisition Start: 3-MAR-2008 18:29:00.01
Preset Live Time: 0 00:30:00.00
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KF8N91AE

CONFIGURATION ID: GER13:KF8N91AE_030381829
TITLE : BA133
SAMPLE ID : KF8N91AE

REPORT DATE: 03-MAR-08
ACQUIRE DATE: 03-MAR-08 18:29:00
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00
CALIB DATE: 3-MAR-2008 05:00:48.75
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY: BA133T15

UNITS: SAMPL
SAMPLE TYPE:

ENERGY OFFSET: -.5640E+00 keV
ENERGY SLOPE: 2.5088E-01 keV/C
ENERGY Q COEFF: -.1190E-06 keV/C²
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 3.2010E-01 keV
FWHM SLOPE: 4.8918E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 3-MAR-2008 18:59:20

```

Configuration      : $DISK1:[GER13.SAMPLE]KF8N91AE_030381829.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date : 3-MAR-2008 18:29:00
Sample ID        : KF8N91AE               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.39   0.0%
Start energy     :      19.51             End energy       :      2046.68
Sensitivity      :      5.00             Gaussian        :      10.00
Critical level   : No
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	81.87	197	63	0.67	328.64	323	13	1.09E-01	11.1	
2	0	276.18	64	17	0.87	1103.67	1094	16	3.57E-02	18.8	
3	0	302.70	154	16	0.91	1209.49	1201	16	8.56E-02	9.9	
4	0	355.85	353	46	1.23	1421.61	1411	24	1.96E-01	7.4	
5	0	510.89*	25	28	1.56	2040.60	2032	23	1.39E-02	65.0	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : $DISK1:[GER13.SAMPLE]KF8N91AE_030381829.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date : 3-MAR-2008 18:29:00
Sample ID        : KF8N91AE               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00          Elapsed real time: 0 00:30:00.39   0.0%
Energy tolerance :      1.50              Half life ratio  :      8.00
Errors propagated: Yes                    Systematic Error :      5.00 %
Efficiency type  : Empirical              Efficiencies at  : Peak Energy
Abundance limit  :      80.00
    
```

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
BA-133	81.00	197	33.00	2.677E+00	7.435E+02	7.469E+02	12.40
	276.40	64	6.90	2.869E+00	1.081E+03	1.086E+03	19.52
	302.84	154	17.80	2.872E+00	1.004E+03	1.009E+03	11.30
	356.00	353	62.05*	2.875E+00	6.589E+02	6.620E+02	9.18
	383.85	-----	8.70	2.874E+00	-----	Line Not Found	-----

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : KF8N91AE

Page : 2
Acquisition date : 3-MAR-2008 18:29:00

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	510.89	25	28	1.56	2040.60	2032	23	1.39E-02	65.0	2.86E+00	T

Flags: "T" = Tentatively associated

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (DPM/SAMPL)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.03	511.00	179.68	1.647E+01	65.24	Abun.
			1274.54*	99.94	---	Not Found	---
% Abundances Found =			64.26				
RU-106DA	368.20D	0.07	511.85	20.60	1.479E+02	65.24	Abun.
			621.84*	9.80	---	Not Found	---
% Abundances Found =			67.76				
TL-208	1.41E+10Y	0.00	277.35	6.80	1.097E+03	19.52	Abun.
			510.84	21.60	1.345E+02	65.24	
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
% Abundances Found =			22.71				

Flag: "*" = Keyline

Configuration : \$DISK1:[GER13.SAMPLE]KF8N91AE_030381829.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
 Analyses by : MINACT V2.8
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 18:29:00
 Sample ID : KF8N91AE Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.39 0.0%
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BA-133	6.620E+02	6.076E+01	5.829E+01	1.166E+00	11.357

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-5.261E+00	8.383E+01	3.133E+02	6.283E+00	-0.017
NA-22	5.329E-01	4.838E+00	1.939E+01	4.091E-01	0.027
K-40	-1.110E+02	9.614E+01	4.458E+02	9.522E+00	-0.249
SC-46	5.514E+00	7.125E+00	3.112E+01	6.499E-01	0.177
CR-51	-1.351E+02	1.721E+02	5.927E+02	1.186E+01	-0.228
MN-54	4.751E+00	5.101E+00	2.187E+01	4.480E-01	0.217
CO-57	7.982E+01	9.790E+01	3.654E+02	7.533E+00	0.218
CO-58	-5.353E-01	6.897E+00	2.647E+01	5.414E-01	-0.020
FE-59	-5.619E+00	1.078E+01	4.152E+01	8.658E-01	-0.135
CO-60	-1.005E+00	4.040E+00	1.623E+01	3.439E-01	-0.062
ZN-65	-5.404E+00	1.118E+01	4.187E+01	8.741E-01	-0.129
SE-75	-4.943E+00	1.838E+01	6.628E+01	1.329E+00	-0.075
SR-85	2.379E+01	1.121E+01	4.275E+01	8.588E-01	0.557
Y-88	-3.197E+00	3.763E+00	1.394E+01	3.047E-01	-0.229
NB-94	-4.223E+00	5.443E+00	1.975E+01	4.055E-01	-0.214
NB-95	6.964E+00	9.079E+00	3.747E+01	7.640E-01	0.186
TC-95M	3.228E+00	2.402E+01	8.556E+01	1.729E+00	0.038
ZR-95	3.700E+00	1.410E+01	5.517E+01	1.124E+00	0.067
ZRNB-95	1.146E+01	1.450E+01	5.992E+01	1.222E+00	0.191
RH-101	-6.425E+00	1.570E+01	5.485E+01	1.110E+00	-0.117
RH-102M	6.601E-01	6.579E+00	2.501E+01	5.016E-01	0.026
RU-103	1.928E+01	1.143E+01	4.795E+01	9.626E-01	0.402
RU-106DA	5.774E-01	7.219E+01	2.701E+02	5.457E+00	0.002
AG-108M	-1.191E+01	7.868E+00	2.581E+01	5.169E-01	-0.461
AG-110M	-7.936E+00	8.275E+00	2.932E+01	6.026E-01	-0.271
SN-113DA	-8.582E+00	1.242E+01	4.445E+01	8.892E-01	-0.193
SB-124	4.640E-01	7.611E+00	2.944E+01	5.943E-01	0.016

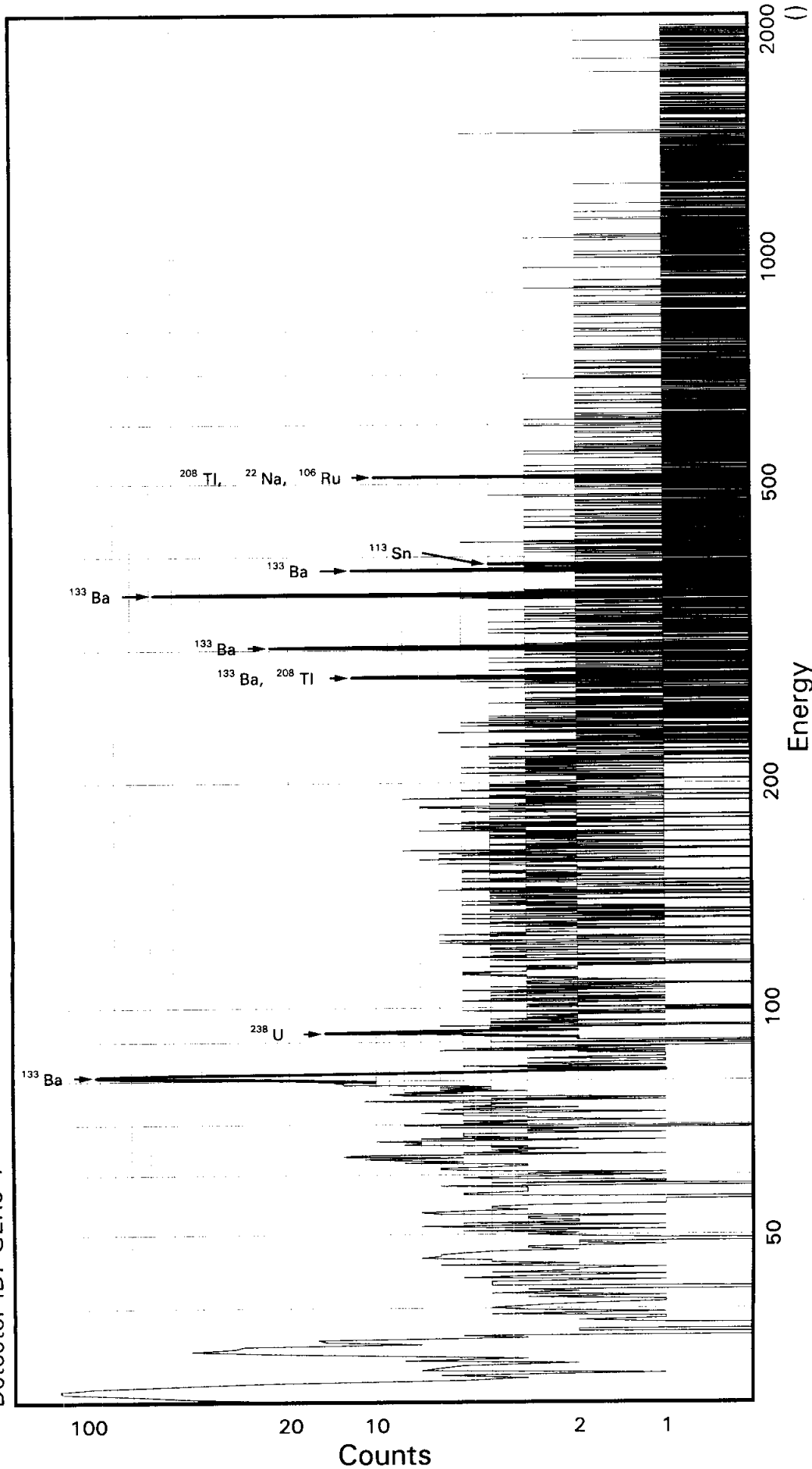
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	1.192E+01		2.161E+01	8.555E+01	1.713E+00	0.139
SN-126DA	-4.762E+00		7.147E+00	2.499E+01	5.062E-01	-0.191
I-131	6.005E+01		8.447E+01	3.220E+02	6.440E+00	0.186
CS-134	-6.006E+00		7.030E+00	2.471E+01	5.049E-01	-0.243
CS-137DA	5.864E+00		7.845E+00	3.091E+01	6.260E-01	0.190
LA-138	1.855E+00		5.560E+00	2.428E+01	5.177E-01	0.076
CE-139	1.101E+00		1.578E+01	5.729E+01	1.168E+00	0.019
BA-140	-1.085E+02		1.101E+02	3.839E+02	7.722E+00	-0.283
BALA-140	5.439E+01		3.431E+01	1.649E+02	3.551E+00	0.330
CE-141	-1.064E+01		4.260E+01	1.466E+02	3.011E+00	-0.073
CE-144	-1.010E+02		9.869E+01	3.298E+02	6.807E+00	-0.306
CEPR-144	-2.048E+02		1.972E+02	6.583E+02	1.359E+01	-0.311
PM-144	8.724E+00		7.861E+00	3.123E+01	6.309E-01	0.279
PM-146	6.064E+00		1.021E+01	4.001E+01	8.017E-01	0.152
EU-152	1.403E+01		3.555E+01	1.302E+02	2.605E+00	0.108
EU-154	2.299E-01		1.328E+01	5.282E+01	1.114E+00	0.004
EU-155	-2.658E+01		5.094E+01	1.791E+02	3.761E+00	-0.148
HF-181	-8.868E+00		1.162E+01	4.065E+01	8.154E-01	-0.218
BI-207	3.619E+00		7.790E+00	2.981E+01	6.005E-01	0.121
TL-208	1.011E+01		8.852E+00	3.661E+01	7.382E-01	0.276
BI-210M	-7.252E+00		1.942E+01	6.946E+01	1.393E+00	-0.104
BI-212	-6.904E+01		6.625E+01	2.342E+02	7.155E+00	-0.295
PB-212	-2.313E+00		2.567E+01	9.111E+01	1.832E+00	-0.025
BI-214	5.667E+00		1.666E+01	7.005E+01	1.414E+00	0.081
PB-214	1.532E+01		3.129E+01	1.076E+02	2.151E+00	0.142
RA-223	-3.595E+01		7.220E+01	2.560E+02	5.134E+00	-0.140
RA-224DA	-2.372E+00		2.633E+01	9.342E+01	1.878E+00	-0.025
RA-226DA	5.566E+00		1.666E+01	7.001E+01	1.414E+00	0.080
AC-227DA	-1.062E+02		9.741E+01	3.222E+02	6.481E+00	-0.330
AC-228	-6.274E+00		2.114E+01	8.926E+01	1.838E+00	-0.070
RA-228DA	-6.327E+00		2.131E+01	9.001E+01	1.853E+00	-0.070
TH-228DA	2.885E+01		2.526E+01	1.045E+02	2.107E+00	0.276
TH-232DA	7.666E+01		7.081E+01	2.719E+02	5.438E+00	0.282
TH-234DA	1.707E+02		6.172E+02	2.604E+03	5.395E+01	0.066
U-234DA	-5.963E+01		5.641E+01	1.954E+02	3.913E+00	-0.305
U-235HP	7.376E+01		1.118E+02	4.032E+02	8.286E+00	0.183
NP-237DA	3.276E+01		2.482E+01	9.666E+01	1.934E+00	0.339
U-238DA	1.532E+01		3.129E+01	1.076E+02	2.151E+00	0.142
U-238DHP	-4.012E+02		2.847E+02	9.247E+02	2.040E+01	-0.434
AM-241HP	3.073E+01		2.969E+01	1.122E+02	2.494E+00	0.274

TAL Richland WA.
BA133

Batch ID: 8042383

Sample ID: KF8PD1AE
Detector ID: GER5 1



Energy Coefficients:
Offset: -3.45528E-01
Slope: 2.49358E-01
Quadrature: 1.90135E-10

Acquisition Start: 3-MAR-2008 18:29:31.56
Preset Live Time: 0 00:30:00.00
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KF8PD1AE

CONFIGURATION ID: GER5:KF8PD1AE_030381829
TITLE : BA133
SAMPLE ID : KF8PD1AE

REPORT DATE: 03-MAR-08
ACQUIRE DATE: 03-MAR-08 18:29:31
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00
CALIB DATE: 3-MAR-2008 04:59:58.96
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY: BA133T15

UNITS: SAMPL
SAMPLE TYPE:

ENERGY OFFSET: -.3455E+00 keV
ENERGY SLOPE: 2.4936E-01 keV/C
ENERGY Q COEFF: 1.9013E-10 keV/C²
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 7.6593E-01 keV
FWHM SLOPE: 2.6416E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]QRL.NLB


```

Configuration      : RDND06$DKA100:[GER5.SAMPLE]KF8PD1AE_030381829.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date  : 3-MAR-2008 18:29:31
Sample ID        : KF8PD1AE               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.24   0.0%
Start energy     :      19.60             End energy       :      2042.41
Sensitivity      :      5.00             Gaussian        :      10.00
Critical level   : No
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	30.98	504	87	0.90	125.61	119	13	2.80E-01	5.9	
2	0	35.56	149	58	0.81	143.99	135	16	8.27E-02	14.2	
3	0	81.05	336	86	0.91	326.41	321	15	1.87E-01	8.6	
4	0	92.52*	4	33	0.40	372.44	365	14	2.03E-03	377.2	
5	0	276.21	54	3	1.27	1109.09	1102	13	3.00E-02	15.2	
6	0	302.68	94	11	0.89	1215.23	1206	15	5.25E-02	12.8	
7	0	355.91	294	9	1.20	1428.69	1420	17	1.64E-01	6.3	
8	0	383.68	50	3	0.64	1540.07	1532	15	2.75E-02	16.5	
9	0	391.55	9	7	1.64	1571.60	1561	13	5.07E-03	66.8	
10	0	510.83*	1	4	0.39	2049.96	2042	15	5.68E-04	753.4	

Flag: "*" = Peak area was modified by background subtraction

Configuration : RDND06\$DKA100:[GER5.SAMPLE]KF8PD1AE_030381829.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 18:29:31
 Sample ID : KF8PD1AE Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.24 0.0%
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
SN-113DA	391.69	9	64.90*	2.076E+00	2.258E+01	2.629E+01	66.99
BA-133	81.00	336	33.00	1.919E+00	1.768E+03	1.776E+03	10.16
	276.40	54	6.90	2.071E+00	1.260E+03	1.266E+03	16.14
	302.84	94	17.80	2.074E+00	8.530E+02	8.570E+02	13.92
	356.00	294	62.05*	2.076E+00	7.618E+02	7.653E+02	8.25
	383.85	50	8.70	2.076E+00	9.145E+02	9.187E+02	17.38

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : KF8PD1AE

Page : 2
Acquisition date : 3-MAR-2008 18:29:31

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	30.98	504	87	0.90	125.61	119	13	2.80E-01	5.9	1.68E+00	
0	35.56	149	58	0.81	143.99	135	16	8.27E-02	14.2	1.72E+00	
0	92.52	4	33	0.40	372.44	365	14	2.03E-03	****	1.95E+00	T
0	510.83	1	4	0.39	2049.96	2042	15	5.68E-04	****	2.07E+00	T

Flags: "T" = Tentatively associated

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (DPM/SAMPL)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.03	511.00	179.68	9.343E-01	753.45	Abun.
			1274.54*	99.94	---	Not Found	---
			% Abundances Found =		64.26		
RU-106DA	368.20D	0.07	511.85	20.60	8.390E+00	753.45	Abun.
			621.84*	9.80	---	Not Found	---
			% Abundances Found =		67.76		
TL-208	1.41E+10Y	0.00	277.35	6.80	1.279E+03	16.14	Abun.
			510.84	21.60	7.630E+00	753.45	
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
% Abundances Found =		22.71					
U-238DHP	4.47E+09Y	0.00	63.28*	3.80	---	Not Found	---
			92.59	5.41	1.156E+02	377.29	Abun.
			% Abundances Found =		58.74		

Flag: "*" = Keyline

Configuration : RDND06\$DKA100:[GER5.SAMPLE]KF8PD1AE_030381829.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,WTMEAN/KEY V1.8
 Analyses by : MINACT V2.8
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 18:29:31
 Sample ID : KF8PD1AE Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.24 0.0%
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SN-113DA	2.629E+01	1.761E+01	3.266E+01	6.534E-01	0.805
BA-133	7.653E+02	6.316E+01	5.147E+01	1.029E+00	14.870

---- Non-Identified Nuclides ----

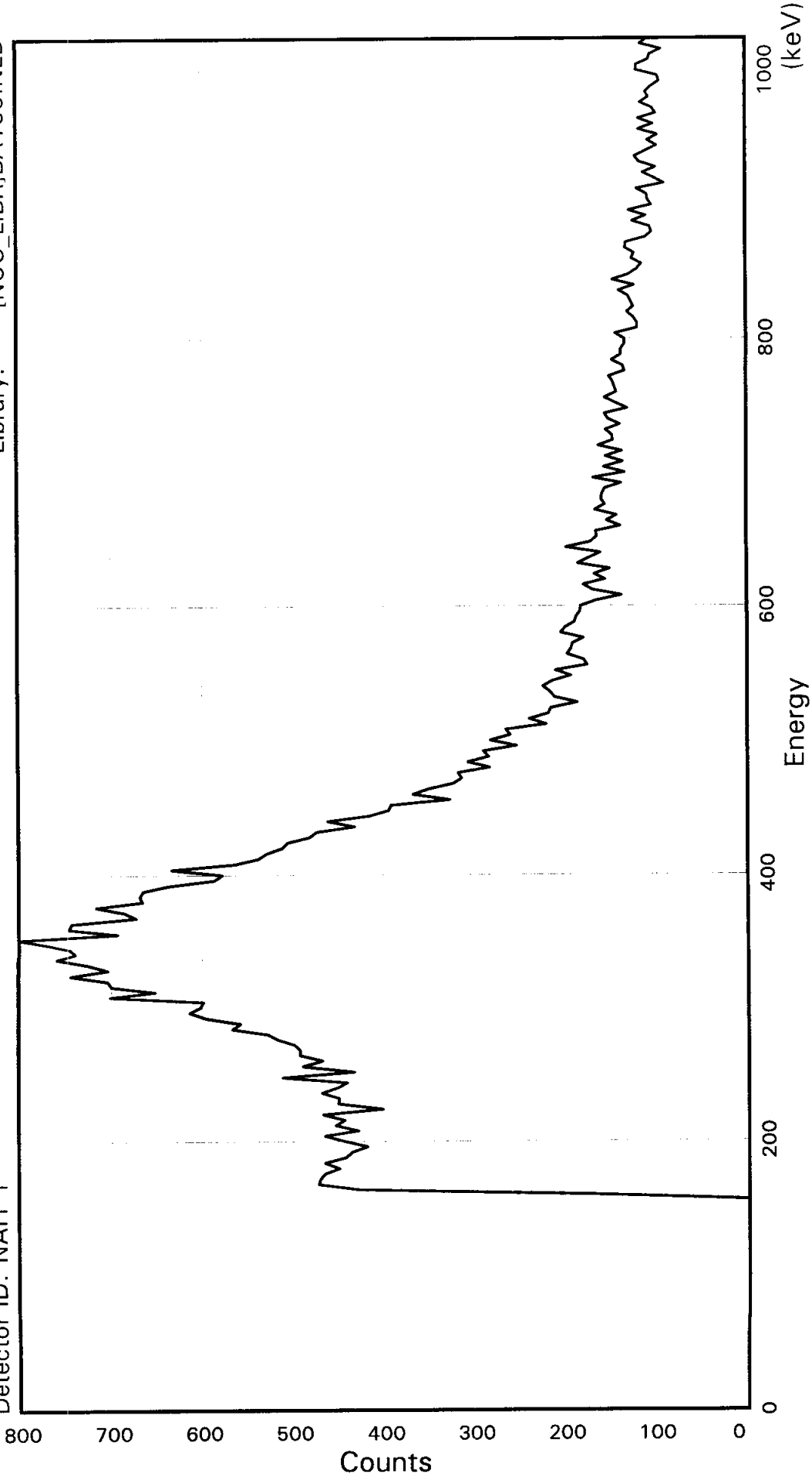
Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-1.957E+02	8.441E+01	2.308E+02	4.630E+00	-0.848
NA-22	5.107E+00	4.635E+00	2.273E+01	4.819E-01	0.225
NA-24	-1.126E+05	2.375E+06	Half-Life too short		
K-40	4.421E+01	7.125E+01	3.536E+02	7.597E+00	0.125
SC-46	-1.999E+00	6.199E+00	2.490E+01	5.221E-01	-0.080
CR-51	3.845E+02	1.637E+02	7.220E+02	1.445E+01	0.533
MN-54	-1.540E-01	4.985E+00	2.092E+01	4.295E-01	-0.007
CO-57	-7.664E+00	1.341E+02	4.760E+02	9.840E+00	-0.016
CO-58	-4.184E-01	5.988E+00	2.510E+01	5.143E-01	-0.017
FE-59	4.459E+00	7.601E+00	4.087E+01	8.556E-01	0.109
CO-60	-3.731E+00	4.345E+00	1.600E+01	3.408E-01	-0.233
ZN-65	-1.762E+00	9.692E+00	4.048E+01	8.485E-01	-0.044
SE-75	2.742E+00	1.878E+01	7.052E+01	1.415E+00	0.039
SR-85	5.901E+00	7.707E+00	3.084E+01	6.199E-01	0.191
Y-88	1.939E+00	4.763E+00	2.256E+01	4.970E-01	0.086
NB-94	1.489E+00	4.435E+00	1.983E+01	4.082E-01	0.075
NB-95	8.121E+00	7.179E+00	3.548E+01	7.246E-01	0.229
TC-95M	-1.926E+01	2.458E+01	8.565E+01	1.732E+00	-0.225
ZR-95	3.951E+00	1.403E+01	5.846E+01	1.193E+00	0.068
ZRNB-95	1.725E+01	1.061E+01	5.650E+01	1.154E+00	0.305
MO-99	1.771E-03	4.057E-03	Half-Life too short		
RH-101	4.020E+00	1.856E+01	6.827E+01	1.382E+00	0.059
RH-102M	1.616E+00	6.702E+00	2.732E+01	5.481E-01	0.059
RU-103	-1.626E+01	1.233E+01	4.109E+01	8.251E-01	-0.396
RU-106DA	8.770E+01	4.590E+01	2.448E+02	4.952E+00	0.358
AG-108M	-1.075E+01	9.052E+00	3.091E+01	6.191E-01	-0.348

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
AG-110M	-1.267E+01		5.708E+00	6.605E+00	1.361E-01	-1.919
SB-124	5.038E+00		7.512E+00	3.326E+01	6.719E-01	0.151
SB-125	-4.988E+00		2.145E+01	8.367E+01	1.675E+00	-0.060
SN-126DA	-3.048E+00		3.908E+00	1.512E+01	3.066E-01	-0.202
I-131	-8.820E+01		8.392E+01	2.949E+02	5.899E+00	-0.299
CS-134	1.085E+01		6.120E+00	3.045E+01	6.233E-01	0.356
CS-137DA	2.938E+00		5.791E+00	2.587E+01	5.247E-01	0.114
LA-138	-5.372E+00		6.071E+00	2.301E+01	4.934E-01	-0.234
CE-139	-1.135E+01		1.851E+01	6.558E+01	1.339E+00	-0.173
BA-140	-1.740E+02		1.097E+02	3.484E+02	7.010E+00	-0.500
BALA-140	-4.282E+01		3.207E+01	1.055E+02	2.288E+00	-0.406
LA-140	-9.395E-02		6.186E-02	Half-Life too short		
CE-141	-1.128E+01		4.508E+01	1.643E+02	3.382E+00	-0.069
CE-144	1.074E+01		1.228E+02	4.434E+02	9.179E+00	0.024
CEPR-144	1.885E+01		2.455E+02	8.856E+02	1.833E+01	0.021
PM-144	3.860E+00		5.838E+00	2.579E+01	5.215E-01	0.150
PM-146	2.626E-01		9.998E+00	3.973E+01	7.962E-01	0.007
EU-152	-6.885E+00		2.780E+01	1.067E+02	2.135E+00	-0.065
EU-154	1.419E+01		1.288E+01	6.315E+01	1.339E+00	0.225
EU-155	5.795E+01		6.408E+01	2.430E+02	5.126E+00	0.238
HF-181	2.060E+01		1.224E+01	5.546E+01	1.113E+00	0.372
BI-207	5.938E+00		6.289E+00	2.740E+01	5.523E-01	0.217
TL-208	-7.865E+00		8.196E+00	3.049E+01	6.151E-01	-0.258
BI-210M	-2.346E+01		2.059E+01	6.930E+01	1.390E+00	-0.338
BI-212	7.130E+01		1.014E+02	4.287E+02	1.310E+01	0.166
PB-212	-1.695E+01		2.534E+01	9.600E+01	1.931E+00	-0.177
BI-214	2.556E+01		1.581E+01	7.027E+01	1.420E+00	0.364
PB-214	2.941E+01		3.270E+01	1.167E+02	2.334E+00	0.252
RA-223	-2.666E+01		7.854E+01	2.814E+02	5.644E+00	-0.095
RA-224DA	-1.738E+01		2.598E+01	9.844E+01	1.980E+00	-0.177
RA-226DA	2.570E+01		1.583E+01	7.036E+01	1.422E+00	0.365
AC-227DA	-1.623E+02		9.849E+01	3.188E+02	6.415E+00	-0.509
AC-228	-1.019E+01		2.244E+01	8.977E+01	1.853E+00	-0.113
RA-228DA	-1.027E+01		2.262E+01	9.053E+01	1.869E+00	-0.113
TH-228DA	-2.245E+01		2.339E+01	8.702E+01	1.756E+00	-0.258
TH-232DA	5.103E+01		7.255E+01	2.909E+02	5.818E+00	0.175
TH-234DA	1.045E+03		7.216E+02	3.617E+03	7.517E+01	0.289
U-234DA	-2.955E+01		5.537E+01	1.947E+02	3.899E+00	-0.152
U-235HP	1.703E+02		1.234E+02	4.872E+02	1.004E+01	0.350
NP-237DA	-2.408E+01		2.241E+01	7.579E+01	1.517E+00	-0.318
U-238DA	2.941E+01		3.270E+01	1.167E+02	2.334E+00	0.252
U-238DHP	1.224E+02		5.419E+02	2.043E+03	4.549E+01	0.060
AM-241HP	-9.825E+01		4.470E+01	1.413E+02	3.171E+00	-0.695

TAL Richland WA.
BA133

Sample ID: KF8PE1AE
Detector ID: NAI1 1
BatchID: 8042383
Library: [NUC_LIBR]BA133.NLB



Acquisition Start: 3-MAR-2008 18:29:46.1
Preset Live Time: 0 00:30:00
Elapsed Live Time: 0 00:30:00
Weighting: DERIVED
Start Channel: 80
End Channel: 113
Iterations: 5
Gain shift: Iter

SAMPLE IDENTIFICATION: KF8PE1AE

CONFIGURATION ID: NAI1:KF8PE1AE_030381829
TITLE : BA133
SAMPLE ID : KF8PE1AE

REPORT DATE: 03-MAR-08
ACQUIRE DATE: 03-MAR-08 18:29:46
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00
CALIB DATE: 17-NOV-1993 10:39:59.60
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY:

UNITS: SAMPL
SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV
ENERGY SLOPE: 4.0000E+00 keV/C
ENERGY Q COEFF: 0.0000E+00 keV/C²
PEAK SENSITIVITY: 5.000

FWHM OFFSET: -.2302E+02 keV
FWHM SLOPE: 5.7163E+00 sqr keV
ITERATIONS: 5
GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %
ENERGY TOLERANCE: 20.000 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]BA133.NLB

Configuration : RDND06\$DKA100:[NAI1.SAMPLE]KF8PE1AE_030381829.CNF;1
Analyses by : NAI V3.0
Sample title : BA133
Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 18:29:46
Sample ID : KF8PE1AE Sample quantity : 1.0000 sampl
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.67 0.0%
Sample Multiplier: 1.00 Rejection Coeff. : 0.00
Gain shift type : ITER Threshold Shift : No
Weighting type : DERIVED Calculated counts: No
Iterations : 5

NAI Residuals Report

Ratio of Residuals Over Standard Deviation Per Channel

80:	5.6	5.9	3.6	3.8	4.8	2.9	3.9	3.7
88:	3.8	-1.0	0.3	0.3	-2.0	-2.2	1.4	-0.5
96:	-1.1	-1.0	-1.8	-3.8	-5.0	0.1	-3.1	-3.2
104:	-3.6	-4.3	-4.1	-3.6	-2.5	-3.5	-2.9	-4.2
112:	-4.3	-3.7						

List of Suspicious Channels

81 82 83 84 85 86 87

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	1.25E+01	0.00E+00	1.02E+00
2	4.75E+00	0.00E+00	1.05E+00
3	2.04E+00	0.00E+00	1.06E+00
4	7.19E-01	0.00E+00	1.07E+00

Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	760.	7.83

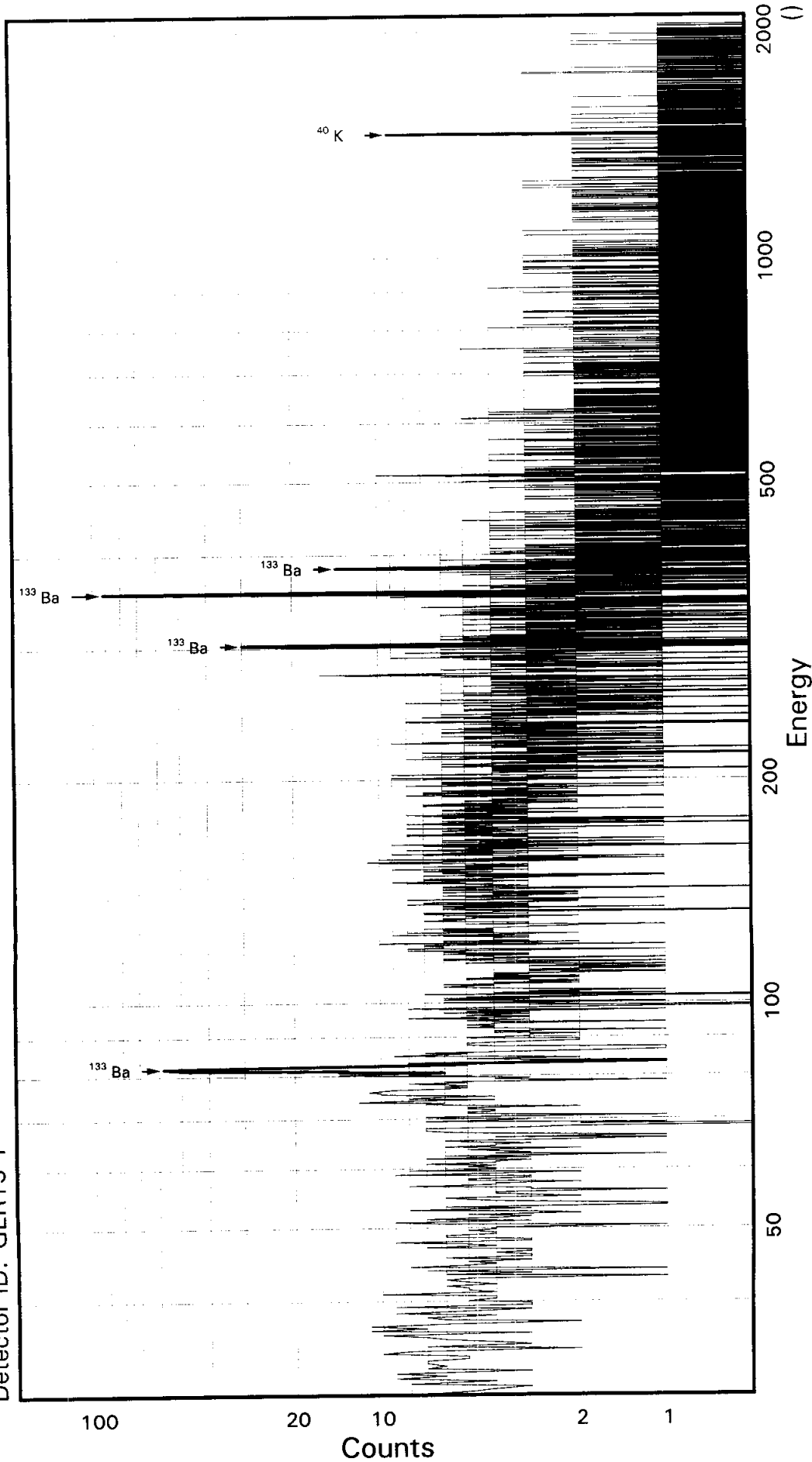
Total Activity :	760.	

TAL Richland WA.

BA133

Batch ID: 8042383

Sample ID: KF8PG1AH
Detector ID: GER13 1



Energy Coefficients:
Offset: -5.63981E-01
Slope: 2.50883E-01
Quadrature: -1.19039E-07

Acquisition Start: 3-MAR-2008 19:51:34.71
Preset Live Time: 0 00:30:00.00
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KF8PG1AH

CONFIGURATION ID: GER13:KF8PG1AH_030381951
TITLE : BA133
SAMPLE ID : KF8PG1AH

REPORT DATE: 03-MAR-08
ACQUIRE DATE: 03-MAR-08 19:51:34
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00
CALIB DATE: 3-MAR-2008 05:00:48.75
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY: BA133T15

UNITS: SAMPL
SAMPLE TYPE:

ENERGY OFFSET: -.5640E+00 keV
ENERGY SLOPE: 2.5088E-01 keV/C
ENERGY Q COEFF: -.1190E-06 keV/C²
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 3.2010E-01 keV
FWHM SLOPE: 4.8918E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]QRL.NLB

```

Configuration      : $DISK1:[GER13.SAMPLE]KF8PG1AH_030381951.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date  : 3-MAR-2008 19:51:34
Sample ID        : KF8PG1AH               Sample quantity   : 1.0000 SAMPL
Sample type      :                        Sample geometry   : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.39   0.0%
Start energy     : 19.51                  End energy        : 2046.68
Sensitivity      : 5.00                   Gaussian          : 10.00
Critical level   : No
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	81.93	186	73	0.86	328.88	323	13	1.03E-01	12.4	
2	0	302.63	145	17	1.09	1209.20	1200	16	8.07E-02	10.4	
3	0	355.85	442	21	1.09	1421.58	1411	20	2.46E-01	5.4	
4	0	383.76	59	15	1.45	1532.98	1526	15	3.28E-02	19.3	
5	0	1460.60*	0	6	1.58	5840.28	5827	25	1.31E-04	*****	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : $DISK1:[GER13.SAMPLE]KF8PG1AH_030381951.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date : 3-MAR-2008 19:51:34
Sample ID        : KF8PG1AH               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.39   0.0%
Energy tolerance : 1.50                   Half life ratio  : 8.00
Errors propagated: Yes                     Systematic Error : 5.00 %
Efficiency type  : Empirical               Efficiencies at  : Peak Energy
Abundance limit  : 80.00
    
```

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
K-40	1460.81	0	10.67*	2.692E+00	2.738E+00	2.738E+00	4016.44

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
BA-133	81.00	186	33.00	2.678E+00	7.010E+02	7.042E+02	13.57
	276.40	-----	6.90	2.869E+00	-----	Line Not Found	-----
	302.84	145	17.80	2.872E+00	9.468E+02	9.512E+02	11.67
	356.00	442	62.05*	2.875E+00	8.266E+02	8.304E+02	7.60
	383.85	59	8.70	2.874E+00	7.865E+02	7.901E+02	20.08

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : KF8PG1AH

Page : 2
Acquisition date : 3-MAR-2008 19:51:34

None

Flags: "T" = Tentatively associated

Rejected Report
Sample ID : KF8PG1AH

Page : 3
Acquisition date : 3-MAR-2008 19:51:34

Flag: "*" = Keyline

```

Configuration      : $DISK1:[GER13.SAMPLE]KF8PG1AH_030381951.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by       : MINACT V2.8
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date  : 3-MAR-2008 19:51:34
Sample ID        : KF8PG1AH               Sample quantity   : 1.0000 SAMPL
Sample type      :                         Sample geometry   : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.39   0.0%
Peak Width (FWHM):      3.00              Confidence level  :      5.00 %
Energy tolerance  :      1.50              Half life ratio   :      8.00
Errors propagated: Yes                    Systematic Error  :      5.00 %
Efficiency type   : Empirical              Efficiencies at   : Peak Energy
Abundance limit   :      80.00             WTM error limit  :      3.00
    
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
K-40	2.738E+00	1.100E+02	1.790E+02	3.822E+00	0.015
BA-133	8.304E+02	6.312E+01	6.541E+01	1.308E+00	12.695

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	4.828E+01	8.582E+01	3.357E+02	6.733E+00	0.144
NA-22	3.725E+00	3.799E+00	1.766E+01	3.727E-01	0.211
SC-46	2.113E+00	6.088E+00	2.706E+01	5.652E-01	0.078
CR-51	5.526E+01	1.727E+02	6.367E+02	1.274E+01	0.087
MN-54	-8.807E-01	6.497E+00	2.428E+01	4.973E-01	-0.036
CO-57	-2.106E+01	1.160E+02	4.040E+02	8.328E+00	-0.052
CO-58	-4.247E-01	5.767E+00	2.279E+01	4.661E-01	-0.019
FE-59	-8.693E+00	1.122E+01	4.155E+01	8.666E-01	-0.209
CO-60	3.799E+00	3.257E+00	1.624E+01	3.439E-01	0.234
ZN-65	1.144E+00	1.019E+01	4.112E+01	8.586E-01	0.028
SE-75	1.134E+00	1.825E+01	6.702E+01	1.344E+00	0.017
SR-85	-3.907E+01	1.454E+01	4.495E+01	9.029E-01	-0.869
Y-88	2.942E+00	3.031E+00	1.615E+01	3.529E-01	0.182
NB-94	-6.344E+00	4.950E+00	1.698E+01	3.486E-01	-0.374
NB-95	-3.924E+00	8.299E+00	3.099E+01	6.319E-01	-0.127
TC-95M	1.541E+01	2.194E+01	8.091E+01	1.635E+00	0.190
ZR-95	1.601E+01	1.478E+01	6.093E+01	1.242E+00	0.263
ZRNB-95	-6.247E+00	1.321E+01	4.933E+01	1.006E+00	-0.127
RH-101	1.953E+00	1.579E+01	5.661E+01	1.145E+00	0.035
RH-102M	4.634E+00	6.463E+00	2.586E+01	5.187E-01	0.179
RU-103	-3.446E+01	1.261E+01	3.480E+01	6.986E-01	-0.990
RU-106DA	2.685E+01	7.224E+01	2.777E+02	5.611E+00	0.097
AG-108M	-7.036E+00	1.007E+01	3.504E+01	7.018E-01	-0.201
AG-110M	-5.167E+00	7.054E+00	2.598E+01	5.339E-01	-0.199
SN-113DA	1.449E+01	1.452E+01	5.698E+01	1.140E+00	0.254
SB-124	3.632E+00	8.574E+00	3.354E+01	6.770E-01	0.108

---- Non-Identified Nuclides ----

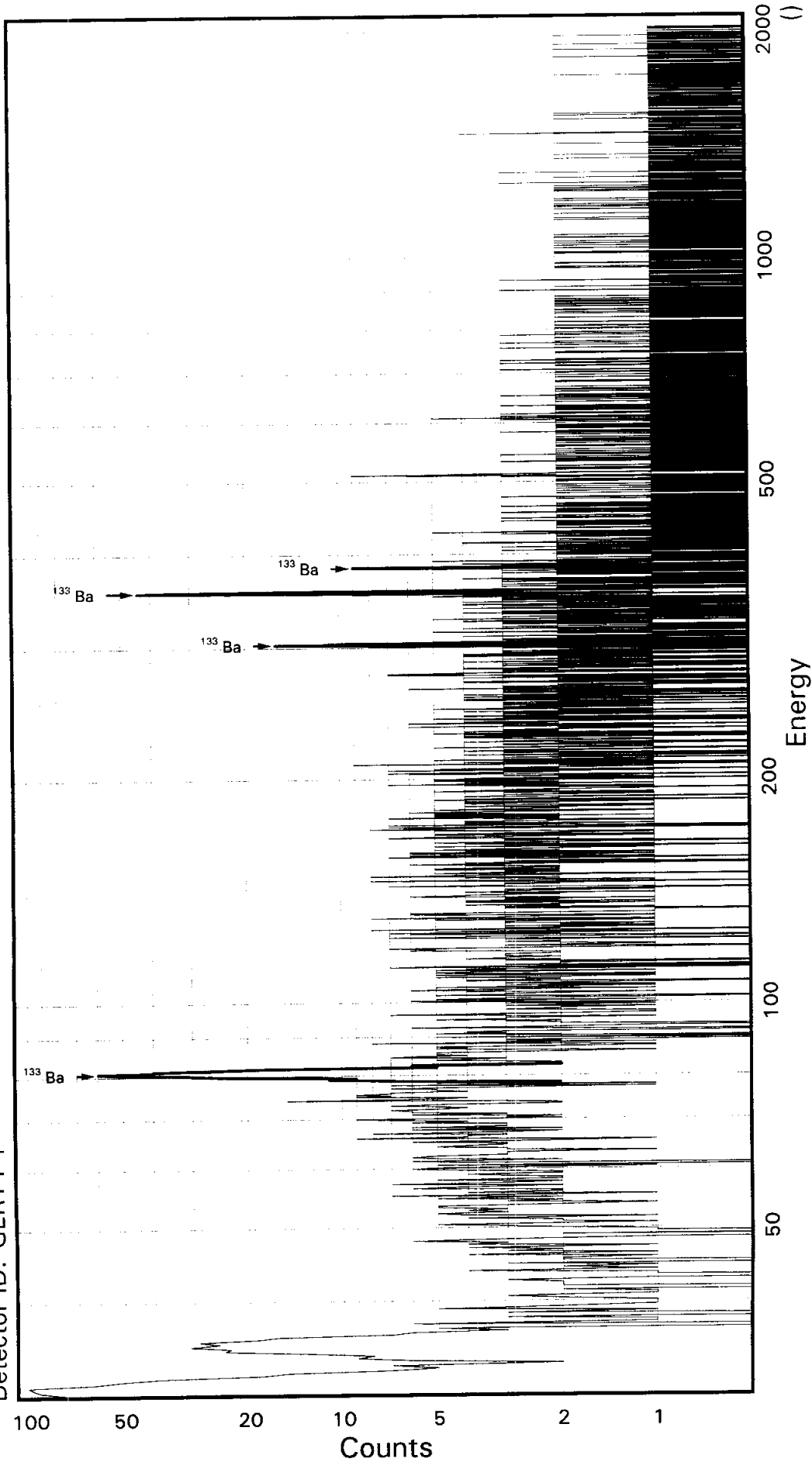
Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	-2.549E+01		2.593E+01	8.936E+01	1.789E+00	-0.285
SN-126DA	-4.217E+00		4.989E+00	1.756E+01	3.558E-01	-0.240
I-131	-6.650E+00		8.817E+01	3.175E+02	6.351E+00	-0.021
CS-134	2.265E+00		6.024E+00	2.443E+01	4.991E-01	0.093
CS-137DA	4.741E+00		7.194E+00	2.860E+01	5.792E-01	0.166
LA-138	-5.202E-01		6.344E+00	2.562E+01	5.462E-01	-0.020
CE-139	-2.924E+01		1.589E+01	5.208E+01	1.062E+00	-0.561
BA-140	-1.059E+02		8.425E+01	2.885E+02	5.802E+00	-0.367
BALA-140	2.318E+01		2.548E+01	1.262E+02	2.717E+00	0.184
CE-141	6.832E+01		4.385E+01	1.631E+02	3.350E+00	0.419
CE-144	-8.852E+01		1.176E+02	3.970E+02	8.195E+00	-0.223
CEPR-144	-1.714E+02		2.354E+02	7.959E+02	1.643E+01	-0.215
PM-144	3.959E+00		6.797E+00	2.675E+01	5.405E-01	0.148
PM-146	2.431E+01		1.027E+01	4.472E+01	8.962E-01	0.544
EU-152	-1.467E+01		3.183E+01	1.117E+02	2.235E+00	-0.131
EU-154	1.160E+01		1.076E+01	5.024E+01	1.060E+00	0.231
EU-155	9.570E+01		4.882E+01	1.943E+02	4.081E+00	0.492
HF-181	4.608E+00		1.119E+01	4.361E+01	8.748E-01	0.106
BI-207	-8.656E-01		7.622E+00	2.815E+01	5.670E-01	-0.031
TL-208	9.291E-01		8.544E+00	3.354E+01	6.762E-01	0.028
BI-210M	1.495E+00		1.968E+01	7.201E+01	1.444E+00	0.021
BI-212	3.197E+00		7.528E+01	2.984E+02	9.117E+00	0.011
PB-212	1.426E+01		2.623E+01	9.562E+01	1.922E+00	0.149
BI-214	1.414E+01		1.731E+01	7.362E+01	1.486E+00	0.192
PB-214	6.274E+01		3.054E+01	1.155E+02	2.311E+00	0.543
RA-223	-6.705E+01		6.941E+01	2.398E+02	4.809E+00	-0.280
RA-224DA	1.462E+01		2.689E+01	9.805E+01	1.971E+00	0.149
RA-226DA	1.415E+01		1.731E+01	7.362E+01	1.486E+00	0.192
AC-227DA	-2.120E+02		9.833E+01	3.023E+02	6.080E+00	-0.701
AC-228	-1.790E+01		2.166E+01	8.731E+01	1.798E+00	-0.205
RA-228DA	-1.805E+01		2.184E+01	8.804E+01	1.813E+00	-0.205
TH-228DA	2.652E+00		2.439E+01	9.574E+01	1.930E+00	0.028
TH-232DA	-7.169E+01		8.571E+01	2.903E+02	5.806E+00	-0.247
TH-234DA	5.318E+02		8.111E+02	3.349E+03	6.938E+01	0.159
U-234DA	-1.322E+01		5.560E+01	2.013E+02	4.031E+00	-0.066
U-235HP	-1.312E+02		1.157E+02	3.796E+02	7.800E+00	-0.346
NP-237DA	-1.942E+01		2.644E+01	9.132E+01	1.827E+00	-0.213
U-238DA	6.274E+01		3.054E+01	1.155E+02	2.311E+00	0.543
U-238DHP	-1.843E+02		2.881E+02	9.860E+02	2.176E+01	-0.187
AM-241HP	1.737E+01		3.156E+01	1.156E+02	2.569E+00	0.150

TAL Richland WA.

BA133

Batch ID: 8042383

Sample ID: KF8PG1AK
Detector ID: GER14 1



Energy Coefficients:
Offset: -6.54434E-01
Slope: 2.48234E-01
Quadrature: -9.45127E-10

Acquisition Start: 3-MAR-2008 19:51:44.56
Preset Live Time: 0 00:30:00.00
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KF8PG1AK

CONFIGURATION ID: GER14:KF8PG1AK_030381951
TITLE : BA133
SAMPLE ID : KF8PG1AK

REPORT DATE: 03-MAR-08
ACQUIRE DATE: 03-MAR-08 19:51:44
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00
CALIB DATE: 3-MAR-2008 05:01:20.48
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY: BA133T15

UNITS: SAMPL
SAMPLE TYPE:

ENERGY OFFSET: -.6544E+00 keV
ENERGY SLOPE: 2.4823E-01 keV/C
ENERGY Q COEFF: -.9451E-09 keV/C²
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 1.0769E+00 keV
FWHM SLOPE: 2.7502E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]QRL.NLB

```

Configuration      : $DISK1:[GER14.SAMPLE]KF8PG1AK_030381951.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date : 3-MAR-2008 19:51:44
Sample ID        : KF8PG1AK               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.45   0.0%
Start energy     :      19.20             End energy       :      2032.82
Sensitivity      :      5.00             Gaussian        :      10.00
Critical level   : No
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	30.67	590	161	1.30	126.18	116	21	3.28E-01	6.8	
2	0	35.04	164	62	1.56	143.80	136	17	9.10E-02	13.6	
3	0	80.67	331	52	1.15	327.63	318	19	1.84E-01	7.6	
4	0	302.97	82	20	1.51	1223.14	1212	17	4.53E-02	15.4	
5	0	356.00	283	18	1.31	1436.76	1426	25	1.57E-01	6.8	
6	0	383.79	38	11	1.16	1548.74	1538	22	2.11E-02	24.9	

Flag: "*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER14.SAMPLE]KF8PG1AK_030381951.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 19:51:44
 Sample ID : KF8PG1AK Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.45 0.0%
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
BA-133	81.00	331	33.00	1.818E+00	1.839E+03	1.847E+03	9.34
	276.40	-----	6.90	1.945E+00	-----	Line Not Found	-----
	302.84	82	17.80	1.948E+00	7.846E+02	7.882E+02	16.33
	356.00	283	62.05*	1.949E+00	7.809E+02	7.844E+02	8.67
	383.85	38	8.70	1.949E+00	7.451E+02	7.485E+02	25.51

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : KF8PG1AK

Page : 2
Acquisition date : 3-MAR-2008 19:51:44

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	30.67	590	161	1.30	126.18	116	21	3.28E-01	6.8	1.61E+00	
0	35.04	164	62	1.56	143.80	136	17	9.10E-02	13.6	1.64E+00	

Flags: "T" = Tentatively associated

Rejected Report
Sample ID : KF8PG1AK

Page : 3
Acquisition date : 3-MAR-2008 19:51:44

Flag: "*" = Keyline

Configuration : \$DISK1:[GER14.SAMPLE]KF8PG1AK_030381951.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
 Analyses by : MINACT V2.8
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 19:51:44
 Sample ID : KF8PG1AK Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.45 0.0%
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BA-133	7.844E+02	6.800E+01	8.334E+01	1.667E+00	9.413

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	1.130E+02	1.004E+02	4.306E+02	8.636E+00	0.262
NA-22	5.169E+00	6.717E+00	2.910E+01	6.127E-01	0.178
K-40	3.381E+00	9.673E+01	4.736E+02	1.009E+01	0.007
SC-46	6.518E+00	8.542E+00	3.661E+01	7.634E-01	0.178
CR-51	-1.748E+01	2.302E+02	8.313E+02	1.663E+01	-0.021
MN-54	-4.119E+00	7.043E+00	2.609E+01	5.340E-01	-0.158
CO-57	-6.493E+01	1.659E+02	5.736E+02	1.181E+01	-0.113
CO-58	1.547E+01	8.802E+00	4.076E+01	8.329E-01	0.380
FE-59	-6.319E+00	1.206E+01	4.800E+01	9.994E-01	-0.132
CO-60	3.827E+00	5.100E+00	2.389E+01	5.050E-01	0.160
ZN-65	-3.567E+00	1.369E+01	5.350E+01	1.115E+00	-0.067
SE-75	2.778E+01	2.666E+01	1.016E+02	2.038E+00	0.273
SR-85	-3.082E+01	2.090E+01	6.827E+01	1.371E+00	-0.451
Y-88	1.326E+01	5.460E+00	3.114E+01	6.782E-01	0.426
NB-94	-2.668E+00	6.882E+00	2.598E+01	5.329E-01	-0.103
NB-95	6.161E+00	1.301E+01	5.266E+01	1.073E+00	0.117
TC-95M	5.243E+01	3.232E+01	1.245E+02	2.514E+00	0.421
ZR-95	2.533E+01	1.775E+01	7.836E+01	1.596E+00	0.323
ZRNB-95	1.036E+01	2.078E+01	8.422E+01	1.716E+00	0.123
RH-101	5.210E+01	2.246E+01	8.870E+01	1.793E+00	0.587
RH-102M	9.484E+00	8.107E+00	3.484E+01	6.986E-01	0.272
RU-103	-1.173E+01	1.569E+01	5.550E+01	1.114E+00	-0.211
RU-106DA	-1.421E+02	9.567E+01	3.182E+02	6.428E+00	-0.447
AG-108M	-5.739E+00	1.024E+01	3.702E+01	7.413E-01	-0.155
AG-110M	-3.596E+00	9.529E+00	3.631E+01	7.456E-01	-0.099
SN-113DA	-2.737E+01	2.117E+01	7.133E+01	1.427E+00	-0.384
SB-124	-4.102E+00	1.127E+01	4.240E+01	8.554E-01	-0.097

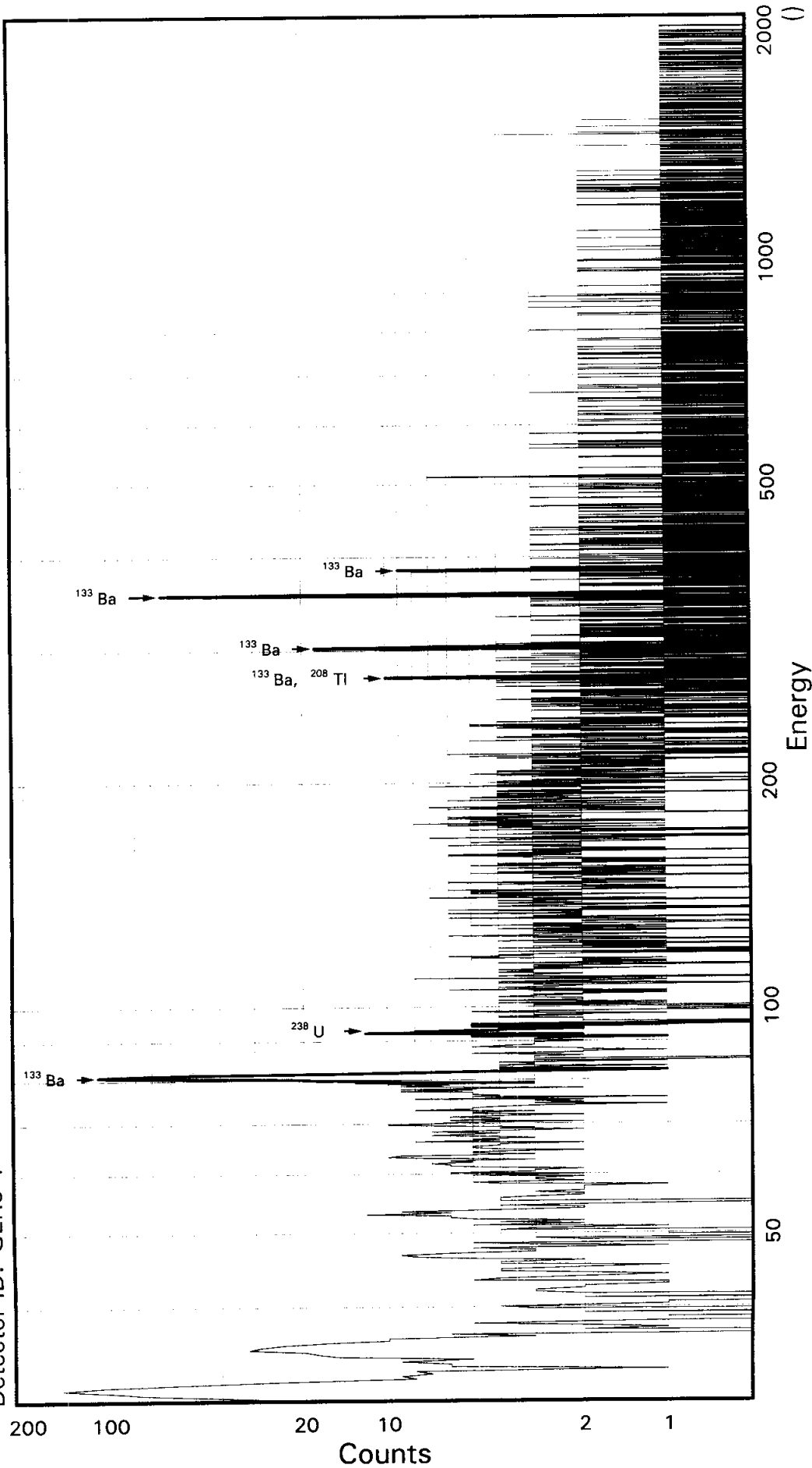
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	7.660E+01		3.717E+01	1.564E+02	3.131E+00	0.490
SN-126DA	5.302E+00		6.655E+00	2.878E+01	5.829E-01	0.184
I-131	-1.203E+02		1.230E+02	4.273E+02	8.545E+00	-0.282
CS-134	1.906E+00		6.996E+00	2.949E+01	6.019E-01	0.065
CS-137DA	-2.245E+00		7.739E+00	3.010E+01	6.094E-01	-0.075
LA-138	-5.290E+00		6.619E+00	2.530E+01	5.382E-01	-0.209
CE-139	3.202E+01		2.298E+01	8.806E+01	1.794E+00	0.364
BA-140	-4.967E+01		1.374E+02	5.041E+02	1.014E+01	-0.099
BALA-140	-3.089E+01		3.068E+01	1.117E+02	2.398E+00	-0.277
CE-141	9.586E+00		6.193E+01	2.248E+02	4.611E+00	0.043
CE-144	-8.550E+01		1.650E+02	5.666E+02	1.168E+01	-0.151
CEPR-144	-1.752E+02		3.299E+02	1.132E+03	2.334E+01	-0.155
PM-144	1.505E+01		8.528E+00	3.788E+01	7.649E-01	0.397
PM-146	-2.160E-01		1.552E+01	5.807E+01	1.164E+00	-0.004
EU-152	2.034E+01		4.586E+01	1.743E+02	3.487E+00	0.117
EU-154	1.436E+01		1.867E+01	8.086E+01	1.703E+00	0.178
EU-155	3.204E+01		8.054E+01	2.924E+02	6.130E+00	0.110
HF-181	-3.159E+01		1.362E+01	3.813E+01	7.649E-01	-0.828
BI-207	2.112E+00		9.861E+00	3.745E+01	7.543E-01	0.056
TL-208	1.413E+01		1.076E+01	4.526E+01	9.122E-01	0.312
BI-210M	-9.847E+00		2.733E+01	9.648E+01	1.935E+00	-0.102
BI-212	6.209E+01		1.131E+02	4.664E+02	1.424E+01	0.133
PB-212	3.685E+01		3.548E+01	1.331E+02	2.676E+00	0.277
BI-214	1.999E+01		2.469E+01	1.005E+02	2.029E+00	0.199
PB-214	5.883E+01		4.354E+01	1.525E+02	3.051E+00	0.386
RA-223	-4.292E+01		9.532E+01	3.358E+02	6.732E+00	-0.128
RA-224DA	3.779E+01		3.638E+01	1.365E+02	2.744E+00	0.277
RA-226DA	2.000E+01		2.469E+01	1.005E+02	2.029E+00	0.199
AC-227DA	6.026E+01		1.416E+02	5.163E+02	1.038E+01	0.117
AC-228	1.949E+01		2.070E+01	9.477E+01	1.949E+00	0.206
RA-228DA	1.966E+01		2.087E+01	9.557E+01	1.966E+00	0.206
TH-228DA	4.034E+01		3.071E+01	1.292E+02	2.604E+00	0.312
TH-232DA	1.263E+01		9.337E+01	3.506E+02	7.013E+00	0.036
TH-234DA	-3.590E+02		8.750E+02	3.439E+03	7.115E+01	-0.104
U-234DA	1.444E+01		6.721E+01	2.461E+02	4.927E+00	0.059
U-235HP	-2.361E+02		1.638E+02	5.306E+02	1.089E+01	-0.445
NP-237DA	-2.472E+01		3.314E+01	1.142E+02	2.285E+00	-0.216
U-238DA	5.883E+01		4.354E+01	1.525E+02	3.051E+00	0.386
U-238DHP	-3.695E+01		5.359E+02	1.900E+03	4.176E+01	-0.019
AM-241HP	-2.739E+01		5.437E+01	1.898E+02	4.201E+00	-0.144

TAL Richland WA.
BA133

Batch ID: 8042383

Sample ID: 'INTRA-LAB BLANK
Detector ID: GER5 1



Energy Coefficients:
Offset: -3.45528E-01
Slope: 2.49358E-01
Quadrature: 1.90135E-10

Acquisition Start: 3-MAR-2008 19:52:18.12
Preset Live Time: 0 00:30:00.00
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: 'INTRA-LAB

CONFIGURATION ID: GER5:-LAB_BLANK_030381952
TITLE : BA133
SAMPLE ID : 'INTRA-LABBLANK

REPORT DATE: 03-MAR-08
ACQUIRE DATE: 03-MAR-08 19:52:18
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00
CALIB DATE: 3-MAR-2008 04:59:58.96
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY: BA133T15

UNITS: SAMPL
SAMPLE TYPE:

ENERGY OFFSET: -.3455E+00 keV
ENERGY SLOPE: 2.4936E-01 keV/C
ENERGY Q COEFF: 1.9013E-10 keV/C²
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 7.6593E-01 keV
FWHM SLOPE: 2.6416E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 3-MAR-2008 20:22:33

```

Configuration      : RDND06$DKA100:[GER5.SAMPLE]-LAB_BLANK_030381952.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date : 3-MAR-2008 19:52:18
Sample ID        : 'INTRA-LAB BLANK       Sample quantity : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.22   0.0%
Start energy     :      19.60             End energy       :      2042.41
Sensitivity      :      5.00             Gaussian        :      10.00
Critical level   : No
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	3	31.04	533	83	1.01	125.85	117	34	2.96E-01	5.4	1.51E+00
2	3	35.21	134	32	1.23	142.58	117	34	7.44E-02	17.5	
3	0	80.94	391	73	0.88	325.98	319	15	2.17E-01	7.0	
4	0	93.19*	19	21	0.78	375.11	366	18	1.05E-02	69.6	
5	0	276.15	43	6	1.04	1108.83	1102	12	2.39E-02	19.0	
6	0	302.71	95	10	1.16	1215.33	1202	20	5.28E-02	13.1	
7	0	355.89	282	7	1.00	1428.63	1418	18	1.56E-01	6.4	
8	0	383.85	40	7	1.33	1540.74	1534	14	2.22E-02	21.1	

Flag: "*" = Peak area was modified by background subtraction

Configuration : RDND06\$DKA100:[GER5.SAMPLE]-LAB_BLANK_030381952.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 19:52:18
 Sample ID : 'INTRA-LAB BLANK Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.22 0.0%
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
BA-133	81.00	391	33.00	1.919E+00	2.060E+03	2.070E+03	8.85
	276.40	43	6.90	2.071E+00	1.003E+03	1.007E+03	19.78
	302.84	95	17.80	2.074E+00	8.576E+02	8.616E+02	14.17
	356.00	282	62.05*	2.076E+00	7.287E+02	7.320E+02	8.40
	383.85	40	8.70	2.076E+00	7.383E+02	7.417E+02	21.81

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : 'INTRA-LAB BLANK

Page : 2
Acquisition date : 3-MAR-2008 19:52:18

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	31.04	533	83	1.01	125.85	117	34	2.96E-01	5.4	1.68E+00	
3	35.21	134	32	1.23	142.58	117	34	7.44E-02	17.5	1.71E+00	
0	93.19	19	21	0.78	375.11	366	18	1.05E-02	69.6	1.95E+00	T

Flags: "T" = Tentatively associated

Sample ID : 'INTRA-LAB BLANK

Acquisition date : 3-MAR-2008 19:52:18

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (DPM/SAMPL)	1-Sigma %Error	Rejected by
TL-208	1.41E+10Y	0.00	277.35	6.80	1.018E+03	19.78	Abun.
			510.84	21.60	---	Not Found	---
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
% Abundances Found =			5.44				
U-238DHP	4.47E+09Y	0.00	63.28*	3.80	---	Not Found	---
			92.59	5.41	5.954E+02	69.82	Abun.
			% Abundances Found =			58.74	

Flag: "*" = Keyline

Configuration : RDND06\$DKA100:[GER5.SAMPLE]-LAB BLANK_030381952.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,WTMEAN/KEY V1.8
 Analyses by : MINACT V2.8
 Sample title : BA133
 Sample date : 7-FEB-2008 12:00:00 Acquisition date : 3-MAR-2008 19:52:18
 Sample ID : 'INTRA-LAB BLANK Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.22 0.0%
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BA-133	7.320E+02	6.148E+01	4.551E+01	9.103E-01	16.084

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	8.459E+01	8.632E+01	3.737E+02	7.497E+00	0.226
NA-22	-5.186E+00	4.023E+00	1.324E+01	2.807E-01	-0.392
NA-24	-2.590E+06	1.837E+06	Half-Life too short		
K-40	6.084E+01	7.649E+01	3.713E+02	7.978E+00	0.164
SC-46	-3.298E+00	5.222E+00	2.050E+01	4.299E-01	-0.161
CR-51	-3.437E+01	1.738E+02	6.352E+02	1.271E+01	-0.054
MN-54	-3.850E-02	2.493E+00	1.282E+01	2.632E-01	-0.003
CO-57	-6.156E+01	1.354E+02	4.685E+02	9.685E+00	-0.131
CO-58	-6.456E+00	3.744E+00	5.732E+00	1.175E-01	-1.126
FE-59	-3.483E+01	1.246E+01	1.192E+01	2.494E-01	-2.923
CO-60	-3.731E+00	4.345E+00	1.600E+01	3.408E-01	-0.233
ZN-65	1.431E+01	1.008E+01	5.020E+01	1.052E+00	0.285
SE-75	2.497E+01	1.852E+01	7.546E+01	1.514E+00	0.331
SR-85	-1.953E+01	1.398E+01	4.599E+01	9.243E-01	-0.425
Y-88	-4.435E+00	4.323E+00	1.543E+01	3.399E-01	-0.287
NB-94	-8.698E+00	5.632E+00	1.777E+01	3.658E-01	-0.489
NB-95	-1.887E-01	8.547E+00	3.533E+01	7.216E-01	-0.005
TC-95M	-1.547E+01	2.525E+01	8.887E+01	1.797E+00	-0.174
ZR-95	2.108E+00	9.955E+00	4.461E+01	9.107E-01	0.047
ZRNB-95	-4.518E+00	1.429E+01	5.634E+01	1.151E+00	-0.080
MO-99	3.159E-04	4.407E-03	Half-Life too short		
RH-101	7.074E+00	1.822E+01	6.774E+01	1.372E+00	0.104
RH-102M	-2.045E+00	7.118E+00	2.717E+01	5.451E-01	-0.075
RU-103	6.630E+00	1.158E+01	4.815E+01	9.669E-01	0.138
RU-106DA	-1.125E+01	6.968E+01	2.744E+02	5.549E+00	-0.041
AG-108M	-1.792E+00	9.557E+00	3.579E+01	7.168E-01	-0.050
AG-110M	-2.807E+00	6.606E+00	2.629E+01	5.417E-01	-0.107

Sample ID : 'INTRA-LAB BLANK

Acquisition date : 3-MAR-2008 19:52:18

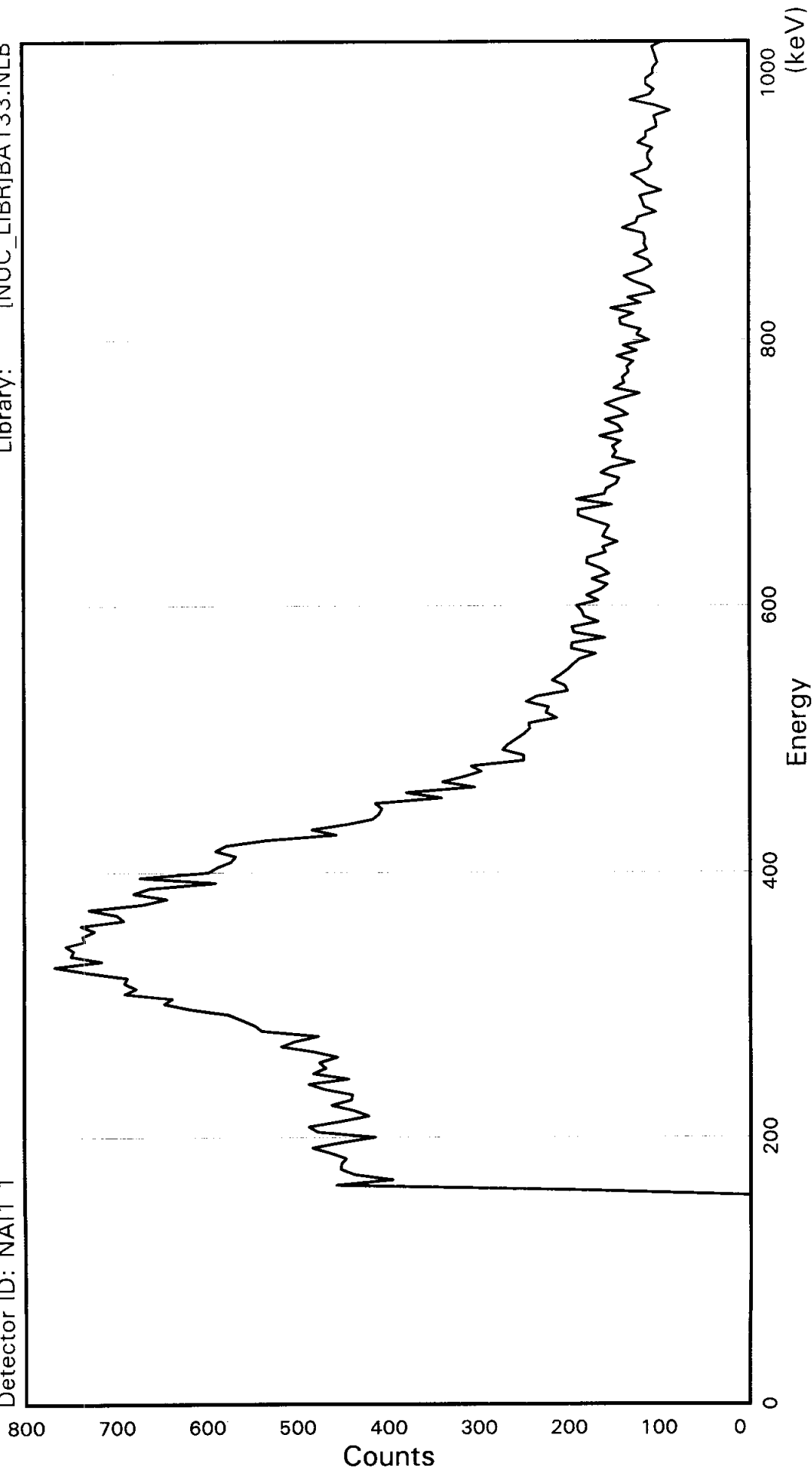
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SN-113DA	2.137E+00		1.283E+01	5.108E+01	1.022E+00	0.042
SB-124	1.790E+00		7.633E+00	3.225E+01	6.514E-01	0.055
SB-125	3.830E+01		2.416E+01	1.078E+02	2.159E+00	0.355
SN-126DA	-6.095E+00		5.532E+00	1.955E+01	3.966E-01	-0.312
I-131	9.609E+01		7.193E+01	3.209E+02	6.418E+00	0.299
CS-134	1.930E+00		4.423E+00	2.119E+01	4.337E-01	0.091
CS-137DA	7.973E+00		7.093E+00	3.189E+01	6.467E-01	0.250
LA-138	2.581E+00		2.585E+00	1.898E+01	4.071E-01	0.136
CE-139	5.354E+00		1.875E+01	6.972E+01	1.424E+00	0.077
BA-140	2.087E+01		8.602E+01	3.595E+02	7.233E+00	0.058
BALA-140	1.150E-01		2.873E+01	1.336E+02	2.896E+00	0.001
LA-140	2.310E-04		5.836E-02	Half-Life too short		
CE-141	-7.535E+01		4.661E+01	1.556E+02	3.202E+00	-0.484
CE-144	2.030E+02		1.264E+02	4.942E+02	1.023E+01	0.411
CEPR-144	4.099E+02		2.531E+02	9.900E+02	2.050E+01	0.414
PM-144	8.764E+00		5.124E+00	2.579E+01	5.216E-01	0.340
PM-146	-4.973E+00		7.884E+00	2.992E+01	5.997E-01	-0.166
EU-152	2.270E+01		3.089E+01	1.262E+02	2.524E+00	0.180
EU-154	-1.267E+01		1.154E+01	4.034E+01	8.553E-01	-0.314
EU-155	-2.295E+00		6.683E+01	2.394E+02	5.051E+00	-0.010
HF-181	-2.990E+01		1.200E+01	3.167E+01	6.355E-01	-0.944
BI-207	-6.636E-01		6.802E+00	2.629E+01	5.301E-01	-0.025
TL-208	-2.193E+00		9.271E+00	3.618E+01	7.300E-01	-0.061
BI-210M	-2.503E+01		1.938E+01	6.439E+01	1.292E+00	-0.389
BI-212	-2.367E+01		6.532E+01	2.673E+02	8.172E+00	-0.089
PB-212	-1.196E+01		2.815E+01	1.060E+02	2.132E+00	-0.113
BI-214	8.289E+00		1.371E+01	5.835E+01	1.179E+00	0.142
PB-214	9.497E+00		2.365E+01	8.769E+01	1.754E+00	0.108
RA-223	8.449E+00		6.723E+01	2.539E+02	5.093E+00	0.033
RA-224DA	-1.227E+01		2.887E+01	1.087E+02	2.186E+00	-0.113
RA-226DA	8.288E+00		1.371E+01	5.835E+01	1.179E+00	0.142
AC-227DA	-8.766E+00		1.008E+02	3.675E+02	7.395E+00	-0.024
AC-228	-3.130E+00		1.547E+01	7.181E+01	1.482E+00	-0.044
RA-228DA	-3.156E+00		1.560E+01	7.241E+01	1.495E+00	-0.044
TH-228DA	-6.260E+00		2.646E+01	1.033E+02	2.084E+00	-0.061
TH-232DA	-1.272E+02		6.497E+01	2.059E+02	4.119E+00	-0.618
TH-234DA	-7.325E+02		5.586E+02	1.887E+03	3.922E+01	-0.388
U-234DA	1.945E+01		5.218E+01	1.974E+02	3.952E+00	0.099
U-235HP	-7.066E+01		1.360E+02	4.847E+02	9.984E+00	-0.146
NP-237DA	1.494E+01		2.335E+01	9.242E+01	1.850E+00	0.162
U-238DA	9.497E+00		2.365E+01	8.769E+01	1.754E+00	0.108
U-238DHP	-2.737E+02		5.123E+02	1.896E+03	4.221E+01	-0.144
AM-241HP	-3.280E+01		4.591E+01	1.596E+02	3.580E+00	-0.206

TAL Richland WA.

BA133

Sample ID: KGXJG1AC
Detector ID: NAI1 1
BatchID: 8042383
Library: [NUC_LIBR]BA133.NLB



Acquisition Start: 3-MAR-2008 19:52:33.45
Preset Live Time: 0 00:30:00
Elapsed Live Time: 0 00:30:00
Weighting: DERIVED

Start Channel: 80
End Channel: 113
Iterations: 5
Gain shift: lter

SAMPLE IDENTIFICATION: KGXJG1AC

CONFIGURATION ID: NAI1:KGXJG1AC_030381952
TITLE : BA133
SAMPLE ID : KGXJG1AC

REPORT DATE: 03-MAR-08
ACQUIRE DATE: 03-MAR-08 19:52:33
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 21-JAN-2008 12:00:00.00
CALIB DATE: 17-NOV-1993 10:39:59.60
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY:

UNITS: SAMPL
SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV
ENERGY SLOPE: 4.0000E+00 keV/C
ENERGY Q COEFF: 0.0000E+00 keV/C²
PEAK SENSITIVITY: 5.000

FWHM OFFSET: -.2302E+02 keV
FWHM SLOPE: 5.7163E+00 sqr keV
ITERATIONS: 5
GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %
ENERGY TOLERANCE: 20.000 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]BA133.NLB

Configuration : RDND06\$DKA100:[NAI1.SAMPLE]KGXJG1AC_030381952.CNF;1
Analyses by : NAI V3.0
Sample title : BA133
Sample date : 21-JAN-2008 12:00:00 Acquisition date : 3-MAR-2008 19:52:33
Sample ID : KGXJG1AC Sample quantity : 1.0000 sampl
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.67 0.0%
Sample Multiplier: 1.00 Rejection Coeff. : 0.00
Gain shift type : ITER Threshold Shift : No
Weighting type : DERIVED Calculated counts: No
Iterations : 5

NAI Residuals Report

Ratio of Residuals Over Standard Deviation Per Channel

80:	5.4	6.4	6.7	3.8	5.0	3.4	4.1	2.2
88:	1.8	0.5	0.0	-1.3	-0.6	-0.8	-1.1	-1.6
96:	-0.8	-1.8	-4.1	-0.3	-4.2	-2.2	-3.3	-2.5
104:	-2.1	-2.6	-2.8	-4.4	-3.2	-4.2	-5.7	-5.1
112:	-3.8	-2.5						

List of Suspicious Channels

81 82 83 84 85 86

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	9.51E+00	0.00E+00	1.02E+00
2	5.84E+00	0.00E+00	1.04E+00
3	2.54E+00	0.00E+00	1.06E+00
4	1.60E+00	0.00E+00	1.07E+00
5	1.34E+00	0.00E+00	1.07E+00

Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	764.	10.5

Total Activity :	764.	

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	
RASC4701	RA-226	3.0098E+00 ± 4.631E-02 DPM	0.1433 g	1/21/2008 1/21/2008	Armstron	2.1003E+01 ± 3.225E-01 DPM/G
		3.0098E+000 ± 3.010E+000 (1)	3.0098E+000 , 3.0098E+000			
<p>STL Richland, SMFractions v4.8.29</p> <p>* - Isotope is an Impurity</p>						

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

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 = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

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 _____

19) Isotope File Updated by tda 3/21/2006

20) QC Approved _____

Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
Parent Standard:		RA22806A000	Ref: 12/15/2003	4.4881E+02 ±		DPM/G
RASC4701	RA-228	1.1140E+01 ± 3.871E-02 DPM	0.0407 g	1/21/2008 1/21/2008	Armstron	2.7370E+02 ± 0.000E+00 DPM/G
		1.1140E+001 ± 1.114E+001 (1)		1.1140E+001 , 1.1140E+001		
<p>STL Richland, SMFractions v4.8.29</p> <p>* - Isotope is an Impurity</p>						

Ra22806A000

Ra22806A000
Ref. 6076
448.81 ± 14.82
dpm/g
4/11/2007 DVF

ISOTOPE DILUTION RECORD

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>7/7/2004</u>
3) Source Identification Number / Ref. Number	<u>new source</u>		
4) Source Activity (dpm ± dpm/g)	<u>4.5507E+04</u>	±	<u>1.502E+03</u>
5) Percent error of Source Activity	<u>3.3</u>	%	
6) Weight of Source Material used (g)	<u>5.0063</u>		
7) (% Error) of Weight of Source Material used	<u>0.0959</u>	%	
8) Diluent	<u>1M HCL</u>		
9) Total Weight of the Dilution (g)	<u>507.61</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.0591</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>4.4881E+02</u>	±	<u>1.482E+01</u>
12) Total Uncertainty	<u>3.302</u>	%	
13) Dilution Identification Number / Ref. Number	<u>RA22806A000</u>		<u>6076</u>
14) Calibration Reference Date	<u>12/15/2003</u>		
15) Isotope Inventory File update by/date	<u>tda</u>		<u>3/30/2006</u>
16) Reviewed by/date	<u></u>		<u></u>
17) Location	<u>QCLAB</u>	18) Exhausted	<u></u>

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

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 Analytix
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 _____

RADIUM 226
CONTINUING CALIBRATION

Quality Assurance Report.

Generated 26-MAR-2008 17:02:49.31

QA Filename : \$DISK1:[SCINT20.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-20

Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 445416.000000 Upper Bound : 467249.000000

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

11-FEB-2008 07:06	count		449057.0000		
12-FEB-2008 07:39	count		459028.0000		
13-FEB-2008 07:11	count		450452.0000		
14-FEB-2008 08:30	count		437933.0000	Be	
14-FEB-2008 09:20	count		448052.0000		
18-FEB-2008 09:23	count		448467.0000		
19-FEB-2008 06:58	count		454815.0000		
20-FEB-2008 06:53	count		454774.0000		
21-FEB-2008 06:45	count		451890.0000		
25-FEB-2008 07:19	count		448036.0000		
26-FEB-2008 07:19	count		450953.0000		
27-FEB-2008 08:11	count		456226.0000		
28-FEB-2008 06:33	count		450119.0000		
3-MAR-2008 06:52	count		449413.0000		
4-MAR-2008 07:09	count		459342.0000		
5-MAR-2008 07:22	count		454895.0000		
6-MAR-2008 07:19	count		446050.0000		
10-MAR-2008 07:36	count		458222.0000		
11-MAR-2008 07:36	count		460734.0000		
12-MAR-2008 07:32	count		455546.0000		
13-MAR-2008 07:43	count		454851.0000		
17-MAR-2008 07:49	count		452160.0000		
18-MAR-2008 07:27	count		451713.0000		
19-MAR-2008 07:37	count		455857.0000		
20-MAR-2008 07:26	count		453486.0000		
24-MAR-2008 07:04	count		448652.0000		
25-MAR-2008 06:58	count		454943.0000		

Quality Assurance Report.

Generated 26-MAR-2008 17:02:49.60

QA Filename : \$DISK1:[SCINT20.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-20

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
6-MAR-2008 16:39	count		0.0000		

Quality Assurance Report.

Generated 26-MAR-2008 16:01:48.88

QA Filename : \$DISK1:[SCINT19.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-19

Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 17475.000000 Upper Bound : 19655.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JUL-2007 00:00 End Date : 1-JAN-2008 00:00

Mean : 18575.429688 Std Deviation : 360.684418

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

11-FEB-2008 06:12	count		18681.0000		
12-FEB-2008 06:57	count		18614.0000		
13-FEB-2008 06:14	count		18681.0000		
14-FEB-2008 06:46	count		18961.0000		
14-FEB-2008 07:15	count		18771.0000		
18-FEB-2008 08:32	count		18882.0000		
18-FEB-2008 08:50	count		18835.0000		
19-FEB-2008 06:21	count		18737.0000		
20-FEB-2008 05:53	count		18871.0000		
20-FEB-2008 06:06	count		18797.0000		
21-FEB-2008 06:14	count		18702.0000		
25-FEB-2008 06:19	count		18687.0000		
26-FEB-2008 06:13	count		18669.0000		
27-FEB-2008 07:19	count		18555.0000		
28-FEB-2008 05:28	count		18215.0000		
3-MAR-2008 06:09	count		18444.0000		
4-MAR-2008 06:28	count		18449.0000		
5-MAR-2008 06:21	count		18466.0000		
6-MAR-2008 06:10	count		18248.0000		
10-MAR-2008 06:51	count		18123.0000		
11-MAR-2008 06:41	count		18567.0000		

12-MAR-2008 06:43	count	18799.0000			
13-MAR-2008 06:39	count	18649.0000			
17-MAR-2008 06:30	count	18332.0000			
18-MAR-2008 06:06	count	18607.0000			
19-MAR-2008 06:39	count	18737.0000			
20-MAR-2008 06:29	count	18856.0000			
20-MAR-2008 06:43	count	18885.0000			
24-MAR-2008 06:15	count	19092.0000			
24-MAR-2008 06:28	count	18980.0000			
25-MAR-2008 06:07	count	19185.0000			
25-MAR-2008 06:20	count	18956.0000			

Quality Assurance Report. Generated 26-MAR-2008 16:01:49.30

QA Filename : \$DISK1:[SCINT19.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-19
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 : ----- End Date : -----
Mean : 0.421875 Std Deviation : 1.066141

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

6-MAR-2008 16:39	count		0.0000		

Quality Assurance Report.

Generated 26-MAR-2008 15:56:43.02

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 : 19590.000000 Upper Bound : 21654.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 20622.431641 Std Deviation : 344.169220

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

11-FEB-2008 06:52	count		20589.0000		
12-FEB-2008 07:26	count		20407.0000		
13-FEB-2008 06:52	count		20588.0000		
14-FEB-2008 08:16	count		20634.0000		
18-FEB-2008 09:06	count		20661.0000		
19-FEB-2008 06:47	count		20526.0000		
20-FEB-2008 06:23	count		20755.0000		
21-FEB-2008 06:45	count		20528.0000		
25-FEB-2008 06:49	count		20395.0000		
26-FEB-2008 06:59	count		20579.0000		
27-FEB-2008 08:00	count		20779.0000		
28-FEB-2008 06:19	count		20747.0000		
3-MAR-2008 06:40	count		20733.0000		
4-MAR-2008 06:56	count		20620.0000		
5-MAR-2008 06:59	count		20763.0000		
6-MAR-2008 06:57	count		20621.0000		
10-MAR-2008 07:21	count		20537.0000		
11-MAR-2008 07:24	count		20808.0000		
12-MAR-2008 07:09	count		20883.0000		
13-MAR-2008 07:16	count		20873.0000		
17-MAR-2008 07:26	count		20967.0000		

18-MAR-2008 06:58	count	20369.0000	
19-MAR-2008 07:11	count	20473.0000	
20-MAR-2008 06:56	count	20732.0000	
24-MAR-2008 06:45	count	20444.0000	
25-MAR-2008 06:32	count	20684.0000	

Quality Assurance Report. Generated 26-MAR-2008 15:56:43.66

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
------------------	-----------	----------------	-------	-----------------

6-MAR-2008 16:39	count		0.0000	
------------------	-------	--	--------	--

Quality Assurance Report.

Generated 26-MAR-2008 15:52:52.10

QA Filename : \$DISK1:[SCINT17.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-17

Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 23099.000000 Upper Bound : 24152.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 23626.392578 Std Deviation : 175.488617

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

11-FEB-2008 06:39	count		24038.0000	In	
12-FEB-2008 07:12	count		23681.0000		
13-FEB-2008 06:37	count		23634.0000		
14-FEB-2008 07:12	count		24091.0000	In	
18-FEB-2008 08:49	count		23785.0000		
19-FEB-2008 06:34	count		23898.0000		
20-FEB-2008 06:05	count		23983.0000	In	
21-FEB-2008 06:27	count		23972.0000		
25-FEB-2008 06:35	count		23974.0000		
26-FEB-2008 06:34	count		23980.0000	In	
27-FEB-2008 07:33	count		23751.0000		
28-FEB-2008 06:07	count		23939.0000		
3-MAR-2008 06:22	count		23887.0000		
4-MAR-2008 06:40	count		23750.0000		
5-MAR-2008 06:37	count		24188.0000	Ab Ac	
5-MAR-2008 07:22	count		23668.0000		
6-MAR-2008 06:40	count		23810.0000		
10-MAR-2008 07:07	count		24130.0000	In	
11-MAR-2008 06:54	count		23937.0000		
12-MAR-2008 06:57	count		23696.0000		
13-MAR-2008 07:04	count		23944.0000		

17-MAR-2008 07:01	count	24050.0000	In
18-MAR-2008 06:40	count	24122.0000	In
19-MAR-2008 06:59	count	23855.0000	
20-MAR-2008 06:42	count	23993.0000	In
24-MAR-2008 06:27	count	24055.0000	In
25-MAR-2008 06:19	count	23911.0000	

Quality Assurance Report. Generated 26-MAR-2008 15:52:52.47

QA Filename : \$DISK1:[SCINT17.QA]BKG.QAF;2

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-17
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 : 5.250000 Std Deviation : 1.544786

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

6-MAR-2008 16:39	count		2.0000	In	
------------------	-------	--	--------	----	--

Quality Assurance Report.

Generated 26-MAR-2008 15:44:13.21

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 : 22600.000000 Upper Bound : 23976.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 23288.384766 Std Deviation : 229.251007

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:12	count		23259.0000		
12-FEB-2008 06:57	count		23359.0000		
13-FEB-2008 06:14	count		23145.0000		
14-FEB-2008 06:46	count		23211.0000		
18-FEB-2008 08:32	count		23084.0000		
19-FEB-2008 06:21	count		23396.0000		
20-FEB-2008 05:53	count		23298.0000		
21-FEB-2008 06:14	count		23434.0000		
25-FEB-2008 06:19	count		23273.0000		
26-FEB-2008 06:13	count		23113.0000		
27-FEB-2008 07:19	count		23433.0000		
28-FEB-2008 05:28	count		23051.0000		
3-MAR-2008 06:09	count		22996.0000		
4-MAR-2008 06:28	count		22968.0000		
5-MAR-2008 06:21	count		23371.0000		
6-MAR-2008 06:10	count		23253.0000		
10-MAR-2008 06:51	count		23154.0000		
11-MAR-2008 06:41	count		23000.0000		
12-MAR-2008 06:43	count		23593.0000		
13-MAR-2008 06:39	count		22847.0000		
17-MAR-2008 06:30	count		23096.0000		

18-MAR-2008 06:06	count	23041.0000	
19-MAR-2008 06:39	count	23144.0000	
20-MAR-2008 06:29	count	23179.0000	
24-MAR-2008 06:15	count	23309.0000	
25-MAR-2008 06:07	count	22939.0000	

Quality Assurance Report. Generated 26-MAR-2008 15:44:13.75

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

6-MAR-2008 16:39	count		1.0000	

Quality Assurance Report.

Generated 26-MAR-2008 15:38:19.47

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 : 23201.000000 Upper Bound : 25462.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 24332.107422 Std Deviation : 376.982300

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 06:52	count		24765.0000		
12-FEB-2008 07:26	count		24246.0000		
13-FEB-2008 06:52	count		24439.0000		
14-FEB-2008 08:16	count		24716.0000		
18-FEB-2008 09:06	count		24505.0000		
19-FEB-2008 06:46	count		24115.0000		
20-FEB-2008 06:23	count		24370.0000		
21-FEB-2008 06:44	count		24319.0000		
25-FEB-2008 06:49	count		24446.0000		
26-FEB-2008 06:59	count		24175.0000		
27-FEB-2008 08:00	count		24311.0000		
28-FEB-2008 06:19	count		24425.0000		
3-MAR-2008 06:40	count		24539.0000		
4-MAR-2008 06:56	count		24468.0000		
5-MAR-2008 06:59	count		24393.0000		
6-MAR-2008 06:57	count		24234.0000		
10-MAR-2008 07:21	count		24479.0000		
11-MAR-2008 07:24	count		24485.0000		
12-MAR-2008 07:09	count		24481.0000		
13-MAR-2008 07:16	count		24415.0000		
17-MAR-2008 07:26	count		24440.0000		

18-MAR-2008 06:58	count	24568.0000	
19-MAR-2008 07:11	count	24244.0000	
20-MAR-2008 06:56	count	24491.0000	
24-MAR-2008 06:45	count	24383.0000	
25-MAR-2008 06:32	count	24654.0000	

Quality Assurance Report. Generated 26-MAR-2008 15:38:19.86

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

6-MAR-2008 16:39	count		2.0000	In	

Quality Assurance Report.

Generated 26-MAR-2008 15:32:45.14

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 : 17718.000000 Upper Bound : 18641.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 18179.703125 Std Deviation : 153.883514

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 06:39	count		18232.0000		
12-FEB-2008 07:12	count		18397.0000		
13-FEB-2008 06:37	count		18354.0000		
14-FEB-2008 07:12	count		18199.0000		
18-FEB-2008 08:49	count		18281.0000		
19-FEB-2008 06:34	count		17902.0000		
20-FEB-2008 06:05	count		18109.0000		
21-FEB-2008 06:27	count		17935.0000		
25-FEB-2008 06:31	count		18205.0000		
26-FEB-2008 06:34	count		18319.0000		
27-FEB-2008 07:33	count		18137.0000		
28-FEB-2008 06:07	count		18078.0000		
3-MAR-2008 06:22	count		18274.0000		
4-MAR-2008 06:40	count		18410.0000		
5-MAR-2008 06:37	count		18308.0000		
6-MAR-2008 06:40	count		18583.0000	In	
10-MAR-2008 07:07	count		18168.0000		
11-MAR-2008 06:54	count		18516.0000	In	
12-MAR-2008 06:57	count		18402.0000		
13-MAR-2008 07:04	count		18322.0000		
17-MAR-2008 07:01	count		18520.0000	In	

18-MAR-2008 06:40	count	18142.0000			
19-MAR-2008 06:59	count	18342.0000			
20-MAR-2008 06:42	count	18295.0000			
24-MAR-2008 06:27	count	18159.0000			
25-MAR-2008 06:19	count	18105.0000			

Quality Assurance Report. Generated 26-MAR-2008 15:32:45.52

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
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6-MAR-2008 16:39	count		0.0000			
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Quality Assurance Report.

Generated 26-MAR-2008 14:58:03.71

QA Filename : \$DISK1:[SCINT12.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-12

Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 10424.000000 Upper Bound : 11485.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 10954.969727 Std Deviation : 176.697861

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:52	count		10836.0000		
12-FEB-2008 07:26	count		10680.0000		
13-FEB-2008 06:52	count		10800.0000		
14-FEB-2008 08:16	count		10658.0000		
18-FEB-2008 09:06	count		10629.0000		
19-FEB-2008 06:46	count		10563.0000	In	
19-FEB-2008 06:58	count		0.0000	Be Ac	
20-FEB-2008 06:22	count		10755.0000		
21-FEB-2008 06:44	count		10941.0000		
25-FEB-2008 06:49	count		10804.0000		
26-FEB-2008 06:59	count		10738.0000		
27-FEB-2008 08:00	count		10957.0000		
28-FEB-2008 06:19	count		10720.0000		
3-MAR-2008 06:40	count		10467.0000	In	
4-MAR-2008 06:56	count		10763.0000		
5-MAR-2008 06:59	count		10594.0000	In	
6-MAR-2008 06:57	count		10574.0000	In	
10-MAR-2008 07:20	count		10795.0000		
11-MAR-2008 07:24	count		10801.0000		
12-MAR-2008 07:09	count		10862.0000		
13-MAR-2008 07:16	count		10813.0000		

17-MAR-2008 07:26	count	10956.0000	
18-MAR-2008 06:58	count	10692.0000	
19-MAR-2008 07:11	count	10586.0000	In
20-MAR-2008 06:56	count	10821.0000	
24-MAR-2008 06:45	count	10819.0000	
25-MAR-2008 06:32	count	10881.0000	

Quality Assurance Report. Generated 26-MAR-2008 14:58:04.09

QA Filename : \$DISK1:[SCINT12.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-12
 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

6-MAR-2008 16:39	count		0.0000		

Quality Assurance Report.

Generated 26-MAR-2008 17:05:47.55

QA Filename : \$DISK1:[SCINT11.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-11

Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 6971.000000 Upper Bound : 7601.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 7286.533203 Std Deviation : 105.227036

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 06:39	count		7196.0000		
12-FEB-2008 07:12	count		7101.0000		
13-FEB-2008 06:37	count		7157.0000		
14-FEB-2008 07:12	count		7093.0000		
18-FEB-2008 08:49	count		7171.0000		
19-FEB-2008 06:34	count		7005.0000	In	
20-FEB-2008 06:05	count		7259.0000		
21-FEB-2008 06:27	count		7226.0000		
25-FEB-2008 06:31	count		7173.0000		
26-FEB-2008 06:34	count		7196.0000		
27-FEB-2008 07:33	count		7165.0000		
28-FEB-2008 06:07	count		7251.0000		
3-MAR-2008 06:22	count		6947.0000	Be Ac	
3-MAR-2008 07:04	count		6952.0000	Be Ac	
4-MAR-2008 06:40	count		7160.0000		
5-MAR-2008 06:37	count		6952.0000	Be Ac	
5-MAR-2008 07:22	count		6891.0000	Be Ac	
6-MAR-2008 06:40	count		7032.0000	In	
10-MAR-2008 07:07	count		7078.0000		
11-MAR-2008 06:54	count		7134.0000		
12-MAR-2008 06:57	count		7219.0000		

13-MAR-2008 07:03	count	7092.0000			
17-MAR-2008 07:01	count	7189.0000			
18-MAR-2008 06:40	count	7194.0000			
19-MAR-2008 06:59	count	7108.0000			
20-MAR-2008 06:42	count	7095.0000			
24-MAR-2008 06:27	count	7283.0000			
25-MAR-2008 06:19	count	7327.0000			

Quality Assurance Report. Generated 26-MAR-2008 17:05:47.94

QA Filename : \$DISK1:[SCINT11.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-11
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
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6-MAR-2008 16:38	count		0.0000			
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Quality Assurance Report.

Generated 26-MAR-2008 14:21:18.50

QA Filename : \$DISK1:[SCINT10.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-10

Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 11242.000000 Upper Bound : 12058.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 11650.000000 Std Deviation : 136.252686

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 06:12	count		11481.0000		
12-FEB-2008 06:57	count		11869.0000		
13-FEB-2008 06:14	count		11552.0000		
14-FEB-2008 06:45	count		11782.0000		
18-FEB-2008 08:32	count		12008.0000	[In]	
19-FEB-2008 06:59	count		11471.0000		
20-FEB-2008 05:53	count		11583.0000		
21-FEB-2008 06:14	count		11541.0000		
25-FEB-2008 06:19	count		11819.0000		
26-FEB-2008 06:13	count		11565.0000		
27-FEB-2008 07:19	count		11559.0000		
28-FEB-2008 05:28	count		11618.0000		
3-MAR-2008 06:09	count		11563.0000		
4-MAR-2008 06:28	count		11857.0000		
5-MAR-2008 06:21	count		11686.0000		
6-MAR-2008 06:09	count		11277.0000	[In]	
10-MAR-2008 06:51	count		11636.0000		
11-MAR-2008 06:41	count		11674.0000		
12-MAR-2008 06:43	count		11786.0000		
13-MAR-2008 06:39	count		11823.0000		
17-MAR-2008 06:29	count		11629.0000		

18-MAR-2008 06:06	count	11563.0000	
19-MAR-2008 06:39	count	11877.0000	
20-MAR-2008 06:29	count	11924.0000	In
24-MAR-2008 06:15	count	11918.0000	
25-MAR-2008 06:07	count	11896.0000	

Quality Assurance Report. Generated 26-MAR-2008 14:21:18.88

QA Filename : \$DISK1:[SCINT10.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-10
 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 : 1.142857 Std Deviation : 0.899735

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

6-MAR-2008 16:38	count		1.0000	

Quality Assurance Report.

Generated 26-MAR-2008 14:13:29.10

QA Filename : \$DISK1:[SCINT8.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-8

Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 384784.000000 Upper Bound : 426946.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 405865.250000 Std Deviation : 7027.312012

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:39	count		397248.0000		
12-FEB-2008 07:12	count		406947.0000		
13-FEB-2008 06:37	count		392455.0000		
14-FEB-2008 07:12	count		393975.0000		
18-FEB-2008 08:49	count		400233.0000		
19-FEB-2008 06:34	count		401341.0000		
20-FEB-2008 06:05	count		404811.0000		
21-FEB-2008 06:27	count		400686.0000		
25-FEB-2008 06:31	count		395480.0000		
26-FEB-2008 06:34	count		400154.0000		
27-FEB-2008 07:33	count		411757.0000		
28-FEB-2008 06:07	count		399713.0000		
3-MAR-2008 06:22	count		411810.0000		
4-MAR-2008 06:40	count		404554.0000		
5-MAR-2008 06:37	count		401871.0000		
6-MAR-2008 06:40	count		401741.0000		
10-MAR-2008 07:06	count		414556.0000		
11-MAR-2008 06:54	count		405379.0000		
12-MAR-2008 06:57	count		398830.0000		
13-MAR-2008 07:03	count		410225.0000		
17-MAR-2008 07:01	count		398880.0000		

18-MAR-2008 06:40	count	397404.0000	
19-MAR-2008 06:59	count	400202.0000	
20-MAR-2008 06:42	count	402513.0000	
24-MAR-2008 06:27	count	398170.0000	
25-MAR-2008 06:19	count	406726.0000	

Quality Assurance Report. Generated 26-MAR-2008 14:13:29.48

QA Filename : \$DISK1:[SCINT8.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-8
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
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6-MAR-2008 16:38	count		0.0000		
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Quality Assurance Report.

Generated 26-MAR-2008 17:04:11.94

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 : 10532.000000 Upper Bound : 11036.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 30-JUL-2007 00:00 End Date : 1-NOV-2007 00:00

Mean : 10789.393555 Std Deviation : 137.676804

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 07:06	count		10803.0000		
12-FEB-2008 07:39	count		10999.0000		
13-FEB-2008 07:11	count		10691.0000		
14-FEB-2008 08:28	count		10567.0000		
18-FEB-2008 09:23	count		10740.0000		
19-FEB-2008 06:21	count		10815.0000		
20-FEB-2008 06:39	count		10704.0000		
21-FEB-2008 06:56	count		11093.0000	Ab In	
21-FEB-2008 07:17	count		10739.0000		
25-FEB-2008 07:19	count		10901.0000		
26-FEB-2008 07:19	count		10816.0000		
27-FEB-2008 08:11	count		10921.0000		
28-FEB-2008 06:33	count		10597.0000		
3-MAR-2008 06:52	count		10578.0000		
4-MAR-2008 07:09	count		10882.0000		
5-MAR-2008 07:34	count		10713.0000		
6-MAR-2008 07:19	count		10661.0000		
10-MAR-2008 07:36	count		10756.0000		
11-MAR-2008 07:36	count		10959.0000		
12-MAR-2008 07:32	count		10867.0000		
13-MAR-2008 07:40	count		10661.0000		

17-MAR-2008 07:50	count	10673.0000	
18-MAR-2008 07:27	count	10776.0000	
19-MAR-2008 07:37	count	10679.0000	
20-MAR-2008 07:26	count	10894.0000	
24-MAR-2008 07:04	count	11084.0000	Ab In
24-MAR-2008 07:16	count	11038.0000	Ab
25-MAR-2008 06:58	count	10862.0000	

Quality Assurance Report. Generated 26-MAR-2008 17:04:12.30

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
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6-MAR-2008 16:39	count		0.0000	
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THORIUM
SAMPLE AND QC DATA

Lot No., Due Date: **F8A290183; 02/14/2008**
 Client, Site: **1418995; LANDWELL - Tronox Parcel H**
 QC Batch No., Method Test: **8035240; RTHISO Thlso by ALP**
 SDG, Matrix: **;**

1.0 COC

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

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes No N/A

2.2 Are the QC appropriate for the analysis included in the batch? Yes No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits? Yes No N/A

3.2 Is the LCS result, yield, and MDA within contract limits? Yes No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes No N/A

3.5 Are the sample yields and MDAs within contract limits? Yes No N/A

4.0 Raw Data

4.1 Were results calculated in the correct units? Yes No N/A

4.2 Were analysis volumes entered correctly? Yes No N/A

4.3 Were Yields entered correctly? Yes No N/A

4.4 Were spectra reviewed/meet contractual requirements? Yes No N/A

4.5 Were raw counts reviewed for anomalies? Yes No N/A

5.0 Other

5.1 Are all nonconformances included and noted? Yes No N/A

5.2 Are all required forms filled out? Yes No N/A

5.3 Was the correct methodology used? Yes No N/A

5.4 Was transcription checked? Yes No N/A

5.5 Were all calculations checked at a minimum frequency? Yes No N/A

5.6 Are worksheet entries complete and correct? Yes No N/A

6.0 Comments on any No response:
Please see NCM # 10-11818

First Level Review *[Signature]*

Date 2-11-8

Data Review Checklist
RADIOCHEMISTRY
 Second Level Review

Batch Number: 8035240

Review Item	Yes (✓)	No (✓)	NA (✓)
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 within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other			
1. Are all Non-conformances 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 run

Second Level Review: Erika Jod Date: 2/17/18

Clouseau Nonconformance Memo

NCM #: 10-11818 NCM Initiated By: John Norton Date Opened: 02/11/2008 Date Closed:	Classification: Anomaly Status: GLREVIEW Production Area: Environmental - Sep Tests: Thiso by ALP Lot #'s (Sample #'s): J8B040000 (240), QC Batches: 8035240,
Nonconformance: FWHM and/or Centroid out of limits Subcategory: Other (explanation required)	

Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
John Norton	02/11/2008	The FWHM for the LCS was slightly elevated, at 105%.

Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
John Norton	02/11/2008	The FWHM is only slightly elevated, Thiso produces a somewhat wider peak, The data can be accepted.

Client Notification Summary

<u>Client</u>	<u>Project Manager</u>	<u>Notified</u>	<u>Response</u>	<u>How Notified</u>	<u>Note</u>
			<u>Response</u>		<u>Response Note</u>

Quality Assurance Verification

<u>Verified By</u>	<u>Due Date</u>	<u>Status</u>	<u>Notes</u>
		This section not yet completed by QA.	

Approval History

<u>Date Approved</u>	<u>Approved By</u>	<u>Position</u>
----------------------	--------------------	-----------------

2/6/2008 3:38:30 PM

1418995, Landwell Company
Landwell Company

Sample Preparation/Analysis

Balance Id:1120482733

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

Pipet #:

AnalyDueDate: 02/08/2008

Sep1 DT/Tm Tech:

Batch: 8035240

PM, Quote: JAE, 78254

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

pCi/L

Prep Tech: LucasD,HarrisD

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

1 KF8PH-1-AD

200.20g.in 200.20g

THTC12215

F8A290183-10-SAMP

02/04/08.pd

11/29/07.r

AmtRec: 2XLP #Containers: 2

Scr:

Alpha: -1.92E-04 uCi/Sa

Beta: 1.09E-05 uCi/Sa

2 KF8PH-1-AG-X

200.10g.in 200.10g

THTC12216

F8A290183-10-DUP

02/04/08.pd

11/29/07.r

AmtRec: 2XLP #Containers: 2

Scr:

Alpha: -1.92E-04 uCi/Sa

Beta: 1.09E-05 uCi/Sa

3 KGH1A-1-AA-B

200.10g.in 200.10g

THTC12217

J8B040000-240-BLK

02/04/08.pd

11/29/07.r

AmtRec: #Containers: 1

Scr:

Alpha:

Beta:

4 KGH1A-1-AC-C

200.40g.in 200.40g

THS11145

J8B040000-240-LCS

01/16/08.pd

11/29/07.r

AmtRec: #Containers: 1

Scr:

Alpha:

Beta:

Comments: KF8PH-SAMP "Comments: ISV for DUP- DL 2/5/08"

PHAD. DUT @ 10/08

All Clients for Batch:

1418995, Landwell Company

Landwell Company

JAE, 78254

KF8PH1AD-SAMP Constituent List:

KGHLA1AA-BLK:

Th-228 RDL:1

Th-232 RDL:1

KGHLA1AC-LCS:

pCi/L

pCi/L

UCL:

UCL:

RPD:

RPD:

Th-230

Th-234

RDL:1

RDL:

pCi/L

pCi/L

LCL:

LCL:20

UCL:

UCL:115

RPD:

RPD:20

TAL Richland

Richland Wa.

Page 1

ISV - Insufficient Volume for Analysis

WO Cnt: 4

Prep SamplePrep v4.8.32

Sample Preparation/Analysis

Balance Id:1120482733

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

Pipet #:

AnalyteDueDate: 02/08/2008

Sep1 DT/Tm Tech:

Batch: 8035240

pCi/L

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,HarrisD



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:
TH-230	RDL:1	pCi/L	LCL:70	UCL:130	RPD:20	Th-234	pCi/L	LCL:20	UCL:115	RPD:20
KF8PH1AD-SAMP Calc Info:										
Uncert Level (#s):	4	Decay to SaDt:	N	Blk Subt.:	N	Sci.Not.:	N	ODRs:	B	
KGH1A1AA-BLK:										
Uncert Level (#s):	4	Decay to SaDt:	N	Blk Subt.:	N	Sci.Not.:	N	ODRs:	B	
KGH1A1AC-LCS:										
Uncert Level (#s):	4	Decay to SaDt:	N	Blk Subt.:	N	Sci.Not.:	N	ODRs:	B	
Approved By _____ Date: _____										

ICOC Fraction Transfer/Status Report

ByDate: 2/11/2007, 2/16/2008, Batch: '8035240', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
8035240				
AC	Rev1C	HarrisD	2/6/2008 3:35:04 PM	
SC		wagarr	IsBatched	2/4/2008 1:30:07 PM
SC		HarrisD	InPrep	2/6/2008 3:35:04 PM
SC		HarrisD	Prep1C	2/6/2008 3:38:33 PM
SC		AshworthA	Sep1C	2/7/2008 7:26:47 PM
SC		AshworthA	Sep2C	2/8/2008 1:38:54 PM
SC		ClarkR	InCnt1	2/8/2008 1:42:55 PM
SC		BlackCL	CalcC	2/11/2008 7:01:12 AM
SC		nortonj	Rev1C	2/11/2008 12:10:41 PM
AC		HarrisD	2/6/2008 3:38:33 PM	
AC		AshworthA	2/7/2008 7:26:47 PM	
AC		AshworthA	2/8/2008 1:38:54 PM	
AC		ClarkR	2/8/2008 1:42:55 PM	
AC		BlackCL	2/11/2008 7:01:12	
AC		nortonj	2/11/2008 12:10:41	

AC: Accepting Entry; SC: Status Change

TAL Richland

Richland Wa.

Rpt DB Transfer log (Batch Results)

SDG or Batch Isotope	Rpt Db Id Method	RTst Qc	LotSample Analysis Date	Client Id Result	Matrix Cnt Uncert Tot uncert maa	Received Date	Sample Date	Units	Expected Yield	Volumes
8035240	9KF8PH10		F8A29018310	RINSATE-2	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
TH-228	9NS1	0	2/8/2008 4:53:02 PM	-8.0577E-02	6.511E-02 6.541E-02	4.726E-01	pCi/L	0.887	2.002E-1	
TH-230	9NS1	0	2/8/2008 4:53:02 PM	4.5531E-02	5.804E-02 5.815E-02	2.726E-01	pCi/L	0.887	2.002E-1	
TH-232	9NS1	0	2/8/2008 4:53:02 PM	0.0E+00	0.0E+00 5.804E-02	2.726E-01	pCi/L	0.887	2.002E-1	
8035240	KF8PH1GR		F8A29018310	RINSATE-2 DUP	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
TH-228	9NS1	0 R	2/8/2008 4:53:42 PM	-4.0945E-02	7.22E-02 7.227E-02	4.306E-01	pCi/L	0.784	2.001E-1	
TH-230	9NS1	0 R	2/8/2008 4:53:42 PM	0.0E+00	0.0E+00 6.88E-02	3.231E-01	pCi/L	0.784	2.001E-1	
TH-232	9NS1	0 R	2/8/2008 4:53:42 PM	0.0E+00	0.0E+00 6.88E-02	3.231E-01	pCi/L	0.784	2.001E-1	
8035240	KGH1A1AB		J8B040000240	INTRA-LAB BLANK	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
TH-228	9NS1	0 B	2/9/2008 8:30:51 AM	3.2861E-02	8.276E-02 8.28E-02	4.501E-01	pCi/L	0.932	2.001E-1	
TH-230	9NS1	0 B	2/9/2008 8:30:51 AM	1.5165E-01	9.444E-02 9.517E-02	2.594E-01	pCi/L	0.932	2.001E-1	
TH-232	9NS1	0 B	2/9/2008 8:30:51 AM	0.0E+00	0.0E+00 5.524E-02	2.594E-01	pCi/L	0.932	2.001E-1	
8035240	KGH1A1CS		J8B040000240	INTRA-LAB CHECK	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
TH-230	9NS1	0 S	2/9/2008 8:30:58 AM	1.1939E+01	8.507E-01 1.263E+00	2.903E-01	pCi/L	1.1305E+01 0.872	2.004E-1	

8035240, **Samples Inserted | Updated | NotUpdated => 4 | 0 | 0,
 **Results Inserted | ReTestInserted | Updated | NotInserted => 10 | 0 | 0 | 0.
 **Diff RptDb | Qtims => .

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC Trc	Yld	LCS Yld
Thlso by ALP														
Richland Standard Alplso Wo Blk Subt. *CntU: 0+1, + *SystU, `MDCConst:2.71														
Calc	S1	WATER	KF8PH1AD	TH-228	-8.06E-02	(6.54E-02)	U4	pCi/L	R	1.58E-01	4.73E-01		89%	
Calc	S1	WATER	KF8PH1AD	TH-230	4.55E-02	(5.81E-02)	U4	pCi/L	R	5.92E-02	2.73E-01		89%	
Calc	S1	WATER	KF8PH1AD	TH-232	0.00E+00	(5.80E-02)	U4	pCi/L	R	5.92E-02	2.73E-01		89%	
Calc	S1	WATER	KF8PH1AG	TH-228	-4.09E-02	(7.23E-02)	U4	pCi/L	R	1.23E-01	4.31E-01	R	78%	
Calc	S1	WATER	KF8PH1AG	TH-230	0.00E+00	(6.88E-02)	U4	pCi/L	R	7.02E-02	3.23E-01	R	78%	
Calc	S1	WATER	KF8PH1AG	TH-232	0.00E+00	(6.88E-02)	U4	pCi/L	R	7.02E-02	3.23E-01	R	78%	
Calc	S1	WATER	KGH1A1AA	TH-228	3.29E-02	(8.28E-02)	U4	pCi/L	R	1.51E-01	4.50E-01	B	93%	
Calc	S1	WATER	KGH1A1AA	TH-230	1.52E-01	(9.52E-02)	U4	pCi/L	R	5.64E-02	2.59E-01	B	93%	
Calc	S1	WATER	KGH1A1AA	TH-232	0.00E+00	(5.52E-02)	U4	pCi/L	R	5.64E-02	2.59E-01	B	93%	
Calc	S1	WATER	KGH1A1AC	TH-228	8.59E-02	(8.95E-02)	U4	pCi/L	R	1.10E-01	3.87E-01	S	87%	
Calc	S1	WATER	KGH1A1AC	TH-230	1.19E+01	(1.26E+00)		pCi/L	R	6.30E-02	2.90E-01	S	87%	106%
Calc	S1	WATER	KGH1A1AC	TH-232	0.00E+00	(6.18E-02)	U4	pCi/L	R	6.30E-02	2.90E-01	S	87%	

Sq	Calc	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		
1	1418995	S1	WATER	*STLE	AlpIsoWoBS	KF8PHIAD	pCi/L	01/28/08 11:15	02/08/08 16:53	1043.35	Alq	1	g	200.20	g			
							WATER											
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/08/08 15:13	TH-228	0	7	ALP119	COP	N	N	2.2282E-01		N	89%	N	1.0000E+00	1.0000E+00	4.5045E+02	1.0112E+00	
			200.0166666	1000.0333			Y		(6.684E-03)			5%		(0.000E+00)	0.004995			
1	02/08/08 15:13	TH-230	1	1	ALP119	COP	N	N	2.2282E-01		N	89%	N	1.0000E+00	1.0000E+00	4.5045E+02	1.0000E+00	
			200.0166666	1000.0333			Y		(6.684E-03)			5%		(0.000E+00)	0.004995			
2	02/08/08 15:13	TH-232	0	0	ALP119	COP	N	N	2.2282E-01		N	89%	N	1.0000E+00	1.0000E+00	4.5045E+02	1.0000E+00	
			200.0166666	1000.0333			Y		(6.684E-03)			5%		(0.000E+00)	0.004995			
3	02/08/08 14:39	Th-234	8366	681	GPC30A	COP	Y	N	4.5050E-01		N	100%	N	1.0000E+00	1.0000E+00	4.5045E+02	1.0000E+00	
			20	500			Y		(1.802E-02)					(0.000E+00)	0.004995			
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EntFct	LCSYld,EFctU	IDC/LcC	BIK/LcC/MDC	StdDv/MdC/LcC				
	02/11/08	TH-228	R	-0.080577	U4	-6.99977E-03	-0.035415	-0.035415	0.2002 L	89%	0.472624							
	2.348E+03			(0.065413)		(5.6564E-03)	(0.028696)	(0.028696)	(0.173205)									
	02/11/08	TH-230	R	0.045531	U4	3.99962E-03	0.020236	0.020236	0.2002 L	89%	0.272597							
	2.348E+03			(0.058149)		(5.0986E-03)	(0.025824)	(0.025824)	(0.173205)									
	02/11/08	TH-232	R	0.00E00	U4	0.00000E+00	0.00E00	0.00E00	0.2002 L	89%	0.272597							
	2.348E+03			(0.058042)		(5.0986E-03)	(0.025796)	(0.025796)	(0.173205)									
	02/11/08	Th-234	R	2082.376249		4.16938E+02	925.500555	925.500555	0.2002 L	89%	0.059215							
	2.348E+03			(135.291615)		(4.5736E+00)	(38.38685)	(38.38685)	(0.173205)									

Batch Nbr: 8035240

Alpha Spec, Thlso by ALP

Calculated Results

2/11/2008 6:59:55 AM

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BIKlC/MDC	StdDvMdc/LcC
02/11/08	TH-228	R	-0.040945	U4	-2.99920E-03	-0.017987	(0.031735)	0.2001 L	78%	0.430632				
2.350E+03			(0.072269)		(5.2886E-03)	(0.031735)		(0.173205)		0.122952				
02/11/08	TH-230	R	0.00E00	U4	0.00000E+00	0.00E00	(0.030563)	0.2001 L	78%	0.323142				
2.350E+03			(0.0688)		(5.0961E-03)	(0.030563)		(0.173205)		0.070199				
02/11/08	TH-232	R	0.00E00	U4	0.00000E+00	0.00E00	(0.030563)	0.2001 L	78%	0.323142				
2.350E+03			(0.0688)		(5.0961E-03)	(0.030563)		(0.173205)		0.070199				
02/11/08	Th-234	R	1842.100727	U4	3.58180E+02	818.302487	(34.13617)	0.2001 L	78%					
2.350E+03			(119.962487)		(4.2412E+00)	(34.13617)		(0.173205)						

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			
3	Calc	S1	WATER	*STLE	AlpIsoWoBS	KGH1A1AA	pCi/L	B	01/28/08 11:15	02/09/08 08:30	1044.71	Alq	1	200.10	g			
0	INTRA-LAB	BLANK																
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/09/08 06:50	TH-228	2	7	ALP119	COP	N	N	2.2282E-01		N	93%	N	1.0000E+00	4.5045E+02	1.0119E+00		
			200.0666666	1000.0333			Y	Y	(6.684E-03)		5%			(0.000E+00)	0.004998			
1	02/09/08 06:50	TH-230	3	1	ALP119	COP	N	N	2.2282E-01		N	93%	N	1.0000E+00	4.5045E+02	1.0000E+00		
			200.0666666	1000.0333			Y	Y	(6.684E-03)		5%			(0.000E+00)	0.004998			
2	02/09/08 06:50	TH-232	0	0	ALP119	COP	N	N	2.2282E-01		N	93%	N	1.0000E+00	4.5045E+02	1.0000E+00		
			200.0666666	1000.0333			Y	Y	(6.684E-03)		5%			(0.000E+00)	0.004998			
3	02/08/08 14:39	Th-234	8576	701	GPC30C	COP	Y	N	4.3880E-01		N	100%	N	1.0000E+00	4.5045E+02	1.0000E+00		
			20	500			Y	Y	(1.755E-02)					(0.000E+00)	0.004998			

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			
4	Calc	S1	WATER	*STLE	AlpIsoWoBS	KGH1A1AC	pCi/L	S	01/28/08 11:15	02/09/08 08:30	5.0296	Alq	1	200.40	g			
0	INTRA-LAB	CHECK																
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/09/08 06:50	TH-228	2	3	ALP120	COP	N	N	2.1268E-01		N	87%	N	1.0000E+00	4.5045E+02	1.0119E+00		
			200.0333333	1000.2666			Y	Y	(6.380E-03)		5%			(0.000E+00)	0.00499			

() - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

Page 2
 RecCnt:4
 RADCALC v4.8.29
 TA Richland

Alpha Spec, Thlso by ALP , Calculated Results

2/11/2008 6:59:55 AM

Batch Nbr: 8035240

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BlkLcC/MDC	StdDvMdc/LcC
1	02/09/08 06:50	TH-230	197	0	U4	6.99913E-03	0.037748	0.037748	0.2004 L	87%		0.387051	1.0000E+00	1.0000E+00
			200.0333333	1000.2666		(7.2789E-03)	(0.039323)	(0.039323)	(0.173205)			0.110499	4.5045E+02	1.0000E+00
										5%			0.00499	
2	02/09/08 06:50	TH-232	0	0	U4	9.84836E-01	5.311523	5.311523	0.2004 L	87%	106%	0.29026	1.0000E+00	1.0000E+00
			200.0333333	1000.2666		(7.0174E-02)	(0.495211)	(0.495211)	(0.173205)			0.063049	4.5045E+02	1.0000E+00
										5%			0.00499	
3	02/08/08 14:39	Th-234	4694	597	U4	0.00000E+00	0.00E00	0.00E00	0.2004 L	87%		0.290259	1.0000E+00	1.0000E+00
			20	500		(5.0982E-03)	(0.027496)	(0.027496)	(0.173205)			0.063049	4.5045E+02	1.0000E+00
										100%			0.00499	

0 - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 iDC - Instrument Detection Level in Conc Units, MLC - 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

Page 3

RecCnt:4 RADCALC v4.8.29
 TA Richland

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

08-FEB-2008 09:10:23.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
CAL6537	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
08-FEB-2008 09:10:23.00	12534	20.00	681	500.00	30A

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
0	24	662	1492	08-FEB-2008 04:59:56.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

08-FEB-2008 09:10:23.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6538	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
08-FEB-2008 09:10:23.00	12594	20.00	760	500.00	30B

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
0	13	662	1492	08-FEB-2008 04:59:56.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

08-FEB-2008 09:10:23.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6539	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
08-FEB-2008 09:10:23.00	12960	20.00	701	500.00	30C

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
2	21	662	1492	08-FEB-2008 04:59:56.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

08-FEB-2008 09:10:23.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6540	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
08-FEB-2008 09:10:23.00	12185	20.00	597	500.00	30D

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
0	11	662	1492	08-FEB-2008 04:59:56.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

08-FEB-2008 14:39:18.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8PH1AD	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
08-FEB-2008 14:39:18.00	8366	20.00	681	500.00	30A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
2	24	648	1492	08-FEB-2008 04:59:56.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

08-FEB-2008 14:39:18.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF8PH1AG	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
08-FEB-2008 14:39:18.00	7194	20.00	760	500.00	30B

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
2	13	648	1492	08-FEB-2008 04:59:56.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

08-FEB-2008 14:39:18.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KGH1A1AA	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
08-FEB-2008 14:39:18.00	8576	20.00	701	500.00	30C

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
0	21	648	1492	08-FEB-2008 04:59:56.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

08-FEB-2008 14:39:18.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KGH1A1AC	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
08-FEB-2008 14:39:18.00	4694	20.00	597	500.00	30D

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
7	11	648	1492	08-FEB-2008 04:59:56.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

2/19/01 1833

THORIUM ISOTOPIIC COUNTING REQUEST

C.R. Technician RC
Date Counted 2/18/01

Counting Time 200 Minutes
Sample RICHRD008

C.R. Analyst 1966
Date Analyzed 2/18/01

Background See Alpha Analysis Report
Review: LAN 01/28/01 8035240

WorkOrder #	Th-229 (4845 KeV) Tracer				TOTAL COUNTS			Det #	Comment
	from Th-234 Beta Count (7)				Th-228 (5423 KeV)	Th-230 (4688 KeV)	Th-232 (4010 KeV)		
	ID	Activity	ROI Cts	BKG	(6)	(8)	(9)		
<u>KF8PH1AD</u>		10		0	See Alpha Analysis Report for ROI Information			119	
<u>KF8PH1AG</u>		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:

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PH1AD

Detector: ALP119 1
Report Date: 09-Feb-08 06:47 AM
Acquire Date: 8-FEB-2008 15:13:01.90
Tracer Nuclide: TH-229
Sample Live Time: 200 minutes
Bkgrnd Live Time: 1000 minutes

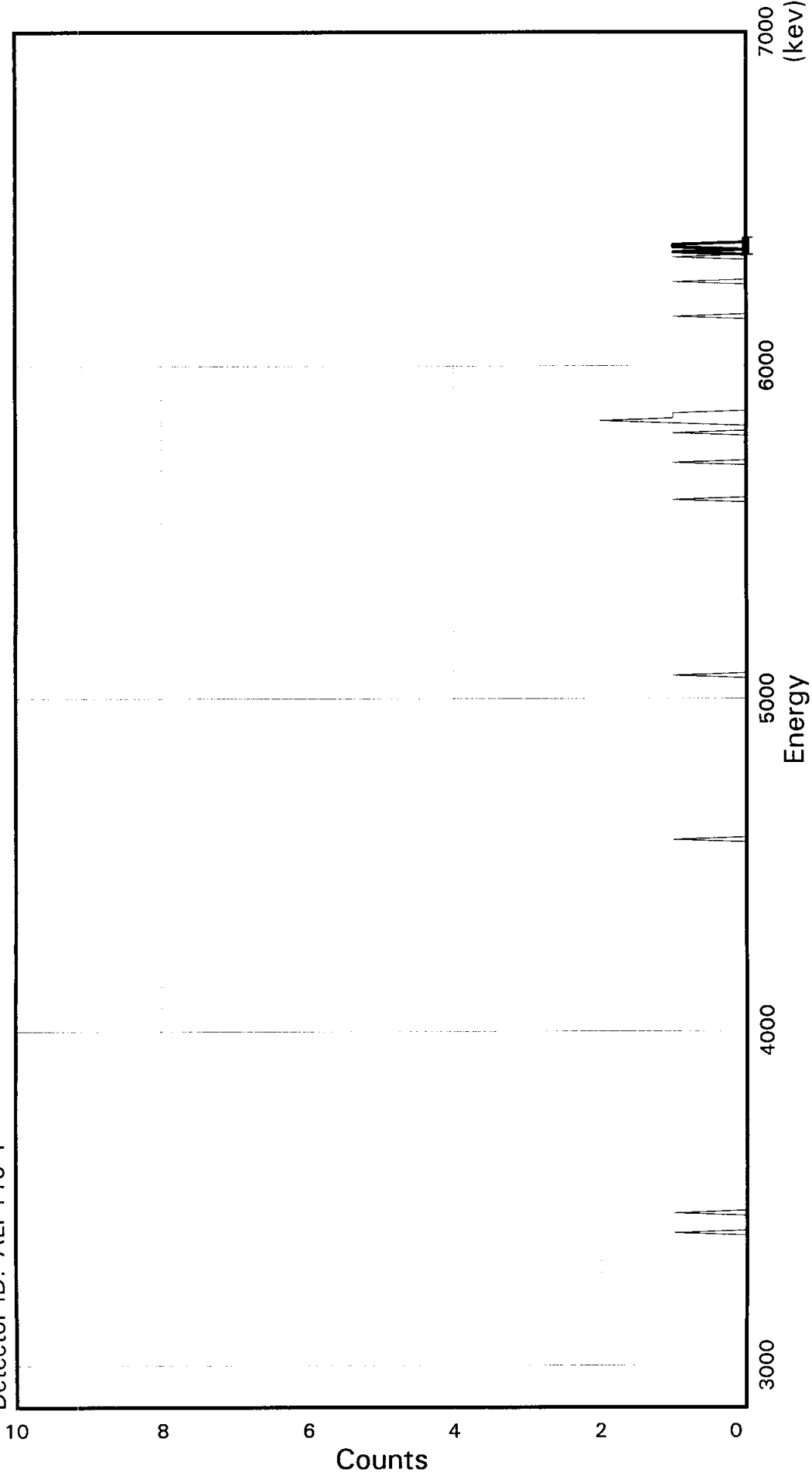
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Rght Chnl
TH-228	0	7	-0.007	5423.2	148.8	331	351
TH-230	1	1	0.004	4687.7	148.8	232	252
TH-232	0	0	0.000	4013.0	148.8	141	161

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH LAN

Batch ID: 8035240

Sample ID: KF8PH1AD
Detector ID: ALP119 1



Energy Coefficients:
Offset: 2.85229E + 03
Slope: 7.43983E + 00
Quadrature: -2.47751E-06

Acquisition Start: 8-FEB-2008 15:13:01.90
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:01.00

SAMPLE IDENTIITY: KF8PH1AD

TITLE : TH LAN

DETECTOR : ALP119 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP119.SAMPLE]KF8PH1AD_080281
513.CNF;1

ACQUIRE DATE of BACKGROUND: 10-JAN-2008 05:34:47

REPORT DATE : 08-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 08-FEB-2008 15:13:01 CALIB DATE : 09-JAN-2008 23:07:55

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:01

OFFSET : 2852.29 keV CONSTANT FWHM : 8.83333 Channels
SLOPE : 7.43983 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.247751E-05 keV/C² SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 (Version: 1-Apr-07)

Sample Identity: KF8PH1AD
 Detector: ALP119 1
 Report Date: 08-Feb 08 06:33 PM
 Acquire Date: 8-FEB-2008 15:13:01.90

Flags Key
 Intersect Region: @
 Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
		1	0		51	0		101	0		151	0		201	0		251	0		301	0		351	2		401	0		451	0		501
		2	0		52	0		102	0		152	0		202	0		252	0		302	0		352	1		402	0		452	0		502
0		3	0		53	0		103	0		153	0		203	0		253	0		303	0		353	1		403	0		453	0		503
0		4	0		54	0		104	0		154	0		204	0		254	0		304	0		354	1		404	0		454	0		504
0		5	0		55	0		105	0		155	0		205	0		255	0		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	0		206	0		256	0		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	0		207	0		257	0		307	0		357	0		407	1		457	0		507
0		8	0		58	0		108	0		158	0		208	0		258	0		308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	0		159	0		209	0		259	0		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	0		160	0		210	0		260	0		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	0		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	0		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	0		463			
0		14	0		64	0		114	0		164	0		214	0		264	0		314	0		364	0		414	0		464			
0		15	0		65	0		115	0		165	0		215	0		265	0		315	0		365	0		415	0		465			
0		16	0		66	0		116	0		166	0		216	0		266	0		316	0		366	0		416	0		466			
0		17	0		67	0		117	0		167	0		217	0		267	0		317	0		367	0		417	1		467			
0		18	0		68	0		118	0		168	0		218	0		268	0		318	0		368	0		418	0		468			
0		19	0		69	0		119	0		169	0		219	0		269	0		319	1		369	0		419	1		469			
0		20	0		70	0		120	0		170	0		220	0		270	0		320	0		370	0		420	0		470			
0		21	0		71	0		121	0		171	0		221	0		271	0		321	0		371	0		421	1		471			
0		22	0		72	0		122	0		172	0		222	0		272	0		322	0		372	0		422	1		472			
0		23	1		73	0		123	0		173	0		223	0		273	0		323	0		373	0		423	0		473			
0		24	0		74	0		124	0		174	0		224	0		274	0		324	0		374	0		424	0		474			
0		25	0		75	0		125	0		175	0		225	0		275	0		325	0		375	0		425	0		475			
0		26	0		76	0		126	0		176	0		226	0		276	0		326	0		376	0		426	0		476			
0		27	0		77	0		127	0		177	0		227	0		277	0		327	0		377	0		427	0		477			
0		28	0		78	0		128	0		178	0		228	0		278	0		328	0		378	0		428	0		478			
0		29	0		79	0		129	0		179	0		229	0		279	0		329	0		379	0		429	0		479			
0		30	0		80	0		130	0		180	0		230	0		280	0		330	0		380	0		430	0		480			
0		31	1		81	0		131	0		181	0		231	0		281	0		331	0		381	0		431	0		481			
0		32	0		82	0		132	0		182	1		232	0		282	0		332	0		382	0		432	0		482			
0		33	0		83	0		133	0		183	0		233	0		283	0		333	0		383	0		433	0		483			
0		34	0		84	0		134	0		184	0		234	0		284	0		334	1		384	0		434	0		484			
0		35	0		85	0		135	0		185	0		235	0		285	0		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	0		236	0		286	0		336	0		386	0		436	0		486			
0		37	0		87	0		137	0		187	0		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	0		188	0		238	0		288	0		338	0		388	0		438	0		488			
0		39	0		89	0		139	0		189	0		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	0		240	0		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	0		241	0		291	0		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	0		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	0		243	0		293	0		343	0		393	1		443	0		493			
0		44	0		94	0		144	0		194	0		244	0		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	0		195	0		245	0		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	0		196	0		246	0		296	0		346	1		396	0		446	0		496			
0		47	0		97	0		147	0		197	0		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0		198	0		248	1		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	0		199	0		249	0		299	0		349	0		399	0		449	0		499			

0 50 0 100 0 150 0 200 0 250 0 300 0 350 1 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 8-FEB-2008 18:33:07

Configuration : RDND06\$DKA100:[ALP119.SAMPLE]KF8PH1AD_080281513.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : TH LAN
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 8-FEB-2008 15:13:01
 Sample ID : KF8PH1AD Sample quantity : 0.00000E+00 PCI
 Sample type : disk Sample geometry :
 Detector name : ALP119 Detector geometry:
 Elapsed live time: 0 03:20:01.00 Elapsed real time: 0 03:20:01.00 0.0%
 Start energy : 2874.61 kev End energy : 6660.83 kev
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	6352.18	4	0	29.76	470.50	468	7	3.33E-04	50.0	

Error Report (Date: 08-Feb-08 06:33 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KF8PH1AG

Detector: ALP120 1

Report Date: 09-Feb-08 06:47 AM

Acquire Date: 8-FEB-2008 15:13:38.27

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

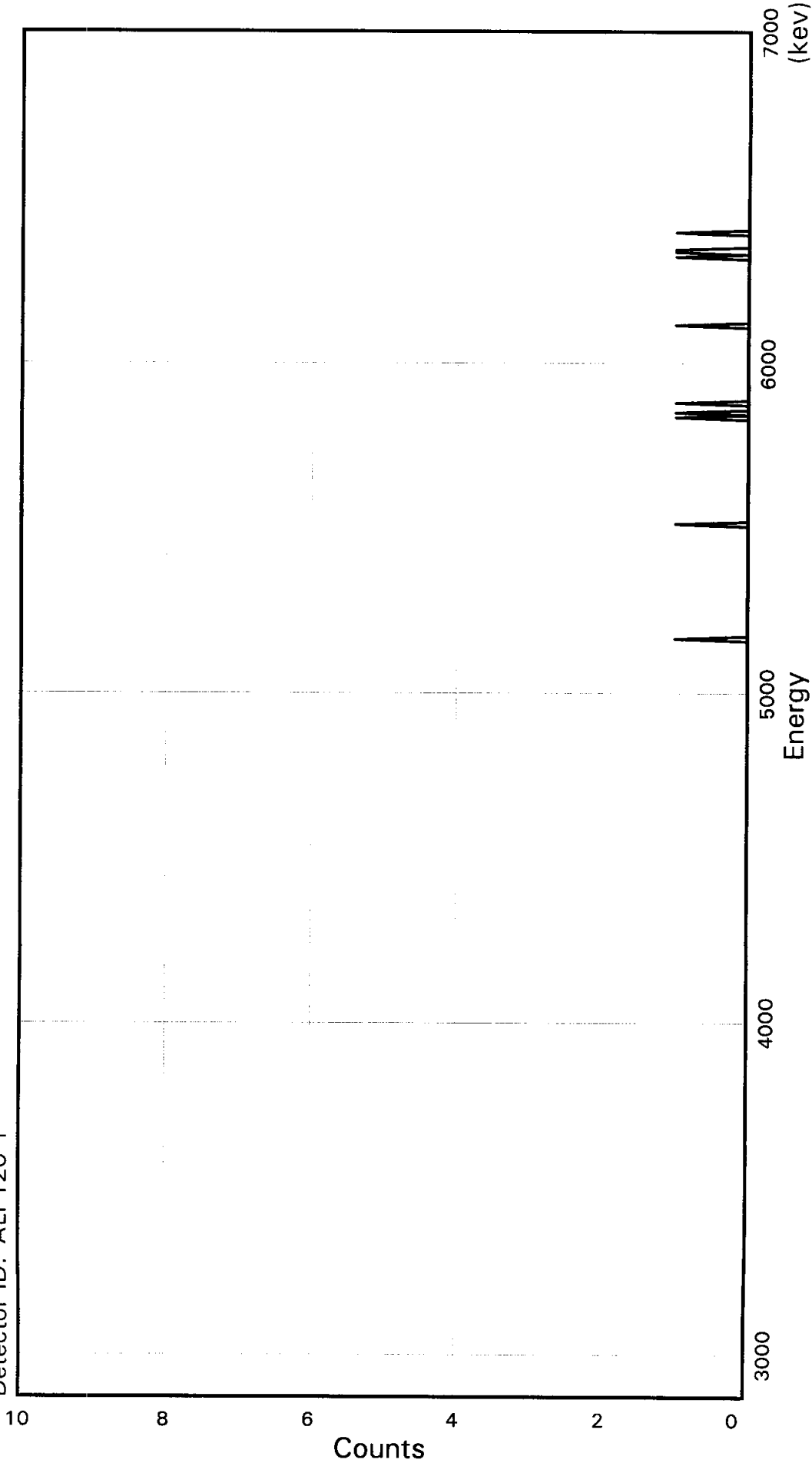
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	0	3	-0.003	5423.2	147.4	332	352
TH-230	0	0	0.000	4687.7	148.0	232	252
TH-232	0	0	0.000	4013.0	148.4	141	161

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH LAN

Batch ID: 8035240

Sample ID: KF8PH1AG
Detector ID: ALP120 1



Acquisition Start: 8-FEB-2008 15:13:38.27
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:07.00

Energy Coefficients:
Offset: 2.84963E + 03
Slope: 7.46247E + 00
Quadrature: -1.32888E-04

SAMPLE IDENTIITY: KF8PH1AG

TITLE : TH LAN

DETECTOR : ALP120 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP120.SAMPLE]KF8PH1AG_080281
513.CNF;1
ACQUIRE DATE of BACKGROUND: 09-JAN-2008 06:26:49

REPORT DATE : 08-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 08-FEB-2008 15:13:38 CALIB DATE : 09-JAN-2008 01:33:47

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:07

OFFSET : 2849.63 keV CONSTANT FWHM : 9.50000 Channels
SLOPE : 7.46247 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.132888E-03 keV/C² SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1-Apr-07)

Sample Identity: KF8PHiAG

Flags Key

Detector: ALP120 1

Report Date: 08-Feb-08 06:33 PM

Intersect Region: @

Acquire Date: 8-FEB 2008 15:13:38.27

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
0		1	0		51	0		101	0		151	0		201	0		251	0		301	0		351	0		401	0		451	0		501
0		2	0		52	0		102	0		152	0		202	0		252	0		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	0		203	0		253	0		303	0		353	1		403	0		453	0		503
0		4	0		54	0		104	0		154	0		204	0		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0		205	0		255	0		305	0		355	1		405	0		455	0		505
0		6	0		56	0		106	0		156	0		206	0		256	0		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	0		207	0		257	0		307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	0		158	0		208	0		258	0		308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	0		159	0		209	0		259	0		309	1		359	1		409	0		459	0		509
0		10	0		60	0		110	0		160	0		210	0		260	0		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	0		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	1		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	0		463			
0		14	0		64	0		114	0		164	0		214	0		264	0		314	0		364	0		414	0		464			
0		15	0		65	0		115	0		165	0		215	0		265	0		315	0		365	0		415	0		465			
0		16	0		66	0		116	0		166	0		216	0		266	0		316	0		366	0		416	0		466			
0		17	0		67	0		117	0		167	0		217	0		267	0		317	0		367	0		417	0		467			
0		18	0		68	0		118	0		168	0		218	0		268	0		318	0		368	0		418	0		468			
0		19	0		69	0		119	0		169	0		219	0		269	0		319	0		369	0		419	1		469			
0		20	0		70	0		120	0		170	0		220	0		270	0		320	0		370	0		420	0		470			
0		21	0		71	0		121	0		171	0		221	0		271	0		321	0		371	0		421	1		471			
0		22	0		72	0		122	0		172	0		222	0		272	0		322	0		372	0		422	1		472			
0		23	0		73	0		123	0		173	0		223	0		273	0		323	0		373	0		423	0		473			
0		24	0		74	0		124	0		174	0		224	0		274	0		324	0		374	0		424	0		474			
0		25	0		75	0		125	0		175	0		225	0		275	0		325	0		375	0		425	0		475			
0		26	0		76	0		126	0		176	0		226	0		276	0		326	0		376	0		426	0		476			
0		27	0		77	0		127	0		177	0		227	0		277	0		327	0		377	0		427	0		477			
0		28	0		78	0		128	0		178	0		228	0		278	0		328	0		378	0		428	0		478			
0		29	0		79	0		129	0		179	0		229	0		279	0		329	0		379	0		429	1		479			
0		30	0		80	0		130	0		180	0		230	0		280	0		330	0		380	0		430	0		480			
0		31	0		81	0		131	0		181	0		231	0		281	0		331	0		381	0		431	0		481			
0		32	0		82	0		132	0		182	0		232	0		282	0		332	0		382	0		432	0		482			
0		33	0		83	0		133	0		183	0		233	0		283	0		333	0		383	0		433	0		483			
0		34	0		84	0		134	0		184	0		234	0		284	0		334	0		384	0		434	0		484			
0		35	0		85	0		135	0		185	0		235	0		285	0		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	0		236	0		286	0		336	0		386	0		436	0		486			
0		37	0		87	0		137	0		187	0		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	0		188	0		238	0		288	0		338	0		388	0		438	0		488			
0		39	0		89	0		139	0		189	0		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	0		240	0		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	0		241	0		291	0		341	0		391	1		441	0		491			
0		42	0		92	0		142	0		192	0		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	0		243	0		293	0		343	0		393	0		443	0		493			
0		44	0		94	0		144	0		194	0		244	0		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	0		195	0		245	0		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	0		196	0		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	0		197	0		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0		198	0		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	0		199	0		249	0		299	0		349	0		399	0		449	0		499			

C 50 0 100 0 150 0 200 0 250 0 300 0 350 0 400 0 450 0 500

Configuration : RDND06\$DKA100:[ALP120.SAMPLE]KF8PH1AG_080281513.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH LAN
Sample date : 28-JAN-2008 12:00:00 Acquisition date : 8-FEB-2008 15:13:38
Sample ID : KF8PH1AG Sample quantity : 0.00000E+00 PCI
Sample type : disk Sample geometry :
Detector name : ALP120 Detector geometry:
Elapsed live time: 0 03:20:07.00 Elapsed real time: 0 03:20:07.00 0.0%
Start energy : 2872.02 kev End energy : 6635.58 kev
Sensitivity : 3.00 Sum Sensitivity : 1.00
No peaks were found

Error Report (Date: 08-Feb-08 06:33 PM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

THORIUM ISOTOPIIC COUNTING REQUEST

C.R. Technician CS
 Date Counted 8/9/08
 C.R. Analyst OPD
 Date Analyzed 2/10/08

Counting Time 20 Minutes
 Sample 20
 Background See Alpha Analysis Report
 SOP's RICHRD008
 Operating: RICHRD0016
 Review: 1/27
8035240

WorkOrder #	Th-229 (4845 KeV) Tracer			TOTAL COUNTS			Det #	Comment
	ID	Activity	ROI Cts	BKG	Th-228 (5423 KeV) (6)	Th-230 (4688 KeV) (8)		
<u>K6H/A7A7</u>		10		0	See Alpha Analysis Report for ROI Information		<u>119</u>	
<u>K6H/A7A7</u>		10		0	See Alpha Analysis Report for ROI Information		<u>120</u>	
		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:

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KGH1A1AA

Detector: ALP119 1

Report Date: 10-Feb-08 12:01 PM

Acquire Date: 9-FEB-2008 06:50:49.05

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

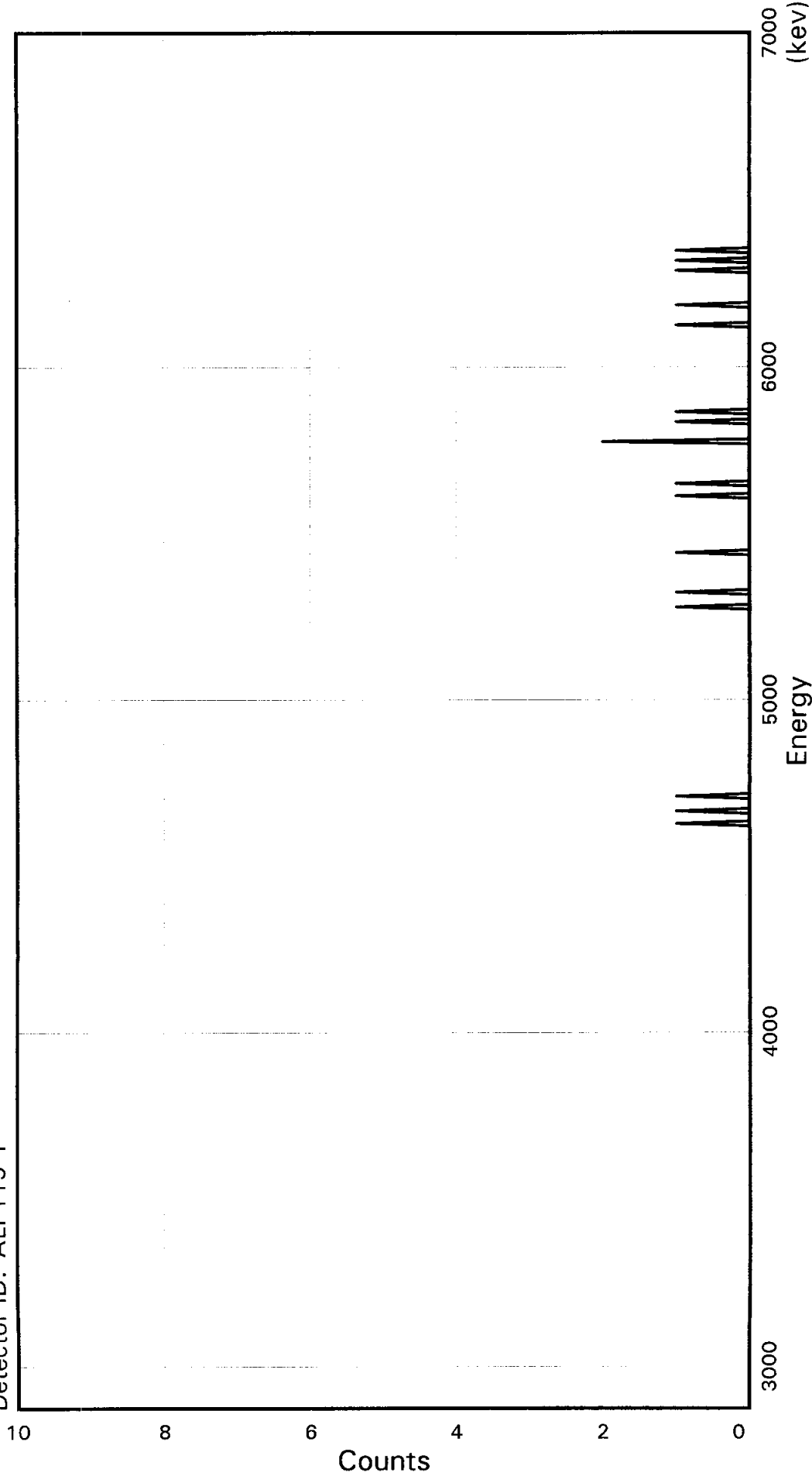
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	2	7	0.003	5423.2	148.8	331	351
TH-230	3	1	0.014	4687.7	148.8	232	252
TH-232	0	0	0.000	4013.0	148.8	141	161

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8035240

Sample ID: KGH1A1AA
Detector ID: ALP119 1



Acquisition Start: 9-FEB-2008 06:50:49.05
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:04.00

Energy Coefficients:
Offset: 2.85229E + 03
Slope: 7.43983E + 00
Quadrature: -2.47751E-06

SAMPLE IDENTIITY: KGH1A1AA

TITLE : TH BRCO

DETECTOR : ALP119 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP119.SAMPLE] KGH1A1AA_090280
650.CNF;1
ACQUIRE DATE of BACKGROUND: 10-JAN-2008 05:34:47

REPORT DATE : 09-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 09-FEB-2008 06:50:49 CALIB DATE : 09-JAN-2008 23:07:55

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:04

OFFSET : 2852.29 keV CONSTANT FWHM : 8.83333 Channels
SLOPE : 7.43983 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.247751E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 (Version: 1 Apr 07)

Sample Identity: KGH1A1AA

Flags Key

Detector: ALP119 1

Report Date: 09-Feb-08 10:10 AM

Intersect Region: @

Acquire Date: 9-FEB-2008 06:50:49.05

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
		1	0		51	0		101	0		151	0		201	0		251	0		301	0		351	J		401	0		451	0		501
		2	0		52	0		102	0		152	0		202	0		252	0		302	0		352	J		402	0		452	0		502
C		3	0		53	0		103	0		153	0		203	0		253	0		303	0		353	J		403	0		453	0		503
C		4	0		54	0		104	0		154	0		204	0		254	0		304	0		354	J		404	0		454	0		504
C		5	0		55	0		105	0		155	0		205	0		255	0		305	0		355	J		405	1		455	0		505
C		6	0		56	0		106	0		156	0		206	0		256	0		306	0		356	J		406	0		456	0		506
C		7	0		57	0		107	0		157	0		207	0		257	0		307	0		357	J		407	0		457	0		507
C		8	0		58	0		108	0		158	0		208	0		258	0		308	0		358	J		408	0		458	0		508
C		9	0		59	0		109	0		159	0		209	0		259	0		309	0		359	J		409	0		459	0		509
C		10	0		60	0		110	0		160	0		210	0		260	0		310	0		360	J		410	0		460	0		510
C		11	0		61	0		111	0		161	0		211	0		261	0		311	0		361	J		411	0		461	0		511
C		12	0		62	0		112	0		162	0		212	0		262	0		312	0		362	J		412	0		462	1		512
C		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	J		413	0		463	0		
C		14	0		64	0		114	0		164	0		214	0		264	0		314	0		364	J		414	0		464	0		
C		15	0		65	0		115	0		165	0		215	0		265	0		315	0		365	J		415	0		465	0		
C		16	0		66	0		116	0		166	0		216	0		266	0		316	0		366	J		416	0		466	1		
C		17	0		67	0		117	0		167	0		217	0		267	0		317	0		367	J		417	0		467	0		
C		18	0		68	0		118	0		168	0		218	0		268	0		318	0		368	J		418	0		468	0		
C		19	0		69	0		119	0		169	0		219	0		269	0		319	0		369	J		419	0		469	0		
C		20	0		70	0		120	0		170	0		220	0		270	0		320	0		370	J		420	0		470	1		
C		21	0		71	0		121	0		171	0		221	0		271	0		321	0		371	J		421	0		471	0		
C		22	0		72	0		122	0		172	0		222	0		272	0		322	0		372	J		422	0		472	0		
C		23	0		73	0		123	0		173	0		223	0		273	0		323	0		373	J		423	0		473	0		
C		24	0		74	0		124	0		174	0		224	0		274	0		324	0		374	J		424	0		474	0		
C		25	0		75	0		125	0		175	0		225	0		275	0		325	0		375	J		425	0		475	0		
C		26	0		76	0		126	0		176	0		226	0		276	0		326	1		376	J		426	0		476	0		
C		27	0		77	0		127	0		177	0		227	0		277	0		327	0		377	J		427	0		477	0		
C		28	0		78	0		128	0		178	0		228	0		278	0		328	0		378	J		428	0		478	0		
C		29	0		79	0		129	0		179	0		229	0		279	0		329	0		379	J		429	0		479	0		
C		30	0		80	0		130	0		180	0		230	0		280	0		330	0		380	J		430	0		480	0		
C		31	0		81	0		131	0		181	0		231	0		281	0		331	0		381	J		431	0		481	0		
C		32	0		82	0		132	0		182	0		232	0		282	0		332	1		382	J		432	0		482	0		
C		33	0		83	0		133	0		183	0		233	0		283	0		333	0		383	J		433	0		483	0		
C		34	0		84	0		134	0		184	0		234	0		284	0		334	0		384	J		434	0		484	0		
C		35	0		85	0		135	0		185	0		235	0		285	0		335	0		385	J		435	0		485	0		
C		36	0		86	0		136	0		186	0		236	0		286	0		336	0		386	J		436	0		486	0		
C		37	0		87	0		137	0		187	0		237	0		287	0		337	0		387	J		437	0		487	0		
C		38	0		88	0		138	0		188	0		238	0		288	0		338	0		388	J		438	0		488	0		
C		39	0		89	0		139	0		189	1		239	0		289	0		339	0		389	J		439	0		489	0		
C		40	0		90	0		140	0		190	0		240	0		290	0		340	0		390	J		440	1		490	0		
C		41	0		91	0		141	0		191	0		241	0		291	0		341	0		391	J		441	0		491	0		
C		42	0		92	0		142	0		192	0		242	0		292	0		342	0		392	J		442	0		492	0		
C		43	0		93	0		143	0		193	0		243	0		293	0		343	0		393	J		443	0		493	0		
C		44	0		94	0		144	0		194	1		244	0		294	0		344	0		394	J		444	0		494	0		
C		45	0		95	0		145	0		195	0		245	0		295	0		345	0		395	J		445	0		495	0		
C		46	0		96	0		146	0		196	0		246	0		296	0		346	0		396	J		446	0		496	0		
C		47	0		97	0		147	0		197	0		247	0		297	0		347	0		397	J		447	0		497	0		
C		48	0		98	0		148	0		198	0		248	0		298	0		348	1		398	J		448	1		498	0		
C		49	0		99	0		149	0		199	0		249	0		299	0		349	0		399	J		449	0		499	0		

0 50 0 100 0 150 0 200 1 250 0 300 0 350 0 400 0 450 0 500

Configuration : RDND06\$DKA100:[ALP119.SAMPLE]KGH1A1AA_090280650.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRCO
Sample date : 28-JAN-2008 12:00:00 Acquisition date : 9-FEB-2008 06:50:49
Sample ID : KGH1A1AA Sample quantity : 0.00000E+00 LITER
Sample type : disk Sample geometry :
Detector name : ALP119 Detector geometry:
Elapsed live time: 0 03:20:04.00 Elapsed real time: 0 03:20:04.00 0.0%
Start energy : 2874.61 kev End energy : 6660.83 kev
Sensitivity : 3.00 Sum Sensitivity : 1.00
No peaks were found

Error Report (Date: 09-Feb-08 10:10 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: KGH1A1AC

Detector: ALP120 1

Report Date: 10-Feb-08 12:04 PM

Acquire Date: 9-FEB-2008 06:50:56.61

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

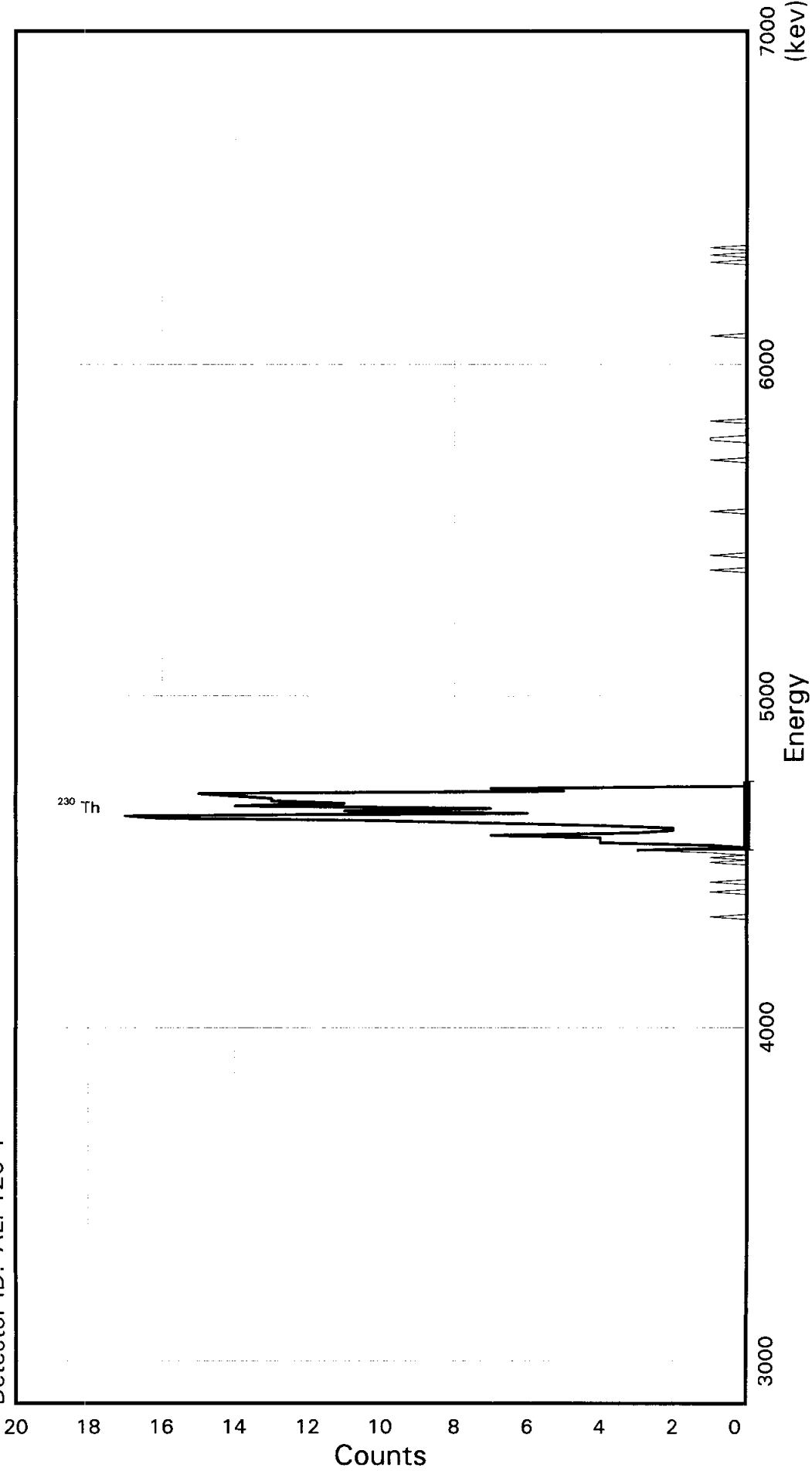
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	2	3	0.007	5423.2	147.4	332	352
TH-230	197	0	0.985	4687.7	199.8	228	255
TH-232	0	0	0.000	4013.0	148.4	141	161

End of Alpha Region Report
(Produced by ANAL Report)

TAL Richland WA.
TH BRCO

Batch ID: 8035240

Sample ID: KGH1A1AC
Detector ID: ALP120 1



Acquisition Start: 9-FEB-2008 06:50:56.61
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:02.00

Energy Coefficients:
Offset: 2.84963E + 03
Slope: 7.46247E + 00
Quadrature: -1.32888E-04

SAMPLE IDENTIITY: KGH1A1AC

TITLE : TH BRCO

DETECTOR : ALP120 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP120.SAMPLE] KGH1A1AC_090280
650.CNF;1
ACQUIRE DATE of BACKGROUND: 09-JAN-2008 06:26:49

REPORT DATE : 09-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 09-FEB-2008 06:50:56 CALIB DATE : 09-JAN-2008 01:33:47

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:02

OFFSET : 2849.63 keV CONSTANT FWHM : 9.50000 Channels
SLOPE : 7.46247 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.132888E-03 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1 Apr-07)

Sample Identity: KGH1A1AC

Flags Key

Detector: ALP120 1

Report Date: 09 Feb 08 10:11 AM

Intersect Region: @

Acquire Date: 9 FEB 2008 06:50:56.61

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
		1	0		51	0		101	0		151	0		201	5		251	0		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0		202	7		252	0		302	0		352	1		402	0		452	0		502
0		3	0		53	0		103	0		153	0		203	0		253	0		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	0		204	0		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0		205	0		255	0		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	0		206	0		256	0		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	0		207	0		257	0		307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	0		158	0		208	0		258	0		308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	0		159	0		209	0		259	0		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	0		160	1		210	0		260	0		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	0		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	0		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	0		463			
0		14	0		64	0		114	0		164	1		214	0		264	0		314	0		364	0		414	0		464			
0		15	0		65	0		115	0		165	0		215	0		265	0		315	1		365	0		415	0		465			
0		16	0		66	0		116	0		166	0		216	0		266	0		316	0		366	0		416	0		466			
0		17	0		67	0		117	0		167	0		217	0		267	0		317	0		367	0		417	1		467			
0		18	0		68	0		118	0		168	0		218	0		268	0		318	0		368	0		418	0		468			
0		19	0		69	0		119	0		169	0		219	0		269	0		319	0		369	0		419	0		469			
0		20	0		70	0		120	0		170	0		220	0		270	0		320	0		370	0		420	1		470			
0		21	0		71	0		121	0		171	0		221	0		271	0		321	0		371	0		421	0		471			
0		22	0		72	0		122	0		172	1		222	0		272	0		322	0		372	0		422	0		472			
0		23	0		73	0		123	0		173	0		223	0		273	0		323	0		373	0		423	1		473			
0		24	0		74	0		124	0		174	1		224	0		274	0		324	0		374	0		424	0		474			
0		25	0		75	0		125	0		175	0		225	0		275	0		325	0		375	0		425	0		475			
0		26	0		76	0		126	0		176	1		226	0		276	0		326	0		376	0		426	0		476			
0		27	0		77	0		127	0		177	3		227	0		277	0		327	0		377	0		427	0		477			
0		28	0		78	0		128	0		178	0		228	0		278	0		328	0		378	0		428	0		478			
0		29	0		79	0		129	0		179	1		229	0		279	0		329	0		379	0		429	0		479			
0		30	0		80	0		130	0		180	4		230	0		280	0		330	0		380	0		430	0		480			
0		31	0		81	0		131	0		181	4		231	0		281	0		331	0		381	0		431	0		481			
0		32	0		82	0		132	0		182	4		232	0		282	0		332	0		382	0		432	0		482			
0		33	0		83	0		133	0		183	7		233	0		283	0		333	0		383	0		433	0		483			
0		34	0		84	0		134	0		184	3		234	0		284	0		334	0		384	0		434	0		484			
0		35	0		85	0		135	0		185	2		235	0		285	0		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	2		236	0		286	0		336	1		386	0		436	0		486			
0		37	0		87	0		137	0		187	4		237	0		287	0		337	0		387	1		437	0		487			
0		38	0		88	0		138	0		188	7		238	0		288	0		338	0		388	0		438	0		488			
0		39	0		89	0		139	0		189	10		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	16		240	0		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	17		241	0		291	1		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	6		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	11		243	0		293	0		343	0		393	0		443	0		493			
0		44	0		94	0		144	0		194	7		244	0		294	0		344	1		394	0		444	0		494			
0		45	0		95	0		145	0		195	14		245	0		295	0		345	1		395	0		445	0		495			
0		46	0		96	0		146	0		196	11		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	0		197	13		247	0		297	1		347	0		397	0		447	0		497			
0		48	0		98	0		148	0		198	13		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	0		199	14		249	0		299	0		349	0		399	0		449	0		499			

0 50 0 100 0 150 1 200 15 250 0 300 0 350 0 400 0 450 0 500

Configuration : RDND06\$DKA100:[ALP120.SAMPLE]KGH1A1AC_090280650.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRCO
Sample date : 28-JAN-2008 12:00:00 Acquisition date : 9-FEB-2008 06:50:56
Sample ID : KGH1A1AC Sample quantity : 0.00000E+00 LITER
Sample type : disk Sample geometry :
Detector name : ALP120 Detector geometry:
Elapsed live time: 0 03:20:02.00 Elapsed real time: 0 03:20:02.00 0.0%
Start energy : 2872.02 kev End energy : 6635.58 kev
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4666.89	200		0104.47	244.58	227	28	1.67E-02	7.1	

Error Report (Date: 09-Feb-08 10:11 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

THORIUM
STANDARDS AND TRACEABILITY

Standard Material Fractions (Vials)

Vial Prep: 2/ 8/07 to 2/10/08,SMFractionIdentifier Between THTC12215 and THTC12217, 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: TH23407B300		Ref: 11/29/2007	4.1439E+03	± 2.999E+02	CPM/G	
THTC12215	Th-234	5.0099E+02 ± 3.626E+01 CPM	0.8422 g	2/4/2008 2/4/2008	Armstron	5.9485E+02 ± 4.305E+01 CPM/G
THTC12216	Th-234	5.0116E+02 ± 3.627E+01 CPM	0.8425 g	2/4/2008 2/4/2008	Armstron	5.9485E+02 ± 4.305E+01 CPM/G
THTC12217	Th-234	5.0164E+02 ± 3.631E+01 CPM	0.8433 g	2/4/2008 2/4/2008	Armstron	5.9485E+02 ± 4.305E+01 CPM/G
		5.0126E+002 ± 3.372E-001 (3)	0.067%	5.0099E+002 , 5.0164E+002		

Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
Parent Standard: TH23407B300		Ref: 11/29/2007	4.1439E+03	± 2.999E+02	CPM/G	
THSI1145	Th-234	5.0358E+02 ± 3.645E+01 CPM	0.4909 g	1/16/2008 1/16/2008	Armstron	1.0258E+03 ± 7.425E+01 CPM/G
		5.0358E+002 ± 5.036E+002 (1)	5.0358E+002 , 5.0358E+002			
<p>STL Richland, SMFractions v4.8.29</p> <p>* - Isotope is an Impurity</p>						

Memorandum

Date: 30 November 2007
To: Count Room & Team Leaders
From: Tim Armstrong
Subject: New Th-234 Source {Th23407B300 #6265}

There is a new Th-234 source Th23407B300 #6265

With a reference date of 29 Nov 2007

CAL ID	GRAMS FOUND	REFERENCE DATE
CAL6537	1.1493	29 November 2007
CAL6538	1.1715	29 November 2007
CAL6539	1.2217	29 November 2007
CAL6540	1.0488	29 November 2007

TH-234 CALIBRATION CALCULATIONS

Std ID: TH23407B300 #6265
 Date: 30-Nov-07

Tracer Yield Calculations

Vial	Th-230		Background		Expected		
	Counts	Min	Counts	Min	Net cpm	Det. Eff	Yield
CAL6537	6616	999	5	999	6.618	0.2847	0.9229
CAL6538	6728	999	3	999	6.732	0.2878	0.9347
CAL6539	7153	999	3	999	7.157	0.2926	0.9795
CAL6540	5502	999	1	999	5.507	0.2616	0.8438

29-Nov-07 = Source Reference Date 12:25 = Source Reference Time

SET 30A-30D Reference Data

Thorium Beta Data

Date	Time	Th-234	Background		Net cpm	Decay	Th234 wt. grams	Th230 Yield	Th234 cpm/g	Vial	
			Cts	Min							
29-Nov-07	12:25	95877	20	675	500	4792.50	1.0000	1.2454	0.9229	4169.80	CAL6537
29-Nov-07	12:25	96274	20	726	500	4812.25	1.0000	1.2533	0.9347	4107.84	CAL6538
29-Nov-07	12:25	95463	20	566	500	4772.02	1.0000	1.2472	0.9795	3906.19	CAL6539
29-Nov-07	12:25	92146	20	675	500	4605.95	1.0000	1.2429	0.8438	4391.83	CAL6540

Th234 YIELD CORRECTION FOR DATA HANDLERS

Th234 wt. g * Th230 YIELD

CAL6537 1.1493
 CAL6538 1.1715
 CAL6539 1.2217
 CAL6540 1.0488

4143.92	Average
4.83%	%RSD
-5.74%	Min Bias
5.98%	Max Bias

4.1439E+03	= Rad Calc. expected value, cpm/g
2.9993E+02	= Total Error of Rad Calc. expected value
29-Nov-07	= Reference Date of Rad Calc. expected value
12:25	= Reference Time of Rad Calc. expected value

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

Requested by: TDA

Date submitted: 11/28/07 ^{TDA} 11/29/07

Sample ID	Isotopes of interest	Sample Date
CAL6537	Tm 234076300 #6265	
CAL6538	Tm 230023160 #6031	
CAL6539	...	
CAL6540		
CAL6541	Tm 234 only	
CAL6542	Purity check	

ADDITIONAL INSTRUCTIONS:

#1070177 COPRECIPITATE PLEASE

Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
Parent Standard: TH23407B300		Ref: 11/28/2007	4.2146E+03	± 3.660E+02	CPM/G	
CAL6537	Th-234	5.0652E+03 ± 4.399E+02 CPM	1.2454 g	11/29/2007 11/29/2007	Armstron	4.0671E+03 ± 3.532E+02 CPM/G
CAL6538	Th-234	5.0972E+03 ± 4.427E+02 CPM	1.2533 g	11/29/2007 11/29/2007	Armstron	4.0670E+03 ± 3.532E+02 CPM/G
CAL6539	Th-234	5.0723E+03 ± 4.405E+02 CPM	1.2472 g	11/29/2007 11/29/2007	Armstron	4.0670E+03 ± 3.532E+02 CPM/G
CAL6540	Th-234	5.0547E+03 ± 4.390E+02 CPM	1.2429 g	11/29/2007 11/29/2007	Armstron	4.0669E+03 ± 3.532E+02 CPM/G
CAL6541	Th-234	5.0917E+03 ± 4.422E+02 CPM	1.252 g	11/29/2007 11/29/2007	Armstron	4.0668E+03 ± 3.532E+02 CPM/G
CAL6542	Th-234	5.0696E+03 ± 4.403E+02 CPM	1.2466 g	11/29/2007 11/29/2007	Armstron	4.0668E+03 ± 3.532E+02 CPM/G

5.0751E+003 ± 1.621E+001 (6) 0.319% 5.0547E+003 , 5.0972E+003

Standard Material Fractions (Vials)

Vial Prep:11/28/06 to 11/30/07,SMFractionIdentifier Between cal6537 and cal6542, 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: TH23002B160			Ref: 5/31/2002	4.2976E+01	± 1.503E+00	DPM/G
CAL6537	TH-230	2.5187E+01 ± 8.809E-01 DPM	0.5861 g	11/29/2007 11/29/2007	Armstron	4.2974E+01 ± 1.503E+00 DPM/G
CAL6538	TH-230	2.5024E+01 ± 8.752E-01 DPM	0.5823 g	11/29/2007 11/29/2007	Armstron	4.2974E+01 ± 1.503E+00 DPM/G
CAL6539	TH-230	2.4972E+01 ± 8.734E-01 DPM	0.5811 g	11/29/2007 11/29/2007	Armstron	4.2974E+01 ± 1.503E+00 DPM/G
CAL6540	TH-230	2.4946E+01 ± 8.725E-01 DPM	0.5805 g	11/29/2007 11/29/2007	Armstron	4.2974E+01 ± 1.503E+00 DPM/G
CAL6541	TH-230	0.0000E+00 ± 6.077E-03 DPM	0 g	11/29/2007 11/29/2007	Armstron	4.2974E+01 ± 1.503E+00 DPM/G
CAL6542	TH-230	0.0000E+00 ± 6.077E-03 DPM	0 g	11/29/2007 11/29/2007	Armstron	4.2974E+01 ± 1.503E+00 DPM/G

1.6688E+001 ± 1.293E+001 (6) 77.461% 0.0000E+000 , 2.5187E+001

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

29-NOV-2007 09:19:17.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6452	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
29-NOV-2007 09:19:17.00	15129	20.00	675	500.00	30A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
6	24	662	1492	29-NOV-2007 06:23:55.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

29-NOV-2007 09:19:17.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6453	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
29-NOV-2007 09:19:17.00	14518	20.00	726	500.00	30B

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
3	18	662	1492	29-NOV-2007 06:23:55.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

29-NOV-2007 09:19:17.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6455	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
29-NOV-2007 09:19:17.00	14681	20.00	566	500.00	30D

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
4	14	662	1492	29-NOV-2007 06:23:55.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

29-NOV-2007 12:25:10.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6537	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
29-NOV-2007 12:25:10.00	95877	20.00	675	500.00	30A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
5	24	665	1492	29-NOV-2007 06:23:55.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

29-NOV-2007 12:25:10.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6538	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
29-NOV-2007 12:25:10.00	96274	20.00	726	500.00	30B

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
6	18	665	1492	29-NOV-2007 06:23:55.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

29-NOV-2007 12:25:10.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6539	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
29-NOV-2007 12:25:10.00	95463	20.00	566	500.00	30D

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
2	14	665	1492	29-NOV-2007 06:23:55.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

29-NOV-2007 12:51:12.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6540	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
29-NOV-2007 12:51:12.00	92146	20.00	675	500.00	30A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
4	24	671	1492	29-NOV-2007 06:23:55.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

29-NOV-2007 12:51:12.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6541	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
29-NOV-2007 12:51:12.00	100128	20.00	726	500.00	30B

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
4	18	671	1492	29-NOV-2007 06:23:55.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

29-NOV-2007 12:51:12.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
CAL6542	COP	COP

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
29-NOV-2007 12:51:12.00	95561	20.00	566	500.00	30D

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
2	14	671	1492	29-NOV-2007 06:23:55.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

THORIUM ISOTOPIC COUNTING REQUEST

11/30
0607

C.R. Technician CS
Date Counted 11/29/07
C.R. Analyst CS
Date Analyzed 11/29/07

Counting Time 1000 Minutes
Sample 1000
SOP's Operating: RICHRD0008
Background See Alpha Analysis Report
Review: 11/29 T070177

WorkOrder #	Th-229 (4845 KeV) Tracer		TOTAL COUNTS			Det #	Comment
	ID	Activity	ROI Cts	BKG	Th-228 (5423 KeV) (6)		
<u>Cal 6537</u>		10		0			171 3.513
<u>Cal 6538</u>		10		0			172 3.475
<u>Cal 6539</u>		10		0			176 3.418
<u>Cal 6540</u>		10		0			177 3.022
<u>Cal 6541</u>		10		0			119
<u>Cal 6542</u>		10		0			170
		10		0			
		10		0			
		10		0			

Comments:

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: CAL6537

Detector: ALP171 1

Report Date: 30-Nov-07 06:16 AM

Acquire Date: 29-NOV-2007 13:26:32.73

Tracer Nuclide: TH-229

Sample Live Time: 999 minutes

Bkgrnd Live Time: 999 minutes

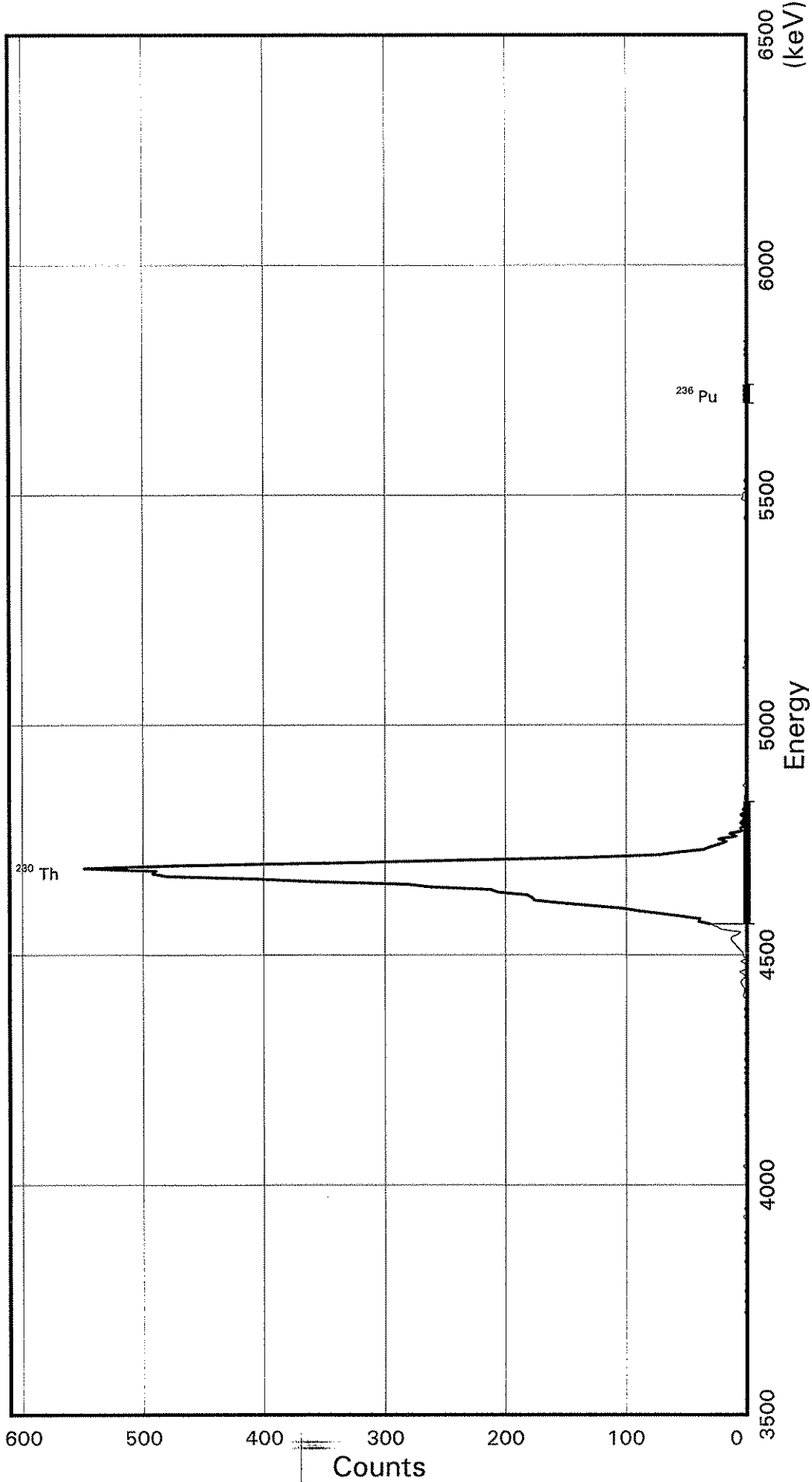
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	5	1	0.004	5423.2	116.4	316	336
TH-230	6616	5	6.618	4687.7	336.2	171	229
TH-232	18	0	0.018	4013.0	115.5	73	93

End of Alpha Region Report
(Produced by ANAL Report)

STL Richland WA.
TH STL

Batch ID: T070177

Sample ID: CAL6537
Detector ID: ALP171 1



Acquisition Start: 29-NOV-2007 13:26:32.73
Preset Live Time: 0 16:40:00.00
Elapsed Live Time: 0 16:38:57.00

Energy Coefficients:
Offset: 3.50436E + 03
Slope: 5.75779E + 00
Quadrature: 9.77860E-05

SAMPLE IDENTIITY: CAL6537

TITLE : TH STL

DETECTOR : ALP171 1
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE] CAL6537_291171326A.CNF
;1

ACQUIRE DATE of BACKGROUND: 19-NOV-2007 05:26:52

REPORT DATE : 30-Nov-07 SAMPLE DATE: 29-NOV-2007 12:00:00
ACQUIRE DATE: 29-NOV-2007 13:26:32 CALIB DATE : 18-NOV-2007 05:35:02

PRESET LIVE TIME: 0 16:40:00 ELAPSED LIVE TIME: 0 16:38:57

OFFSET : 3504.36 keV CONSTANT FWHM : 9.00000 Channels
SLOPE : 5.75779 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 9.778600E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1-Apr-07)

Sample Identity: CAL6537

Flags Key

Detector: ALP171 1

Report Date: 30-Nov-07 06:07 AM

Intersect Region: @

Acquire Date: 29-NOV-2007 13:26:32.73

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
0	1	0	51	1	101	1	151	406	201	0	251	0	301	1	351	0	401	0	451	0	501					
	2	1	52	1	102	2	152	480	202	0	252	0	302	0	352	2	402	0	452	1	502					
0	3	1	53	1	103	1	153	492	203	1	253	0	303	0	353	0	403	1	453	0	503					
0	4	0	54	0	104	1	154	489	204	0	254	0	304	0	354	0	404	1	454	1	504					
0	5	1	55	0	105	1	155	549	205	0	255	0	305	0	355	1	405	0	455	0	505					
0	6	0	56	1	106	1	156	474	206	0	256	0	306	0	356	1	406	0	456	0	506					
0	7	2	57	0	107	3	157	339	207	0	257	0	307	0	357	0	407	0	457	0	507					
0	8	1	58	0	108	2	158	242	208	0	258	0	308	0	358	1	408	0	458	0	508					
0	9	1	59	0	109	2	159	136	209	0	259	0	309	0	359	0	409	0	459	0	509					
0	10	0	60	0	110	2	160	73	210	0	260	0	310	0	360	0	410	0	460	0	510					
0	11	0	61	0	111	4	161	57	211	0	261	0	311	0	361	0	411	0	461	0	511					
0	12	0	62	2	112	5	162	36	212	0	262	0	312	0	362	0	412	1	462	0	512					
0	13	0	63	1	113	4	163	30	213	0	263	0	313	0	363	0	413	0	463							
0	14	2	64	1	114	1	164	23	214	0	264	0	314	0	364	0	414	0	464							
0	15	0	65	0	115	2	165	17	215	0	265	0	315	0	365	0	415	0	465							
0	16	2	66	0	116	6	166	23	216	0	266	0	316	0	366	0	416	0	466							
0	17	0	67	1	117	1	167	9	217	0	267	1	317	0	367	0	417	0	467							
1	18	2	68	1	118	1	168	14	218	0	268	0	318	0	368	1	418	0	468							
0	19	1	69	0	119	1	169	4	219	0	269	0	319	0	369	0	419	1	469							
1	20	0	70	0	120	5	170	5	220	0	270	0	320	0	370	0	420	0	470							
0	21	0	71	1	121	0	171	2	221	0	271	0	321	0	371	0	421	0	471							
0	22	1	72	1	122	3	172	5	222	0	272	0	322	0	372	0	422	1	472							
0	23	1	73	0	123	3	173	3	223	0	273	0	323	0	373	0	423	0	473							
0	24	3	74	2	124	5	174	1	224	0	274	0	324	0	374	0	424	0	474							
1	25	0	75	1	125	7	175	5	225	0	275	0	325	0	375	0	425	0	475							
0	26	1	76	1	126	9	176	1	226	0	276	0	326	1	376	0	426	0	476							
0	27	2	77	0	127	11	177	3	227	1	277	0	327	0	377	1	427	0	477							
0	28	1	78	2	128	13	178	0	228	0	278	0	328	0	378	0	428	0	478							
0	29	1	79	0	129	13	179	1	229	0	279	0	329	0	379	0	429	0	479							
1	30	0	80	2	130	8	180	1	230	3	280	0	330	1	380	0	430	1	480							
1	31	0	81	0	131	5	181	2	231	0	281	0	331	0	381	0	431	0	481							
0	32	0	82	1	132	21	182	2	232	2	282	0	332	2	382	0	432	1	482							
0	33	1	83	2	133	25	183	0	233	0	283	1	333	0	383	0	433	0	483							
0	34	1	84	1	134	30	184	1	234	2	284	0	334	0	384	0	434	2	484							
0	35	1	85	1	135	40	185	0	235	0	285	1	335	0	385	0	435	2	485							
0	36	0	86	0	136	39	186	3	236	0	286	2	336	0	386	0	436	1	486							
1	37	0	87	1	137	55	187	1	237	0	287	1	337	0	387	0	437	1	487							
2	38	0	88	1	138	73	188	0	238	1	288	1	338	0	388	0	438	1	488							
0	39	1	89	1	139	91	189	1	239	0	289	1	339	0	389	0	439	0	489							
0	40	1	90	1	140	104	190	1	240	2	290	1	340	0	390	1	440	1	490							
0	41	0	91	1	141	130	191	0	241	1	291	0	341	0	391	0	441	1	491							
2	42	1	92	1	142	155	192	0	242	0	292	0	342	1	392	0	442	1	492							
0	43	3	93	2	143	176	193	0	243	0	293	4	343	0	393	0	443	0	493							
0	44	0	94	0	144	178	194	0	244	0	294	3	344	0	394	0	444	0	494							
0	45	1	95	0	145	182	195	0	245	0	295	3	345	1	395	0	445	2	495							
2	46	0	96	1	146	206	196	0	246	0	296	1	346	0	396	0	446	1	496							
0	47	0	97	0	147	212	197	0	247	0	297	2	347	2	397	0	447	0	497							
1	48	0	98	0	148	262	198	0	248	0	298	0	348	1	398	0	448	0	498							
0	49	1	99	2	149	281	199	0	249	1	299	1	349	2	399	0	449	0	499							

0 50 0 100 1 150 360 200 0 250 1 300 2 350 1 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 30-NOV-2007 06:07:36

Configuration : \$DISK1:[ALP171.SAMPLE]CAL6537_291171326A.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH STL
Sample date : 29-NOV-2007 12:00:00 Acquisition date : 29-NOV-2007 13:26:32
Sample ID : CAL6537 Sample quantity : 1.0000 SAMPLE
Sample type : disk Sample geometry :
Detector name : ALP171 1 Detector geometry:
Elapsed live time: 0 16:38:57.00 Elapsed real time: 0 16:38:57.00 0.0%
Start energy : 3521.63 keV End energy : 6477.98 keV
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4678.28	6497	0	51.82	203.18	184	46	1.08E-01	1.2	
2	0	5715.19	4	0	23.03	381.50	379	7	6.67E-05	50.0	

Error Report (Date: 30-Nov-07 06:07 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: CAL6538

Detector: ALP171 2

Report Date: 30-Nov-07 06:16 AM

Acquire Date: 29-NOV-2007 13:26:32.73

Tracer Nuclide: TH-229

Sample Live Time: 999 minutes

Bkgrnd Live Time: 999 minutes

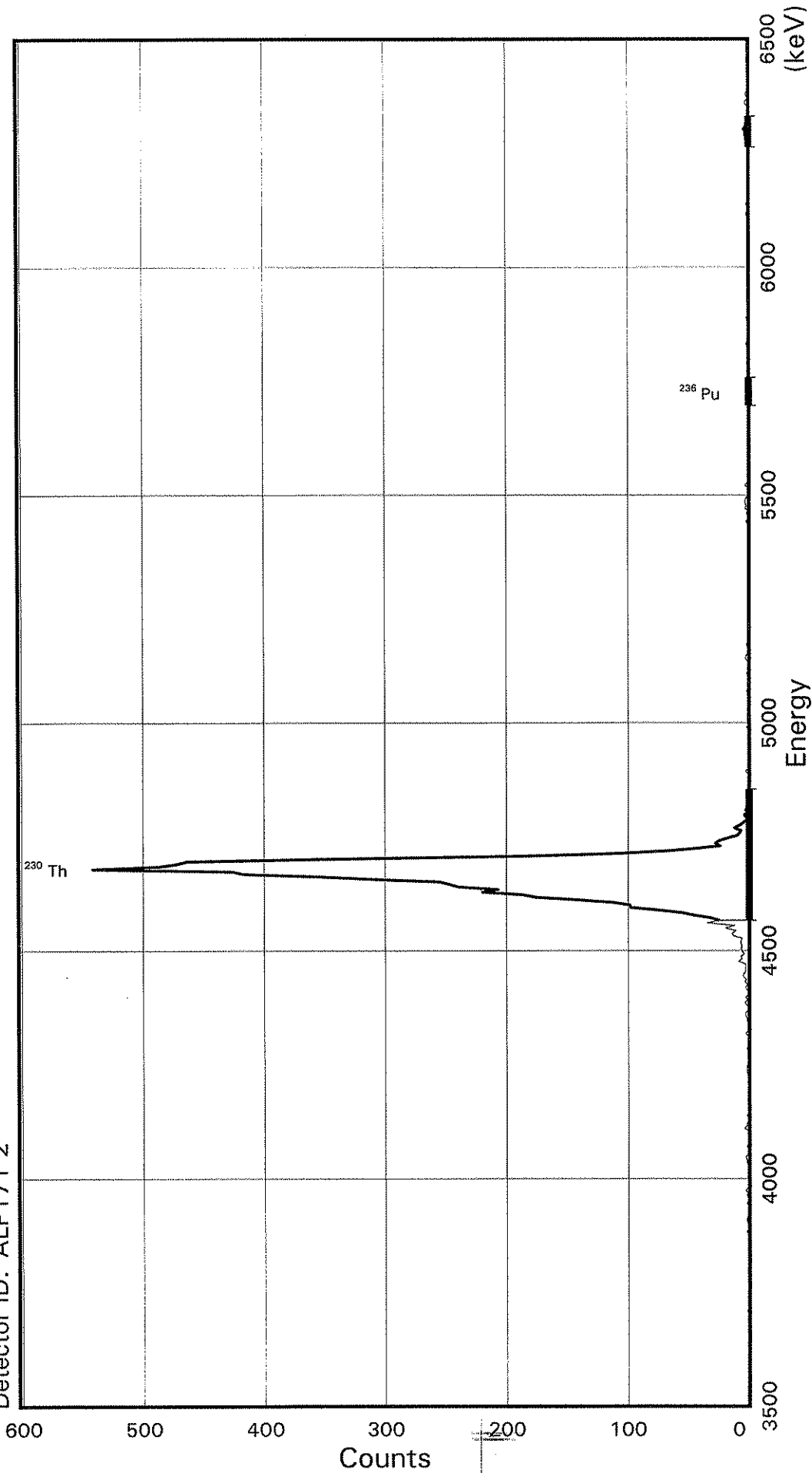
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	4	2	0.002	5423.2	113.1	321	341
TH-230	6728	3	6.732	4687.7	327.5	172	230
TH-232	18	0	0.018	4013.0	112.8	71	91

End of Alpha Region Report
(Produced by ANAL Report)

STL Richland WA.
TH STL

Sample ID: CAL6538
Detector ID: ALP171 2

Batch ID: T070177



Acquisition Start: 29-NOV-2007 13:26:32.73
Preset Live Time: 0 16:40:00.00
Elapsed Live Time: 0 16:38:57.00

Energy Coefficients:
Offset: 3.52884E + 03
Slope: 5.63462E + 00
Quadrature: 3.05042E-05

SAMPLE IDENTIITY: CAL6538

TITLE : TH STL

DETECTOR : ALP171 2
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE] CAL6538_291171326B.CNF

;1
ACQUIRE DATE of BACKGROUND: 19-NOV-2007 05:26:52

REPORT DATE : 30-Nov-07 SAMPLE DATE: 29-NOV-2007 12:00:00
ACQUIRE DATE: 29-NOV-2007 13:26:32 CALIB DATE : 18-NOV-2007 09:07:45

PRESET LIVE TIME: 0 16:40:00 ELAPSED LIVE TIME: 0 16:38:57

OFFSET : 3528.84 keV CONSTANT FWHM : 9.50000 Channels
SLOPE : 5.63462 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 3.050420E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 (Version: 1-Apr-07)

Sample Identity: CAL6538

Flags Key

Detector: ALP171 2

Report Date: 30-Nov-07 06:07 AM

Intersect Region: @

Acquire Date: 29-NOV-2007 13:26:32.73

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
0	1	0	51	1	101	2	151	354	201	0	251	0	301	0	351	0	401	0	451	3	501		
0	2	0	52	0	102	4	152	416	202	0	252	0	302	0	352	1	402	0	452	2	502		
0	3	0	53	4	103	1	153	426	203	0	253	0	303	3	353	0	403	0	453	0	503		
0	4	0	54	2	104	3	154	542	204	0	254	1	304	1	354	0	404	0	454	2	504		
0	5	0	55	2	105	1	155	487	205	0	255	0	305	0	355	0	405	0	455	2	505		
0	6	0	56	0	106	1	156	472	206	0	256	0	306	0	356	0	406	0	456	0	506		
0	7	0	57	0	107	2	157	463	207	0	257	0	307	0	357	1	407	0	457	0	507		
1	8	0	58	2	108	3	158	333	208	0	258	1	308	0	358	2	408	2	458	0	508		
0	9	0	59	0	109	1	159	185	209	2	259	0	309	0	359	1	409	1	459	0	509		
1	10	1	60	0	110	4	160	109	210	0	260	0	310	0	360	1	410	1	460	0	510		
0	11	0	61	1	111	2	161	68	211	0	261	0	311	0	361	1	411	0	461	0	511		
0	12	0	62	0	112	5	162	44	212	0	262	0	312	0	362	1	412	2	462	0	512		
0	13	2	63	0	113	5	163	24	213	1	263	0	313	0	363	0	413	0	463				
0	14	1	64	0	114	3	164	28	214	0	264	0	314	0	364	1	414	0	464				
0	15	1	65	0	115	3	165	25	215	0	265	0	315	0	365	0	415	1	465				
0	16	0	66	1	116	3	166	18	216	0	266	0	316	0	366	0	416	0	466				
0	17	2	67	1	117	3	167	10	217	0	267	0	317	0	367	0	417	0	467				
0	18	2	68	0	118	9	168	8	218	0	268	0	318	0	368	2	418	0	468				
1	19	1	69	1	119	6	169	7	219	0	269	0	319	0	369	0	419	0	469				
0	20	1	70	0	120	7	170	12	220	0	270	1	320	0	370	0	420	0	470				
0	21	0	71	1	121	4	171	8	221	0	271	0	321	0	371	0	421	0	471				
0	22	1	72	0	122	6	172	5	222	0	272	0	322	0	372	0	422	0	472				
0	23	0	73	1	123	7	173	2	223	2	273	0	323	0	373	0	423	0	473				
0	24	2	74	1	124	6	174	2	224	0	274	0	324	0	374	0	424	0	474				
0	25	1	75	2	125	7	175	4	225	0	275	0	325	0	375	0	425	0	475				
0	26	0	76	2	126	7	176	1	226	1	276	0	326	0	376	0	426	0	476				
0	27	2	77	2	127	6	177	3	227	1	277	0	327	0	377	0	427	0	477				
0	28	1	78	1	128	13	178	0	228	1	278	0	328	0	378	0	428	0	478				
0	29	3	79	1	129	14	179	1	229	0	279	0	329	0	379	0	429	0	479				
0	30	1	80	1	130	11	180	0	230	2	280	0	330	0	380	0	430	1	480				
0	31	0	81	0	131	20	181	1	231	0	281	0	331	0	381	0	431	0	481				
2	32	0	82	1	132	12	182	1	232	1	282	0	332	0	382	0	432	1	482				
0	33	1	83	0	133	35	183	0	233	0	283	0	333	0	383	0	433	0	483				
0	34	0	84	2	134	25	184	0	234	0	284	0	334	0	384	0	434	0	484				
0	35	0	85	1	135	32	185	1	235	2	285	0	335	1	385	0	435	1	485				
0	36	0	86	0	136	46	186	0	236	3	286	0	336	0	386	0	436	0	486				
0	37	0	87	1	137	56	187	0	237	2	287	1	337	2	387	0	437	2	487				
0	38	1	88	0	138	76	188	0	238	1	288	1	338	0	388	0	438	2	488				
0	39	1	89	1	139	98	189	0	239	0	289	2	339	1	389	0	439	3	489				
0	40	2	90	3	140	99	190	0	240	1	290	0	340	2	390	0	440	2	490				
0	41	2	91	1	141	113	191	0	241	2	291	0	341	1	391	0	441	4	491				
0	42	3	92	0	142	142	192	3	242	1	292	2	342	0	392	0	442	2	492				
0	43	1	93	1	143	176	193	0	243	1	293	0	343	0	393	1	443	2	493				
0	44	1	94	0	144	187	194	0	244	1	294	3	344	0	394	0	444	1	494				
0	45	0	95	2	145	220	195	0	245	1	295	2	345	0	395	0	445	0	495				
0	46	2	96	2	146	207	196	1	246	0	296	3	346	1	396	0	446	0	496				
1	47	0	97	3	147	239	197	0	247	0	297	3	347	1	397	1	447	1	497				
0	48	1	98	3	148	247	198	0	248	0	298	2	348	0	398	0	448	0	498				
0	49	0	99	1	149	255	199	0	249	0	299	1	349	0	399	1	449	1	499				

0 50 1 100 1 150 309 200 0 250 0 300 0 350 0 400 0 450 1 500

VMS Peak Search Report V1.9 Generated 30-NOV-2007 06:07:43

```

Configuration      : $DISK1:[ALP171.SAMPLE]CAL6538_291171326B.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH STL
Sample date       : 29-NOV-2007 12:00:00 Acquisition date : 29-NOV-2007 13:26:32
Sample ID        : CAL6538 Sample quantity : 1.0000 SAMPLE
Sample type      : disk Sample geometry :
Detector name    : ALP171 1 Detector geometry:
Elapsed live time: 0 16:38:57.00 Elapsed real time: 0 16:38:57.00 0.0%
Start energy     : 3545.75 keV End energy : 6421.76 keV
Sensitivity      : 3.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4678.21	6594	0	56.35	203.76	184	51	1.10E-01	1.2	
2	0	5722.49	8	0	45.08	388.50	384	11	1.33E-04	35.4	
3	0	6299.39	19	0	33.81	490.40	484	12	3.17E-04	22.9	

Error Report (Date: 30-Nov-07 06:07 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: CAL6539

Detector: ALP171 6

Report Date: 30-Nov-07 06:17 AM

Acquire Date: 29-NOV-2007 13:26:32.73

Tracer Nuclide: TH-229

Sample Live Time: 999 minutes

Bkgrnd Live Time: 999 minutes

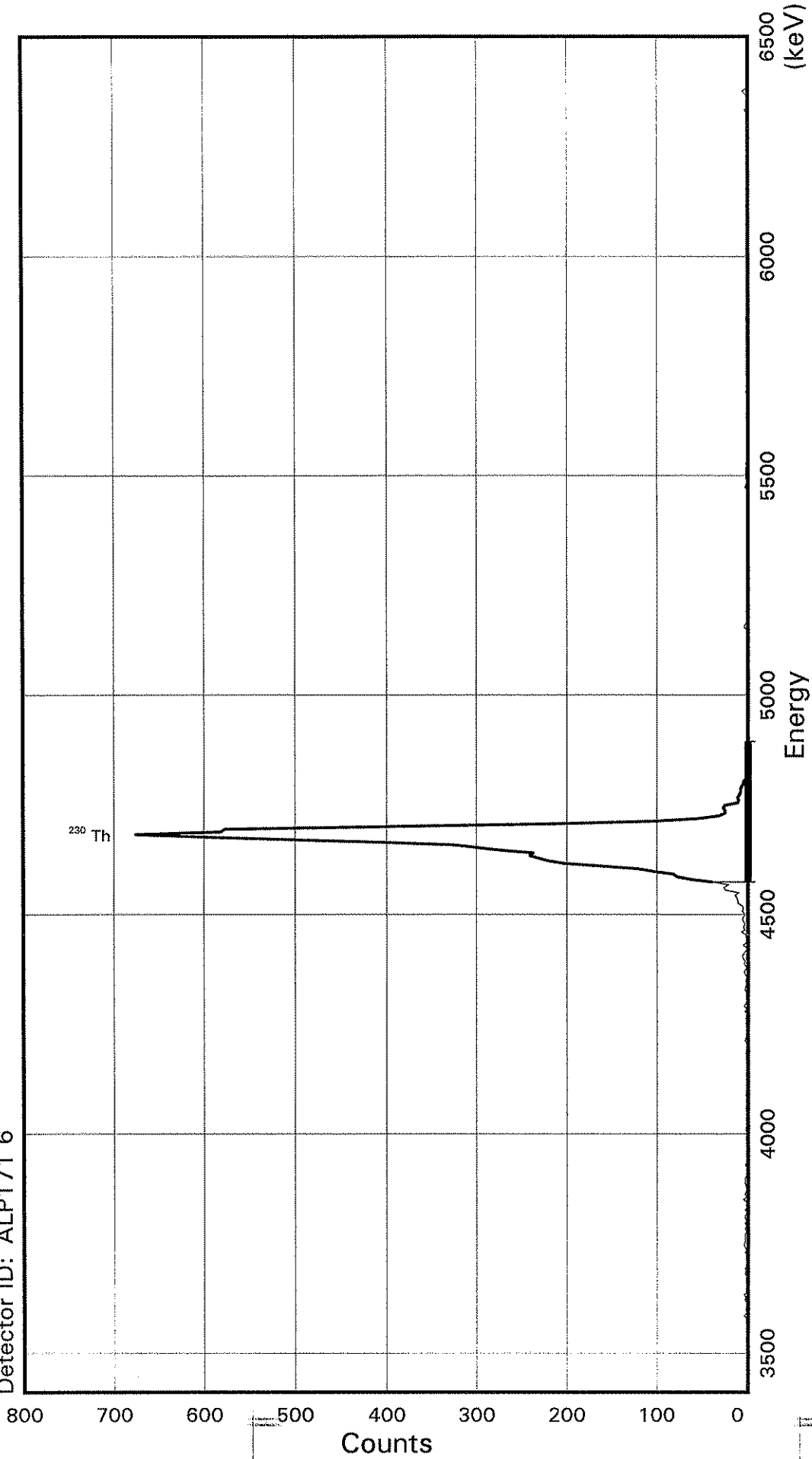
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	4	3	0.001	5423.2	120.9	322	342
TH-230	7153	3	7.158	4687.7	331.9	180	235
TH-232	15	1	0.014	4013.0	120.5	88	108

End of Alpha Region Report
(Produced by ANAL Report)

STL Richland WA.
TH STL

Sample ID: CAL6539
Detector ID: ALP171 6

Batch ID: T070177



Acquisition Start: 29-NOV-2007 13:26:32.73
Preset Live Time: 0 16:40:00.00
Elapsed Live Time: 0 16:38:57.00

Energy Coefficients:
Offset: 3.39284E + 03
Slope: 6.01709E + 00
Quadrature: 4.34440E-05

SAMPLE IDENTITY: CAL6539

TITLE : TH STL

DETECTOR : ALP171 6
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE] CAL6539_291171326F.CNF
;1

ACQUIRE DATE of BACKGROUND: 20-NOV-2007 12:43:22

REPORT DATE : 30-Nov-07 SAMPLE DATE: 29-NOV-2007 12:00:00
ACQUIRE DATE: 29-NOV-2007 13:26:32 CALIB DATE : 18-NOV-2007 05:35:32

PRESET LIVE TIME: 0 16:40:00 ELAPSED LIVE TIME: 0 16:38:57

OFFSET : 3392.84 keV CONSTANT FWHM : 8.16667 Channels
SLOPE : 6.01709 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 4.344400E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1-Apr-07)

Sample Identity: CAL6539

Flags Key

Detector: ALP171 6

Report Date: 30-Nov-07 06:12 AM

Intersect Region: @

Acquire Date: 29-NOV-2007 13:26:32.73

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
		1	0		51	0		101	1		151	121		201	0		251	0		301	2		351	0		401	2		451	0		501
		2	1		52	2		102	0		152	160		202	0		252	0		302	2		352	0		402	0		452	0		502
0		3	1		53	2		103	2		153	202	203	1		253	1		303	1		353	0		403	1		453	0		503	
0		4	2		54	0		104	1		154	220	204	0		254	1		304	2		354	0		404	1		454	0		504	
0		5	1		55	0		105	3		155	231	205	0		255	0		305	0		355	1		405	0		455	0		505	
1		6	3		56	2		106	3		156	241	206	0		256	0		306	0		356	1		406	0		456	0		506	
0		7	1		57	0		107	1		157	237	207	0		257	0		307	0		357	0		407	0		457	0		507	
0		8	3		58	0		108	2		158	272	208	0		258	0		308	0		358	2		408	0		458	1		508	
0		9	4		59	1		109	2		159	298	209	0		259	0		309	0		359	2		409	0		459	0		509	
0		10	3		60	2		110	1		160	325	210	0		260	0		310	0		360	1		410	0		460	0		510	
0		11	3		61	2		111	3		161	404	211	0		261	0		311	0		361	0		411	0		461	0		511	
0		12	3		62	1		112	4		162	502	212	0		262	0		312	0		362	0		412	0		462	0		512	
0		13	3		63	2		113	2		163	595	213	0		263	0		313	0		363	0		413	0		463				
0		14	1		64	0		114	2		164	676	214	0		264	0		314	0		364	0		414	0		464				
0		15	3		65	2		115	4		165	582	215	0		265	0		315	0		365	0		415	1		465				
2		16	1		66	2		116	3		166	577	216	0		266	0		316	0		366	1		416	0		466				
0		17	3		67	0		117	5		167	394	217	0		267	0		317	1		367	0		417	2		467				
0		18	1		68	0		118	6		168	215	218	0		268	0		318	0		368	0		418	0		468				
0		19	3		69	2		119	4		169	102	219	0		269	1		319	0		369	0		419	0		469				
1		20	3		70	0		120	2		170	55	220	0		270	0		320	0		370	0		420	0		470				
1		21	0		71	0		121	0		171	32	221	0		271	0		321	0		371	0		421	0		471				
0		22	3		72	0		122	5		172	25	222	0		272	0		322	0		372	0		422	0		472				
1		23	1		73	2		123	2		173	25	223	0		273	0		323	0		373	0		423	0		473				
0		24	1		74	1		124	1		174	27	224	1		274	1		324	0		374	0		424	0		474				
0		25	0		75	1		125	2		175	25	225	0		275	0		325	0		375	0		425	1		475				
0		26	5		76	0		126	2		176	11	226	0		276	0		326	0		376	0		426	0		476				
0		27	1		77	1		127	7		177	10	227	0		277	0		327	0		377	0		427	2		477				
0		28	3		78	1		128	3		178	11	228	1		278	0		328	0		378	0		428	0		478				
1		29	2		79	0		129	5		179	9	229	0		279	0		329	0		379	0		429	1		479				
2		30	1		80	1		130	3		180	8	230	0		280	0		330	0		380	0		430	0		480				
1		31	2		81	2		131	5		181	8	231	1		281	0		331	2		381	1		431	0		481				
4		32	3		82	2		132	6		182	7	232	0		282	0		332	0		382	0		432	2		482				
1		33	3		83	1		133	4		183	5	233	0		283	1		333	1		383	0		433	0		483				
2		34	3		84	0		134	4		184	5	234	0		284	0		334	0		384	0		434	0		484				
2		35	1		85	1		135	6		185	1	235	1		285	0		335	0		385	0		435	0		485				
1		36	0		86	3		136	5		186	2	236	1		286	0		336	1		386	0		436	2		486				
1		37	0		87	2		137	6		187	0	237	0		287	0		337	0		387	0		437	3		487				
3		38	0		88	1		138	11		188	2	238	1		288	0		338	0		388	0		438	0		488				
2		39	3		89	0		139	11		189	2	239	2		289	0		339	0		389	0		439	1		489				
4		40	0		90	1		140	12		190	0	240	1		290	1		340	0		390	0		440	1		490				
0		41	1		91	1		141	14		191	0	241	0		291	1		341	0		391	0		441	1		491				
1		42	0		92	2		142	10		192	2	242	4		292	0		342	0		392	0		442	1		492				
1		43	0		93	2		143	25		193	0	243	3		293	1		343	0		393	0		443	3		493				
1		44	1		94	2		144	26		194	0	244	1		294	1		344	1		394	2		444	6		494				
1		45	0		95	2		145	21		195	1	245	0		295	3		345	0		395	0		445	1		495				
1		46	0		96	0		146	39		196	0	246	0		296	2		346	0		396	0		446	1		496				
1		47	1		97	3		147	63		197	1	247	1		297	1		347	0		397	0		447	1		497				
3		48	1		98	1		148	78		198	0	248	2		298	2		348	0		398	1		448	0		498				
2		49	2		99	4		149	82		199	0	249	0		299	2		349	0		399	0		449	2		499				

3 50 0 100 2 150 104 200 0 250 0 300 2 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 30-NOV-2007 06:12:40

Configuration : \$DISK1:[ALP171.SAMPLE]CAL6539_291171326F.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH STL
Sample date : 29-NOV-2007 12:00:00 Acquisition date : 29-NOV-2007 13:26:32
Sample ID : CAL6539 Sample quantity : 1.0000 SAMPLE
Sample type : disk Sample geometry :
Detector name : ALP171 1 Detector geometry:
Elapsed live time: 0 16:38:57.00 Elapsed real time: 0 16:38:57.00 0.0%
Start energy : 3410.89 keV End energy : 6484.98 keV
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4680.46	6989	0	48.14	213.67	196	53	1.17E-01	1.2	

Error Report (Date: 30-Nov-07 06:12 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: CAL6540

Detector: ALP171 7

Report Date: 30-Nov-07 06:17 AM

Acquire Date: 29-NOV-2007 13:26:32.73

Tracer Nuclide: TH-229

Sample Live Time: 999 minutes

Bkgrnd Live Time: 999 minutes

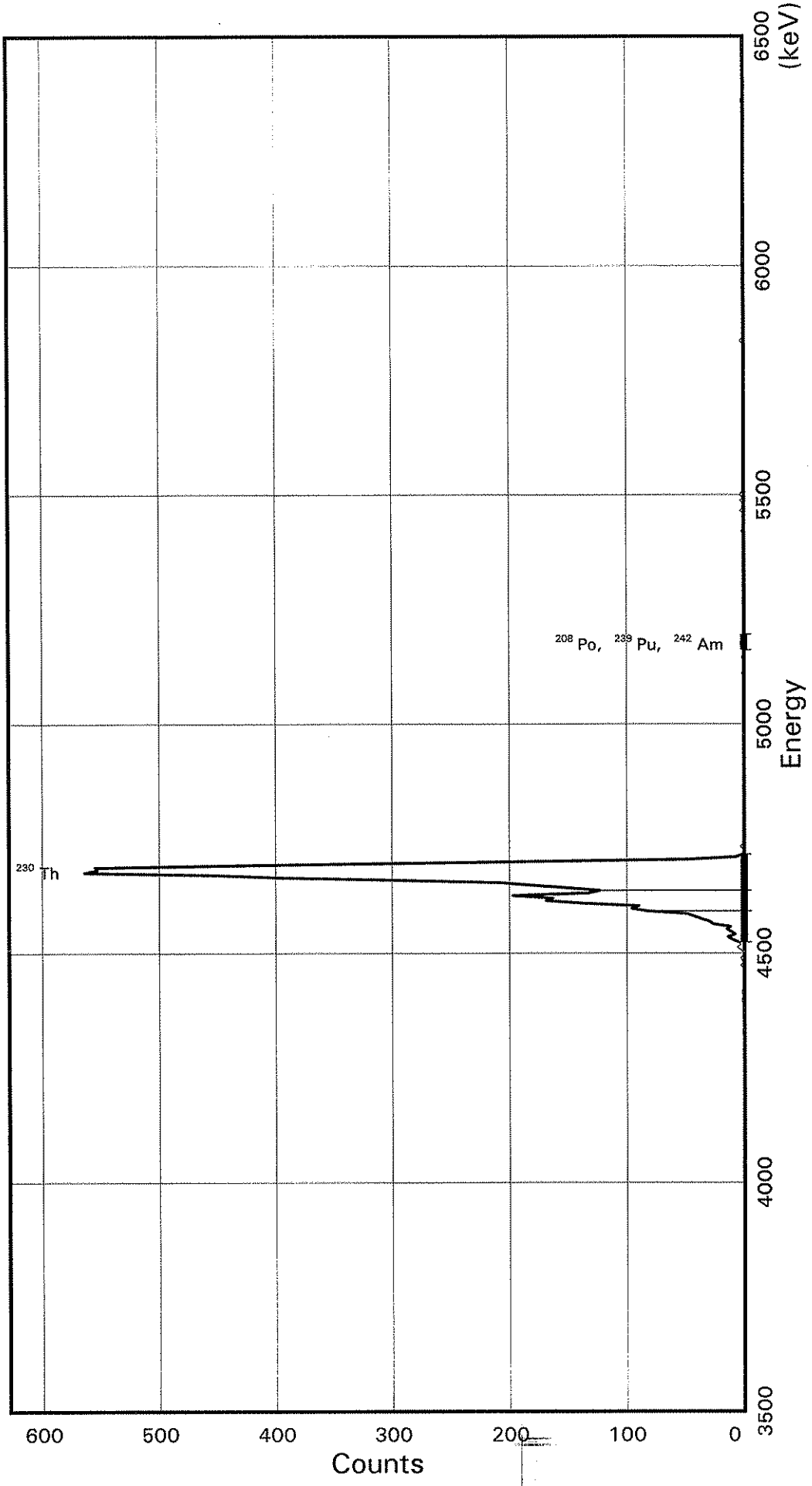
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	7	0	0.007	5423.2	112.6	311	331
TH-230	5502	1	5.507	4687.7	282.2	155	205
TH-232	2	0	0.002	4013.0	113.1	61	81

End of Alpha Region Report
(Produced by ANAL Report)

STL Richland WA.
TH STL

Batch ID: T070177

Sample ID: CAL6540
Detector ID: ALP171 7



Energy Coefficients:
Offset: 3.58570E + 03
Slope: 5.66286E + 00
Quadrature: -5.48754E-05

Acquisition Start: 29-NOV-2007 13:26:32.73
Preset Live Time: 0 16:40:00.00
Elapsed Live Time: 0 16:38:57.00

SAMPLE IDENTITY: CAL6540

TITLE : TH STL

DETECTOR : ALP171 7
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE] CAL6540_291171326G.CNF
;1

ACQUIRE DATE of BACKGROUND: 19-NOV-2007 05:26:52

REPORT DATE : 30-Nov-07 SAMPLE DATE: 29-NOV-2007 12:00:00
ACQUIRE DATE: 29-NOV-2007 13:26:32 CALIB DATE : 18-NOV-2007 05:35:40

PRESET LIVE TIME: 0 16:40:00 ELAPSED LIVE TIME: 0 16:38:57

OFFSET : 3585.70 keV CONSTANT FWHM : 5.33333 Channels
SLOPE : 5.66286 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.548754E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1-Apr-07)

Sample Identity: CAL6540

Flags Key

Detector: ALP171 7

Report Date: 30-Nov-07 06:14 AM

Intersect Region: @

Acquire Date: 29-NOV-2007 13:26:32.73

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn												
0		1	0		51	0		101	0		151	0		201	0		251	0		301	0		351	0		401	0		451	0		501
0		2	0		52	0		102	0		152	1		202	0		252	0		302	0		352	1		402	0		452	0		502
0		3	0		53	0		103	1		153	3		203	0		253	0		303	0		353	0		403	0		453	0		503
0		4	0		54	1		104	0		154	1		204	0		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	1		205	0		255	0		305	1		355	1		405	0		455	0		505
0		6	1		56	0		106	1		156	1		206	0		256	0		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	3		157	0		207	0		257	0		307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	1		158	0		208	0		258	0		308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	2		159	1		209	0		259	0		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	3		160	1		210	0		260	0		310	0		360	0		410	0		460	0		510
1		11	0		61	0		111	0		161	1		211	0		261	0		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	1		162	0		212	0		262	0		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	3		163	0		213	0		263	0		313	0		363	0		413	0		463			
0		14	0		64	1		114	6		164	0		214	0		264	0		314	0		364	0		414	0		464			
0		15	0		65	0		115	3		165	0		215	0		265	0		315	0		365	0		415	0		465			
0		16	0		66	0		116	5		166	1		216	0		266	0		316	0		366	0		416	0		466			
0		17	0		67	1		117	10		167	0		217	1		267	1		317	0		367	0		417	0		467			
0		18	0		68	1		118	14		168	0		218	0		268	0		318	0		368	0		418	0		468			
0		19	0		69	0		119	8		169	0		219	0		269	1		319	1		369	0		419	0		469			
0		20	0		70	1		120	11		170	0		220	2		270	0		320	0		370	0		420	0		470			
0		21	0		71	0		121	15		171	0		221	0		271	0		321	0		371	0		421	0		471			
0		22	1		72	0		122	12		172	0		222	0		272	0		322	0		372	0		422	0		472			
0		23	0		73	0		123	27		173	0		223	0		273	0		323	1		373	0		423	0		473			
0		24	0		74	1		124	30		174	0		224	0		274	0		324	0		374	0		424	0		474			
0		25	0		75	0		125	37		175	0		225	0		275	2		325	1		375	0		425	1		475			
0		26	0		76	0		126	43		176	0		226	2		276	0		326	1		376	1		426	0		476			
0		27	0		77	0		127	49		177	0		227	1		277	1		327	1		377	0		427	0		477			
0		28	1		78	1		128	83		178	0		228	0		278	1		328	0		378	0		428	0		478			
0		29	0		79	0		129	96		179	0		229	0		279	0		329	0		379	0		429	0		479			
0		30	0		80	0		130	90		180	0		230	1		280	0		330	1		380	0		430	0		480			
0		31	0		81	0		131	137		181	0		231	2		281	1		331	0		381	0		431	1		481			
0		32	0		82	1		132	169		182	0		232	2		282	0		332	0		382	0		432	0		482			
0		33	0		83	0		133	163		183	0		233	0		283	3		333	0		383	0		433	1		483			
0		34	1		84	1		134	197		184	0		234	0		284	1		334	0		384	0		434	0		484			
0		35	0		85	0		135	133		185	0		235	0		285	1		335	0		385	0		435	0		485			
0		36	0		86	0		136	123		186	0		236	0		286	0		336	1		386	0		436	0		486			
0		37	0		87	0		137	150		187	0		237	0		287	3		337	0		387	0		437	0		487			
0		38	0		88	1		138	180		188	0		238	0		288	0		338	0		388	0		438	0		488			
0		39	1		89	0		139	207		189	0		239	0		289	3		339	0		389	0		439	0		489			
0		40	0		90	0		140	292		190	0		240	0		290	2		340	0		390	0		440	0		490			
0		41	0		91	0		141	394		191	0		241	0		291	0		341	0		391	0		441	1		491			
0		42	0		92	1		142	452		192	0		242	0		292	0		342	0		392	0		442	2		492			
0		43	0		93	2		143	564		193	0		243	0		293	0		343	0		393	0		443	1		493			
0		44	0		94	2		144	553		194	0		244	0		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	555		195	0		245	0		295	0		345	1		395	0		445	0		495			
1		46	0		96	2		146	401		196	0		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	2		147	216		197	0		247	0		297	0		347	1		397	0		447	0		497			
0		48	0		98	0		148	49		198	0		248	0		298	0		348	1		398	0		448	0		498			
0		49	1		99	1		149	7		199	0		249	0		299	0		349	3		399	0		449	0		499			

0 50 0 100 0 150 1 200 0 250 0 300 0 350 1 400 1 450 0 500

VMS Peak Search Report V1.9 Generated 30-NOV-2007 06:14:54

```

Configuration      : $DISK1:[ALP171.SAMPLE]CAL6540_291171326G.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH STL
Sample date       : 29-NOV-2007 12:00:00 Acquisition date : 29-NOV-2007 13:26:32
Sample ID        : CAL6540           Sample quantity  : 1.0000 SAMPLE
Sample type      : disk             Sample geometry   :
Detector name    : ALP171 1         Detector geometry:
Elapsed live time: 0 16:38:57.00    Elapsed real time: 0 16:38:57.00    0.0%
Start energy     : 3602.69 keV      End energy        : 6470.70 keV
Sensitivity      : 3.00              Sum Sensitivity   : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4608.72	939	0	45.30	180.97	166	20	1.57E-02	3.3	
2	0	4677.90	4545	0	39.64	193.23	178	22	7.58E-02	1.5	
3	0	5173.76	6	0	16.99	281.20	279	6	1.00E-04	40.8	

Error Report (Date: 30-Nov-07 06:14 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: CAL6541

Detector: ALP119 1

Report Date: 30-Nov-07 06:17 AM

Acquire Date: 29-NOV-2007 13:27:03.47

Tracer Nuclide: TH-229

Sample Live Time: 1000 minutes

Bkgrnd Live Time: 1000 minutes

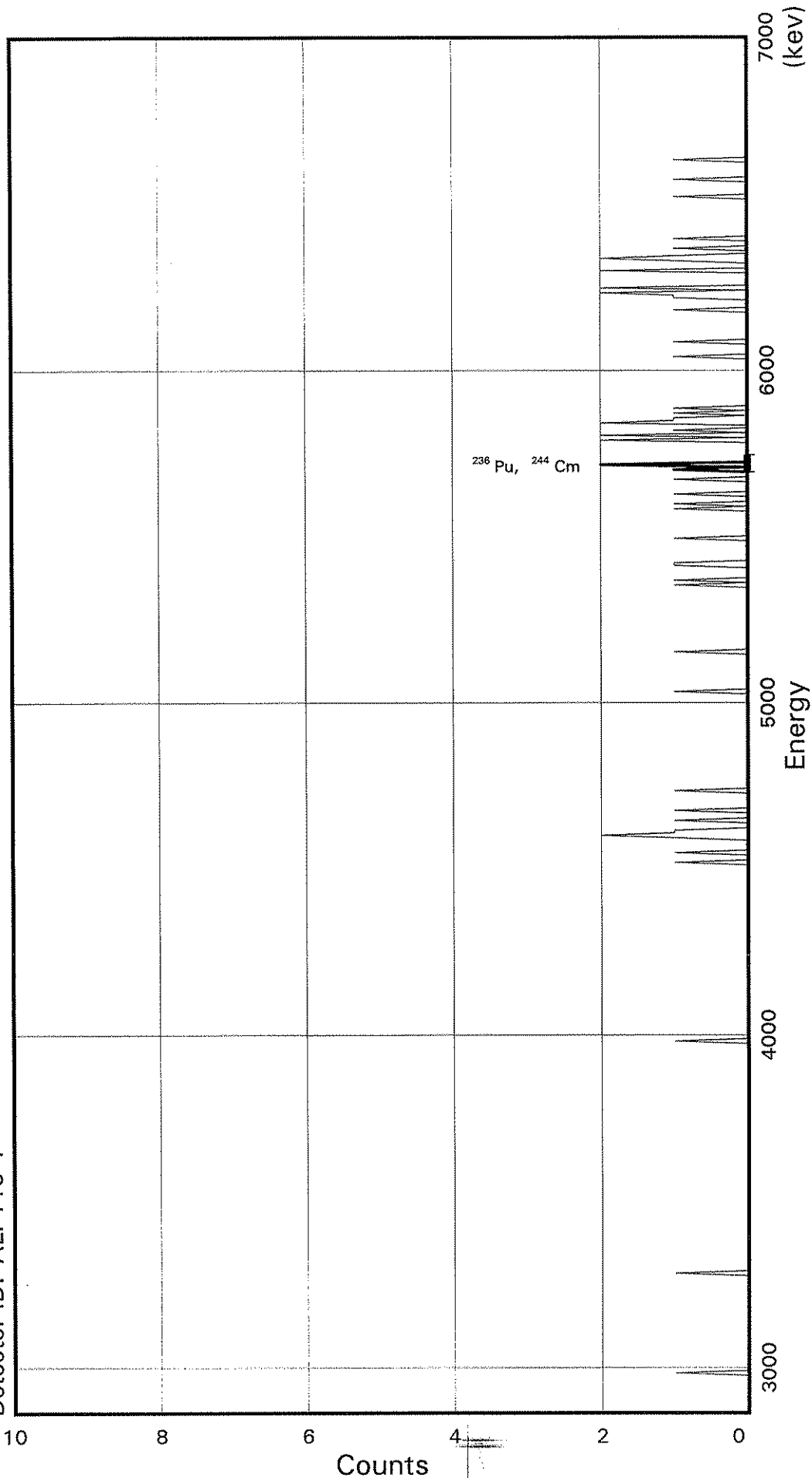
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	4	3	0.001	5423.2	148.4	331	351
TH-230	7	0	0.007	4687.7	149.0	232	252
TH-232	1	0	0.001	4013.0	149.6	141	161

End of Alpha Region Report
(Produced by ANAL Report)

STL Richland WA.
TH STL

Batch ID: T070177

Sample ID: CAL6541
Detector ID: ALP119 1



Acquisition Start: 29-NOV-2007 13:27:03.47
Preset Live Time: 0 16:40:00.00
Elapsed Live Time: 0 16:40:02.00

Energy Coefficients:
Offset: 2.84119E + 03
Slope: 7.52687E + 00
Quadrature: -1.56041E-04

SAMPLE IDENTIITY: CAL6541

TITLE : TH STL

DETECTOR : ALP119 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP119.SAMPLE] CAL6541_2911713
27.CNF;1
ACQUIRE DATE of BACKGROUND: 18-NOV-2007 10:10:46

REPORT DATE : 30-Nov-07 SAMPLE DATE: 29-NOV-2007 12:00:00
ACQUIRE DATE: 29-NOV-2007 13:27:03 CALIB DATE : 18-NOV-2007 06:25:01

PRESET LIVE TIME: 0 16:40:00 ELAPSED LIVE TIME: 0 16:40:02

OFFSET : 2841.19 keV CONSTANT FWHM : 8.83333 Channels
SLOPE : 7.52687 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.156041E-03 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
for Spectra Not Processed by Alp_rgn_cnts
(Version: 1-Apr-07)

Sample Identity: CAL6541
Detector: ALP119 1

Flags Key

Report Date: 30-Nov-07 06:08 AM

Intersect Region: @

Acquire Date: 29-NOV-2007 13:27:03.47

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn												
		1	0		51	0		101	0		151	0		201	0		251	0		301	0		351	0		401	0		451	1		501
		2	0		52	0		102	1		152	0		202	0		252	0		302	0		352	2		402	0		452	0		502
0		3	0		53	0		103	0		153	0		203	1		253	0		303	0		353	1		403	1		453	0		503
0		4	0		54	0		104	0		154	0		204	0		254	0		304	0		354	1		404	1		454	0		504
0		5	0		55	0		105	0		155	0		205	0		255	0		305	1		355	0		405	2		455	0		505
0		6	0		56	0		106	0		156	0		206	0		256	0		306	0		356	1		406	0		456	0		506
0		7	0		57	0		107	0		157	0		207	0		257	0		307	0		357	0		407	2		457	0		507
0		8	0		58	0		108	0		158	0		208	0		258	0		308	0		358	1		408	0		458	0		508
0		9	1		59	0		109	0		159	0		209	0		259	1		309	0		359	0		409	0		459	1		509
0		10	0		60	0		110	0		160	0		210	0		260	0		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	0		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	0		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	0		463			
0		14	0		64	0		114	0		164	0		214	0		264	0		314	0		364	0		414	2		464			
0		15	0		65	0		115	0		165	0		215	0		265	0		315	0		365	0		415	0		465			
0		16	0		66	0		116	0		166	0		216	0		266	0		316	0		366	0		416	0		466			
0		17	0		67	0		117	0		167	0		217	0		267	0		317	1		367	0		417	0		467			
0		18	0		68	0		118	0		168	0		218	0		268	0		318	0		368	0		418	1		468			
1		19	0		69	0		119	0		169	0		219	0		269	0		319	1		369	0		419	2		469			
0		20	0		70	0		120	0		170	0		220	0		270	0		320	0		370	0		420	1		470			
0		21	0		71	0		121	0		171	0		221	0		271	0		321	0		371	0		421	0		471			
0		22	0		72	0		122	0		172	0		222	0		272	0		322	0		372	0		422	0		472			
0		23	0		73	0		123	0		173	0		223	0		273	0		323	1		373	0		423	1		473			
0		24	0		74	0		124	0		174	1		224	0		274	0		324	0		374	0		424	0		474			
0		25	0		75	0		125	0		175	0		225	0		275	0		325	0		375	0		425	0		475			
0		26	0		76	0		126	0		176	0		226	0		276	0		326	0		376	0		426	0		476			
0		27	0		77	0		127	0		177	0		227	0		277	0		327	0		377	0		427	1		477			
0		28	0		78	0		128	0		178	1		228	0		278	0		328	0		378	0		428	0		478			
0		29	0		79	0		129	0		179	0		229	0		279	0		329	1		379	1		429	0		479			
0		30	0		80	0		130	0		180	0		230	0		280	0		330	0		380	0		430	0		480			
0		31	0		81	0		131	0		181	0		231	0		281	0		331	0		381	0		431	0		481			
0		32	0		82	0		132	0		182	0		232	0		282	0		332	0		382	0		432	0		482			
0		33	0		83	0		133	0		183	0		233	0		283	0		333	1		383	0		433	0		483			
0		34	0		84	0		134	0		184	1		234	0		284	0		334	0		384	0		434	0		484			
0		35	0		85	0		135	0		185	2		235	0		285	0		335	2		385	1		435	0		485			
0		36	0		86	0		136	0		186	1		236	0		286	1		336	0		386	0		436	0		486			
0		37	0		87	0		137	0		187	1		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	0		188	0		238	0		288	1		338	0		388	0		438	0		488			
0		39	0		89	0		139	0		189	0		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	0		240	0		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	1		241	0		291	0		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	0		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	0		243	1		293	0		343	0		393	0		443	0		493			
0		44	0		94	0		144	0		194	0		244	0		294	1		344	0		394	0		444	1		494			
0		45	0		95	0		145	0		195	1		245	0		295	1		345	2		395	0		445	0		495			
0		46	0		96	0		146	0		196	0		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	0		197	0		247	0		297	0		347	2		397	0		447	0		497			
0		48	0		98	0		148	0		198	0		248	0		298	0		348	0		398	1		448	0		498			
0		49	0		99	0		149	0		199	0		249	0		299	0		349	1		399	0		449	0		499			

0 50 0 100 0 150 0 200 0 250 0 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 30-NOV-2007 06:08:35

Configuration : RDND06\$DKA100:[ALP119.SAMPLE]CAL6541_291171327.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH STL
Sample date : 29-NOV-2007 12:00:00 Acquisition date : 29-NOV-2007 13:27:03
Sample ID : CAL6541 Sample quantity : 1.0000 SAMPLE
Sample type : disk Sample geometry :
Detector name : ALP119 Detector geometry:
Elapsed live time: 0 16:40:02.00 Elapsed real time: 0 16:40:03.00 0.0%
Start energy : 2863.77 kev End energy : 6654.05 kev
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	5712.21	4	0	30.11	384.50	382	7	6.67E-05	50.0	

Error Report (Date: 30-Nov-07 06:08 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Alpha Analysis Report
(Version: 1-Apr-07)

Sample Identity: CAL6542

Detector: ALP120 1

Report Date: 30-Nov-07 06:18 AM

Acquire Date: 29-NOV-2007 13:27:11.25

Tracer Nuclide: TH-229

Sample Live Time: 1000 minutes

Bkgrnd Live Time: 1000 minutes

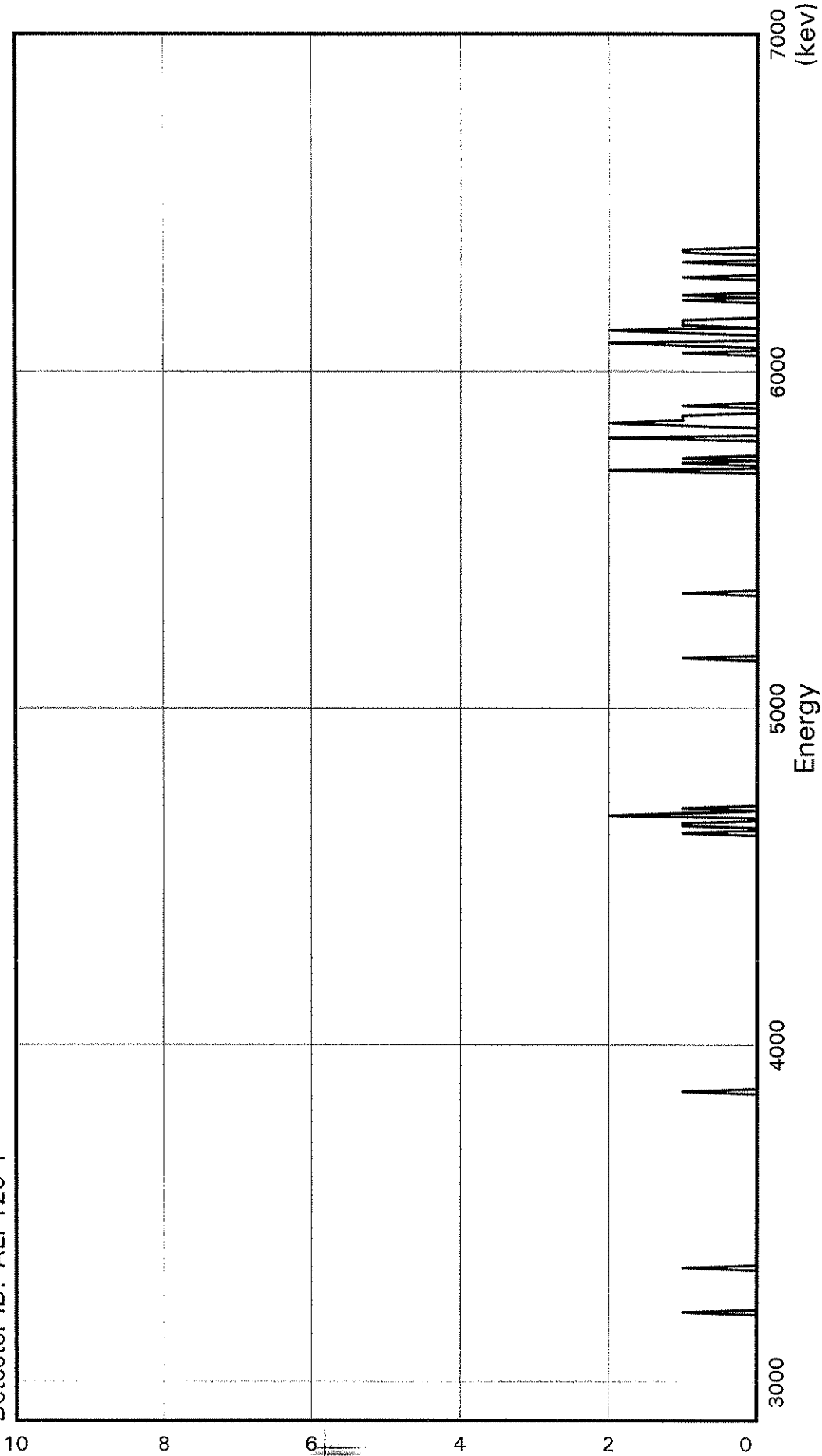
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	1	2	-0.001	5423.2	148.6	332	352
TH-230	7	1	0.006	4687.7	148.0	233	253
TH-232	0	0	0.000	4013.0	147.4	142	162

End of Alpha Region Report
(Produced by ANAL Report)

STL Richland WA.
TH STL

Sample ID: CAL6542
Detector ID: ALP120 1

Batch ID: T070177



Acquisition Start: 29-NOV-2007 13:27:11.25
Preset Live Time: 0 16:40:00.00
Elapsed Live Time: 0 16:40:03.00

Energy Coefficients:
Offset: 2.86282E+03
Slope: 7.32573E+00
Quadrature: 1.49287E-04

SAMPLE IDENTIITY: CAL6542

TITLE : TH STL

DETECTOR : ALP120 1
CONFIGURATION NAME : RDND06\$DKA100: [ALP120.SAMPLE] CAL6542_2911713
27.CNF;1
ACQUIRE DATE of BACKGROUND: 18-NOV-2007 10:10:51

REPORT DATE : 30-Nov-07 SAMPLE DATE: 29-NOV-2007 12:00:00
ACQUIRE DATE: 29-NOV-2007 13:27:11 CALIB DATE : 18-NOV-2007 06:25:06

PRESET LIVE TIME: 0 16:40:00 ELAPSED LIVE TIME: 0 16:40:03

OFFSET : 2862.82 keV CONSTANT FWHM : 9.33333 Channels
SLOPE : 7.32573 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 1.492870E-04 keV/C² SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing
 for Spectra Not Processed by Alp_rgn_cnts
 (Version: 1-Apr-07)

Sample Identity: CAL6542

Flags Key

Detector: ALP120 1

Report Date: 30-Nov-07 06:08 AM

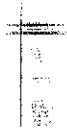
Intersect Region: @

Acquire Date: 29-NOV-2007 13:27:11.25

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
0		1	0		51	0		101	0		151	0		201	0		251	0		301	0		351	0		401	0		451	0		501
0		2	0		52	0		102	0		152	0		202	0		252	0		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	0		203	0		253	0		303	0		353	1		403	1		453	0		503
0		4	0		54	0		104	0		154	0		204	0		254	0		304	0		354	2		404	0		454	0		504
0		5	0		55	0		105	0		155	0		205	0		255	0		305	0		355	1		405	1		455	0		505
0		6	0		56	0		106	0		156	0		206	0		256	0		306	0		356	1		406	0		456	0		506
0		7	0		57	0		107	0		157	0		207	0		257	0		307	0		357	1		407	0		457	0		507
0		8	0		58	0		108	0		158	0		208	0		258	0		308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	0		159	0		209	0		259	0		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	0		160	0		210	0		260	1		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	0		311	0		361	1		411	0		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	0		312	0		362	0		412	1		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	0		463			
0		14	0		64	0		114	0		164	0		214	0		264	0		314	0		364	0		414	0		464			
0		15	1		65	0		115	0		165	0		215	0		265	0		315	0		365	0		415	0		465			
0		16	0		66	0		116	0		166	0		216	0		266	0		316	0		366	0		416	0		466			
0		17	0		67	0		117	0		167	0		217	0		267	0		317	0		367	0		417	0		467			
0		18	0		68	0		118	0		168	0		218	0		268	0		318	0		368	0		418	1		468			
0		19	0		69	0		119	0		169	0		219	0		269	0		319	0		369	0		419	0		469			
0		20	0		70	0		120	0		170	0		220	0		270	0		320	0		370	0		420	0		470			
0		21	0		71	0		121	0		171	0		221	0		271	0		321	0		371	0		421	0		471			
0		22	0		72	0		122	0		172	0		222	0		272	0		322	0		372	0		422	1		472			
0		23	0		73	0		123	0		173	0		223	0		273	0		323	0		373	0		423	1		473			
0		24	0		74	0		124	0		174	0		224	0		274	0		324	0		374	0		424	0		474			
0		25	0		75	0		125	0		175	0		225	0		275	0		325	0		375	0		425	0		475			
0		26	0		76	0		126	0		176	0		226	0		276	0		326	0		376	0		426	0		476			
0		27	0		77	0		127	0		177	0		227	0		277	0		327	0		377	0		427	0		477			
0		28	0		78	0		128	0		178	0		228	0		278	0		328	0		378	0		428	0		478			
0		29	0		79	0		129	0		179	0		229	0		279	0		329	0		379	0		429	0		479			
0		30	0		80	0		130	0		180	0		230	0		280	0		330	0		380	0		430	0		480			
0		31	0		81	0		131	0		181	0		231	0		281	0		331	0		381	0		431	0		481			
0		32	0		82	0		132	0		182	0		232	0		282	0		332	0		382	1		432	0		482			
0		33	0		83	0		133	0		183	0		233	0		283	0		333	0		383	0		433	0		483			
0		34	0		84	0		134	0		184	0		234	0		284	0		334	0		384	0		434	0		484			
0		35	0		85	0		135	0		185	0		235	0		285	0		335	2		385	1		435	0		485			
0		36	0		86	1		136	0		186	0		236	0		286	1		336	0		386	2		436	0		486			
0		37	0		87	0		137	0		187	0		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	0		188	0		238	0		288	0		338	1		388	0		438	0		488			
0		39	0		89	0		139	0		189	0		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	1		240	0		290	0		340	1		390	1		440	0		490			
0		41	0		91	0		141	0		191	0		241	0		291	0		341	0		391	2		441	0		491			
0		42	0		92	0		142	0		192	0		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	1		243	0		293	0		343	0		393	1		443	0		493			
0		44	0		94	0		144	0		194	1		244	0		294	0		344	0		394	1		444	0		494			
0		45	0		95	0		145	0		195	0		245	0		295	0		345	0		395	1		445	0		495			
0		46	0		96	0		146	0		196	0		246	0		296	0		346	0		396	0		446	0		496			
1		47	0		97	0		147	0		197	2		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0		198	1		248	0		298	0		348	2		398	0		448	0		498			
0		49	0		99	0		149	0		199	0		249	0		299	0		349	0		399	0		449	0		499			

0 50 0 100 0 150 0 200 1 250 0 300 0 350 0 400 0 450 0 500



Configuration : RDND06\$DKA100:[ALP120.SAMPLE]CAL6542_291171327.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH STL
Sample date : 29-NOV-2007 12:00:00 Acquisition date : 29-NOV-2007 13:27:11
Sample ID : CAL6542 Sample quantity : 1.0000 SAMPLE
Sample type : disk Sample geometry :
Detector name : ALP120 Detector geometry:
Elapsed live time: 0 16:40:03.00 Elapsed real time: 0 16:40:03.00 0.0%
Start energy : 2884.80 kev End energy : 6652.73 kev
Sensitivity : 3.00 Sum Sensitivity : 1.00
No peaks were found

Error Report (Date: 30-Nov-07 06:08 AM)

Program: Alp_rgn_cnts
subroutine: Main
Message: No trace pk or nucl
Record being processed: 7

System Status Message:

%NONAME-W-NOMSG, Message number 00000000

Th23407B300 #6265

28-Nov-07 = Source Reference Date

7:35 = Source Reference Time

26A-26D

Thorium Beta Data

Date	Time	Th-234		Background		Min	Net cpm	Decay	Th234 wt. grams	Th234 cpm/g
		Cts	Min	Cts	Min					
39414.00	7:35	9995	20	630	500	498.49	1.0000	0.1128	4419.24	
39414.00	7:35	10100	20	557	500	503.89	1.0000	0.1160	4343.84	
39414.00	7:35	9004	20	542	500	449.12	1.0000	0.1161	3868.35	
39414.00	7:35	9903	20	503	500	494.14	1.0000	0.1169	4227.07	

Average	486.41	Average	4214.63
%RSD	5.79%	Min Bias	-8.22%
Min Bias	-8.22%	Max Bias	4.85%

4.2146E+03	= VAX expected value, cpm/g (entered as dpm in Vax)
3.6601E+02	= Total Error of VAX expected value
28-Nov-07	= Reference Date of VAX expected value
7:35	= Reference Time of VAX expected value

TH-234 INITIAL DILUTION CALCULATION

{A} INITIAL BETA COUNT ACTIVITY	4214.63	cpm/g
{B} INITIAL VOLUME	<u>500.00</u>	mL
{C} INITIAL ACTIVITY DESIRED	5000	cpm/g
{D} PROPOSED TOTAL VOLUME	421.46	mL
{E} PROPOSED VOLUME TO ADD NOT NECESSARY TO BE EXACT	-78.54	mL
{F} ACTUAL VOLUME ADDED	<u>0.00</u>	mL
{G} ACTIVITY	4214.63	cpm/g

$A \cdot B / C = D$ $D - B = E$

$B / (B + F) \cdot A = G$

TO CALCULATE THE NET CPM BETA AND ALPHA FOR TH234 EVALUATION

Th234 Std. ID: TH23407B300 #6265

DATE: 11/28/2007

SAMPLE ID	total		Bkg. Cts.		beta Bkg.		total cts.		alpha		alpha Bkg.		Net beta		Net Alpha		1% net	
	cts.	Beta	beta	ct. time	beta	ct. time	beta	ct. time	alpha	ct. time	alpha	ct. time	CPM	CPM	CPM	CPM	beta	beta
RDQC9008	9995		20	20	630	500	4	50	19	500	498.49	0.042	4.98					
RDQC9009	10100		20	20	557	500	1	50	13	500	503.886	-0.006	5.04					
RDQC9010	9004		20	20	542	500	3	50	15	500	449.116	0.03	4.49					
RDQC9011	9903		20	20	503	500	5	50	15	500	494.144	0.07	4.94					

ALPHA/BETA COUNT SHEET

Sa Num	Aliq.	Ppt. Wt.	Date	Time	Counts	Count time	Bkgd.	Bkgd. Time	Set	Initials
22029008	0.128	0	11/28/07	1918		50M			10A	AR
22029009	0.1166		11/28/07	1918					10A	AD
22029010	0.1161		11/28/07	1918					10C	AD
22029011	0.1169		11/28/07	1918					10D	AD

Client: TAR Date: 11/28/07
 Analyst: TOA Comments: Th 234075300 #6265
 Requested Count Time: 50M/W BATCH # TD70176
 FORM NO.: RC-76, 8/00, Rev. 1

THORIUM BETA DATA FORM

SEVERN TREND SERVICES		BATCH # T070176			Requested by: TDA		11/28/07		BETA	
Sample ID	Vial Code	TH-234 WT.	Date-time Counted	Set ID	Gross Counts	Counting Time	Bkg. Counts	Count Room Tech	Analysis: Th 234	
RDEC9008		0.1128	11/28/07 075	26A		20 min		11/28/07 B		
RDEC9009		0.1166		26B						
RDEC9010		0.1161		26C						
RDEC9011		0.1169		26D						

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

28-NOV-2007 07:38:32.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
RDQC9008	111	15

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
28-NOV-2007 07:38:32.00	9995	20.00	630	500.00	26A

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
10	28	653	1500	28-NOV-2007 05:39:55.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

28-NOV-2007 07:38:32.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
RDQC9009	111	15

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
28-NOV-2007 07:38:32.00	10100	20.00	557	500.00	26B

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
5	28	653	1500	28-NOV-2007 05:39:55.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

28-NOV-2007 07:38:32.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
RDQC9010	111	15

<u>Sample Count Date/Time</u>	<u>Beta Counts</u>	<u>Count Duration*</u>	<u>Beta Bkg Counts</u>	<u>Bkg Count Duration*</u>	<u>Instr ID</u>
28-NOV-2007 07:38:32.00	9004	20.00	542	500.00	26C

<u>Alpha Counts</u>	<u>Alpha Bkg Counts</u>	<u>Guard Counts</u>	<u>HV</u>	<u>Bkg Count Date/Time</u>
0	17	653	1500	28-NOV-2007 05:39:55.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.
Richland, WA

GPC Report

28-NOV-2007 07:38:32.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
RDQC9011	111	15

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
28-NOV-2007 07:38:32.00	9903	20.00	503	500.00	26D

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
0	23	653	1500	28-NOV-2007 05:39:55.00

Count Date/Times are the Count Completion Date and Time.

* Count Durations in Minutes.

UST Number: RDQC9008 Isotope: 112 (QREPORT Rev 11-OCT-98)

Detector: 10-A File: [quad10.sample.A]RDQC9008.112
Dish Size: 15 Bkg File: \$DISK1:[QUAD10.BKGRND]CURRENT.A_15;4787

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00004	00000	0050	00000	1000	28-NOV-2007 19:18:03.93

Bkg File: [quad10.bkgrnd]2007-11-28_0639.A_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00019	0500	0.04	00000	1000	28-NOV-2007 06:39:39.65

UST Number: RDQC9009 Isotope: 112 (QREPORT Rev 11-OCT-98)

Detector: 10-B File: [quad10.sample.B]RDQC9009.112
Dish Size: 15 Bkg File: \$DISK1:[QUAD10.BKGRND]CURRENT.B_15;4782

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00001	00000	0050	00000	1000	28-NOV-2007 19:18:03.93

Bkg File: [quad10.bkgrnd]2007-11-28_0639.B_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00013	0500	0.03	00000	1000	28-NOV-2007 06:39:39.65

UST Number: RDQC9010 Isotope: 112 (QREPORT Rev 11-OCT-98)

Detector: 10-C File: [quad10.sample.C]RDQC9010.112
Dish Size: 15 Bkg File: \$DISK1:[QUAD10.BKGRND]CURRENT.C_15;4796

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00003	00000	0050	00000	1000	28-NOV-2007 19:18:03.93

Bkg File: [quad10.bkgrnd]2007-11-28_0639.C_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00015	0500	0.03	00000	1000	28-NOV-2007 06:39:39.65

UST Number: RDQC9011 Isotope: 112 (QREPORT Rev 11-OCT-98)

Detector: 10-D File: [quad10.sample.D]RDQC9011.112
Dish Size: 15 Bkg File: \$DISK1:[QUAD10.BKGRND]CURRENT.D_15;4786

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00005	00000	0050	00000	1000	28-NOV-2007 19:18:03.93

Bkg File: [quad10.bkgrnd]2007-11-28_0639.D_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00015	0500	0.03	00000	1000	28-NOV-2007 06:39:39.65

Standard Material Fractions (Vials)

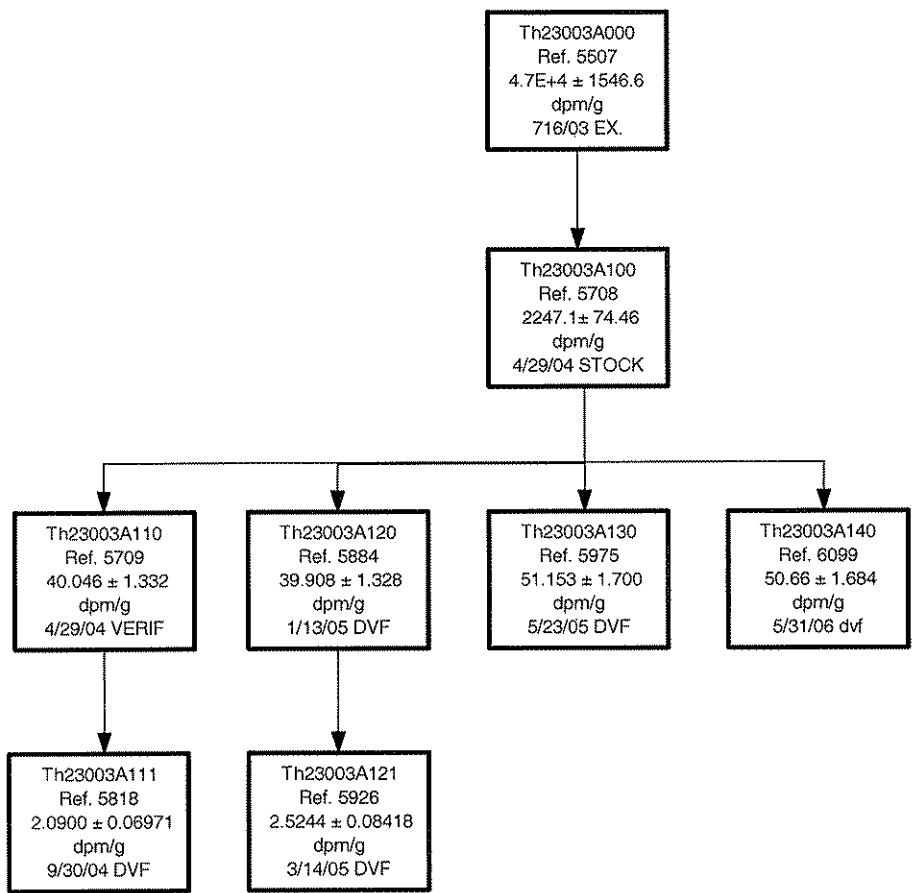
Vial Prep: 2/ 8/07 to 2/10/08,SMFractionIdentifier Like: THSI1145%, Order by SMIdentifier,ConstituentCode,SMFractionIdentifier

Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
Parent Standard:		TH23003A150	Ref: 7/16/2003	5.0653E+01 ± 1.679E+00	DPM/G	
THSI1145	Th-230	5.0296E+00 ± 1.669E-01 DPM	0.0993 g	1/16/2008 1/16/2008	Armstron	5.0651E+01 ± 1.679E+00 DPM/G

5.0296E+000 ± 5.030E+000 (1)

5.0296E+000 , 5.0296E+000

Th23003A



ISOTOPE DILUTION RECORD

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>5/31/2006</u>
3) Source Identification Number / Ref. Number	<u>TH23003A100</u>	<u>5708</u>	
4) Source Activity (dpm ± dpm/g)	<u>2.2471E+03</u>	±	<u>7.446E+01</u>
5) Percent error of Source Activity	<u>3.314</u>		%
6) Weight of Source Material used (g)	<u>3.1975</u>		
7) (% Error) of Weight of Source Material used	<u>0.1501</u>		%
8) Diluent	<u>2M HNO3</u>		
9) Total Weight of the Dilution (g)	<u>141.81</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2116</u>		%
11) Specific Activity of Diluted Solution dpm/g	<u>5.0667E+01</u>	±	<u>1.684E+00</u>
12) Total Uncertainty	<u>3.324</u>		%
13) Dilution Identification Number / Ref. Number	<u>TH23003A140</u>	<u>6099</u>	
14) Calibration Reference Date	<u>5/31/2006</u>		
15) Isotope Inventory File update by/date	<u>tda</u>		<u>5/31/2006</u>
16) Reviewed by/date	<u>JC</u>		<u>9/21/2006</u>
17) Location	<u>qclab</u>	18) Exhausted	<u></u>

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>5/23/2005</u>
3) Source Identification Number / Ref. Number	<u>TH23003A100</u>	<u>5708</u>	
4) Source Activity (dpm ± dpm/g)	<u>2.2471E+03</u>	±	<u>7.446E+01</u>
5) Percent error of Source Activity	<u>3.314</u>	%	
6) Weight of Source Material used (g)	<u>3.1833</u>		
7) (% Error) of Weight of Source Material used	<u>0.1508</u>	%	
8) Diluent	<u>2M HNO3-P0500135</u>		
9) Total Weight of the Dilution (g)	<u>139.84</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2145</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>5.1153E+01</u>	±	<u>1.700E+00</u>
12) Total Uncertainty	<u>3.324</u>	%	
13) Dilution Identification Number / Ref. Number	<u>TH23003A130</u>	<u>5975</u>	
14) Calibration Reference Date	<u>5/23/2005</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>5/23/2005</u>
16) Reviewed by/date	<u>sew</u>		<u>5/25/2005</u>
17) Location <u>QCLAB/STWT1161</u>	18) Exhausted		

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>3/14/2005</u>
3) Source Identification Number / Ref. Number	<u>TH23003A120</u>	<u>5884</u>	
4) Source Activity (dpm ± dpm/g)	<u>3.9908E+01</u>	±	<u>1.328E+00</u>
5) Percent error of Source Activity	<u>3.327</u>	%	
6) Weight of Source Material used (g)	<u>8.5965</u>		
7) (% Error) of Weight of Source Material used	<u>0.0558</u>	%	
8) Diluent	<u>2M HNO3-P0500135</u>		
9) Total Weight of the Dilution (g)	<u>135.9</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2208</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>2.5244E+00</u>	±	<u>8.418E-02</u>
12) Total Uncertainty	<u>3.335</u>	%	
13) Dilution Identification Number / Ref. Number	<u>TH23003A121</u>	<u>5926</u>	
14) Calibration Reference Date	<u>3/14/2005</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>3/14/2005</u>
16) Reviewed by/date	<u>SEW</u>		<u>3/14/2005</u>
17) Location <u>QCLAB/STWT1125</u>	18) Exhausted		<u></u>

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>1/13/2005</u>
3) Source Identification Number / Ref. Number	<u>TH23003A100</u>	<u>5708</u>	
4) Source Activity (dpm ± dpm/g)	<u>2.2471E+03</u>	±	<u>7.446E+01</u>
5) Percent error of Source Activity	<u>3.314</u>	%	
6) Weight of Source Material used (g)	<u>2.4647</u>		
7) (% Error) of Weight of Source Material used	<u>0.1947</u>	%	
8) Diluent	<u>2M HNO3-P0400766</u>		
9) Total Weight of the Dilution (g)	<u>138.78</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2162</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>3.9908E+01</u>	±	<u>1.328E+00</u>
12) Total Uncertainty	<u>3.327</u>	%	
13) Dilution Identification Number / Ref. Number	<u>TH23003A120</u>	<u>5884</u>	
14) Calibration Reference Date	<u>1/13/2005</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>1/13/2005</u>
16) Reviewed by/date	<u>SEW</u>		<u>1/14/2005</u>
17) Location <u>QCLAB/STWT1105</u>	18) Exhausted		<u></u>

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>9/30/2004</u>
3) Source Identification Number / Ref. Number	<u>TH23003A110</u>	<u>5709</u>	
4) Source Activity (dpm ± dpm/g)	<u>4.0046E+01</u>	±	<u>1.332E+00</u>
5) Percent error of Source Activity	<u>3.327</u>	%	
6) Weight of Source Material used (g)	<u>6.9826</u>		
7) (% Error) of Weight of Source Material used	<u>0.0687</u>	%	
8) Diluent	<u>2M HNO3-P0400528</u>		
9) Total Weight of the Dilution (g)	<u>133.79</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2242</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>2.0900E+00</u>	±	<u>6.971E-02</u>
12) Total Uncertainty	<u>3.335</u>	%	
13) Dilution Identification Number / Ref. Number	<u>TH23003A111</u>	<u>5818</u>	
14) Calibration Reference Date	<u>9/30/2004</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>9/30/2004</u>
16) Reviewed by/date	<u>SEW</u>		<u>10/6/2004</u>
17) Location <u>QCLAB/STWT1059</u>	18) Exhausted		<u></u>

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>4/29/2004</u>
3) Source Identification Number / Ref. Number	<u>TH23003A100</u>	<u>5708</u>	
4) Source Activity (dpm ± dpm/g)	<u>2.2471E+03</u>	±	<u>7.446E+01</u>
5) Percent error of Source Activity	<u>3.314</u>	%	
6) Weight of Source Material used (g)	<u>2.4577</u>		
7) (% Error) of Weight of Source Material used	<u>0.1953</u>	%	
8) Diluent	<u>2M HNO3-P0400176</u>		
9) Total Weight of the Dilution (g)	<u>137.91</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2175</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>4.0046E+01</u>	±	<u>1.332E+00</u>
12) Total Uncertainty	<u>3.327</u>	%	
13) Dilution Identification Number / Ref. Number	<u>TH23003A110</u>	<u>5709</u>	
14) Calibration Reference Date	<u>4/29/2004</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>4/29/2004</u>
16) Reviewed by/date	<u>D.M.</u>		<u>6/2/2004</u>
17) Location <u>QCLAB/STWT0990</u>	18) Exhausted		<u></u>

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>4/29/2004</u>
3) Source Identification Number / Ref. Number	<u>TH23003A000</u>	<u>5507</u>	
4) Source Activity (dpm ± dpm/g)	<u>4.6866E+04</u>	±	<u>1.547E+03</u>
5) Percent error of Source Activity	<u>3.3</u>	%	
6) Weight of Source Material used (g)	<u>5.0580</u>		
7) (% Error) of Weight of Source Material used	<u>0.0949</u>	%	
8) Diluent	<u>2M HNO3-P0400176</u>		
9) Total Weight of the Dilution (g)	<u>105.49</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2844</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>2.2471E+03</u>	±	<u>7.446E+01</u>
12) Total Uncertainty	<u>3.314</u>	%	
13) Dilution Identification Number / Ref. Number	<u>TH23003A100</u>	<u>5708</u>	
14) Calibration Reference Date	<u>4/29/2004</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>4/29/2004</u>
16) Reviewed by/date	<u>D.M.</u>		<u>6/2/2004</u>
17) Location <u>QCLAB/STWT0989</u>	18) Exhausted		<u></u>

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

ISOTOPE RECORD FORM

1) Isotope TH230 2) Reference Number 5507
 3) Half Life 7.54E4 yrs 4) Storage Location Std Lab
 5) Source Identification Number TH23003A000

CALIBRATION DATA

6) Activity as Received Units 3.979E+03 dps
 7) Overall Uncertainty Percent 3.30%
 8) Reference Date / Time 7/16/2003 12:00 EST (9:00AM)
 9) Activity dpm/g 4.6866E+04 ± 1546.59 (3.3%) dpm/g
 10) Volume or Mass (ml/g) 5.09407g
 11) Calibrated by ANALY
 12) Certificate Solution Number 66538-310

SURVEY DATA

13) Date Received 7/18/2003
 14) Surveyed by W.G
 15) Survey Reading (Beta/Gamma) cpm <100 CPM
 16) Survey Reading (Alpha) cpm <100 CPM

17) Activity Conversion 3979.0 dps x60sm/5.09407g=4.7E+04± 1546.6 (3.3%)dpm/g

18) Remarks USED ALL TO MAKE FIRST DILUTION 4/29/4 WG

19) Isotope File Updated by W.G 7/29/03

20) QC Approved SEW 8/1/03

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

66538-310

Th-230 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:	Th-230
ACTIVITY (dps):	3.979 E3
HALF-LIFE:	7.538 E4 years
CALIBRATION DATE:	July 16, 2003 12:00 EST
RELATIVE EXPANDED UNCERTAINTY (k=2):	3.3%

Impurities: γ -impurities <0.1%, α -impurities <0.23%

5.09407 grams 0.5M HNO₃ solution.

Master Solution ID#: P86V105

P O NUMBER 1875386-000 OP, Item 1

SOURCE PREPARED BY: M. Taskaeva
M. Taskaeva, Radiochemist

Q A APPROVED:

J.M. Mory 7-16-03

THORIUM
CONTINUING CALIBRATION

Quality Assurance Report.

Generated 25-MAR-2008 18:51:06.51

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
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10-FEB-2008 10:09	chk		0.2466		
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12-MAR-2008 06:19	chk		0.2450		
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-- Multi-Test Full Report --

Description : Constant FWHM

Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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10-FEB-2008 10:09	chk		8.5000		
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12-MAR-2008 06:19	chk		9.3333		
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-- 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
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10-FEB-2008 10:09	chk		355.1470		
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12-MAR-2008 06:19	chk		355.0778		
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-- 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 : 0.259987 Std Deviation : 0.004522

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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10-FEB-2008 10:09	chk		0.2541		
12-MAR-2008 06:19	chk		0.2576		

-- 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
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10-FEB-2008 10:09	chk		7.4867		
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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
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12-MAR-2008 06:19	chk		7.2333		
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Quality Assurance Report. Generated 25-MAR-2008 18:51:07.90

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
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11-FEB-2008 06:14	bkg		0.0000		
13-MAR-2008 08:36	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	bkg		0.0010	

-- 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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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
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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
11-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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
11-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	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-FEB-2008 06:14 bkg	0.0030	
13-MAR-2008 08:36 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-FEB-2008 06:14 bkg			0.0020	
13-MAR-2008 08:36 bkg			0.0010	

-- 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-FEB-2008 06:14 bkg			0.0020	
13-MAR-2008 08:36 bkg			0.0010	

-- 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-FEB-2008 06:14 bkg			0.0000	
13-MAR-2008 08:36 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
------------------	-----------	----------------	-------	-----------------

```
-----
11-FEB-2008 06:14 bkg          0.0020  | | |
13-MAR-2008 08:36 bkg          0.0000  | | |
```

-- 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-FEB-2008 06:14 bkg          0.0030  | | |
13-MAR-2008 08:36 bkg          0.0000  | | |
```

-- 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-FEB-2008 06:14 bkg          0.0020  | | |
13-MAR-2008 08:36 bkg          0.0000  | | |
```

-- 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-FEB-2008 06:14 bkg          0.0080  | | |
13-MAR-2008 08:36 bkg          0.0030  | | |
```

-- 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-FEB-2008 06:14	bkg		0.0130	
13-MAR-2008 08:36	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-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 08:36	bkg		0.0010	

Quality Assurance Report.

Generated 25-MAR-2008 18:53:03.64

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-FEB-2008 10:09	chk		0.2512		
-------------------	-----	--	--------	--	--

12-MAR-2008 06:19	chk		0.2539		
-------------------	-----	--	--------	--	--

13-MAR-2008 08:36	chk		0.2602		
-------------------	-----	--	--------	--	--

-- 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-FEB-2008 10:09	chk		9.5000		
-------------------	-----	--	--------	--	--

12-MAR-2008 06:19	chk		9.8333		
-------------------	-----	--	--------	--	--

13-MAR-2008 08:36	chk		9.8333		
-------------------	-----	--	--------	--	--

-- 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-FEB-2008 10:09	chk		357.0647		
-------------------	-----	--	----------	--	--

12-MAR-2008 06:19	chk		357.0597		
-------------------	-----	--	----------	--	--

13-MAR-2008 08:36	chk		357.0412		
-------------------	-----	--	----------	--	--

-- 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 : 0.245304 Std Deviation : 0.004842

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:09	chk		0.2565	In	
12-MAR-2008 06:19	chk		0.2543		
13-MAR-2008 08:36	chk		0.2560	In	

-- 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
------------------	-----------	----------------	-------	-------------	-----

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:09	chk		7.3811		
12-MAR-2008 06:19	chk		7.0208		
13-MAR-2008 08:36	chk		7.1450		

Quality Assurance Report. Generated 25-MAR-2008 18:53:05.10

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-FEB-2008 06:14	bkg		0.0000		
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0000		
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0000		
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0000		
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0000		
14-MAR-2008 05:15	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

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

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

11-FEB-2008 06:14	bkg		0.0000		
14-MAR-2008 05:15	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

11-FEB-2008 06:14	bkg		0.0000		
14-MAR-2008 05:15	bkg		0.0010		

-- 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-FEB-2008 06:14	bkg		0.0010		
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0010		
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0010	
14-MAR-2008 05:15	bkg		0.0010	

-- 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-FEB-2008 06:14	bkg		0.0030	
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0050	
14-MAR-2008 05:15	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-FEB-2008 06:14	bkg		0.0040	
14-MAR-2008 05:15	bkg		0.0000	

-- Multi-Test Full Report --

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

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-FEB-2008 06:14	bkg		0.0040		
14-MAR-2008 05:15	bkg		0.0000		

-- 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-FEB-2008 06:14	bkg		0.0030		
14-MAR-2008 05:15	bkg		0.0000		

-- 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-FEB-2008 06:14	bkg		0.0030		
14-MAR-2008 05:15	bkg		0.0000		

-- 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-FEB-2008 06:14	bkg		0.0100		
14-MAR-2008 05:15	bkg		0.0010		

-- 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-FEB-2008 06:14	bkg		0.0090	
14-MAR-2008 05:15	bkg		0.0010	

-- 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-FEB-2008 06:14	bkg		0.0040	
14-MAR-2008 05:15	bkg		0.0010	

URANIUM ISOTOPIC
SAMPLE AND QC DATA

Lot No., Due Date: F8A290183; 02/28/2008
Client, Site: 1418995; LANDWELL - Tronox Parcel H
QC Batch No., Method Test: 8035239; RUISO Ulso by ALP
SDG, Matrix: ;

1.0 COC

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

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes No N/A

2.2 Are the QC appropriate for the analysis included in the batch? Yes No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits? Yes No N/A

3.2 Is the LCS result, yield, and MDA within contract limits? Yes No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes No N/A

3.5 Are the sample yields and MDAs within contract limits? Yes No N/A

4.0 Raw Data

4.1 Were results calculated in the correct units? Yes No N/A

4.2 Were analysis volumes entered correctly? Yes No N/A

4.3 Were Yields entered correctly? Yes No N/A

4.4 Were spectra reviewed/meet contractual requirements? Yes No N/A

4.5 Were raw counts reviewed for anomalies? Yes No N/A

5.0 Other

5.1 Are all nonconformances included and noted? Yes No N/A

5.2 Are all required forms filled out? Yes No N/A

5.3 Was the correct methodology used? Yes No N/A

5.4 Was transcription checked? Yes No N/A

5.5 Were all calculations checked at a minimum frequency? Yes No N/A

5.6 Are worksheet entries complete and correct? Yes No N/A

6.0 Comments on any No response:

First Level Review *John Y. [Signature]*

Date 2-13-08

Data Review Checklist
RADIOCHEMISTRY
 Second Level Review

Batch Number: 8035239

Review Item	Yes (✓)	No (✓)	NA (✓)
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 within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other			
1. Are all Non-conformances 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: Eithe Jod Date: 2/17/18

2/6/2008 3:44:46 PM
 1418995, Landwell Company
 Landwell Company
 AnalyteDueDate: 02/08/2008

Balance Id:1120482733
 Pipet #: _____
 Sep1 DT/Tm Tech:
 Sep2 DT/Tm Tech:

Sample Preparation/Analysis
 7Y UIso PrpRC5016/5086, SepRC5067(5039)
 SR Uranium-234,235,238 by Alpha Spec
 01 STANDARD TEST SET

PM, Quote: JAE, 78254
 pCi/L

Prep Tech: LucasD,HarrisD
 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 KF8PH-1-AE
 F8A290183-10-SAMP
 01/28/2008 11:15
 200.10g.in
 200.10g
 UIC19480
 02/04/08.pd
 06/15/01.r
 200
 Scr: Alpha: -1.92E-04 uCi/Sa
 Beta: 1.09E-05 uCi/Sa

2 KF8PH-1-AF-X
 F8A290183-10-DUP
 01/28/2008 11:15
 200.10g.in
 200.10g
 UIC19481
 02/04/08.pd
 06/15/01.r
 #Containers: 2

3 KGH09-1-AA-B
 J8B040000-239-BLK
 01/28/2008 11:15
 200.00g.in
 200.00g
 UIC19482
 02/04/08.pd
 06/15/01.r
 #Containers: 1

4 KGH09-1-AC-C
 J8B040000-239-LCS
 01/28/2008 11:15
 200.00g.in
 200.00g
 UIC19482
 12/11/07.pd
 05/05/87.r
 #Containers: 1

Comments: KF8PH-SAMP "Comments: ISV for DUP - DL 2/5/08"
 PH 200 OUT 2/10/08

All Clients for Batch:
 1418995, Landwell Company
 Landwell Company
 JAE, 78254

KF8PH1AE-SAMP Constituent List:
 KGH091AA-BLK:
 U-232 RDL: RDL:0.1 pCi/L LCL:20 UCL:115 RPD:20 RDL:1
 U-235 RDL:0.1 pCi/L LCL: LCL: RPD: RDL:1
 KGH091AC-LCS:
 pCi/L LCL: UCL: RPD: pCi/L LCL: UCL: RPD:

TAL Richland Key: In Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 1
 Richland Wa. pd - Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktalled Added
 WO Cnt: 4
 Prep SamplePrep v4.8.32

2/6/2008 3:44:47 PM

Sample Preparation/Analysis

Balance Id:1120482733

7Y Uiso PrpRC5016/5086, SepRC5067(5039)
SR Uranium-234,235,238 by Alpha Spec
01 STANDARD TEST SET

Pipet #:

AnalytDueDate: 02/08/2008

Sep1 DT/Tm Tech:

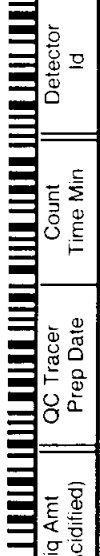
Batch: 8035239

pCi/L

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,HarrisD



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:
U-232	RDL:	pCi/L	LCL:20	DCL:115	RPD:20	Uranium	RDL:	LCL:70	VCL:130	RPD:20

KF8PH1AE-SAMP Calc Info:

Uncert Level (#s): 4

ODRs: B

KGH091AA-BLK:

Decay to SaDt: N

Blk Subt.: N

Sci.Not.: N

Uncert Level (#s): 4

Decay to SaDt: N

Blk Subt.: N

Sci.Not.: N

ODRs: B

KGH091AC-LCS:

Decay to SaDt: N

Blk Subt.: N

Sci.Not.: N

ODRs: B

Approved By

Date:

ICOC Fraction Transfer/Status Report

ByDate: 2/13/2007, 2/18/2008, Batch: '8035239', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
8035239				
AC	Rev1C	HarrisD	2/6/2008 3:40:47 PM	
SC		wagarr	IsBatched	2/4/2008 1:30:07 PM
SC		HarrisD	InPrep	2/6/2008 3:40:47 PM
SC		HarrisD	Prep1C	2/6/2008 3:44:48 PM
SC		AshworthA	Prep2C	2/7/2008 7:26:24 PM
SC		AshworthA	Sep1C	2/8/2008 1:39:24 PM
SC		AshworthA	Sep2C	2/11/2008 7:57:05 PM
SC		DAWKINSO	InCnt1	2/11/2008 8:19:48 PM
SC		nortonj	Rev1C	2/13/2008 10:55:46 AM
AC		HarrisD	2/6/2008 3:44:48 PM	
AC		AshworthA	2/7/2008 7:26:24 PM	
AC		AshworthA	2/8/2008 1:39:24 PM	
AC		AshworthA	2/11/2008 7:57:05 PM	
AC		DAWKINSO	2/11/2008 8:19:48 PM	
AC		nortonj	2/13/2008 10:55:46	

AC: Accepting Entry; SC: Status Change

TAL Richland

Richland Wa.

Rpt DB Transfer log (Batch Results)

SDG or Batch Isotope	Rpt Db Id Method	RTst Qc	LotSample Analysis Date	Client Id Result	Matrix	Received Date	Sample Date	Unrs	Expected Yield	Volumes
8035240	9KF8PH10		F8A29018310	RINSATE-2	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
TH-228	9NS1	0	2/8/2008 4:53:02 PM	-8.0577E-02	6.511E-02	6.541E-02	4.726E-01	pCi/L	0.887	2.002E-1
TH-230	9NS1	0	2/8/2008 4:53:02 PM	4.5531E-02	5.804E-02	5.815E-02	2.726E-01	pCi/L	0.887	2.002E-1
TH-232	9NS1	0	2/8/2008 4:53:02 PM	0.0E+00	0.0E+00	5.804E-02	2.726E-01	pCi/L	0.887	2.002E-1
U-234	7YSR	0	2/12/2008 8:08:07 AM	3.5873E-02	4.394E-02	4.404E-02	2.054E-01	pCi/L	0.911	2.001E-1
U-235	7YSR	0	2/12/2008 8:08:07 AM	2.3917E-02	3.049E-02	3.055E-02	1.432E-01	pCi/L	0.911	2.001E-1
U-238	7YSR	0	2/12/2008 8:08:07 AM	-6.4766E-06	3.275E-02	3.275E-02	2.201E-01	pCi/L	0.911	2.001E-1
8035240	KF8PH1FR		F8A29018310	RINSATE-2 DUP	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
U-234	7YSR	0 R	2/12/2008 8:08:26 AM	3.2663E-02	3.331E-02	3.342E-02	1.565E-01	pCi/L	0.9	2.001E-1
U-235	7YSR	0 R	2/12/2008 8:08:26 AM	-6.5347E-03	3.331E-02	3.331E-02	1.565E-01	pCi/L	0.9	2.001E-1
U-238	7YSR	0 R	2/12/2008 8:08:26 AM	-6.5347E-03	3.331E-02	3.331E-02	1.565E-01	pCi/L	0.9	2.001E-1
8035240	KGH091AB		J8B040000239	INTRA-LAB BLANK	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
U-234	7YSR	0 B	2/12/2008 8:08:39 AM	6.0478E-02	4.799E-02	4.825E-02	1.609E-01	pCi/L	0.897	2.0E-1
U-235	7YSR	0 B	2/12/2008 8:08:39 AM	-6.7203E-03	3.426E-02	3.427E-02	1.609E-01	pCi/L	0.897	2.0E-1
U-238	7YSR	0 B	2/12/2008 8:08:39 AM	2.6879E-02	3.426E-02	3.434E-02	1.609E-01	pCi/L	0.897	2.0E-1
8035240	KGH091CS		J8B040000239	INTRA-LAB CHECK	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
U-234	7YSR	0 S	2/12/2008 8:08:58 AM	8.5274E+00	5.309E-01	8.739E-01	1.583E-01	pCi/L	8.739E+00	0.877
U-238	7YSR	0 S	2/12/2008 8:08:58 AM	9.1885E+00	5.511E-01	9.29E-01	1.583E-01	pCi/L	9.1524E+00	0.877

8035239, **Samples Inserted | Updated | NotUpdated => 3 | 0 | 1,
 **Results Inserted | ReTestInserted | Updated | NotInserted => 11 | 0 | 0 | 0.
 **Diff RptDb | Qtims => .

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	*MLcC	MDC	QC	Trc	Yld	LCS	Yld
Ulso by ALP																
Richland Standard Alplso Wo Blk Subt. *CntU: 0+1, + *SystU, `MDCCConst:2.71																
Calc	SR	WATER	KF8PH1AE	U-234	3.59E-02	(4.40E-02)	U4	pCi/L	R	6.22E-02	2.05E-01			91%		
Calc	SR	WATER	KF8PH1AE	U-235	2.39E-02	(3.06E-02)	U4	pCi/L	R	3.11E-02	1.43E-01			91%		
Calc	SR	WATER	KF8PH1AE	U-238	-6.48E-06	(3.28E-02)	U4	pCi/L	R	6.96E-02	2.20E-01			91%		
Calc	SR	WATER	KF8PH1AF	U-234	3.27E-02	(3.34E-02)	U4	pCi/L	R	3.40E-02	1.56E-01	R		90%		
Calc	SR	WATER	KF8PH1AF	U-235	-6.53E-03	(3.33E-02)	U4	pCi/L	R	3.40E-02	1.56E-01	R		90%		
Calc	SR	WATER	KF8PH1AF	U-238	-6.53E-03	(3.33E-02)	U4	pCi/L	R	3.40E-02	1.56E-01	R		90%		
Calc	SR	WATER	KGH091AA	U-234	6.05E-02	(4.82E-02)	U4	pCi/L	R	3.50E-02	1.61E-01	B		90%		
Calc	SR	WATER	KGH091AA	U-235	-6.72E-03	(3.43E-02)	U4	pCi/L	R	3.50E-02	1.61E-01	B		90%		
Calc	SR	WATER	KGH091AA	U-238	2.69E-02	(3.43E-02)	U4	pCi/L	R	3.50E-02	1.61E-01	B		90%		
Calc	SR	WATER	KGH091AC	U-234	8.53E+00	(8.74E-01)		pCi/L	R	3.44E-02	1.58E-01	S	88%	98%		
Calc	SR	WATER	KGH091AC	U-235	2.97E-01	(1.02E-01)		pCi/L	R	3.44E-02	1.58E-01	S	88%	75%		
Calc	SR	WATER	KGH091AC	U-238	9.19E+00	(9.29E-01)		pCi/L	R	3.44E-02	1.58E-01	S	88%	100%		

() - (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

Detailed Report

Sq	Calc	SR	Matrix	Method	Protocol	Equation	Set	Wrk	Ord	Units/Matrix	QC/BB	Sa/On	Date	AnalysisDate/PptWt	Sep1/Sep2	Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy	Vol	Final/Count
1	1418995	R	WATER	STLE	AlpisoWoBS	KF8PH1AE	pCi/L	WATER					01/28/08 11:15	02/12/08 08:08			UITC19480	Alq	200.10	g		
0	02/12/08	06:28	U-232	759	6	ALP5	ED	Y	N	4.1305E-01				N	100%	N	1.0000E+00		4.5045E+02	1.0000E+00	Abn	
										(1.239E-02)							(0.000E+00)		0.004998			
1	02/12/08	06:28	U-234	2	4	ALP5	ED	N	N	4.1305E-01				N	91%	N	1.0000E+00		4.5045E+02	1.0000E+00	Abn	
										(1.239E-02)							(0.000E+00)		0.004998			
2	02/12/08	06:28	U-235	1	1	ALP5	ED	N	N	4.1305E-01				N	91%	N	1.0000E+00		4.5045E+02	1.0000E+00	Abn	
										(1.239E-02)							(0.000E+00)		0.004998			
3	02/12/08	06:28	U-238	1	5	ALP5	ED	N	N	4.1305E-01				N	91%	N	1.0000E+00		4.5045E+02	1.0000E+00	Abn	
										(1.239E-02)							(0.000E+00)		0.004998			
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total	U	Q	Net Cnt Rt	Dpm	Wo Blk	Dpm-Blk	Vol	Used	TrcYld,EntFct	LCSYld,EFctU	IDC/ILcC	BlkLc/MDC	StdDvMdc/LcC					
	02/12/08	U-232	R	20.641337			3.78742E+00	9.169345	9.169345	0.2001L	91%											
	2.266E+01			(1.418537)			(1.3771E-01)	(0.432237)	(0.432237)	(0.173205)												
	02/12/08	U-234	R	0.035873	U4		5.99663E-03	0.015935	0.015935	0.2001L	91%											
	2.266E+01			(0.044038)			(7.3455E-03)	(0.019547)	(0.019547)	(0.173205)												
	02/12/08	U-235	R	0.023917	U4		3.99812E-03	0.010625	0.010625	0.2001L	91%											
	2.266E+01			(0.030552)			(5.0969E-03)	(0.013562)	(0.013562)	(0.173205)												
	02/12/08	U-238	R	-6.4766E-06	U4		-1.08267E-06	-2.8771E-06	-2.8771E-06	0.2001L	91%											
	2.266E+01			(0.032753)			(5.4751E-03)	(0.01455)	(0.01455)	(0.173205)												

Sq	Calc	SR	Matrix	Method	Protocol	Equation	Set	Wrk	Ord	Units/Matrix	QC/BB	Sa/On	Date	AnalysisDate/PptWt	Sep1/Sep2	Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy	Vol	Final/Count
2	1418995	R	WATER	STLE	AlpisoWoBS	KF8PH1AF	pCi/L	WATER					01/28/08 11:15	02/12/08 08:08			UITC19481	Alq	200.10	g		
0	02/12/08	06:28	U-232	691	4	ALP6	ED	Y	N	3.8270E-01				N	100%	N	1.0000E+00		4.5045E+02	1.0000E+00	Abn	
										(1.148E-02)							(0.000E+00)		0.004998			
1	02/12/08	06:28	U-234	1	0	ALP6	ED	N	N	3.8270E-01				N	90%	N	1.0000E+00		4.5045E+02	1.0000E+00	Abn	
										(1.148E-02)							(0.000E+00)		0.004998			
2	02/12/08	06:28	U-235	0	1	ALP6	ED	N	N	3.8270E-01				N	90%	N	1.0000E+00		4.5045E+02	1.0000E+00	Abn	
										(1.148E-02)							(0.000E+00)		0.004998			
3	02/12/08	06:28	U-238	0	1	ALP6	ED	N	N	3.8270E-01				N	90%	N	1.0000E+00		4.5045E+02	1.0000E+00	Abn	
										(1.148E-02)							(0.000E+00)		0.004998			
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total	U	Q	Net Cnt Rt	Dpm	Wo Blk	Dpm-Blk	Vol	Used	TrcYld,EntFct	LCSYld,EFctU	IDC/ILcC	BlkLc/MDC	StdDvMdc/LcC					
	02/12/08	U-232	R	691	4		3.8270E-01	3.8270E-01	3.8270E-01	0.2001L	91%											
	2.266E+01			(1.418537)			(1.3771E-01)	(0.432237)	(0.432237)	(0.173205)												
	02/12/08	U-234	R	0.035873	U4		5.99663E-03	0.015935	0.015935	0.2001L	91%											
	2.266E+01			(0.044038)			(7.3455E-03)	(0.019547)	(0.019547)	(0.173205)												
	02/12/08	U-235	R	0.023917	U4		3.99812E-03	0.010625	0.010625	0.2001L	91%											
	2.266E+01			(0.030552)			(5.0969E-03)	(0.013562)	(0.013562)	(0.173205)												
	02/12/08	U-238	R	-6.4766E-06	U4		-1.08267E-06	-2.8771E-06	-2.8771E-06	0.2001L	91%											
	2.266E+01			(0.032753)			(5.4751E-03)	(0.01455)	(0.01455)	(0.173205)												

() - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BkLcC/MDC	StdDvMdc/LcC
02/12/08	U-232	R	20.289279	3.44927E+00	9.012953	9.012953	0.2001 L	90%	0.156453					
2.254E+01			(1.413221)	(1.3138E-01)	(0.437)	(0.437)	(0.173205)							
02/12/08	U-234	R	0.032663	4.99750E-03	0.01451	0.01451	0.2001 L	90%	0.033988					
2.254E+01			(0.033418)	(5.0965E-03)	(0.014827)	(0.014827)	(0.173205)							
02/12/08	U-235	R	-0.006535	-9.99817E-04	-0.002903	-0.002903	0.2001 L	90%	0.156453					
2.254E+01			(0.033315)	(5.0965E-03)	(0.014799)	(0.014799)	(0.173205)							
02/12/08	U-238	R	-0.006535	-9.99817E-04	-0.002903	-0.002903	0.2001 L	90%	0.156453					
2.254E+01			(0.033315)	(5.0965E-03)	(0.014799)	(0.014799)	(0.173205)							

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

Sq	Calc	SR	WATER	*STLE	AlpisoWoBS	KGH091AA	pC/L	B	01/28/08 11:15	02/12/08 08:08	UIC19482-Alq	1	g		
0	02/12/08 06:28	U-232	677	10	ALP7	ED	Y	N	3.7341E-01	N	100%	N	1.0000E+00	4.5045E+02	1.0000E+00
			200.0333333	1000.1			Y		(1.120E-02)				(0.000E+00)	0.005	
1	02/12/08 06:28	U-234	2	1	ALP7	ED	N	N	3.7341E-01	N	90%	N	1.0000E+00	4.5045E+02	1.0000E+00
			200.0333333	1000.1			Y		(1.120E-02)		5%		(0.000E+00)	0.005	
2	02/12/08 06:28	U-235	0	1	ALP7	ED	N	N	3.7341E-01	N	90%	N	1.0000E+00	4.5045E+02	1.0000E+00
			200.0333333	1000.1			Y		(1.120E-02)		5%		(0.000E+00)	0.005	
3	02/12/08 06:28	U-238	1	1	ALP7	ED	N	N	3.7341E-01	N	90%	N	1.0000E+00	4.5045E+02	1.0000E+00
			200.0333333	1000.1			Y		(1.120E-02)		5%		(0.000E+00)	0.005	

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BkLcC/MDC	StdDvMdc/LcC
02/12/08	U-232	R	20.353002	3.37444E+00	9.036742	9.036742	0.20 L	90%	0.160927					
2.268E+01			(1.422892)	(1.3011E-01)	(0.441484)	(0.441484)	(0.173205)							
02/12/08	U-234	R	0.060478	8.99843E-03	0.026852	0.026852	0.20 L	90%	0.034957					
2.268E+01			(0.048246)	(7.1402E-03)	(0.021379)	(0.021379)	(0.173205)							
02/12/08	U-235	R	-0.00672	-9.99900E-04	-0.002984	-0.002984	0.20 L	90%	0.160927					
2.268E+01			(0.034269)	(5.0982E-03)	(0.015215)	(0.015215)	(0.173205)							
02/12/08	U-238	R	0.026879	3.99927E-03	0.011934	0.011934	0.20 L	90%	0.160927					
2.268E+01			(0.034336)	(5.0982E-03)	(0.015233)	(0.015233)	(0.173205)							

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

Sq	Calc	SR	WATER	*STLE	AlpisoWoBS	KGH091AC	pC/L	S	01/28/08 11:15	02/12/08 08:08	UISG1567	1	g		
0	02/12/08 06:28	U-232	682	14	ALP8	ED	Y	N	3.8820E-01	N	100%	N	1.0000E+00	4.5045E+02	1.0000E+00
			200.0666666	1000.0333			Y		(1.165E-02)				(0.000E+00)	0.005	

(1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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
 RecCnt:4 RADCALC v4.8.29
 TA Richland

Alpha Spec, Uiso by ALP , Calculated Results

2/12/2008 5:39:30 PM

Batch Nbr: 8035239

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BkLcC/MDC	StdDvMdc/LcC	
1	02/12/08 06:28	U-234	258	0		ALP8	ED	N	N	88%	N	88%	1.0000E+00	4.5045E+02	1.0000E+00
			200.06666666	1000.0333				(1.165E-02)		5%			(0.000E+00)	0.005	
2	02/12/08 06:28	U-235	9	0		ALP8	ED	N	N	88%	N	88%	1.0000E+00	4.5045E+02	1.0000E+00
			200.06666666	1000.0333				(1.165E-02)		5%			(0.000E+00)	0.005	
3	02/12/08 06:28	U-238	278	0		ALP8	ED	N	N	88%	N	88%	1.0000E+00	4.5045E+02	1.0000E+00
			200.06666666	1000.0333				(1.165E-02)		5%			(0.000E+00)	0.005	
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BkLcC/MDC	StdDvMdc/LcC	
	02/12/08	U-232	R	19.696309		3.39486E+00	8.74517	8.74517	0.20 L	88%					
	2.245E+01			(1.375976)		(1.3059E-01)	(0.4266)	(0.4266)	(0.173205)						
	02/12/08	U-234	R	8.52742		1.28957E+00	3.786178	3.786178	0.20 L	88%					
	2.245E+01			(0.873875)		(8.0291E-02)	(0.338668)	(0.338668)	(0.173205)		98%	0.158314		0.034392	
	02/12/08	U-235	R	0.297468		4.49850E-02	0.132076	0.132076	0.20 L	88%					
	2.245E+01			(0.102283)		(1.5028E-02)	(0.044931)	(0.044931)	(0.173205)		75%	0.158314		0.034392	
	02/12/08	U-238	R	9.188459		1.38954E+00	4.07968	4.07968	0.20 L	88%					
	2.245E+01			(0.929028)		(8.3345E-02)	(0.358504)	(0.358504)	(0.173205)		100%	0.158314		0.034392	

URANIUM ISOTOPIC COUNTING REQUEST

7/12/01 0948

C.R. Technician NU

Counting Time 200 Minutes

SOP's Operating: RICHRD008
Review: RICHRD0016

Date Counted 7/12/01

Background See Alpha Regions Report

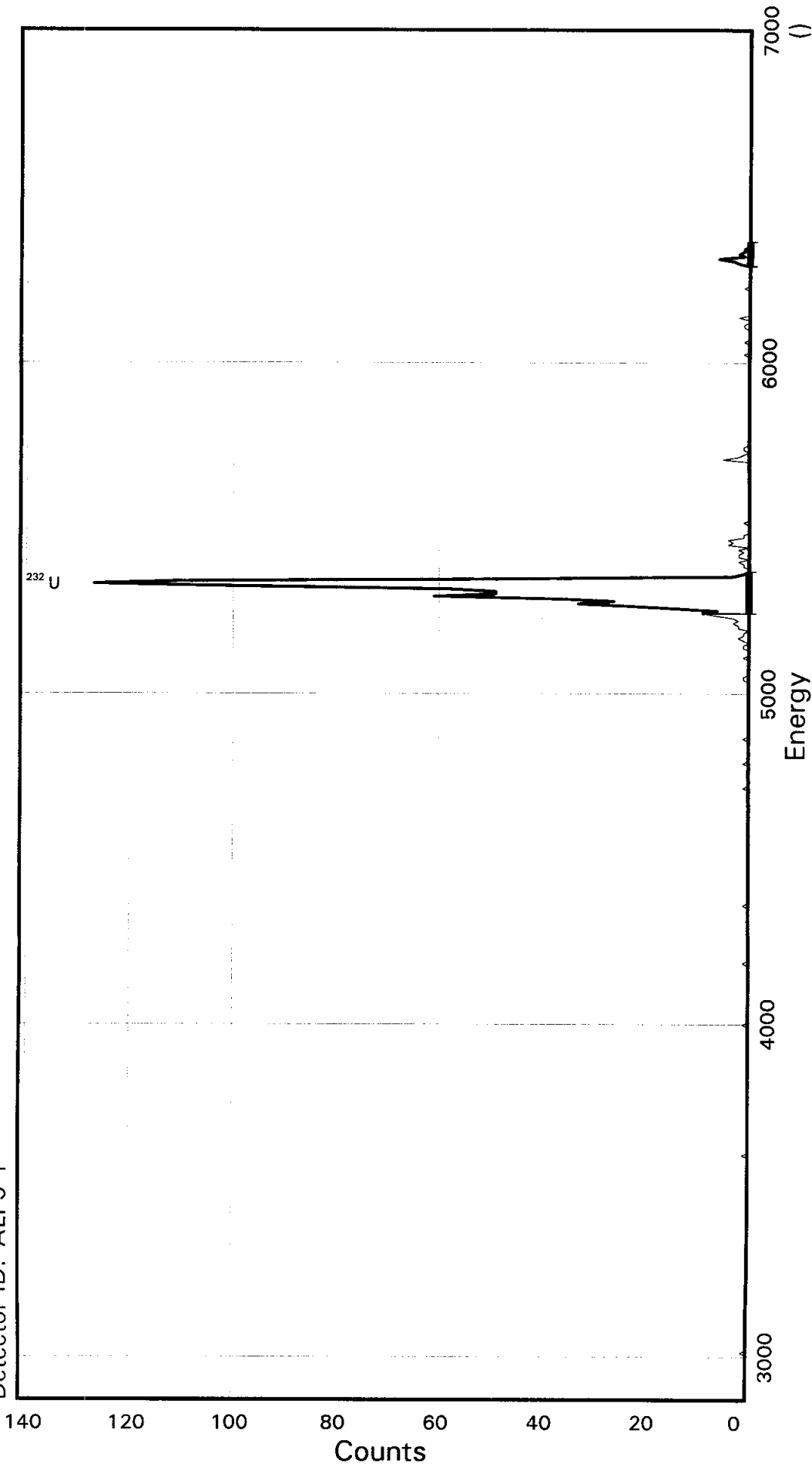
BRCO 128/08

WorkOrder #	U-232 (5320 KeV) Tracer	TOTAL COUNTS			Det #	Comments/Edits
		U-238 (4196 KeV)	U-235 (4396 KeV)	U-234 (4776 KeV)		
KF8PH1AE	See Counting Room Printout for ROI information				5	
KF8PH1AF	See Counting Room Printout for ROI information				6	
KGH091AA	See Counting Room Printout for ROI information				7	
KGH091AC	See Counting Room Printout for ROI information				8	
	See Counting Room Printout for ROI information					
	See Counting Room Printout for ROI information					
	See Counting Room Printout for ROI information					
	See Counting Room Printout for ROI information					
	See Counting Room Printout for ROI information					
Comments:						

TAL Richland WA.
U BRCO

Sample ID: KF8PH1AE
Detector ID: ALP5 1

Batch ID: 8035239



Acquisition Start: 12-FEB-2008 06:28:04.85
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:05.00

Energy Coefficients:
Offset: 2.84934E + 03
Slope: 7.42018E + 00
Quadrature: -4.35080E-05

SAMPLE IDENTIITY: KF8PH1AE

TITLE : U BRCO

DETECTOR : ALP5 1
CONFIGURATION NAME : \$DISK1:[ALP5.SAMPLE]KF8PH1AE_120280628.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:45

REPORT DATE : 12-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 12-FEB-2008 06:28:04 CALIB DATE : 04-FEB-2008 03:39:25

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:05

OFFSET : 2849.34 keV CONSTANT FWHM : 7.50000 Channels
SLOPE : 7.42018 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : -.435080E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KF8PH1AE

Flags Key

Detector: ALP5 1
 Report Date: 12-Feb-08 09:48 AM P: Peak Identified
 Acquire Date: 12-FEB-2008 06:28:04.85 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrscnt Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth Mult	Right Wdth Mult	Flags
U-232	759	6	0	3.787	5329.7	125.7	323	340	0.00	0.00	P
U-234	2	4	0	0.006	4784.2	125.8	249	266	0.00	0.00	
U-235	1	1	0	0.004	4407.4	125.8	198	215	0.00	0.00	
U-238	1	5	0	0.000	4207.6	125.9	171	188	0.00	0.00	

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 12-FEB-2008 09:48:28

Configuration : \$DISK1:[ALP5.SAMPLE]KF8PH1AE_120280628.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 12-FEB-2008 06:28:04
 Sample ID : KF8PH1AE Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP5 Detector geometry:
 Elapsed live time: 0 03:20:05.00 Elapsed real time: 0 03:20:06.00 0.0%
 Start energy : 2871.60 End energy : 6637.07
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	5329.73	759	0	37.10	334.93	323	17	6.32E-02	3.6	
2	0	6310.00	16	0	29.68	467.67	465	10	1.33E-03	25.0	

Alpha Spectrum Listing
(Version: 1-Apr 07)

Sample Identity: KP8PH1AE

Flags Key

Detector: ALP5 1

Report Date: 12-Feb-08 09:48 AM

Intersect Region: @

Acquire Date: 12 FEB-2008 06:28:04.85

Non Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn									
		1	0		51	0		101	0		151	0+		201	0+		251	0		301	4		351	0		401	0		451	0		501
		2	0		52	1		102	0		152	0+		202	1+		252	0		302	3		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	0+		203	0+		253	0		303	4		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	1+		204	0+		254	0		304	1		354	0		404	0		454	0		504
0		5	0		55	0		105	1		155	0+		205	0+		255	1		305	1		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	0+		206	0+		256	0		306	0		356	0		406	1		456	0		506
0		7	0		57	0		107	0		157	0+		207	0+		257	0		307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	0		158	0+		208	0+		258	0		308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	0		159	0+		209	0+		259	1		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	0		160	0+		210	0+		260	1		310	1		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0+		211	0+		261	0		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	0+		212	1+		262	1		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	0+		213	0+		263	2		313	0		363	0		413	0		463			
0		14	0		64	0		114	0		164	0+		214	0+		264	1		314	0		364	0		414	0		464			
0		15	0		65	0		115	0		165	0+		215	0+		265	1		315	0		365	0		415	0		465			
0		16	0		66	0		116	0		166	0		216	0+		266	0		316	0		366	0		416	2		466			
0		17	0		67	0		117	0		167	0		217	0		267	2		317	0		367	0		417	3		467			
0		18	0		68	0		118	0		168	0		218	0		268	2		318	0		368	0		418	6		468			
0		19	0		69	0		119	0		169	0		219	0		269	3		319	0		369	0		419	1		469			
0		20	0		70	0		120	0		170	0		220	0		270	2		320	0		370	0		420	2		470			
0		21	0		71	0		121	0+		171	0		221	0		271	3		321	0		371	0		421	1		471			
1		22	0		72	0		122	0+		172	0		222	1		272	6		322	0		372	0		422	1		472			
0		23	0		73	0		123	0+		173	0		223	0		273	9+		323	0		373	0		423	0		473			
0		24	0		74	0		124	0+		174	0		224	0		274	6+		324	0		374	0		424	0		474			
0		25	0		75	0		125	0+		175	0		225	0		275	14+		325	0		375	0		425	0		475			
0		26	0		76	0		126	0+		176	0		226	0		276	23+		326	0		376	0		426	0		476			
0		27	0		77	0		127	0+		177	0		227	0		277	33+		327	0		377	0		427	0		477			
0		28	0		78	0		128	0+		178	0		228	0		278	26+		328	0		378	0		428	0		478			
0		29	0		79	0		129	0+		179	0		229	0		279	37+		329	0		379	1		429	0		479			
0		30	0		80	0		130	1+		180	0		230	0		280	61+		330	0		380	0		430	0		480			
0		31	0		81	0		131	0+		181	0		231	0		281	49+		331	0		381	0		431	0		481			
0		32	0		82	0		132	0+		182	0		232	0		282	49+		332	0		382	0		432	0		482			
0		33	0		83	0		133	0+		183	0		233	0		283	58+		333	0		383	0		433	0		483			
0		34	0		84	0		134	0+		184	0		234	0		284	99+		334	0		384	1		434	0		484			
0		35	0		85	0		135	0+		185	0		235	0		285	127+		335	0		385	0		435	0		485			
0		36	0		86	0		136	0+		186	0		236	0		286	111+		336	5		386	0		436	0		486			
0		37	0		87	0		137	0+		187	0		237	0		287	48+		337	2		387	0		437	0		487			
0		38	0		88	0		138	0+		188	0		238	0		288	3+		338	1		388	0		438	0		488			
0		39	0		89	0		139	0		189	0		239	0		289	1+		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	0		240	0		290	0		340	1		390	1		440	0		490			
0		41	0		91	0		141	0		191	0		241	0		291	0		341	1		391	1		441	0		491			
0		42	0		92	0		142	0		192	0		242	0		292	1		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	0		243	0		293	1		343	0		393	0		443	0		493			
0		44	0		94	0		144	0		194	0		244	0		294	2		344	0		394	2		444	0		494			
0		45	0		95	0		145	0		195	0		245	0		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	0		196	0		246	1		296	2		346	0		396	0		446	0		496			
0		47	0		97	0		147	0		197	0		247	1		297	2		347	0		397	0		447	0		497			
0		48	0		98	0		148	0+		198	0		248	0		298	1		348	0		398	0		448	0		498			
0		49	0		99	0		149	0+		199	0+		249	0		299	2		349	0		399	0		449	0		499			
0		50	0		100	0		150	0+		200	0+		250	0		300	0		350	0		400	0		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP5.SAMPLE]KF8PH1AE_120280628.CNF;1

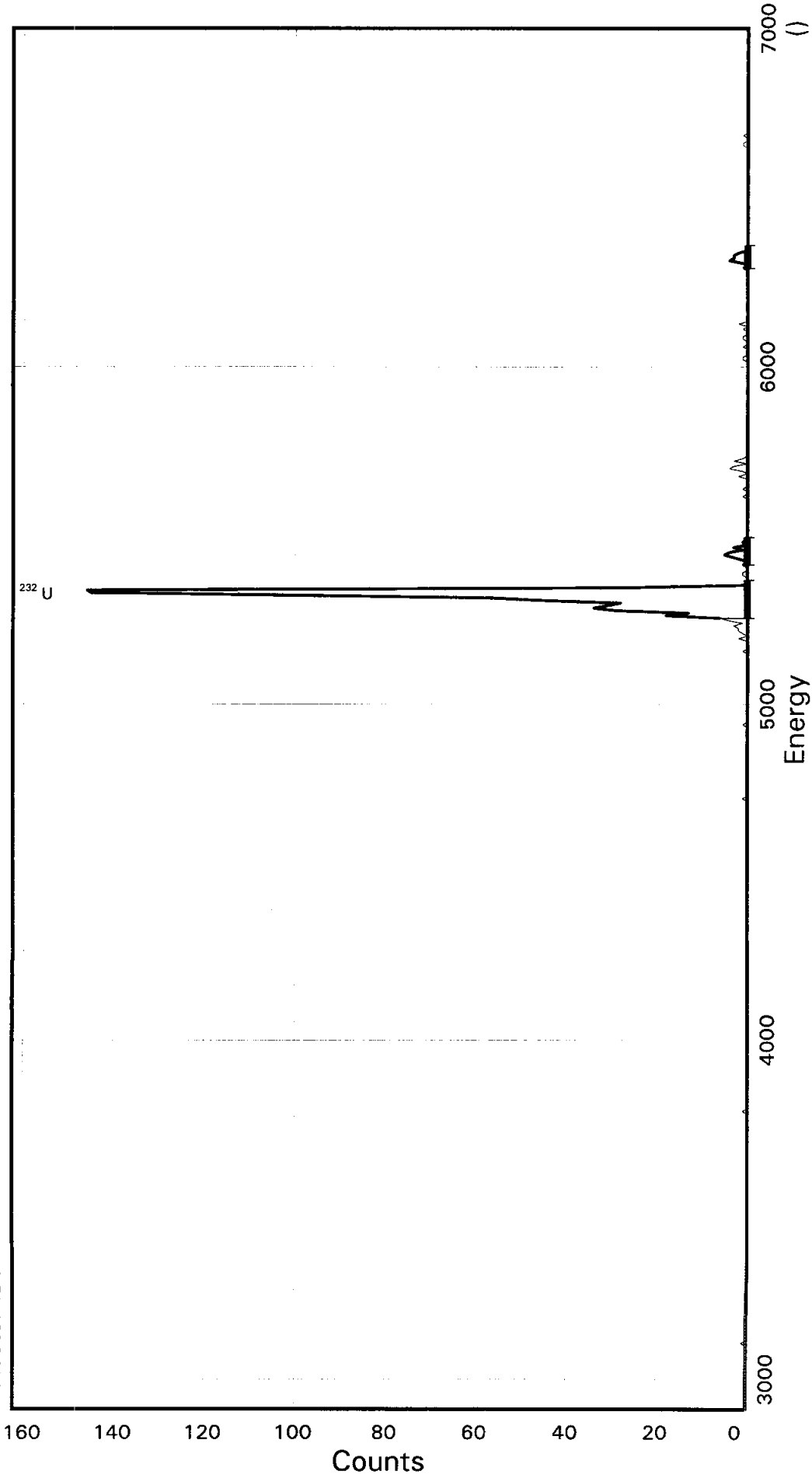
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
5329.72	323	340	759	754	0.18		
6309.99	465	475	16	16	0.00		

End of Report

TAL Richland WA.
U BRCO

Sample ID: KF8PH1AF
Detector ID: ALP6 1

Batch ID: 8035239



Acquisition Start: 12-FEB-2008 06:28:23.13
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:06.00

Energy Coefficients:
Offset: 2.88921E+03
Slope: 7.49841E+00
Quadrature: 3.05801E-05

SAMPLE IDENTIITY: KF8PH1AF

TITLE : U BRCO

DETECTOR : ALP6 1
CONFIGURATION NAME : \$DISK1:[ALP6.SAMPLE]KF8PH1AF_120280628.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:48

REPORT DATE : 12-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 12-FEB-2008 06:28:23 CALIB DATE : 04-FEB-2008 03:39:34

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:06

OFFSET : 2889.21 keV CONSTANT FWHM : 6.66667 Channels
SLOPE : 7.49841 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : 3.058010E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KF8PH1AF

Flags Key

Detector: ALP6 1
 Report Date: 12-Feb-08 09:49 AM P: Peak Identified
 Acquire Date: 12-FEB-2008 06:28:23.13 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgrnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrscnt Count	Count Rate C/Min	Centrd Region			Left Chnl	Rght Chnl	Left Wdth Mult	Rght Wdth Mult	Flags
					Energy keV	Width keV						
U-232	691	4	0	3.449	5326.9	112.8	315	330	0.00	0.00	P	
U-234	1	0	0	0.005	4781.3	112.7	242	257	0.00	0.00		
U-235	0	1	0	-0.001	4404.5	112.7	192	207	0.00	0.00		
U-238	0	1	0	-0.001	4204.7	112.6	166	181	0.00	0.00		

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 12-FEB-2008 09:49:04

Configuration : \$DISK1:[ALP6.SAMPLE]KF8PH1AF_120280628.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 12-FEB-2008 06:28:23
 Sample ID : KF8PH1AF Sample quantity : 0.000000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP6 Detector geometry:
 Elapsed live time: 0 03:20:06.00 Elapsed real time: 0 03:20:06.00 0.0%
 Start energy : 2911.70 End energy : 6736.41
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	5326.85	691	0	29.99	324.66	315	15	5.76E-02	3.8	
2	0	5443.61	21	0	37.49	340.19	336	11	1.75E-03	21.8	
3	0	6322.37	15	0	37.49	457.00	453	9	1.25E-03	25.8	

Alpha Spectrum Listing
(Version: 1-Apr-07)

Sample Identity: KF8PH1AF

Flags Key

Detector: ALP6 1

Report Date: 12-Feb 08 09:49 AM

Intersect Region: *

Acquire Date: 12-FEB-2008 06:28:23.13

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn									
		1	0		51	0		101	0		151	0+		201	0+		251	0		301	0		351	0		401	0		451	1		501
		2	0		52	0		102	0		152	0+		202	0+		252	1		302	0		352	0		402	0		452	1		502
0		3	0		53	0		103	0		153	0+		203	0+		253	0		303	0		353	0		403	1		453	0		503
0		4	0		54	0		104	0		154	0+		204	0+		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0+		205	0+		255	0		305	0		355	0		405	1		455	1		505
0		6	0		56	0		106	0		156	0+		206	0+		256	0		306	0		356	0		406	4		456	0		506
0		7	0		57	0		107	0		157	0+		207	0+		257	2		307	0		357	0		407	3		457	0		507
0		8	0		58	0		108	0		158	0		208	0		258	0		308	0		358	0		408	3		458	0		508
0		9	0		59	0		109	0		159	0		209	0		259	1		309	0		359	0		409	2		459	0		509
0		10	0		60	0		110	0		160	0		210	0		260	2		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	2		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	3		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	1		313	1		363	0		413	0		463			
0		14	0		64	0		114	0		164	0		214	0		264	4		314	0		364	0		414	0		464			
0		15	0		65	0		115	0		165	0		215	0		265	6+		315	0		365	0		415	0		465			
0		16	0		66	0		116	0+		166	0		216	0		266	18+		316	1		366	0		416	0		466			
0		17	0		67	0		117	0+		167	0		217	0		267	13+		317	0		367	1		417	0		467			
0		18	0		68	0		118	0+		168	0		218	0		268	29+		318	0		368	1		418	0		468			
0		19	0		69	0		119	0+		169	0		219	0		269	34+		319	0		369	0		419	0		469			
0		20	0		70	1		120	0+		170	0		220	0		270	31+		320	0		370	0		420	0		470			
0		21	0		71	0		121	0+		171	0		221	0		271	28+		321	2		371	0		421	0		471			
0		22	0		72	0		122	0+		172	0		222	0		272	45+		322	0		372	1		422	0		472			
0		23	0		73	0		123	0+		173	0		223	1		273	56+		323	1		373	0		423	0		473			
0		24	0		74	0		124	0+		174	0		224	0		274	99+		324	4		374	0		424	0		474			
0		25	0		75	0		125	0+		175	0		225	0		275	145+		325	3		375	1		425	0		475			
0		26	0		76	0		126	0+		176	0		226	0		276	146+		326	0		376	1		426	0		476			
0		27	0		77	0		127	0+		177	0		227	0		277	28+		327	3		377	0		427	0		477			
0		28	0		78	0		128	0+		178	0		228	0		278	1+		328	1		378	0		428	0		478			
1		29	0		79	0		129	0+		179	0		229	0		279	0+		329	0		379	1		429	0		479			
0		30	0		80	0		130	0+		180	0		230	0		280	0		330	0		380	0		430	0		480			
0		31	0		81	0		131	0+		181	0		231	0		281	0		331	0		381	2		431	0		481			
0		32	0		82	0		132	0		182	0		232	0		282	1		332	0		382	0		432	0		482			
0		33	0		83	0		133	0		183	0		233	0		283	1		333	0		383	0		433	0		483			
0		34	0		84	0		134	0		184	0		234	0		284	0		334	0		384	0		434	0		484			
0		35	0		85	0		135	0		185	0		235	0		285	0		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	0		236	0		286	1		336	0		386	0		436	0		486			
0		37	0		87	0		137	0		187	0		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	0		188	0		238	0		288	1		338	0		388	0		438	0		488			
0		39	0		89	0		139	0		189	0		239	0		289	3		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	0		240	0		290	5		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	0		241	0		291	4		341	0		391	0		441	0		491			
0		42	0		92	0		142	0+		192	0+		242	0		292	1		342	0		392	0		442	0		492			
0		43	0		93	0		143	0+		193	0+		243	0		293	3		343	0		393	0		443	0		493			
0		44	0		94	0		144	0+		194	1+		244	0		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	0+		195	0+		245	0		295	1		345	0		395	0		445	0		495			
0		46	0		96	0		146	0+		196	0+		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	0+		197	0+		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0+		198	0+		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	0+		199	0+		249	0		299	0		349	0		399	0		449	0		499			
0		50	0		100	0		150	0+		200	0+		250	0		300	0		350	0		400	0		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP6.SAMPLE]KF8PH1AF_120280628.CNF;1

Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
5326.85	315	330	691	679	0.46		
5443.60	336	347	21	19	0.44		
6322.36	453	462	15	14	0.26		

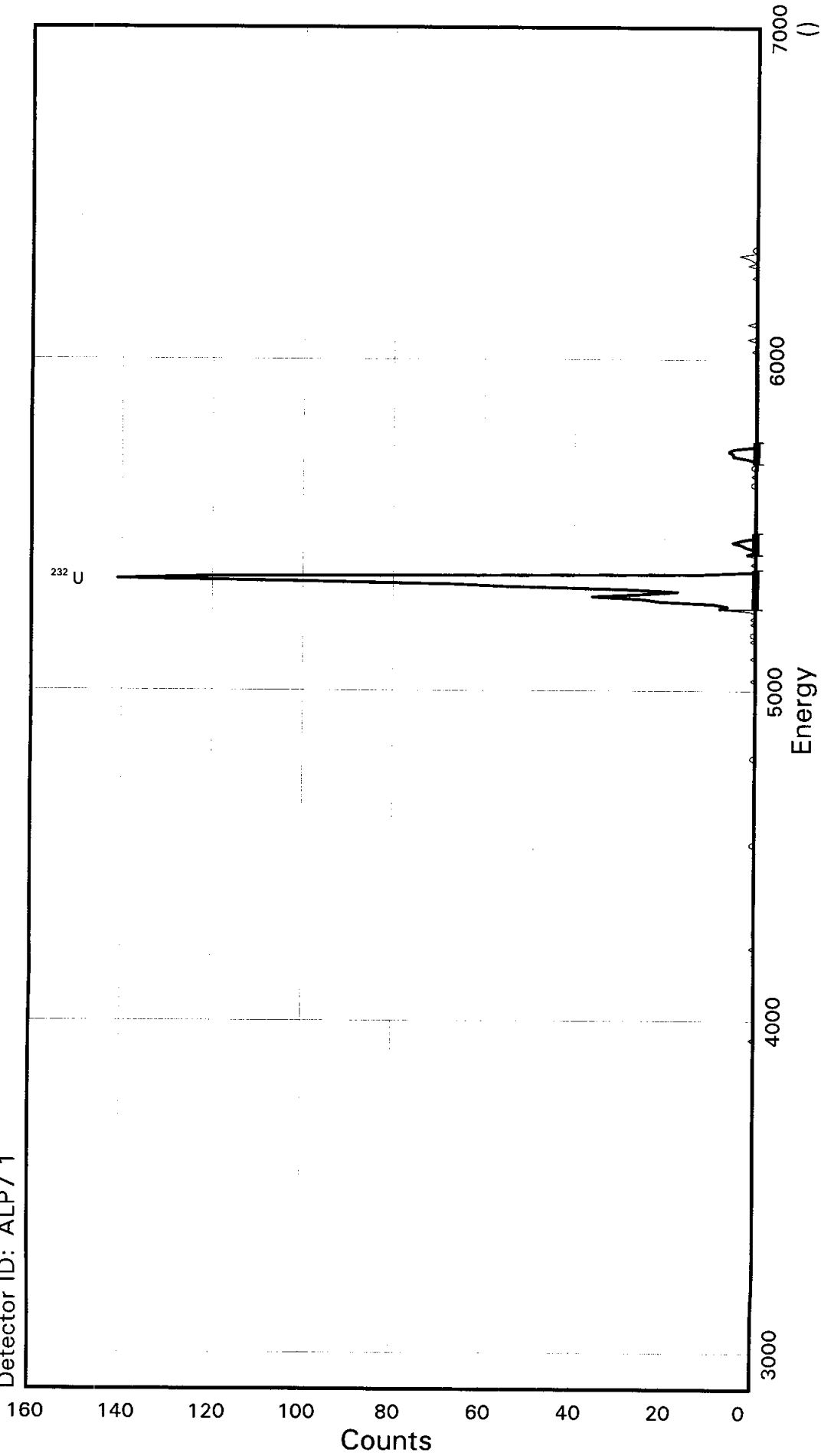
End of Report

TAL Richland WA.

U BRCO

Batch ID: 8035239

Sample ID: KGH091AA
Detector ID: ALP7 1



Acquisition Start: 12-FEB-2008 06:28:38.17
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:02.00

Energy Coefficients:
Offset: 2.86835E+03
Slope: 7.51668E+00
Quadrature: -1.30370E-04

SAMPLE IDENTIITY: KGH091AA

TITLE : U BRCO

DETECTOR : ALP7 1
CONFIGURATION NAME : \$DISK1:[ALP7.SAMPLE] KGH091AA_120280628.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:52

REPORT DATE : 12-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00
ACQUIRE DATE: 12-FEB-2008 06:28:38 CALIB DATE : 04-FEB-2008 03:39:40

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:02

OFFSET : 2868.35 keV CONSTANT FWHM : 6.66667 Channels
SLOPE : 7.51668 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : -.130370E-03 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KGH091AA

Flags Key

Detector: ALP7 1
 Report Date: 12-Feb-08 09:49 AM
 Acquire Date: 12-FEB-2008 06:28:38.17
 Tracer Nuclide: U-232
 High Counts Limit: 36
 Sample Live Time: 200 minutes
 Bkgrnd Live Time: 1000 minutes

P: Peak Identified
 I: Peak Intersect
 S: Single Non-peak Intersect
 M: Multiple Non-peak Intersect
 H: High Non-peak Sample Count
 A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrscnt Count	Count Rate C/Min	Centrd Region		Left Chnl	Rght Chnl	Left Wdth Mult	Rght Wdth Mult	Flags
					Energy keV	Width keV					
U-232	677	10	0	3.374	5331.4	118.9	318	334	0.00	0.00	P
U-234	2	1	0	0.009	4785.8	119.2	245	261	0.00	0.00	
U-235	0	1	0	-0.001	4409.0	119.4	194	210	0.00	0.00	
U-238	1	1	0	0.004	4209.2	119.5	167	183	0.00	0.00	

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 12-FEB-2008 09:48:58

Configuration : \$DISK1:[ALP7.SAMPLE] KGH091AA_120280628.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 12-FEB-2008 06:28:38
 Sample ID : KGH091AA Sample quantity : 0.000000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP7 Detector geometry:
 Elapsed live time: 0 03:20:02.00 Elapsed real time: 0 03:20:02.00 0.0%
 Start energy : 2890.90 End energy : 6682.72
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	5331.37	677	0	30.07	329.56	318	16	5.64E-02	3.8	
2	0	5443.61	15	0	30.07	344.67	340	9	1.25E-03	25.8	
3	0	5716.80	24	0	30.07	381.47	377	9	2.00E-03	20.4	

Alpha Spectrum Listing
(Version: 1-Apr-07)

Sample Identity: KGH091AA

Detector: ALP7 1

Report Date: 12-Feb-08 09:49 AM

Acquire Date: 12-FEB-2008 06:28:38.17

Flags Key

Intersect Region: @

Non Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn										
		1	0		51	0		101	0		151	0+		201	0+		251	0		301	0		351	0		401	0		451	0		501	
		2	0		52	0		102	0		152	0+		202	0+		252	0		302	0		352	0		402	0		452	0		502	
0		3	0		53	0		103	0		153	0+		203	0+		253	0		303	0		353	0		403	1		453	0		503	
0		4	0		54	0		104	0		154	0+		204	0+		254	0		304	0		354	0		404	0		454	0		504	
0		5	0		55	0		105	0		155	0+		205	0+		255	1		305	0		355	0		405	0		455	0		505	
0		6	0		56	0		106	0		156	0+		206	0+		256	0		306	0		356	0		406	0		456	0		506	
0		7	0		57	0		107	0		157	0+		207	1+		257	1		307	0		357	0		407	0		457	0		507	
0		8	0		58	0		108	0		158	0+		208	1+		258	1		308	0		358	0		408	2		458	0		508	
0		9	0		59	0		109	0		159	0+		209	0+		259	0		309	0		359	0		409	0		459	0		509	
0		10	0		60	0		110	0		160	0+		210	0+		260	0		310	0		360	0		410	1		460	0		510	
0		11	0		61	0		111	0		161	0		211	0+		261	0		311	0		361	0		411	2		461	0		511	
0		12	0		62	0		112	0		162	0		212	0		262	1		312	0		362	0		412	4		462	0		512	
0		13	0		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	0		463				
0		14	0		64	0		114	0		164	0		214	0		264	1		314	0		364	0		414	1		464				
0		15	0		65	0		115	0		165	0		215	0		265	0		315	0		365	0		415	1		465				
0		16	0		66	0		116	0		166	0		216	0		266	0		316	0		366	0		416	0		466				
0		17	0		67	0		117	0+		167	0		217	0		267	1		317	0		367	0		417	0		467				
0		18	0		68	0		118	0+		168	0		218	0		268	8+		318	1		368	0		418	0		468				
0		19	0		69	0		119	0+		169	0		219	0		269	6+		319	1		369	0		419	0		469				
0		20	0		70	0		120	0+		170	0		220	0		270	9+		320	0		370	0		420	0		470				
0		21	0		71	0		121	0+		171	0		221	0		271	21+		321	0		371	0		421	0		471				
0		22	0		72	0		122	0+		172	1		222	0		272	25+		322	1		372	0		422	0		472				
0		23	0		73	0		123	0+		173	1		223	0		273	36+		323	0		373	1		423	0		473				
0		24	0		74	0		124	0+		174	0		224	0		274	25+		324	0		374	0		424	0		474				
0		25	0		75	0		125	0+		175	0		225	0		275	17+		325	1		375	0		425	0		475				
0		26	0		76	0		126	0+		176	0		226	0		276	29+		326	1		376	0		426	0		476				
0		27	0		77	0		127	0+		177	0		227	0		277	53+		327	0		377	0		427	0		477				
0		28	0		78	0		128	0+		178	0		228	0		278	67+		328	0		378	0		428	2		478				
0		29	0		79	0		129	0+		179	0		229	0		279	100+		329	2		379	0		429	0		479				
0		30	0		80	0		130	1+		180	0		230	0		280	141+		330	5		380	0		430	0		480				
0		31	0		81	0		131	0+		181	0		231	0		281	119+		331	5		381	0		431	0		481				
0		32	0		82	0		132	0+		182	0		232	0		282	12+		332	6		382	0		432	0		482				
0		33	0		83	0		133	0+		183	0		233	0		283	0+		333	5		383	0		433	0		483				
0		34	0		84	0		134	0		184	0		234	0		284	0		334	0		384	2		434	0		484				
0		35	0		85	0		135	0		185	0		235	0		285	0		335	0		385	0		435	0		485				
0		36	0		86	0		136	0		186	0		236	0		286	1		336	0		386	0		436	0		486				
0		37	0		87	0		137	0		187	0		237	0		287	0		337	0		387	0		437	0		487				
0		38	0		88	0		138	0		188	0		238	0		288	0		338	0		388	0		438	0		488				
0		39	0		89	0		139	0		189	0		239	1		289	0		339	0		389	0		439	0		489				
0		40	0		90	0		140	0		190	0		240	0		290	2		340	0		390	0		440	0		490				
0		41	0		91	0		141	0		191	0		241	0		291	0		341	0		391	0		441	0		491				
0		42	0		92	0		142	0		192	0		242	0		292	0		342	0		392	0		442	0		492				
0		43	0		93	1		143	0		193	0		243	0		293	2		343	0		393	0		443	0		493				
0		44	0		94	0		144	0+		194	0		244	0		294	3		344	0		394	0		444	0		494				
0		45	0		95	0		145	0+		195	0+		245	0		295	5		345	0		395	0		445	0		495				
0		46	0		96	0		146	0+		196	0+		246	0		296	3		346	0		396	0		446	0		496				
0		47	0		97	0		147	0+		197	0+		247	0		297	0		347	0		397	0		447	0		497				
0		48	0		98	0		148	0+		198	0+		248	1		298	0		348	0		398	0		448	0		498				
0		49	0		99	0		149	0+		199	0+		249	0		299	0		349	0		399	0		449	0		499				
0		50	0		100	0		150	0+		200	0+		250	0		300	0		350	0		400	0		450	0		500				

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP7.SAMPLE] KGH091AA_120280628.CNF;1

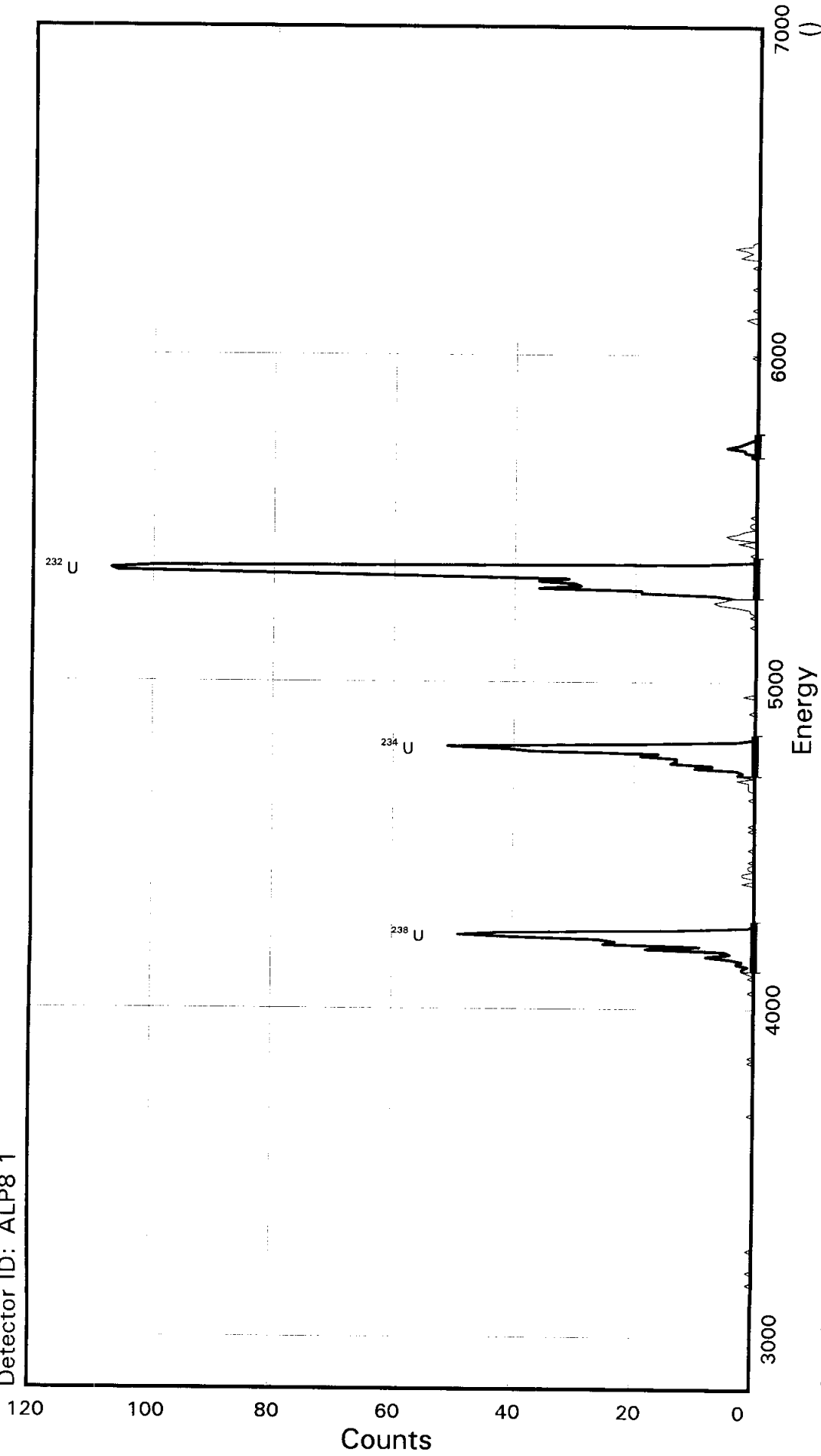
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
5331.36	318	334	677	668	0.35		
5443.61	340	349	15	15	0.00		
5716.79	377	386	24	23	0.20		

End of Report

TAL Richland WA.
U BRCO

Sample ID: KGH091AC
Detector ID: ALP8 1

Batch ID: 8035239



Acquisition Start: 12-FEB-2008 06:28:55.72
Preset Live Time: 0 03:20:00.00
Elapsed Live Time: 0 03:20:04.00

Energy Coefficients:
Offset: 2.81988E+03
Slope: 7.38161E+00
Quadrature: -1.21988E-04

SAMPLE IDENTIITY: KGH091AC

TITLE : U BRCO

DETECTOR : ALP8 1

CONFIGURATION NAME : \$DISK1:[ALP8.SAMPLE] KGH091AC_120280628.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:56

REPORT DATE : 12-Feb-08 SAMPLE DATE: 28-JAN-2008 12:00:00

ACQUIRE DATE: 12-FEB-2008 06:28:55 CALIB DATE : 04-FEB-2008 03:39:47

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:04

OFFSET : 2819.88 keV CONSTANT FWHM : 8.50000 Channels

SLOPE : 7.38161 keV/C SENSITIVITY : 4.00000 Std Dev's

QUAD COEFF : -.121988E-03 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 1-Apr-07)

Sample Identity: KGH091AC

Flags Key

Detector: ALP8 1
 Report Date: 12-Feb-08 09:50 AM P: Peak Identified
 Acquire Date: 12-FEB-2008 06:28:55.72 I: Peak Intersect
 Tracer Nuclide: U-232 S: Single Non-peak Intersect
 High Counts Limit: 36 M: Multiple Non-peak Intersect
 Sample Live Time: 200 minutes H: High Non-peak Sample Count
 Bkgrnd Live Time: 1000 minutes A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrscnt Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Rght Chnl	Left Wdth Mult	Right Wdth Mult	Flags
U-232	682	14	0	3.395	5337.8	124.1	332	349	0.00	0.00	P
U-234	258	0	0	1.290	4792.3	124.4	258	275	0.00	0.00	P
U-235	9	0	0	0.045	4415.5	124.6	206	223	0.00	0.00	
U-238	278	0	0	1.390	4215.7	154.1	176	197	0.00	0.00	P

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

VMS Peak Search Report V1.9 Generated 12-FEB-2008 09:50:05

Configuration : \$DISK1:[ALP8.SAMPLE]KGH091AC_120280628.CNF;1
 Analyses by : ALPHA V1.8
 Sample title : U BRCO
 Sample date : 28-JAN-2008 12:00:00 Acquisition date : 12-FEB-2008 06:28:55
 Sample ID : KGH091AC Sample quantity : 0.00000E+00 LITER
 Sample type : disk Sample geometry :
 Detector name : ALP8 Detector geometry:
 Elapsed live time: 0 03:20:04.00 Elapsed real time: 0 03:20:04.00 0.0%
 Start energy : 2842.02 End energy : 6567.29
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4220.93	278	0	44.29	190.40	176	21	2.32E-02	6.0	
2	0	4796.57	258	0	36.91	268.98	258	17	2.15E-02	6.2	
3	0	5337.84	682	0	36.91	343.06	332	17	5.68E-02	3.8	
4	0	5716.59	15	0	36.91	395.00	391	10	1.25E-03	25.8	

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP8.SAMPLE]KGH091AC_120280628.CNF;1

Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4220.93	176	197	278	276	0.12		
4796.56	258	275	258	253	0.31		
5337.83	332	349	682	669	0.50		
5716.58	391	401	15	16	-0.26		

End of Report

URANIUM ISOTOPIC
STANDARDS AND TRACEABILITY

Standard Material Fractions (Vials)

Vial Prep: 2/16/07 to 2/18/08, SMFractionIdentifier Between UITC19480 and UITC19482, 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: U23201A131			Ref: 6/15/2001	5.3490E+01 ± 1.664E+00	DPM/G	
UITC19480	U-232	1.0067E+01 ± 3.132E-01 DPM	0.2012 g	2/4/2008 2/4/2008	Armstron	5.0034E+01 ± 1.556E+00 DPM/G
UITC19481	U-232	1.0017E+01 ± 3.117E-01 DPM	0.2002 g	2/4/2008 2/4/2008	Armstron	5.0034E+01 ± 1.556E+00 DPM/G
UITC19482	U-232	1.0072E+01 ± 3.134E-01 DPM	0.2013 g	2/4/2008 2/4/2008	Armstron	5.0034E+01 ± 1.556E+00 DPM/G

1.0052E+001 ± 3.043E-002 (3) 0.303% 1.0017E+001 , 1.0072E+001

U23201A

U23201A000 #4911
4.8E+7 ± 1.5E+6
dpm/g
6/1/01 REF

U23201A100 #4920
1.896E+6 ± 5.9E+4
dpm/g
6/15/01 PREP

U23201A130 #6281
1.33E+4 ± 4.1E+2
dpm/g
1/10/08 PREP

U23201A131 #6282
53.49 ± 1.66
dpm/g
1/10/08 PREP

ISOTOPE DILUTION RECORD

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>1/10/2008</u>
3) Source Identification Number / Ref. Number	<u>U23201A130</u>	<u>6281</u>	
4) Source Activity (dpm ± dpm/g)	<u>1.3382E+04</u>	±	<u>4.162E+02</u>
5) Percent error of Source Activity	<u>3.11</u>	%	
6) Weight of Source Material used (g)	<u>1.0212</u>		
7) (% Error) of Weight of Source Material used	<u>0.0294</u>	%	
8) Diluent	<u>2 M HNO3</u>		
9) Total Weight of the Dilution (g)	<u>255.48</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.0068</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>5.3490E+01</u>	±	<u>1.664E+00</u>
12) Total Uncertainty	<u>3.110</u>	%	
13) Dilution Identification Number / Ref. Number	<u>U23201A131</u>	<u>6282</u>	
14) Calibration Reference Date	<u>6/15/2001</u>		
15) Isotope Inventory File update by/date	<u>tda</u>	<u>1/10/2008</u>	
16) Reviewed by/date	<u></u>	<u></u>	
17) Location	<u>Lab 134A</u>	18) Exhausted	<u></u>

CALCULATIONS

5) Cert value at 99.7% (K=3) level / 3 OR Cert Value 95% (K=2) level/2 = 1 sigma uncertainty for propagation

7) % error of wt. used = (0.0003 / weight of source material used * 100)

$$\text{wt uncert (4 place balance)} = \text{Sqrt}(0.0002^2 + 0.0002^2 + 0.00001^2) = 0.0003 \text{ g}$$

10) % error of dilution wt. = (0.0173 / total weight of dilution * 100)

$$\text{wt uncert (0.1 place balance)} = \text{Sqrt}(0.1^2 + 0.1^2 + 0.1^2) = 0.178 \text{ g}$$

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

$$12) \% \text{ Total Uncertainty} = \sqrt{(\% \text{ error of Source Activity})^2 + (\% \text{ error of Wt. Used})^2 + (\% \text{ error of Dilution Wt.})^2}$$

ISOTOPE DILUTION RECORD

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>1/10/2008</u>
3) Source Identification Number / Ref. Number	<u>U23201A100</u>	<u>4920</u>	
4) Source Activity (dpm ± dpm/g)	<u>1.8963E+06</u>	±	<u>5.897E+04</u>
5) Percent error of Source Activity	<u>3.11</u>	%	
6) Weight of Source Material used (g)	<u>1.7787</u>		
7) (% Error) of Weight of Source Material used	<u>0.0169</u>	%	
8) Diluent	<u>2 M HNO3</u>		
9) Total Weight of the Dilution (g)	<u>252.06</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.0069</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>1.3382E+04</u>	±	<u>4.162E+02</u>
12) Total Uncertainty	<u>3.110</u>	%	
13) Dilution Identification Number / Ref. Number	<u>U23201A130</u>	<u>6281</u>	
14) Calibration Reference Date	<u>6/15/2001</u>		
15) Isotope Inventory File update by/date	<u>tda</u>		<u>1/10/2008</u>
16) Reviewed by/date	<u></u>		<u></u>
17) Location	<u>Lab 134A</u>	18) Exhausted	<u></u>

CALCULATIONS

5) Cert value at 99.7% (K=3) level / 3 OR Cert Value 95% (K=2) level/2 = 1 sigma uncertainty for propagation

7) % error of wt. used = (0.0003 / weight of source material used * 100)
 wt uncert (4 place balance) = Sqrt(0.0002² + 0.0002² + 0.00001²) = 0.0003 g

10) % error of dilution wt. = (0.0173 / total weight of dilution * 100)
 wt uncert (0.1 place balance) = Sqrt(0.1² + 0.1² + 0.1²) = 0.178 g

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

12) % Total Uncertainty = $\sqrt{(\% \text{ error of Source Activity})^2 + \% \text{ error of Wt. Used}^2 + \% \text{ error of Dilution Wt.}^2}$

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>6/15/2001</u>
3) Source Identification Number / Ref. Number	<u>U23201A000</u>	<u>4911</u>	
4) Source Activity (dpm ± dpm/g)	<u>4.8289E+07</u>	±	<u>1.497E+06</u>
5) Percent error of Source Activity	<u>3.1</u>	%	
6) Weight of Source Material used (g)	<u>5.1444</u>		
7) (% Error) of Weight of Source Material used	<u>0.0933</u>	%	
8) Diluent	<u>2M HNO3-P0100281</u>		
9) Total Weight of the Dilution (g)	<u>131</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2290</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>1.8963E+06</u>	±	<u>5.897E+04</u>
12) Total Uncertainty	<u>3.110</u>	%	
13) Dilution Identification Number / Ref. Number	<u>U23201A100</u>	<u>4920</u>	
14) Calibration Reference Date	<u>6/15/2001</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>6/15/2001</u>
16) Reviewed by/date	<u>rross</u>		<u>6/20/2001</u>
17) Location <u>QCLABSTWT0413</u>	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 = $\frac{(\% \text{ error of Source Activity } ^2 + \% \text{ error of Wt. Used} ^2 + \% \text{ error of Dilution Wt. } ^2)}{2}$

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

ISOTOPE RECORD FORM

1) Isotope U-232 2) Reference Number 4911
3) Half Life 69.9 yrs 4) Storage Location STDLAB

5) Source Identification Number U23201A000

CALIBRATION DATA

6) Activity as Received Units 21.76 uCi/g

7) Overall Uncertainty Percent 3.1%

8) Reference Date / Time 6/1/01 12:00 PST (12:00 PM)

9) Activity dpm/g 4.8307E+07 ± 1.4975E+06 dpm

10) Volume or Mass (ml/g) 5.18455g

11) Calibrated by IPL

12) Certificate Solution Number 763-34-3

SURVEY DATA

13) Date Received 6/4/2001

14) Surveyed by W.G

15) Survey Reading (Beta/Gamma) cpm <1k

16) Survey Reading (Alpha) cpm <100 cpm

17) Activity Conversion _____

21.76 uCi/g x 2.22E+6dpm/uCi= 4.831E+7 ± 1.498E+6 (3.1%) dpm/g

18) Remarks _____

19) Isotope File Updated by 6/4/01 W.G

20) QC Approved rross 6/20/01

2/17/2008 9:31:39 PM

Standard Material Fractions (Vials)

Vial Prep: 2/16/07 to 2/18/08, SMFractionIdentifier Like: UISG1567%, 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: U23283D190			Ref: 5/5/1987	6.1360E+01 ± 1.783E+00	DPM/G	
UISG1567	U-232	9.9846E+00 ± 2.902E-01 DPM	0.2002 g	12/11/2007 12/11/2007	Armstron	4.9873E+01 ± 1.449E+00 DPM/G
		9.9846E+000 ± 9.985E+000 (1)		9.9846E+000 , 9.9846E+000		

U23283D

U23283D100
Ref. 1091
4.59E4 ± 1327
dpm/g
9/12/89
Link



U23283D180
Ref. 6120
20.51 ± 0.94
dpm/g
DVF 7/28/2006

ISOTOPE DILUTION RECORD

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>11/7/2007</u>
3) Source Identification Number / Ref. Number	<u>U23283D100</u>	<u>1091</u>	
4) Source Activity (dpm ± dpm/g)	<u>4.7020E+04</u>	±	<u>1.358E+03</u>
5) Percent error of Source Activity	<u>2.9</u>	%	
6) Weight of Source Material used (g)	<u>0.1691</u>		
7) (% Error) of Weight of Source Material used	<u>0.1774</u>	%	
8) Diluent	<u>2 M HNO3</u>		
9) Total Weight of the Dilution (g)	<u>129.58</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.0134</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>6.1360E+01</u>	±	<u>1.783E+00</u>
12) Total Uncertainty	<u>2.905</u>	%	
13) Dilution Identification Number / Ref. Number	<u>U23283D190</u>	<u>6263</u>	
14) Calibration Reference Date	<u>5/5/1987</u>		
15) Isotope Inventory File update by/date	<u>tda</u>	<u>11/7/2007</u>	
16) Reviewed by/date	<u>JC</u>	<u>12/27/2007</u>	
17) Location	<u>QC LAB</u>	18) Exhausted	<u></u>

CALCULATIONS

5) Cert value at 99.7% (K=3) level / 3 OR Cert Value 95% (K=2) level/2 = 1 sigma uncertainty for propagation

7) % error of wt. used = (0.0003 / weight of source material used * 100)

$$\text{wt uncert (4 place balance)} = \text{Sqrt}(0.0002^2 + 0.0002^2 + 0.00001^2) = 0.0003 \text{ g}$$

10) % error of dilution wt. = (0.0173 / total weight of dilution * 100)

$$\text{wt uncert (0.1 place balance)} = \text{Sqrt}(0.1^2 + 0.1^2 + 0.1^2) = 0.178 \text{ g}$$

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

$$12) \% \text{ Total Uncertainty} = \sqrt{(\% \text{ error of Source Activity})^2 + (\% \text{ error of Wt. Used})^2 + (\% \text{ error of Dilution Wt.})^2}$$

ISOTOPE DILUTION RECORD

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>7/28/2006</u>
3) Source Identification Number / Ref. Number	<u>U23283D100</u>	<u>1091</u>	
4) Source Activity (dpm ± dpm/g)	<u>3.8870E+04</u>	±	<u>1.123E+03</u>
5) Percent error of Source Activity	<u>2.89</u>	%	
6) Weight of Source Material used (g)	<u>0.1346</u>		
7) (% Error) of Weight of Source Material used	<u>3.5661</u>	%	
8) Diluent	<u>2M HNO3</u>		
9) Total Weight of the Dilution (g)	<u>255.01</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.1176</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>2.0516E+01</u>	±	<u>9.420E-01</u>
12) Total Uncertainty	<u>4.592</u>	%	
13) Dilution Identification Number / Ref. Number	<u>U23283D180</u>	<u>6120</u>	
14) Calibration Reference Date	<u>5/5/1987</u>		
15) Isotope Inventory File update by/date	<u>tda</u>		<u>7/28/2006</u>
16) Reviewed by/date	<u>J.C</u>		<u>8/7/06</u>
17) Location	<u>qclab</u>	18) Exhausted	

This standard has no certificate, used for a test.

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>7/28/2006</u>
3) Source Identification Number / Ref. Number	<u>U23283D100</u>	<u>1091</u>	
4) Source Activity (dpm ± dpm/g)	<u>3.8870E+04</u>	±	<u>1.123E+03</u>
5) Percent error of Source Activity	<u>2.89</u>	%	
6) Weight of Source Material used (g)	<u>0.1346</u>		
7) (% Error) of Weight of Source Material used	<u>3.5661</u>	%	
8) Diluent	<u>2M HNO3</u>		
9) Total Weight of the Dilution (g)	<u>255.01</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.1176</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>2.0516E+01</u>	±	<u>9.420E-01</u>
12) Total Uncertainty	<u>4.592</u>	%	
13) Dilution Identification Number / Ref. Number	<u>U23283D180</u>	<u>6120</u>	
14) Calibration Reference Date	<u>5/5/1987</u>		
15) Isotope Inventory File update by/date	<u>tda</u>		<u>7/28/2006</u>
16) Reviewed by/date	<u>J.C.</u>		<u>8/7/2006</u>
17) Location	<u>qclab</u>	18) Exhausted	<u></u>

This standard has no certificate, used for a test.

CALCULATIONS

$$7) \% \text{ Error of Wt. used} = (0.0048 / \text{Weight of Source Material used} * 100)$$

$$10) \% \text{ error of Dilution Wt.} = (0.3 / \text{Total Weight of Dilution} * 100)$$

$$11) \text{ Specific Activity} = \text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$$

$$12) \% \text{ Total Uncertainty} = \sqrt{(\% \text{ error of Source Activity}^2 + \% \text{ error of Wt. Used}^2 + \% \text{ error of Dilution Wt.}^2)}$$

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>4/23/2001</u>
3) Source Identification Number / Ref. Number	<u>U23283D170</u>		<u>4886</u>
4) Source Activity (dpm ± dpm/g)	<u>2.9709E+02</u>	±	<u>1.366E+01</u>
5) Percent error of Source Activity	<u>4.596</u>	%	
6) Weight of Source Material used (g)	<u>3.5636</u>		
7) (% Error) of Weight of Source Material used	<u>0.1347</u>	%	
8) Diluent	<u>2M HNO3-P0100141</u>		
9) Total Weight of the Dilution (g)	<u>105.12</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.2854</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>1.0071E+01</u>	±	<u>4.640E-01</u>
12) Total Uncertainty	<u>4.607</u>	%	
13) Dilution Identification Number / Ref. Number	<u>U23283D171</u>		<u>4887</u>
14) Calibration Reference Date	<u>4/23/2001</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>4/23/2001</u>
16) Reviewed by/date	<u></u>		<u></u>
17) Location <u>QCLAB/STWT0388</u>		18) Exhausted	<u></u>

This standard has no certificate, used for a test.

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>4/23/2001</u>
3) Source Identification Number / Ref. Number	<u>U23283D100</u>		<u>1091</u>
4) Source Activity (dpm ± dpm/g)	<u>4.0945E+04</u>	±	<u>1.183E+03</u>
5) Percent error of Source Activity	<u>2.9</u>	%	
6) Weight of Source Material used (g)	<u>0.1478</u>		
7) (% Error) of Weight of Source Material used	<u>3.2476</u>	%	
8) Diluent	<u>2M HN03-P0100141</u>		
9) Total Weight of the Dilution (g)	<u>20.37</u>		
10) (% Error) of Total Weight of the Dilution	<u>1.4728</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>2.9709E+02</u>	±	<u>1.366E+01</u>
12) Total Uncertainty	<u>4.596</u>	%	
13) Dilution Identification Number / Ref. Number	<u>U23283D170</u>		<u>4886</u>
14) Calibration Reference Date	<u>4/23/2001</u>		
15) Isotope Inventory File update by/date	<u>W.G</u>		<u>4/23/2001</u>
16) Reviewed by/date	<u></u>		<u></u>
17) Location <u>QCLAB/STWT0387</u>		18) Exhausted	<u></u>

This standard has no certificate, used for a test .

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

U-232 Calibration Check

10/22/93
D.S.

ITAS in house U-232 source is not traceable to NIST. U23283D100 was calibrated against a NIST traceable dilution of U30886A000. The attached data demonstrates a recent calibration check verifying the original calibration.

Source

U23283D141
30.823 ± .896 dpm/g

Source

U30886A149
19.054 ± .081 dpm/g

Calculation

$(U-232 \text{ cts}) (U\text{-Nat, dpm}) / U\text{-Nat cts} = U\text{-232 dpm found} / U\text{-232 dpm expected} =$

CAL626

$(5464.4) (20.005) / 5363 = 20.4291 / 20.630 = 98.80$

CAL627

$(5065.6) (20.110) / 5001.2 = 20.3690 / 20.670 = 98.54$

CAL628

$(5058.4) (20.098) / 5041.4 = 20.1658 / 20.648 = 97.66$

CAL629

$(5243.2) (20.0157) / 5175.2 = 20.2787 / 20.642 = 98.23$

Average = 98.31 ± .491 (1σ)

Q.C. VIAL TRANSMITTAL RECORD

PURPOSE: Issuance of:

Spikes	<u>UNAT 20dpm</u>
Yield Monitor(s)	<u>232U 20dpm</u>
Quench Monitor(s)	_____
Carrier(s)	_____
Internal Audit Sample(s)	_____
Sealed Source(s)	_____
Other	_____

If "Other," explain:

CALCK.CGG- Alpha Spec Traceability

DESCRIPTION OF ITEM:

ITAS #	Vial Code #	Quantity	Matrix
	<u>Cal 626-629</u>	<u>4</u>	

Prepared By: WA

Reviewed By: DS

Date Prepared: 10/18/93

Date Reviewed: 10/21/93

Form: CC-002, 11/90, Rev 1

SPIKE PREPARATION RECORD

Prepared By: WG Preparation Date: 18OCT93 Reference date 12AUG93

Source Identification: U23283D141 Isotope: U-232

Source Activity (dpm +- dpm per wt/vol unit): 3.0823E+01 +- 8.9637E-01

VIAL ID	WT/VOL	ACTIVITY*	TOTAL ERROR
CAL626	0.6693 G	2.0630E+01	5.9994E-01
CAL627	0.6706 G	2.0670E+01	6.0111E-01
CAL628	0.6699 G	2.0648E+01	6.0048E-01
CAL629	0.6697 G	* 2.0642E+01	6.0030E-01

* Activity decay corrected to Preparation Date, 12:00, except SR-85

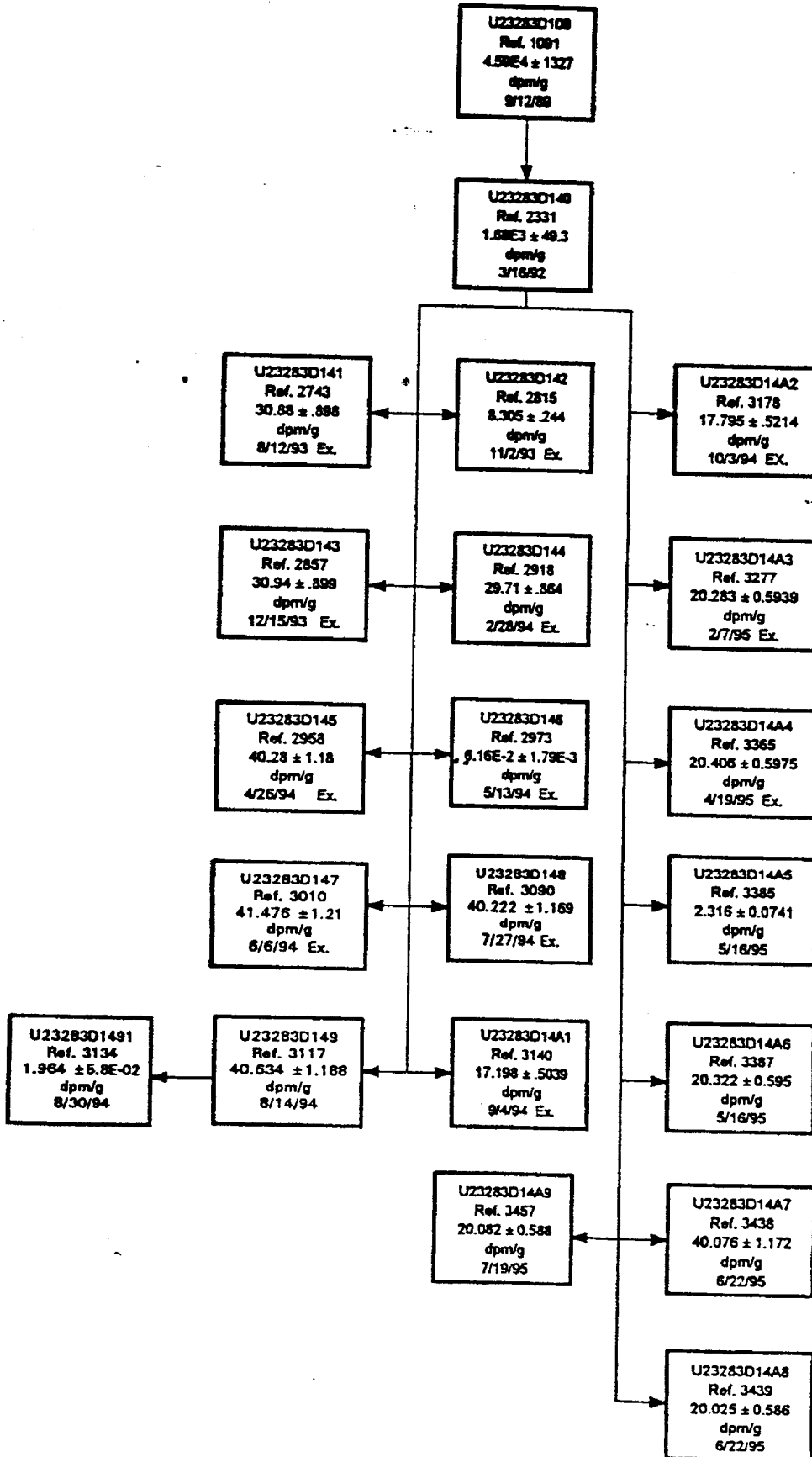
SPIKE PREPARATION RECORD

Prepared By: WG Preparation Date: 18OCT93 Reference date 01FEB86
 Source Identification: U30886A149 Isotope: UN-AT
 Source Activity (dpm +- dpm per wt/vol unit): 1.9054E+01 +- 8.1000E-02

VIAL ID	WT/VOL	ACTIVITY*	TOTAL ERROR
-----	-----	-----	-----
CAL626	1.0499 G	2.0005E+01	8.5042E-02
CAL627	1.0554 G	2.0110E+01	8.5487E-02
CAL628	1.0548 G	2.0098E+01	8.5439E-02
CAL629	1.0579 G	+ 2.0157E+01	8.5690E-02

* Activity decay corrected to Preparation Date, 12:00, except SR-85

U23283D140



ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G.</u>	2) Date Prepared	<u>8/12/93</u>
3) Source Identification Number / Ref. Number	<u>U23283D140</u>		<u>2331</u>
4) Source Activity (dpm ± dpm/g)	<u>1.6659E+03</u>	±	<u>4.861E+01</u>
5) Percent error of Source Activity	<u>2.9</u>	%	
6) Weight of Source Material used (g)	<u>3.7227</u>		
7) (% Error) of Weight of Source Material used	<u>0.0166</u>	%	
8) Diluent	<u>2M HNO₃</u>		
9) Total Weight of the Dilution (g)	<u>200.84</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.0223</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>3.0879E+01</u>	±	<u>8.976E-01</u>
12) Total Uncertainty	<u>2.907</u>	%	
13) Dilution Identification Number / Ref. Number	<u>U23283D141</u>		<u>2743</u>
14) Calibration Reference Date	<u>8/12/93</u>		
15) Isotope Inventory File update by/date	<u>P.J.</u>		<u>8/13/93</u>
16) Reviewed by/date	<u>D.S.</u>		<u>6/6/94</u>
17) Location	<u>K-5</u>	18) Exhausted	<u>12/16/93</u>

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CALCULATIONS

$$7) \% \text{ Error of Wt. used} = (0.0048 / \text{Weight of Source Material used} * 100) ^2$$

$$10) \% \text{ error of Dilution Wt.} = (0.3 / \text{Total Weight of Dilution} * 100) ^2$$

$$11) \text{ Specific Activity} = \text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$$

$$12) \% \text{ Total Uncertainty} = \frac{(\% \text{ error of Source Activity} ^2 + \% \text{ error of Wt. used} + \% \text{ error of Dilution Wt.})}{2}$$

Form: CC-006, 5/5/94, Rev 2

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G.</u>	2) Date Prepared	<u>3/16/92</u>
3) Source Identification Number / Ref. Number	<u>U23283D100</u>		<u>1091</u>
4) Source Activity (dpm ± dpm/g)	<u>4.4808E+04</u>	±	<u>1.294E+03</u>
5) Percent error of Source Activity	<u>2.9</u>	%	
6) Weight of Source Material used (g)	<u>3.8189</u>		
7) (% Error) of Weight of Source Material used	<u>0.0158</u>	%	
8) Diluent	<u>2M HNO3</u>		
9) Total Weight of the Dilution (g)	<u>101.3</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.0877</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>1.6892E+03</u>	±	<u>4.929E+01</u>
12) Total Uncertainty	<u>2.918</u>	%	
13) Dilution Identification Number / Ref. Number	<u>U23283D140</u>		<u>2331</u>
14) Calibration Reference Date	<u>3/16/92</u>		
15) Isotope Inventory File update by/date	<u>W.G.</u>		<u>3/16/92</u>
16) Reviewed by/date	<u>D.S.</u>		<u>6/6/94</u>
17) Location	<u>K-1</u>	18) Exhausted	<u></u>

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CALCULATIONS

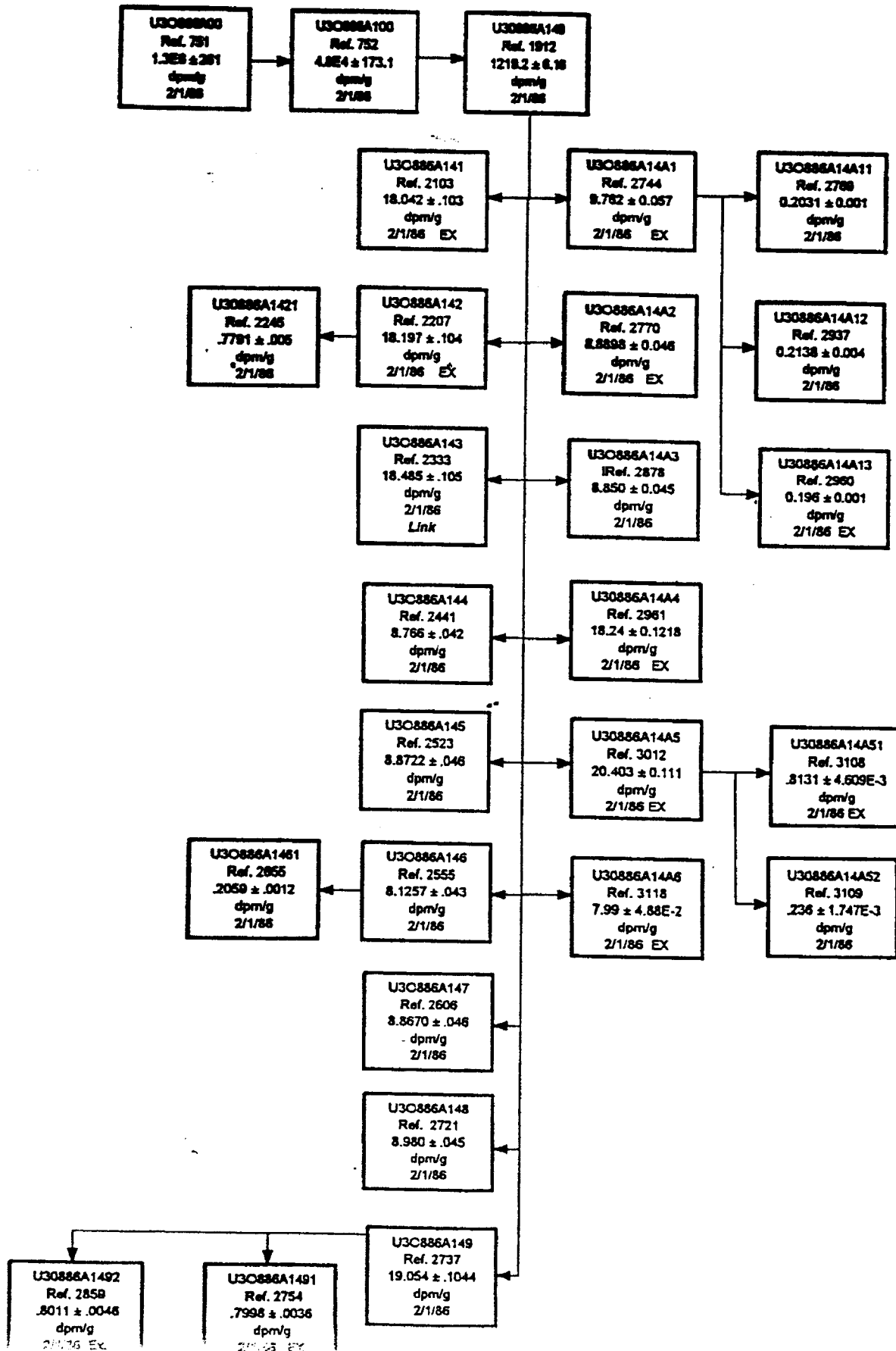
7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100) ^2$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100) ^2$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

12) % Total Uncertainty = $\sqrt{(\% \text{ error of Source Activity} ^2 + \% \text{ error of Wt. used} + \% \text{ error of Dilution Wt.})}$

**U308140
Link**



ISOTOPE DILUTION RECORD

1) Prepared by	<u>D.S.</u>	2) Date Prepared	<u>8/17/90</u>
3) Source Identification Number / Ref. Number	<u>U30886A140</u>		<u>1912</u>
4) Source Activity (dpm ± dpm/g)	<u>1.2192E+03</u>	±	<u>6.156E+00</u>
5) Source Activity (ug ± ug/g)	<u>7.9274E+02</u>		<u>4.0026E+00</u>
6) Percent error of Source Activity	<u>0.505</u>	%	
7) Weight of Source Material used (g)	<u>3.1482</u>		
8) (% Error) of Weight of Source Material used	<u>0.0232</u>	%	
9) Diluent	<u>2M HNO3</u>		
10) Total Weight of the Dilution (g)	<u>201.45</u>		
11) (% Error) of Total Weight of the Dilution	<u>0.0222</u>	%	
12) Specific Activity of Diluted Solution dpm/g	<u>1.9054E+01</u>	±	<u>1.044E-01</u>
13) Specific Activity of Diluted Solution ug/g	<u>1.2389E+01</u>	±	<u>6.791E-02</u>
14) Total Uncertainty	<u>0.548</u>	%	
15) Dilution Identification Number / Ref. Number	<u>U30886A149</u>		<u>2737</u>
16) Calibration Reference Date	<u>2/1/86</u>		
17) Isotope Inventory File update by/date	<u>W.G.</u>		<u>8/5/93</u>
18) Reviewed by/date	<u>D.S.</u>		<u>6/2/94</u>
19) Location	<u>LAB</u>	20) Exhausted	<u></u>

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CALCULATIONS

$$7) \% \text{ Error of Wt. used} = (0.0048 / \text{Weight of Source Material used} * 100) ^2$$

$$10) \% \text{ error of Dilution Wt.} = (0.3 / \text{Total Weight of Dilution} * 100) ^2$$

$$11) \text{ Specific Activity} = \text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$$

$$12) \% \text{ Total Uncertainty} = \sqrt{(\% \text{ error of Source Activity} ^2 + \% \text{ error of Wt. used} + \% \text{ error of Dilution Wt.})}$$

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G.</u>	2) Date Prepared	<u>12/5/90</u>
3) Source Identification Number / Ref. Number	<u>U30886A100</u>		<u>752</u>
4) Source Activity (dpm ± dpm/g)	<u>4.7985E+04</u>	±	<u>1.731E+02</u>
5) Source Activity (ug ± ug/g)	<u>3.1200E+04</u>		<u>1.1255E+02</u>
6) Percent error of Source Activity	<u>0.361</u>	%	
7) Weight of Source Material used (g)	<u>2.5515</u>		
8) (% Error) of Weight of Source Material used	<u>0.0354</u>	%	
9) Diluent	<u>2M HNO3</u>		
10) Total Weight of the Dilution (g)	<u>100.42</u>		
11) (% Error) of Total Weight of the Dilution	<u>0.0892</u>	%	
12) Specific Activity of Diluted Solution dpm/g	<u>1.2192E+03</u>	±	<u>6.156E+00</u>
13) Specific Activity of Diluted Solution ug/g	<u>7.9273E+02</u>	±	<u>4.003E+00</u>
14) Total Uncertainty	<u>0.505</u>	%	
15) Dilution Identification Number / Ref. Number	<u>U30886A140</u>		<u>1912</u>
16) Calibration Reference Date	<u>2/1/86</u>		
17) Isotope Inventory File update by/date	<u>W.G.</u>		<u>12/5/90</u>
18) Reviewed by/date	<u>D.S.</u>		<u>6/6/94</u>
19) Location	<u>L-10</u>	20) Exhausted	<u></u>

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CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100) ^2$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100) ^2$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

12) % Total Uncertainty = $\sqrt{(\% \text{ error of Source Activity} ^2 + \% \text{ error of Wt. used} + \% \text{ error of Dilution Wt.})}$

ISOTOPE DILUTION RECORD

1) Prepared by	<u>C.S.</u>	2) Date Prepared	<u>3/24/86</u>
3) Source Identification Number / Ref. Number	<u>U30886A000</u>		<u>751</u>
4) Source Activity (dpm ± dpm/g)	<u>1.3045E+06</u>	±	<u>2.610E+02</u>
5) Source Activity (ug ± ug/g)	<u>8.4818E+05</u>		<u>1.6970E+02</u>
6) Percent error of Source Activity	<u>0.02</u>	%	
7) Weight of Source Material used (g)	<u>3.3411</u>		
8) (% Error) of Weight of Source Material used	<u>0.0206</u>	%	
9) Diluent	<u>8M HNO3</u>		
10) Total Weight of the Dilution (g)	<u>90.83</u>		
11) (% Error) of Total Weight of the Dilution	<u>0.1091</u>	%	
12) Specific Activity of Diluted Solution dpm/g	<u>4.7985E+04</u>	±	<u>1.731E+02</u>
13) Specific Activity of Diluted Solution ug/g	<u>3.1200E+04</u>	±	<u>1.125E+02</u>
14) Total Uncertainty	<u>0.361</u>	%	
15) Dilution Identification Number / Ref. Number	<u>U30886A100</u>		<u>752</u>
16) Calibration Reference Date	<u>2/1/86</u>		
17) Isotope Inventory File update by/date	<u>D.D.</u>		<u>5/7/86</u>
18) Reviewed by/date	<u>D.M.</u>		<u>6/15/94</u>
19) Location	<u>PF-8</u>	20) Exhausted	<u>11/8/93</u>

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CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100) ^2$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100) ^2$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

12) % Total Uncertainty = $\sqrt{(\% \text{ error of Source Activity} ^2 + \% \text{ error of Wt. used} + \% \text{ error of Dilution Wt.})}$

ISOTOPE RECORD FORM

1) Isotope U-NAT 2) Reference Number #751
 3) Half Life Negligible Decay 4) Storage Location STD LAB
 5) Source Identification Number U3O886A000

CALIBRATION DATA

6) Activity as Received Units 1.304E+06 dpm/g
 7) Overall Uncertainty Percent 0.02%
 8) Reference Date / Time 1-Feb-86
 9) Activity dpm/g 1.304E+06 ± 2.61E+02 (0.02%) dpm/g
 10) Volume or Mass (ml/g) 10 g
 11) Calibrated by NBS
 12) Certificate Solution Number SRM 950B Uranium Oxide

SURVEY DATA

13) Date Received 2/1/86
 14) Surveyed by D.D. & A.V.R.
 15) Survey Reading (Beta/Gamma) cpm 100,000 cpm at Contact
 16) Survey Reading (Alpha) cpm Background

17) Activity Conversion (0.8481g U-nat / g U3O8) (0.99968) (1.538E+06 dpm / g U-nat) =
1.304E+06 ± 2.61E+02 (0.02%) dpm/g U3O8

18) Remarks MW U3O8 = (3 * 238.0289) + (8 * 15.9994) = 842.0819 g / mole U3O8
Material was ignited at 800°C in a crucible for 1 hr and cooled to room temperature in a sealed dessicator.

19) Isotope File Updated by D.D.
 20) QC Approved D.B.

National Bureau of Standards

Certificate

751

Standard Reference Material 950b

Uranium Oxide (U_3O_8)

(In Cooperation with the Department of Energy, New Brunswick Laboratory, Argonne, Illinois)

This material consists of normal uranium in the form of oxide, U_3O_8 . It is intended to provide a reference material of known uranium content.

CERTIFIED VALUE

Uranium Oxide (U_3O_8) . . . 99.968 \pm 0.020 percent

The stated uncertainty of ± 0.020 percent associated with the certified value is the linear sum of 0.0076 percent, which is the limit of the random error of the assay measurements at the 99 percent confidence level ($2.807 S_m$, where S_m is the standard error of the mean with $n = 24$), and 0.012 percent, the estimated upper limit of conceivable systematic errors including material variability. The above certified value is based on material heated at 800 °C for one hour in an open crucible in a muffle furnace and cooled in a desiccator. *It is important that the material be freshly ignited in this manner to obtain accurate results.*

The total impurities as determined by spectrochemical analysis are estimated to be less than 50 $\mu\text{g/g}$. The determined iron content is $\sim 3 \mu\text{g/g}$ and the determined vanadium content is $\sim 1 \mu\text{g/g}$. The assay of this material is based on the use of NBS Potassium Dichromate (SRM 136c), as the oxidizing agent as described in the NBL titrimetric method for the precise assay of uranium metal.^{1,2} The assay values obtained are compatible with those obtained from the assay of NBS Uranium Metal (SRM 960) and NBS Uranium Oxide (SRM 950a). The certified value for this lot of uranium oxide has also been confirmed using a coulometric procedure.

The atomic weights used in the calculations are: uranium, 238.029, and oxygen, 15.9994.

This material was prepared under contract with the National Lead Company of Ohio, Cincinnati, Ohio. Assay of the material was performed by N. M. Trahey of the New Brunswick Laboratory, Argonne, Illinois and J. R. Moody and W. Koch of the NBS Analytical Chemistry Division. Iron and vanadium were measured by B. I. Diamondstone and S. A. Wicks of the NBS Analytical Chemistry Division.

Overall direction and coordination of the technical measurements leading to the certification were performed under the chairmanship of I. L. Barnes.

The technical and support aspects involved in the preparation, certification, and issuance of this Standard Reference Material were coordinated through the Office of Standard Reference Materials by W. P. Reed.

Washington, D.C. 20234
March 1, 1978

J. Paul Cali, Chief
Office of Standard Reference Materials

(over)

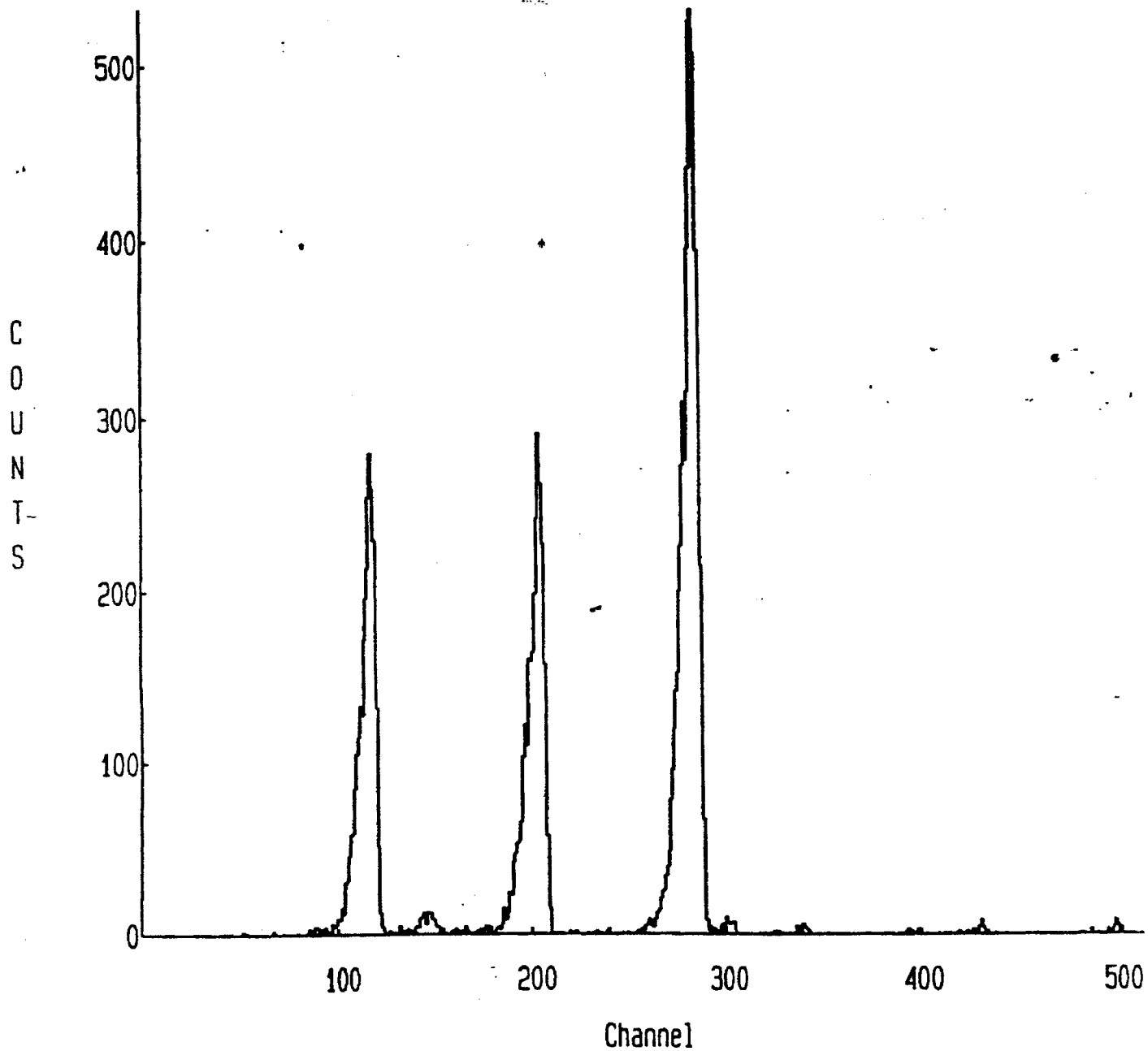
IT-NO # <i>Cal 626</i>	ISO	CUSTOMER ID <i>IT</i>	RECEIVE DATE	DUE DATE
SA TYPE:	RPT UNITS: PCI <i>DEM</i> 6 L CH <i>SA</i>		STORAGE	
PROC	VIAL			
GA	GB	CO	CS	
REQUESTED COUNTING TIME <i>1000</i>	REQ'D BY <i>CCG</i>	SAMPLE DATE/ON TIME <i>10-18-73</i>	SAMPLE DATE/OFF TIME	COUNTING DATE DAY MON YR TIME
TOTAL SAMPLE WEIGHT OR VOLUME	UNIT	SUGGESTED ALIQUOT	SAMPLE ANALYZED WEIGHT OR VOLUME	UNIT
				GEOMETRY CIRCLE ONE
				25 50 100 200 300 400 500 MA MB
TRACER ISOTOPE	TRACER UST NUMBER	TRACER VOLUME/WEIGHT	TRACER CONCENTRATE	TRACER REF DATE DAY MON YR
				14 44 64 83 108 208
COUNTING INSTRUMENT CHECK ONE				OTHER
NAI	3	5	9	GER
				ASPEC LEPD AGC BGC
SPIKE #		TECH COMMENTS		
BLANK #		<i>WJ</i> CCG-Data Cal C.K 232/L		

U-232

Spectrum: DUB1: [ALP5.SAMPLE] CAL626_201031223.CNF; 1

Title:

Sample Title: U IT



Start Time: 20-OCT-93 12:23

Sample Time: 19-OCT-93 12:00

FWHM Parameters:

Real Time: 0 16: 40: 05.00

Sample ID: CAL626

Offset: 8.06E+01

Live Time: 0 16: 40: 02.00

Sample Type: disk

Slope: 0.00E+00

SAMPLE IDENTIITY:

CAL626

TITLE : U IT

DETECTOR : ALP5 1

CONFIGURATION NAME : DUB1:[ALP5.SAMPLE]CAL626_201031223.CNF;1

ACQUIRE DATE of BACKGROUND: 25-SEP-1993 10:03:03

REPORT DATE : 21-Oct-93

SAMPLE DATE: 19-OCT-1993 12:00:00

ACQUIRE DATE: 20-OCT-1993 12:23:27

CALIB DATE : 27-SEP-1993 08:15:47

PRESET REAL TIME:

ELAPSED REAL TIME:

OFFSET : 3448.80 keV

CONSTANT FWHM : 8.00000 Channels

SLOPE : 6.53520 keV/C

SENSITIVITY : 4.00000 Std Dev's

QUAD COEFF : 2.798980E-04 keV/C^2

SUM SENSITIVITY: 1.00000 %

Alpha-Regions Report
(Version: 8-Oct-91)

Sample Identity: CAL626

Flags Key

Detector: ALP5 1
 Report Date: 21-Oct-93 05:06 AM
 Acquire Date: 20-OCT-1993 12:23:27.50
 Tracer Nuclide: U-232
 High Counts Limit: 36
 Sample Live Time: 1000 minutes
 Bkgrnd Live Time: 2500 minutes

P: Peak Identified
 I: Peak Intersect
 S: Single Non-peak Intersect
 M: Multiple Non-peak Intersect
 H: High Non-peak Sample Count
 A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrsc Count	Count Rate C/Min	Centrd Region		Left		Right		Flags	
					Energy keV	Width keV	Chnl	Chnl	Wdth Mult	Wdth Mult		
U-232	5488	89	23.6	0	5.464	5327.6	174.0	266	292	0.00	0.00	P
U-234	2631	3	1.2	0	2.630	4783.1	159.5	186	210	0.00	0.00	P
U-235	123	3	1.2	0	0.122	4403.3	198.4	127	157	0.00	0.00	P
U-238	2614	3	1.2	0	2.612	4203.3	138.6	103	124	0.00	0.00	P

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

-Alpha Spectrum Listing
(Version: 29-Jun-92)

Sample Identity: COL626
 Detector: MLP5 1
 Report Date: 21-Oct-93 05:06 AM
 Acquire Date: 20-OCT-1993 12:23:27.50

Flags Key
 Intersect Region: 0
 Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn			
0		1	0		51	9		101	5+		151	165+		201	1		251	10		301	0		351	3		401	0		451	4		501
		2	2		52	15		102	4+		152	199+		202	0		252	7		302	0		352	0		402	0		452	4		502
0		3	1		53	12+		103	1+		153	243+		203	1		253	6		303	0		353	0		403	0		453	0		503
0		4	1		54	30+		104	3+		154	291+		204	2		254	7		304	1		354	1		404	1		454	0		504
0		5	0		55	31+		105	1+		155	263+		205	0		255	7		305	0		355	0		405	0		455	0		505
0		6	0		56	45+		106	0+		156	228+		206	3		256	2		306	0		356	0		406	0		456	0		506
0		7	0		57	58+		107	0+		157	158+		207	2		257	0		307	0		357	0		407	0		457	0		507
0		8	0		58	59+		108	0		158	58+		208	5		258	0		308	0		358	0		408	1		458	0		508
0		9	0		59	85+		109	2		159	15+		209	6		259	0		309	0		359	0		409	0		459	0		509
0		10	0		60	105+		110	0		160	1+		210	8		260	0		310	0		360	1		410	0		460	0		510
0		11	0		61	115+		111	3		161	1		211	5		261	0		311	0		361	0		411	0		461	0		511
0		12	0		62	133+		112	2		162	0		212	4		262	0		312	0		362	0		412	0		462	0		512
0		13	0		63	128+		113	1		163	1		213	9		263	0		313	0		363	1		413	0		463			
0		14	0		64	172+		114	2		164	0		214	12		264	0		314	0		364	0		414	0		464			
0		15	0		65	196+		115	0		165	1		215	14		265	0		315	0		365	1		415	0		465			
0		16	0		66	214+		116	4		166	0		216	21+		266	0		316	0		366	1		416	0		466			
0		17	2		67	255+		117	2		167	0		217	25+		267	0		317	0		367	0		417	0		467			
0		18	0		68	280+		118	1		168	0		218	26+		268	1		318	0		368	0		418	0		468			
0		19	0		69	260+		119	0		169	2		219	34+		269	1		319	0		369	0		419	0		469			
0		20	0		70	230+		120	1		170	0		220	39+		270	0		320	0		370	2		420	0		470			
0		21	0		71	132+		121	1		171	0		221	48+		271	1		321	0		371	1		421	0		471			
0		22	1		72	51+		122	2		172	2		222	79+		272	0		322	0		372	1		422	0		472			
0		23	0		73	12+		123	0		173	1		223	96+		273	0		323	0		373	0		423	0		473			
0		24	0		74	4+		124	3		174	0		224	120+		274	1		324	1		374	2		424	0		474			
0		25	0		75	2		125	2		175	0		225	142+		275	0		325	0		375	1		425	0		475			
0		26	0		76	0		126	3		176	0		226	153+		276	2		326	0		376	1		426	0		476			
0		27	0		77	0+		127	5		177	0		227	201+		277	1		327	0		377	3		427	0		477			
0		28	0		78	2+		128	2		178	1		228	227+		278	2		328	0		378	2		428	0		478			
0		29	1		79	1+		129	4		179	0		229	273+		279	0		329	0		379	0		429	0		479			
0		30	0		80	0+		130	1		180	0		230	309+		280	1		330	0		380	5		430	1		480			
0		31	0		81	1+		131	0		181	1		231	276+		281	0		331	0		381	8		431	0		481			
0		32	0		82	1+		132	3		182	0		232	315+		282	0		332	0		382	4		432	1		482			
0		33	1		83	5+		133	4		183	2		233	396+		283	1		333	1		383	2		433	0		483			
0		34	0		84	0+		134	3		184	0		234	442+		284	1		334	0		384	2		434	0		484			
0		35	3		85	2+		135	6		185	1		235	527+		285	0		335	1		385	0		435	0		485			
0		36	0		86	0+		136	15+		186	0		236	533+		286	1		336	0		386	0		436	3		486			
0		37	0		87	3+		137	9+		187	0		237	508+		287	1		337	0		387	0		437	0		487			
0		38	4		88	2+		138	13+		188	2		238	395+		288	5		338	0		388	1		438	0		488			
0		39	4		89	2+		139	24+		189	3		239	215+		289	2		339	0		389	0		439	1		489			
0		40	0		90	1+		140	23+		190	0		240	67+		290	1		340	1		390	0		440	1		490			
1		41	3		91	4+		141	42+		191	0		241	8+		291	6		341	0		391	0		441	0		491			
0		42	2		92	4+		142	47+		192	0		242	2+		292	4		342	0		392	0		442	0		492			
1		43	4		93	9+		143	53+		193	0		243	4		293	3		343	1		393	1		443	1		493			
0		44	2		94	10+		144	55+		194	0		244	0		294	2		344	2		394	0		444	1		494			
0		45	2		95	12+		145	66+		195	0		245	3		295	0		345	3		395	0		445	3		495			
1		46	2		96	6+		146	104+		196	1		246	2		296	0		346	0		396	0		446	2		496			
0		47	6		97	13+		147	122+		197	0		247	1		297	0		347	2		397	0		447	2		497			
0		48	5		98	12+		148	111+		198	1		248	5		298	0		348	1		398	0		448	4		498			
0		49	6		99	9+		149	161+		199	1		249	6		299	0		349	1		399	0		449	8		499			
0		50	9		100	8+		150	160+		200	0		250	1		300	0		350	3		400	0		450	6		500			

```

Configuration      : DUB1:[ALPS.SAMPLE]CAL626_201031223.CNF:1
Analyses by       : ALPHA V1.5
Sample title      : U IT
Sample date       : 19-OCT-1993 12:00:00 Acquisition date : 20-OCT-1993 12:23:27
Sample ID        : CAL626 Sample quantity : 1.0000 SAMPLE
Sample type      : disk Sample geometry :
Elapsed live time: 0 16:40:02.00 Elapsed real time: 0 16:40:05.00 0.0%
Start energy     : 3468.41 End energy : 6868.19
Sensitivity      : 4.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	ZErr	Fit
1	0	4216.30	2614	0	52.28	116.86	103	21	4.36E-02	2.0	
2	0	4412.25	123	0	52.28	146.51	127	30	2.05E-03	9.0	
3	0	4788.64	2631	0	58.82	203.25	186	24	4.38E-02	1.9	
4	0	5327.62	5488	0	65.35	284.04	266	26	9.15E-02	1.3	
5	0	5448.75	59	0	45.75	302.12	293	16	9.83E-04	13.0	
6	0	6317.80	33	0	32.68	431.05	418	18	5.50E-04	17.4	
7	0	6780.92	36	0	32.68	499.20	492	13	6.00E-04	16.7	

```

Configuration      : DUB1:[ALP5.SAMPLE]CAL626_201031223.CNF;1
Analyses by       : ALPHA V1.5,PEAKEFF V2.2,NID V2.4
Sample title      : U IT
Sample date       : 19-OCT-1993 12:00:00 Acquisition date : 20-OCT-1993 12:23:27
Sample ID        : CAL626 Sample quantity : 1.0000 SAMPLE
Sample type      : disk Sample geometry :
Elapsed live time: 0 16:40:02.00 Elapsed real time: 0 16:40:05.00 0.0%
Energy tolerance : 80.00 Half life ratio : 1.00
Errors propagated: No Systematic Error : 0.00 %
Efficiency type  : Spline Efficiencies at : Peak Energy
Abundance limit  : 60.00
    
```

Summary of Nuclide Activity

```

Total number of lines in spectrum      7
Number of unidentified lines          3
Number of lines tentatively identified by NID 4      57.14%
    
```

Nuclide Type : ap

Nuclide	Hlife	Decay	Uncorrected DPM/SAMPLE	Decay Corr DPM/SAMPLE	Decay Corr O-Sigma Error	O-Sigma %Error	Flags
U-232	72.00Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
Total Activity :			0.000E+00	0.000E+00			

Nuclide Type : np

Nuclide	Hlife	Decay	Uncorrected DPM/SAMPLE	Decay Corr DPM/SAMPLE	Decay Corr O-Sigma Error	O-Sigma %Error	Flags
U-234	2.45E+05Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
U-235	7.04E+08Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
U-238	4.47E+09Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
Total Activity :			0.000E+00	0.000E+00			

Grand Total Activity : 0.000E+00 0.000E+00

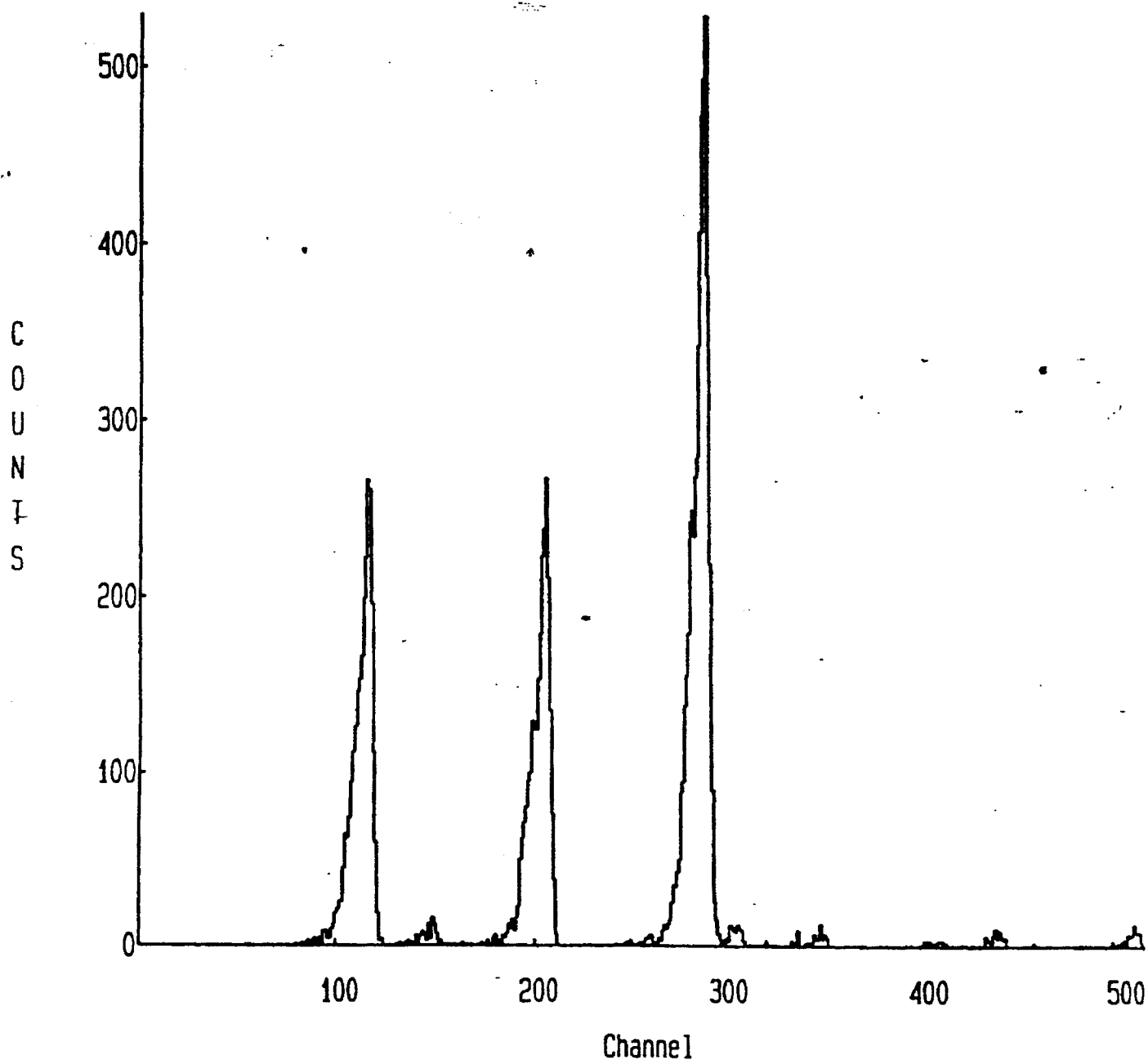
Flags: "K" = Keyline not found "M" = Manually accepted
 "E" = Manually edited "A" = Nuclide specific abn. limit

IT-RD # <i>Cal 627</i>	ISO	CUSTOMER ID <i>IT</i>	RECEIVE DATE	DUE DATE
SA TYPE:	RPT UNITS: PCI <i>(OPM)</i> 6 L CM <i>(SA)</i>		STORAGE	
PROC	VIAL			
GA	GB	CO	CS	
REQUESTED COUNTING TIME <i>1000</i>	REQ'D BY <i>CCG</i>	SAMPLE DATE/ON DATE <i>10-18-93</i>	SAMPLE DATE/OFF TIME	COUNTING DATE DAY MON YR <i>U-232</i>
TOTAL SAMPLE WEIGHT OR VOLUME	UNIT	SUGGESTED ALIQUOT	SAMPLE ANALYZED WEIGHT OR VOLUME	UNIT
			<i>SA</i>	25 50 100 200 300 400 500 MA MB
TRACER ISOTOPE	TRACER UST NUMBER	TRACER VOLUME/WEIGHT	TRACER CONCENTRATE	TRACER DAY MON YR
				14 44 64 83 108 208
COUNTING INSTRUMENT CHECK ONE				OTHER
NAI	3	5	9	GER
				ASPEC LEPD AGC BGC
SPIKE #		TECH COMMENTS		
BLANK #		<i>CCG-Data Cal CK 2326</i>		

Spectrum: DUB1: [ALP6.SAMPLE]CAL627_201031224.CNF; 1

Title:

Sample Title: U IT



Start Time: 20-OCT-93 12:24

Sample Time: 19-OCT-93 12:00

FWHM Parameters:

Real Time: 0 16:40:04.00

Sample ID: CAL627

Offset: 7.43E+01

Live Time: 0 16:40:03.00

Sample Type: disk

Slope: 0.00E+00

SAMPLE IDENTIITY: CAL627

TITLE : U IT

DETECTOR : ALP6 1
CONFIGURATION NAME : DUB1:[ALP6. SAMPLE]CAL627_201031224. CNF; 1

ACQUIRE DATE of BACKGROUND: 25-SEP-1993 10:05:46

REPORT DATE : 21-Oct-93 SAMPLE DATE: 19-OCT-1993 12:00:00
ACQUIRE DATE: 20-OCT-1993 12:24:15 CALIB DATE : 27-SEP-1993 08:17:50

PRESET REAL TIME: ELAPSED REAL TIME:

OFFSET : 3500.37 keV CONSTANT FWHM : 8.00000 Channels
SLOPE : 6.19229 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : 5.066170E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 8-Oct-91)

Sample Identity: CAL627

Flags Key

Detector: ALP6 1	
Report Date: 21-Oct-93 05:08 AM	P: Peak Identified
Acquire Date: 20-OCT-1993 12:24:15.00	I: Peak Intersect
Tracer Nuclide: U-232	S: Single Non-peak Intersect
High Counts Limit: 36	M: Multiple Non-peak Intersect
Sample Live Time: 1000 minutes	H: High Non-peak Sample Count
Bkgrnd Live Time: 2500 minutes	A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrsect Count	Count Rate C/Min	Centrd Region		Left Chnl	Right Chnl	Left Wdth	Right Wdth	Flags
					Energy keV	Width keV					
U-232	5106	101	0	5.065	5331.4	162.0	272	297	0.00	0.00	P
U-234	2412	5	0	2.410	4786.9	140.7	191	213	0.00	0.00	P
U-235	103	4	0	0.101	4407.1	164.8	130	156	0.00	0.00	P
U-238	2491	3	0	2.490	4207.1	151.3	99	123	0.00	0.00	P

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

Alpha Spectrum Listing
(Version: 29-Jun-92)

Sample Identity: CAL627
 Detector: MLP6 1
 Report Date: 21-Oct-93 05:00 AM
 Acquire Date: 20-OCT-1993 12:24:15.00

Flags Key
 Intersect Region: 0
 Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn						
0		1	0		51	21+		101	2+		151	125+		201	1		251	5		301	5		351	1		401	0		451	1		501
0		2	0		52	26+		102	3+		152	154+		202	1		252	3		302	1		352	3		402	0		452	4		502
0		3	0		53	26+		103	1+		153	188+		203	1		253	12		303	0		353	3		403	0		453	1		503
0		4	1		54	45+		104	1+		154	223+		204	1		254	11		304	0		354	0		404	0		454	7		504
0		5	0		55	64+		105	1+		155	238+		205	2		255	9		305	0		355	2		405	0		455	6		505
0		6	1		56	62+		106	1+		156	267+		206	1		256	8		306	0		356	1		406	2		456	7		506
0		7	0		57	74+		107	0		157	211+		207	2		257	12		307	0		357	3		407	0		457	13		507
0		8	0		58	94+		108	1		158	136+		208	4		258	18		308	0		358	3		408	0		458	9		508
0		9	0		59	111+		109	1		159	76+		209	4		259	9		309	0		359	3		409	0		459	8		509
0		10	0		60	127+		110	1		160	38+		210	6		260	3		310	0		360	2		410	0		460	8		510
0		11	0		61	147+		111	0		161	7+		211	6		261	0		311	1		361	2		411	0		461	3		511
0		12	0		62	154+		112	1		162	1+		212	2		262	0		312	0		362	0		412	0		462	1		512
0		13	0		63	167+		113	2		163	0+		213	2		263	1		313	0		363	0		413	0		463			
0		14	0		64	199+		114	0		164	0		214	2		264	0		314	0		364	1		414	1		464			
0		15	1		65	222+		115	1		165	0		215	5		265	1		315	0		365	0		415	0		465			
0		16	0		66	266+		116	1		166	0		216	3		266	0		316	0		366	0		416	0		466			
0		17	0		67	268+		117	1		167	0		217	9		267	1		317	0		367	0		417	0		467			
0		18	0		68	196+		118	1		168	0		218	12		268	1		318	0		368	1		418	0		468			
0		19	0		69	111+		119	0		169	1		219	10		269	1		319	1		369	1		419	0		469			
0		20	0		70	60+		120	0		170	1		220	13		270	0		320	0		370	1		420	0		470			
0		21	1		71	19+		121	1		171	0		221	15		271	3		321	0		371	0		421	0		471			
0		22	0		72	3+		122	0		172	1		222	25+		272	0		322	0		372	0		422	0		472			
0		23	0		73	4+		123	2		173	0		223	35+		273	1		323	0		373	0		423	1		473			
0		24	0		74	1		124	0		174	0		224	34+		274	1		324	0		374	1		424	0		474			
0		25	1		75	0		125	1		175	1		225	43+		275	1		325	0		375	0		425	0		475			
0		26	0		76	0		126	3		176	0		226	50+		276	1		326	0		376	0		426	0		476			
0		27	0		77	1		127	0		177	0		227	88+		277	1		327	0		377	0		427	0		477			
0		28	0		78	0		128	1		178	1		228	~94+		278	0		328	1		378	1		428	0		478			
0		29	1		79	0		129	5		179	1		229	139+		279	0		329	0		379	0		429	1		479			
0		30	1		80	1+		130	6		180	0		230	156+		280	0		330	0		380	0		430	1		480			
0		31	1		81	0+		131	1		181	0		231	180+		281	1		331	1		381	6		431	0		481			
0		32	0		82	2+		132	3		182	0		232	242+		282	0		332	0		382	4		432	1		482			
0		33	2		83	1+		133	1		183	0		233	249+		283	0		333	0		383	3		433	0		483			
0		34	1		84	0+		134	6		184	0		234	234+		284	3		334	0		384	2		434	1		484			
0		35	0		85	2+		135	5		185	0		235	268+		285	1		335	0		385	7		435	0		485			
0		36	3		86	3+		136	7		186	0		236	279+		286	1		336	0		386	10		436	0		486			
0		37	0		87	1+		137	12		187	0		237	343+		287	9		337	0		387	5		437	1		487			
0		38	2		88	2+		138	10		188	0		238	408+		288	0		338	0		388	9		438	0		488			
0		39	4		89	1+		139	15		189	0		239	475+		289	0		339	0		389	6		439	1		489			
0		40	4		90	6+		140	9		190	0		240	495+		290	1		340	0		390	4		440	1		490			
0		41	1		91	2+		141	16+		191	0		241	530+		291	2		341	1		391	5		441	1		491			
0		42	5		92	6+		142	23+		192	1		242	383+		292	2		342	0		392	1		442	0		492			
0		43	2		93	8+		143	50+		193	1		243	219+		293	2		343	1		393	0		443	0		493			
0		44	8		94	7+		144	62+		194	0		244	89+		294	2		344	1		394	0		444	1		494			
0		45	9		95	3+		145	71+		195	0		245	26+		295	7		345	0		395	0		445	0		495			
0		46	4		96	13+		146	80+		196	1		246	15+		296	4		346	0		396	0		446	3		496			
0		47	5		97	4+		147	95+		197	0		247	7+		297	4		347	0		397	0		447	0		497			
0		48	10		98	16+		148	100+		198	2		248	4		298	13		348	1		398	0		448	1		498			
0		49	13+		99	12+		149	130+		199	0		249	0		299	4		349	1		399	0		449	2		499			
0		50	19+		100	7+		150	125+		200	3		250	1		300	7		350	2		400	0		450	2		500			

Configuration : DUB1:[ALP6.SAMPLE]CAL627_201031224.CNF;1
 Analyses by : ALPHA V1.5
 Sample title : U IT
 Sample date : 19-OCT-1993 12:00:00 Acquisition date : 20-OCT-1993 12:24:15
 Sample ID : CAL627 Sample quantity : 1.0000 SAMPLE
 Sample type : disk Sample geometry :
 Elapsed live time: 0 16:40:03.00 Elapsed real time: 0 16:40:04.00 0.0%
 Start energy : 3518.95 End energy : 6803.62
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	ZErr	Fit
1	0	4215.91	2491	0	55.73	114.48	99	24	4.15E-02	2.0	
2	0	4423.09	103	0	43.35	147.24	130	26	1.72E-03	9.9	
3	0	4786.79	2412	0	55.73	204.33	191	22	4.02E-02	2.0	
4	0	5331.42	5106	0	49.54	288.87	272	25	8.51E-02	1.4	
5	0	5439.87	82	0	49.54	305.57	300	12	1.37E-03	11.0	
6	0	5717.20	69	0	30.96	348.09	334	20	1.15E-03	12.0	

Configuration : DUB1:[ALP6.SAMPLE]CAL627_201031224.CNF:1
 Analyses by : ALPHA V1.5,PEAKEFF V2.2,NID V2.4
 Sample title : U IT
 Sample date : 19-OCT-1993 12:00:00 Acquisition date : 20-OCT-1993 12:24:15
 Sample ID : CAL627 Sample quantity : 1.0000 SAMPLE
 Sample type : disk Sample geometry :
 Elapsed live time: 0 16:40:03.00 Elapsed real time: 0 16:40:04.00 0.0%
 Energy tolerance : 80.00 Half life ratio : 1.00
 Errors propagated: No Systematic Error : 0.00 %
 Efficiency type : Spline Efficiencies at : Peak Energy
 Abundance limit : 60.00

Summary of Nuclide Activity

Total number of lines in spectrum 6
 Number of unidentified lines 2
 Number of lines tentatively identified by NID 4 66.67%

Nuclide Type : ap

Nuclide	Hlife	Decay	Uncorrected DPM/SAMPLE	Decay Corr DPM/SAMPLE	Decay Corr 0-Sigma Error	0-Sigma %Error	Flags
U-232	72.00Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
Total Activity :			0.000E+00	0.000E+00			

Nuclide Type : np

Nuclide	Hlife	Decay	Uncorrected DPM/SAMPLE	Decay Corr DPM/SAMPLE	Decay Corr 0-Sigma Error	0-Sigma %Error	Flags
U-234	2.45E+05Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
U-235	7.04E+08Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
U-238	4.47E+09Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
Total Activity :			0.000E+00	0.000E+00			

Grand Total Activity : 0.000E+00 0.000E+00

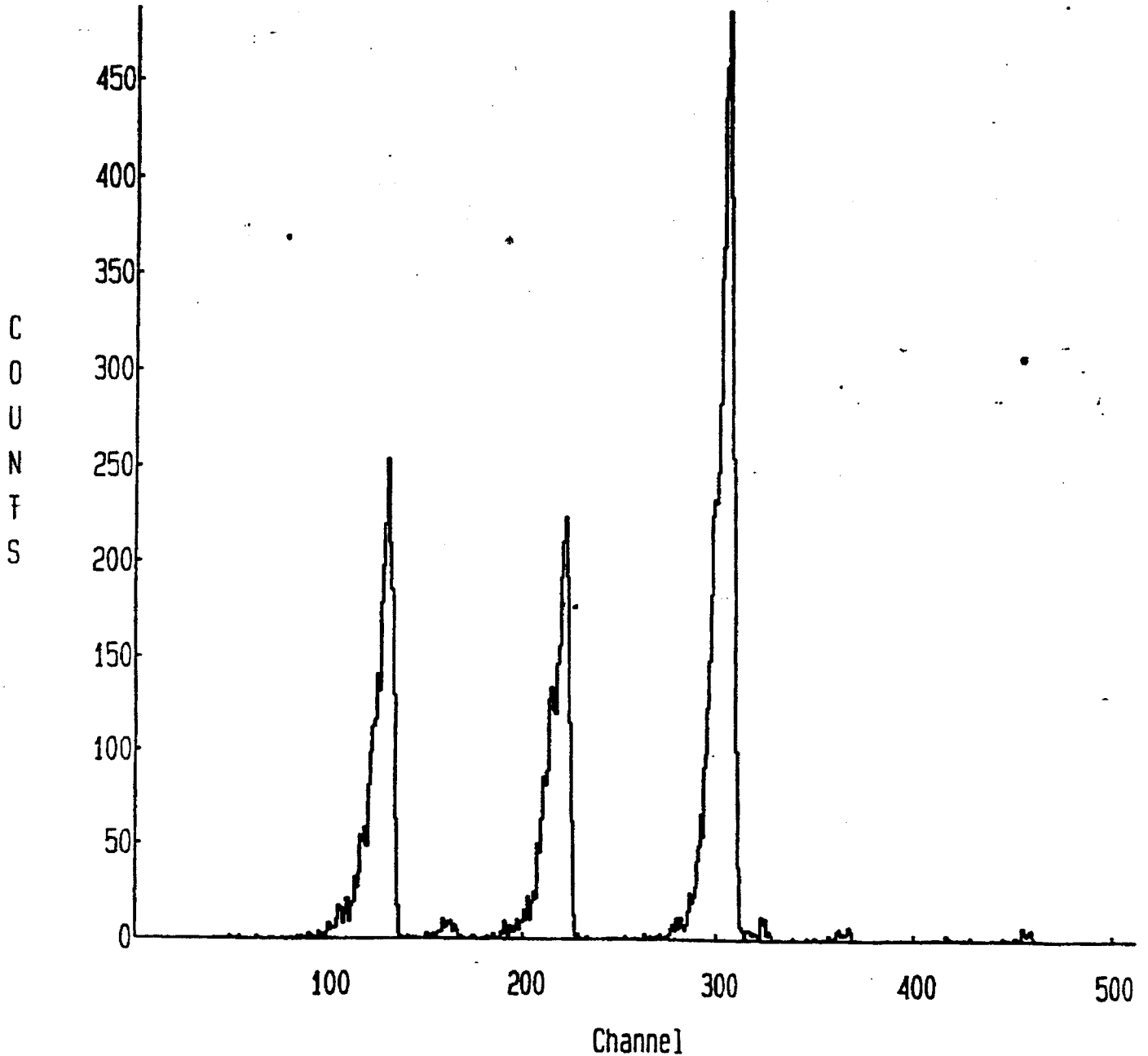
Flags: "K" = Keyline not found "M" = Manually accepted
 "E" = Manually edited "A" = Nuclide specific abn. limit

IT-RO # <i>Cal 628</i>	ISU	CUSTOMER ID <i>IT</i>	RECEIVE DATE	DUE DATE
SA TYPE:	RPT UNITS: PCI <input checked="" type="radio"/> <i>OPM</i> <input type="radio"/> <i>G L CM</i> <input checked="" type="radio"/> <i>SA</i>		STORAGE	
PROC	VIAL			
GA	GB	CO	CS	
REQUESTED COUNTING TIME	REQ'D BY	SAMPLE DATE/ON DATE	SAMPLE DATE/OFF TIME	COUNTING DATE DAY MON YR TIME
<i>1000</i>	<i>CCG</i>	<i>10-18-93</i>		<i>U-232</i>
TOTAL SAMPLE WEIGHT OR VOLUME	UNIT	SUGGESTED ALIQUOT	SAMPLE ANALYZED WEIGHT OR VOLUME	UNIT
				<i>SA</i>
TRACER ISOTOPE	TRACER LIST NUMBER	TRACER VOLUME/WEIGHT	TRACER CONCENTRATE	TRACER REF DATE DAY MON YR
COUNTING INSTRUMENT CHECK ONE				OTHER
NAI	3	5	9	GER
				<input checked="" type="checkbox"/> ASPEC
				<input type="checkbox"/> LEPO
				<input type="checkbox"/> ASC
				<input type="checkbox"/> BGC
Spike #				TECH
Blank #				COMMENTS
				<i>CCG-Data Cal CK 23266</i>

Spectrum: DUB1: [ALP7.SAMPLE] CAL628_201031225.CNF; 1

Title:

Sample Title: U IT



Start Time: 20-OCT-93 12:25

Sample Time: 19-OCT-93 12:00

FWHM Parameters:

Real Time: 0 16:40:01.00

Sample ID: CAL628

Offset: 7.30E+01

Live Time: 0 16:40:01.00

Sample Type: disk

Slope: 0.00E+00

SAMPLE IDENTIITY: CAL628

TITLE : U IT

DETECTOR : ALP7 1
CONFIGURATION NAME : DUB1:[ALP7. SAMPLE]CAL628_201031225. CNF; 1

ACQUIRE DATE of BACKGROUND: 25-SEP-1993 10:08:55

REPORT DATE : 21-Oct-93 SAMPLE DATE: 19-OCT-1993 12:00:00
ACQUIRE DATE: 20-OCT-1993 12:25:05 CALIB DATE : 27-SEP-1993 08:19:51

PRESET REAL TIME:

ELAPSED REAL TIME:

OFFSET : 3432.88 keV CONSTANT FWHM : 8.00000 Channels
SLOPE : 6.00798 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : 6.174230E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 8-Oct-91)

Sample Identity: CAL628

Flags Key

Detector: ALP7 1
 Report Date: 21-Oct-93 05:09 AM
 Acquire Date: 20-OCT-1993 12:25:05.04
 Tracer Nuclide: U-232
 High Counts Limit: 36
 Sample Live Time: 1000 minutes
 Bkgrnd Live Time: 2500 minutes

P: Peak Identified
 I: Peak Intersect
 S: Single Non-peak Intersect
 M: Multiple Non-peak Intersect
 H: High Non-peak Sample Count
 A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrsect Count	Count	Centrd Region		Left Chnl	Rght Chnl	Left Wdth	Rght Wdth	Flags
				Rate C/Min	Energy keV	Width keV					
U-232	5086	69	0	5.058	5328.1	185.0	285	314	0.00	0.00	P
U-234	2366	2	0	2.365	4783.6	175.6	200	228	0.00	0.00	P
U-235	94	5	0	0.092	4403.8	179.7	138	167	0.00	0.00	H
U-238	2584	2	0	2.583	4203.8	203.2	104	137	0.00	0.00	P

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

Alpha Spectrum Listing
(Version: 29-Jun-92)

Sample Identity: CAL628
 Detector: MLP7 1
 Report Date: 21-Oct-93 05:09 AM
 Acquire Date: 20-OCT-1993 12:25:05.04

Flags Key

Intersect Region: e
 Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
0	1	1	1	51	8	101	2-	151	15+	201	1	251	232+	301	0	351	0	401	2	451	1	501				
0	2	1	52	5	102	2-	152	18+	202	2	252	248+	302	0	352	0	402	2	452	0	502					
0	3	0	53	6	103	3-	153	22+	203	0	253	284+	303	0	353	0	403	1	453	0	503					
0	4	2	54	6+	104	1-	154	10+	204	0	254	349+	304	1	354	0	404	1	454	0	504					
0	5	0	55	10+	105	3-	155	19+	205	0	255	365+	305	1	355	0	405	7	455	0	505					
0	6	0	56	17+	106	4-	156	25+	206	1	256	443+	306	0	356	0	406	5	456	0	506					
0	7	0	57	16+	107	4-	157	21+	207	1	257	459+	307	3	357	1	407	3	457	1	507					
0	8	0	58	8+	108	10-	158	50+	208	1	258	488+	308	0	358	1	408	4	458	1	508					
0	9	0	59	13+	109	6-	159	45+	209	1	259	392+	309	1	359	1	409	6	459	0	509					
0	10	0	60	21+	110	7-	160	63+	210	0	260	255+	310	2	360	1	410	2	460	1	510					
0	11	0	61	9+	111	9-	161	85+	211	0	261	100+	311	5	361	1	411	1	461	0	511					
0	12	0	62	17+	112	9-	162	81+	212	3	262	38+	312	6	362	0	412	0	462	0	512					
0	13	2	63	19+	113	4-	163	89+	213	1	263	7+	313	3	363	1	413	1	463							
0	14	0	64	32+	114	7-	164	128+	214	0	264	5+	314	4	364	0	414	0	464							
0	15	0	65	27+	115	5-	165	134+	215	2	265	1	315	3	365	0	415	0	465							
0	16	0	66	34+	116	2-	166	122+	216	1	266	5	316	4	366	0	416	0	466							
0	17	0	67	54+	117	2-	167	120+	217	1	267	5	317	7	367	3	417	0	467							
0	18	0	68	51+	118	0	168	147+	218	2	268	5	318	5	368	2	418	0	468							
0	19	0	69	58+	119	1	169	156+	219	1	269	3	319	1	369	1	419	0	469							
0	20	1	70	48+	120	0	170	192+	220	3	270	4	320	0	370	1	420	0	470							
0	21	1	71	81+	121	0	171	211+	221	1	271	3	321	1	371	0	421	0	471							
0	22	1	72	99+	122	1	172	224+	222	0	272	2	322	0	372	1	422	0	472							
0	23	0	73	113+	123	2	173	192+	223	2	273	12	323	0	373	1	423	0	473							
0	24	0	74	117+	124	2	174	115+	224	2	274	9	324	0	374	0	424	0	474							
0	25	0	75	141+	125	1	175	62+	225	3	275	11	325	0	375	0	425	0	475							
0	26	1	76	132+	126	0	176	13+	226	6	276	3	326	0	376	1	426	0	476							
0	27	1	77	178+	127	0	177	2+	227	8	277	5	327	0	377	0	427	0	477							
0	28	1	78	198+	128	1	178	3+	228	5	278	3	328	0	378	0	428	0	478							
0	29	0	79	220+	129	1	179	0	229	11	279	0	329	0	379	2	429	0	479							
0	30	1	80	254+	130	1	180	1	230	6	280	0	330	0	380	0	430	0	480							
0	31	1	81	210+	131	2	181	0	231	11	281	1	331	0	381	0	431	0	481							
0	32	1	82	185+	132	0	182	0	232	7	282	1	332	0	382	0	432	0	482							
0	33	0	83	130+	133	0	183	2	233	5	283	0	333	0	383	0	433	0	483							
0	34	0	84	63+	134	3	184	0	234	8	284	0	334	0	384	0	434	0	484							
0	35	2	85	17+	135	0	185	0	235	15+	285	0	335	0	385	0	435	0	485							
0	36	0	86	2+	136	1	186	0	236	24+	286	0	336	0	386	0	436	0	486							
0	37	2	87	0+	137	0	187	0	237	19+	287	0	337	1	387	0	437	0	487							
0	38	1	88	1-	138	4	188	1	238	22+	288	1	338	0	388	0	438	0	488							
0	39	1	89	0-	139	3	189	0	239	28+	289	2	339	0	389	0	439	0	489							
0	40	0	90	2-	140	9	190	0	240	41+	290	1	340	0	390	1	440	0	490							
1	41	3	91	0-	141	4	191	0	241	49+	291	0	341	0	391	0	441	0	491							
0	42	2	92	1-	142	0	192	0	242	66+	292	0	342	0	392	0	442	0	492							
0	43	2	93	1-	143	7	193	1	243	54+	293	0	343	0	393	0	443	0	493							
0	44	1	94	1-	144	4	194	1	244	91+	294	0	344	1	394	1	444	0	494							
0	45	1	95	1-	145	4	195	1	245	99+	295	0	345	0	395	2	445	0	495							
1	46	4	96	1-	146	7	196	1	246	124+	296	2	346	0	396	0	446	0	496							
0	47	0	97	0-	147	10	197	0	247	149+	297	1	347	0	397	1	447	1	497							
0	48	3	98	0-	148	5	198	1	248	183+	298	0	348	0	398	1	448	0	498							
2	49	2	99	3-	149	9	199	0	249	225+	299	0	349	0	399	0	449	0	499							
0	50	4	100	3-	150	9+	200	0	250	234+	300	2	350	0	400	0	450	0	500							

```

Configuration      : DUB1: [ALP7. SAMPLE]CAL628_201031225. CNF: 1
Analyses by       : ALPHA V1.5
Sample title      : U IT
Sample date       : 19-OCT-1993 12:00:00 Acquisition date : 20-OCT-1993 12:25:05
Sample ID        : CAL628 Sample quantity : 1.0000 SAMPLE
Sample type      : disk Sample geometry :
Elapsed live time: 0 16:40:01.00 Elapsed real time: 0 16:40:01.00 0.0%
Start energy     : 3450.91 End energy : 6670.82
Sensitivity      : 4.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4216.78	2584	0	60.08	128.77	104	33	4.31E-02	2.0	
2	0	4780.94	2366	0	66.09	219.43	200	28	3.94E-02	2.1	
3	0	5328.08	5086	0	60.08	305.83	285	29	8.48E-02	1.4	
4	0	5444.79	69	0	30.04	324.08	315	15	1.15E-03	12.0	

VAX/VMS Nuclide Identification Report V2.8 Generated 21-OCT-1993 05:09:42

Configuration : DUB1: [ALP7. SAMPLE]CAL628_201031225. CNF; 1
 Analyses by : ALPHA V1. 5. PEAKEFF V2. 2. NID V2. 4
 Sample title : U IT
 Sample date : 19-OCT-1993 12:00:00 Acquisition date : 20-OCT-1993 12:25:05
 Sample ID : CAL628 Sample quantity : 1.0000 SAMPLE
 Sample type : disk Sample geometry :
 Elapsed live time: 0 16:40:01.00 Elapsed real time: 0 16:40:01.00 0.0%
 Energy tolerance : 80.00 Half life ratio : 1.00
 Errors propagated: No Systematic Error : 0.00 %
 Efficiency type : Spline Efficiencies at : Peak Energy
 Abundance limit : 60.00

Summary of Nuclide Activity

Total number of lines in spectrum 4
 Number of unidentified lines 1
 Number of lines tentatively identified by NID 3 75.00%

Nuclide Type : ap

Nuclide	Hlife	Decay	Uncorrected DPM/SAMPLE	Decay Corr DPM/SAMPLE	Decay Corr 0-Sigma Error	0-Sigma %Error	Flags
U-232	72.00Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
Total Activity :			0.000E+00	0.000E+00			

Nuclide Type : np

Nuclide	Hlife	Decay	Uncorrected DPM/SAMPLE	Decay Corr DPM/SAMPLE	Decay Corr 0-Sigma Error	0-Sigma %Error	Flags
U-234	2.45E+05Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
U-238	4.47E+09Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
Total Activity :			0.000E+00	0.000E+00			

Grand Total Activity : 0.000E+00 0.000E+00

Flags: "K" = Keyline not found
 "E" = Manually edited

"M" = Manually accepted
 "A" = Nuclide specific abn. limit

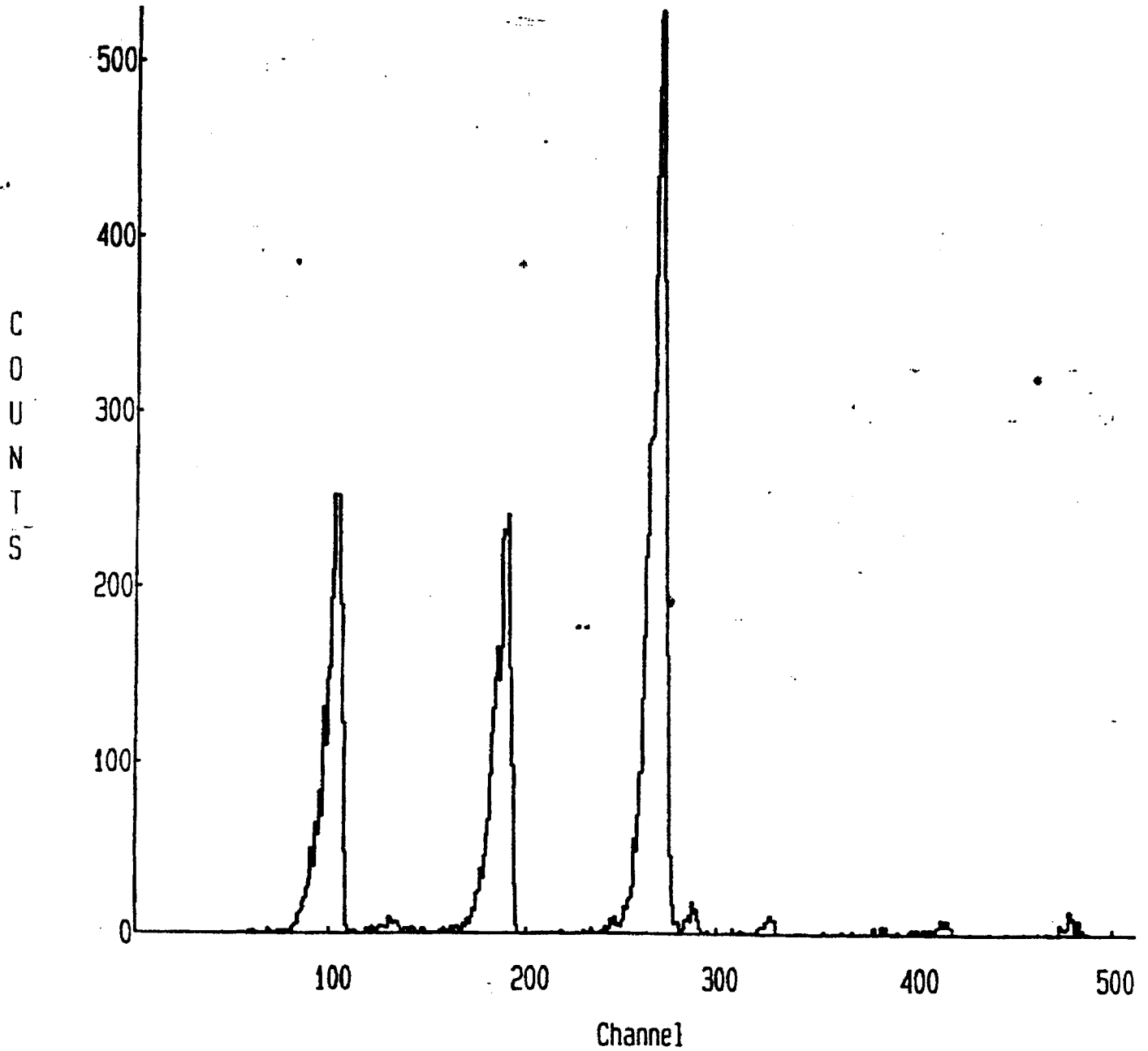
IT-RD # <i>Cal 629</i>	ISO	CUSTOMER ID <i>IT</i>	RECEIVE DATE	DUE DATE
SA TYPE:	RPT UNITS: PCI <i>(DPH)</i> <u> </u> G L CH <i>(SA)</i> <u> </u>		STORAGE	
PROC	VIAL			
GA	GB	CO	CS	
REQUESTED COUNTING TIME	REQ'D BY	SAMPLE DATE/ON DATE	SAMPLE DATE/OFF TIME	COUNTING DATE DAY MON YR TIME
<i>1000</i>	<i>CCG</i>	<i>10-18-93</i>		
TOTAL SAMPLE WEIGHT OR VOLUME	UNIT	SUGGESTED ALIQUOT	SAMPLE ANALYZED WEIGHT OR VOLUME	UNIT
				<i>ISA</i>
TRACER ISOTOPE	TRACER UST NUMBER	TRACER VOLUME/WEIGHT	TRACER CONCENTRATE	TRACER REP DATE DAY MON YR
COUNTING INSTRUMENT CHECK ONE				OTHER
NAI	3	5	9	GER
				ASPEC
				LEPD
				ASC
				BGC
Spike #		TECH		
Blank #		COMMENTS		
		<i>WA</i>		
<i>CCG Data Cal Ch 232LL</i>				

U-232

25 50 100 200 300 400 500 MA MB

14 44 64 83 108 208

Spectrum: DUB1: [ALP10.SAMPLE] CAL629_201031225.CNF; 1
Title:
Sample Title: U IT



Start Time: 20-OCT-93 12:25
Real Time: 0 16: 40: 01.00
Live Time: 0 16: 40: 01.00

Sample Time: 19-OCT-93 12:00
Sample ID: CAL629
Sample Type: disk

FWHM Parameters:
Offset: 5.91E+01
Slope: 0.00E+00

SAMPLE IDENTIITY:

CAL629

TITLE : U IT

DETECTOR : ALP10 1
CONFIGURATION NAME : DUB1: [ALP10. SAMPLE]CAL629_201031225. CNF; 1

ACQUIRE DATE of BACKGROUND: 02-OCT-1993 09:38:01

REPORT DATE : 21-Oct-93 SAMPLE DATE: 19-OCT-1993 12:00:00
ACQUIRE DATE: 20-OCT-1993 12:25:55 CALIB DATE : 05-OCT-1993 08:52:11

PRESET REAL TIME:

ELAPSED REAL TIME:

OFFSET : 3525.60 keV CONSTANT FWHM : 8.00000 Channels
SLOPE : 6.56733 keV/C SENSITIVITY : 4.00000 Std Dev's
QUAD COEFF : 3.217460E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

alpha regions report
(Version: 8-Oct-91)

Sample Identity: CAL629

Detector: ALP10 1
 Report Date: 21-Oct-93 05:10 AM
 Acquire Date: 20-OCT-1993 12:25:55.87
 Tracer Nuclide: U-232
 High Counts Limit: 36
 Sample Live Time: 1000 minutes
 Bkgrnd Live Time: 2500 minutes

Flags Key

P: Peak Identified
 I: Peak Intersect
 S: Single Non-peak Intersect
 M: Multiple Non-peak Intersect
 H: High Non-peak Sample Count
 A: Altered via ALP-RGN-EDIT

Nuclide Name	Smp1 Count	Bkg Count	Intrsc Count	Count Rate C/Min	Centrd Region		Left Chnl	Right Chnl	Left Wdth	Right Wdth	Flags
					Energy keV	Width keV					
U-232	5276	82	0	5.243	5315.6	155.0	254	277	0.00	0.00	P
U-234	2522	6	0	2.520	4771.1	160.5	172	196	0.00	0.00	P
U-235	87	3	0	0.086	4391.3	152.9	116	139	0.00	0.00	H
U-238	2571	2	0	2.570	4191.3	165.8	85	110	0.00	0.00	P

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

Sample Identity: CAL629
Detector: ALP10 1
Report Date: 21-Oct-93 05:11 AM
Acquire Date: 20-OCT-1993 12:25:55.87

Flags Key
Intersect Region: e
Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
0	1	0	51	194+	101	0	151	0	201	15	251	0	301	0	351	3	401	0	451	0	501								
0	2	0	52	210+	102	1	152	0	202	20	252	0	302	0	352	1	402	0	452	0	502								
0	3	1	53	253+	103	0	153	1	203	22	253	0	303	1	353	0	403	0	453	0	503								
0	4	0	54	252+	104	0	154	0	204	28+	254	0	304	2	354	3	404	0	454	0	504								
0	5	1	55	252+	105	2	155	1	205	56+	255	0	305	0	355	3	405	1	455	0	505								
0	6	1	56	190+	106	0	156	0	206	49+	256	1	306	0	356	0	406	0	456	0	506								
0	7	0	57	124+	107	3	157	1	207	70+	257	0	307	0	357	3	407	0	457	0	507								
0	8	0	58	48+	108	1	158	1	208	94+	258	0	308	0	358	3	408	0	458	0	508								
0	9	2	59	5+	109	2	159	0	209	95+	259	3	309	1	359	2	409	0	459	0	509								
0	10	0	60	1+	110	2	160	1	210	130+	260	0	310	0	360	1	410	0	460	0	510								
0	11	2	61	2	111	4	161	0	211	173+	261	1	311	1	361	4	411	0	461	0	511								
0	12	0	62	1	112	1	162	0	212	210+	262	1	312	0	362	5	412	1	462	0	512								
0	13	1	63	2	113	4	163	1	213	251+	263	2	313	2	363	9	413	0	463	0	513								
0	14	0	64	0	114	4	164	1	214	282+	264	0	314	0	364	5	414	0	464	0	514								
0	15	0	65	0	115	2	165	0	215	285+	265	1	315	0	365	8	415	0	465	0	515								
0	16	1	66	0+	116	2	166	1	216	287+	266	1	316	0	366	8	416	1	466	0	516								
0	17	0	67	0+	117	6	167	0	217	312+	267	1	317	0	367	5	417	1	467	0	517								
0	18	0	68	0+	118	4	168	2	218	379+	268	1	318	2	368	4	418	0	468	0	518								
0	19	3	69	3+	119	9	169	1	219	436+	269	1	319	1	369	0	419	0	469	0	519								
0	20	2	70	3+	120	6	170	0	220	487+	270	1	320	0	370	0	420	0	470	0	520								
0	21	1	71	1+	121	10	171	0	221	525+	271	0	321	0	371	0	421	0	471	0	521								
0	22	1	72	4+	122	15+	172	0	222	530+	272	3	322	1	372	0	422	1	472	0	522								
0	23	1	73	3+	123	14+	173	0	223	376+	273	4	323	0	373	0	423	0	473	0	523								
0	24	2	74	2+	124	24+	174	0	224	162+	274	4	324	1	374	0	424	0	474	0	524								
0	25	2	75	3+	125	26+	175	1	225	46+	275	4	325	1	375	0	425	0	475	0	525								
0	26	2	76	5+	126	39+	176	1	226	17+	276	7	326	0	376	0	426	0	476	0	526								
0	27	2	77	4+	127	33+	177	0	227	6+	277	8	327	1	377	0	427	0	477	0	527								
0	28	2	78	4+	128	46+	178	0	228	7	278	11	328	0	378	1	428	0	478	0	528								
0	29	1	79	3+	129	58+	179	2	229	7	279	8	329	4	379	0	429	0	479	0	529								
0	30	2	80	10+	130	67+	180	0	230	2	280	8	330	0	380	0	430	0	480	0	530								
0	31	2	81	8+	131	93+	181	1	231	2	281	1	331	0	381	0	431	0	481	0	531								
0	32	4	82	6+	132	118+	182	1	232	3	282	0	332	1	382	0	432	0	482	0	532								
0	33	6	83	7+	133	132+	183	3	233	8	283	0	333	5	383	0	433	0	483	0	533								
0	34	6	84	7+	134	149+	184	1	234	8	284	0	334	0	384	0	434	0	484	0	534								
0	35	12+	85	4+	135	167+	185	1	235	11	285	0	335	5	385	0	435	0	485	0	535								
0	36	14+	86	2+	136	148+	186	0	236	7	286	0	336	1	386	0	436	0	486	0	536								
0	37	19+	87	2+	137	167+	187	1	237	19	287	0	337	1	387	1	437	1	487	0	537								
0	38	21+	88	3+	138	228+	188	2	238	13	288	0	338	0	388	0	438	1	488	0	538								
0	39	27+	89	3+	139	233+	189	1	239	15	289	0	339	1	389	0	439	0	489	0	539								
0	40	32+	90	1	140	231+	190	4	240	8	290	1	340	0	390	0	440	0	490	0	540								
0	41	50+	91	4	141	242+	191	2	241	3	291	1	341	2	391	0	441	0	491	0	541								
0	42	40+	92	3	142	155+	192	3	242	1	292	0	342	0	392	0	442	0	492	0	542								
0	43	65+	93	0	143	98+	193	9	243	1	293	1	343	0	393	0	443	0	493	0	543								
0	44	58+	94	1	144	29+	194	6	244	1	294	0	344	0	394	0	444	0	494	0	544								
0	45	83+	95	1	145	5+	195	10	245	2	295	1	345	0	395	0	445	0	495	0	545								
1	46	69+	96	3	146	0+	196	5	246	1	296	0	346	0	396	1	446	0	496	0	546								
0	47	133+	97	3	147	0	197	6	247	0	297	0	347	2	397	0	447	0	497	0	547								
0	48	110+	98	1	148	0	198	4	248	0	298	0	348	3	398	0	448	0	498	0	548								
0	49	148+	99	0	149	1	199	8	249	0	299	0	349	0	399	0	449	0	499	0	549								
0	50	155+	100	1	150	0	200	16	250	1	300	0	350	0	400	0	450	0	500	0	550								

Configuration : DUB1: [ALP10. SAMPLE]CAL629_201031225. CNF: 1
 Analyses by : ALPHA V1.5
 Sample title : U IT
 Sample date : 19-OCT-1993 12:00:00 Acquisition date : 20-OCT-1993 12:25:55
 Sample ID : CAL629 Sample quantity : 1.0000 SAMPLE
 Sample type : disk Sample geometry :
 Elapsed live time: 0 16:40:01.00 Elapsed real time: 0 16:40:01.00 0.0%
 Start energy : 3545.31 keV End energy : 6972.42 keV
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	ZErr	Fit
1	0	4204.02	2571	0	52.54	102.78	85	25	4.28E-02	2.0	
2	0	4770.82	2522	0	65.67	187.88	172	24	4.20E-02	2.0	
3	0	5315.62	5276	0	65.67	269.02	254	23	8.79E-02	1.4	
4	0	5437.69	122	0	45.97	287.11	273	22	2.03E-03	9.1	
5	0	5711.89	73	0	39.40	327.64	306	28	1.22E-03	11.7	
6	0	6301.29	72	0	45.97	414.24	395	26	1.20E-03	11.8	
7	0	6747.47	78	0	39.40	479.33	471	18	1.30E-03	11.3	

Configuration : DUB1: [ALP10. SAMPLE]CAL629_201031225. CNF; 1
 Analyses by : ALPHA V1.5, PEAKEFF V2.2, NID V2.4
 Sample title : U IT
 Sample date : 19-OCT-1993 12:00:00 Acquisition date : 20-OCT-1993 12:25:55
 Sample ID : CAL629 Sample quantity : 1.0000 SAMPLE
 Sample type : disk Sample geometry :
 Elapsed live time: 0 16:40:01.00 Elapsed real time: 0 16:40:01.00 0.0%
 Energy tolerance : 80.00 keV Half life ratio : 1.00
 Errors propagated: No Systematic Error : 0.00 %
 Efficiency type : Spline Efficiencies at : Peak Energy
 Abundance limit : 60.00

Summary of Nuclide Activity

Total number of lines in spectrum 7
 Number of unidentified lines 4
 Number of lines tentatively identified by NID 3 42.86%

Nuclide Type : ap

Nuclide	Hlife	Decay	Uncorrected DPM/SAMPLE	Decay Corr DPM/SAMPLE	Decay Corr 1-Sigma Error	1-Sigma ZError	Flags
U-232	72.00Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
Total Activity :			0.000E+00	0.000E+00			

Nuclide Type : np

Nuclide	Hlife	Decay	Uncorrected DPM/SAMPLE	Decay Corr DPM/SAMPLE	Decay Corr 1-Sigma Error	1-Sigma ZError	Flags
U-234	2.45E+05Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
U-232	4.47E+09Y	1.000	0.000E+00	0.000E+00	0.000E+00	0.00	
Total Activity :			0.000E+00	0.000E+00			

Grand Total Activity : 0.000E+00 0.000E+00

Flags: "K" = Keyline not found "M" = Manually accepted
 "E" = Manually edited "A" = Nuclide specific abn. limit

Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
Parent Standard:		U3O886A1362	Ref: 3/22/2005	3.5107E+01 ± 1.950E-01	UG/G	
UISG1567	U	5.2801E+00 ± 2.975E-02 UG	0.1504 g	12/11/2007 12/11/2007	Armstron	3.5107E+01 ± 1.950E-01 UG/G

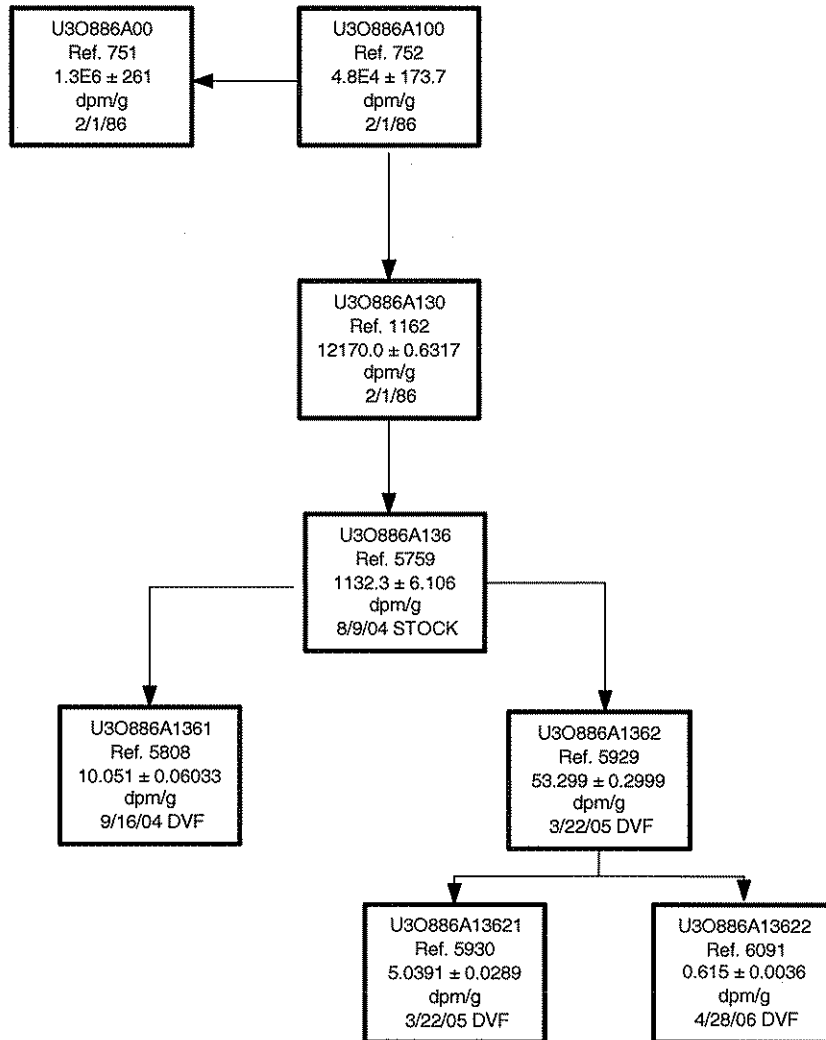
5.2801E+000 ± 5.280E+000 (1)

5.2801E+000 , 5.2801E+000

Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
Parent Standard:		U3O886A1362	Ref: 3/22/2005	5.3995E+01	± 2.999E-01	DPM/G
UISG1567	UIO	8.1208E+00 ± 4.575E-02 DPM	0.1504 g	12/11/2007 12/11/2007	Armstron	5.3995E+01 ± 2.999E-01 DPM/G

8.1208E+000 ± 8.121E+000 (1) 8.1208E+000 , 8.1208E+000

U3088A136
Link



ISOTOPE DILUTION RECORD

1) Prepared by <u>tda</u>	2) Date Prepared	<u>5/8/2006</u>
3) Source Identification Number / Ref. Number	<u>U30886A1362</u>	<u>5929</u>
4) Source Activity (dpm ± dpm/g)	<u>5.3995E+01</u>	± <u>2.999E-01</u>
5) Source Activity (ug ± ug/g)	<u>3.5107E+01</u>	<u>1.9499E-01</u>
6) Percent error of Source Activity	<u>0.555</u>	%
7) Weight of Source Material used (g)	<u>14.4649</u>	
8) (% Error) of Weight of Source Material used	<u>0.0011</u>	%
9) Diluent	<u>2M HNO3</u>	
10) Total Weight of the Dilution (g)	<u>250</u>	
11) (% Error) of Total Weight of the Dilution	<u>0.0144</u>	%
12) Specific Activity of Diluted Solution dpm/g	<u>3.1241E+00</u>	± <u>1.777E-02</u>
13) Specific Activity of Diluted Solution ug/g	<u>2.0313E+00</u>	± <u>1.155E-02</u>
14) Specific Activity of Diluted Solution ug/ml	<u>2.1654E+00</u>	± <u>1.232E-02</u>
15) Total Uncertainty	<u>0.569</u>	%
16) Dilution Identification Number / Ref. Number	<u>U30886A13623</u>	<u>6103</u>
17) Calibration Reference Date	<u>3/22/2005</u>	
18) Isotope Inventory File update by/date	<u>tda</u>	<u>6/8/2006</u>
19) Reviewed by/date	<u>J.C.</u>	<u>8/7/2006</u>
20) Location <u>QCLAB</u>	21) Exhausted	

CALCULATIONS

8) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100) ^2$

11) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100) ^2$

12-13) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

15) % Total Uncertainty = $\sqrt{(\% \text{ error of Source Activity} ^2 + \% \text{ error of Wt. used} + \% \text{ error of Dilution Wt.})}$

Form: CC-006, 5/5/94, Rev 2

ISOTOPE DILUTION RECORD

1) Prepared by tda 2) Date Prepared 4/28/2006

3) Source Identification Number / Ref. Number U30886A1362 5929

4) Source Activity (dpm ± dpm/g) 5.3995E+01 ± 2.999E-01

5) Source Activity (ng ± ng/g) 3.5107E+04 ± 1.950E+03

6) Percent error of Source Activity 0.555 %

7) Weight of Source Material used (g) 3.008

8) (% Error) of Weight of Source Material used 0.1596 %

9) Diluent 2 M HNO3

10) Total Weight of the Dilution (g) 263.98

11) (% Error) of Total Weight of the Dilution 0.1136 %

12) Specific Activity of Diluted Solution dpm/g 6.1526E-01 ± 3.621E-03

13) Specific Activity of Diluted Solution ng/g 400.0405516 ± 2.354483147

14) Specific Activity of Diluted Solution ng/mL 4.0880E+02 ± 2.406E+00

15) Total Uncertainty 0.589 %

16) Dilution Identification Number / Ref. Number U30886A13622 6091

17) Calibration Reference Date 4/28/2006

18) Isotope Inventory File update by/date tda tda

19) Reviewed by/date _____

20) Location QCLAB 21) Exhausted _____

CALCULATIONS

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

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

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

15) % Total Uncertainty = $\sqrt{(\% \text{ error of Source Activity})^2 + (\% \text{ error of Wt. Used})^2 + (\% \text{ error of Dilution Wt.})^2}$

ISOTOPE DILUTION RECORD

1) Prepared by W.G 2) Date Prepared 9/16/2004

3) Source Identification Number / Ref. Number U30886A136 5759

4) Source Activity (dpm ± dpm/g) 1.1323E+03 ± 6.106E+00

5) Source Activity (ug ± ug/g) 7.3622E+02 3.9701E+00

6) Percent error of Source Activity 0.539 %

7) Weight of Source Material used (g) 2.0783

8) (% Error) of Weight of Source Material used 0.2310 %

9) Diluent 2M HNO3-P0400528

10) Total Weight of the Dilution (g) 234.14

11) (% Error) of Total Weight of the Dilution 0.1281 %

12) Specific Activity of Diluted Solution dpm/g 1.0051E+01 ± 6.033E-02

13) Specific Activity of Diluted Solution ug/g 6.5349E+00 ± 3.922E-02

14) Total Uncertainty 0.600 %

15) Dilution Identification Number / Ref. Number U30886A1361 5808

16) Calibration Reference Date 9/16/2004

17) Isotope Inventory File update by/date W.G 9/16/2004

18) Reviewed by/date sew 9/21/2004

19) Location QCLB/STWT1049 20) Exhausted _____

CALCULATIONS

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

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

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

14) % Total Uncertainty = $\sqrt{(\% \text{ error of Source Activity})^2 + (\% \text{ error of Wt. Used})^2 + (\% \text{ error of Dilution Wt.})^2}$

ISOTOPE DILUTION RECORD

1) Prepared by	<u>W.G</u>	2) Date Prepared	<u>8/9/2004</u>
3) Source Identification Number / Ref. Number	<u>U30886A130</u>	<u>1162</u>	
4) Source Activity (dpm ± dpm/g)	<u>1.2170E+04</u>	±	<u>6.317E-01</u>
5) Source Activity (ug ± ug/g)	<u>7.9129E+03</u>		<u>4.1073E-01</u>
6) Percent error of Source Activity	<u>0.519</u>	%	
7) Weight of Source Material used (g)	<u>19.3584</u>		
8) (% Error) of Weight of Source Material used	<u>0.0248</u>	%	
9) Diluent	<u>2M HNO3-P0400528</u>		
10) Total Weight of the Dilution (g)	<u>208.06</u>		
11) (% Error) of Total Weight of the Dilution	<u>0.1442</u>	%	
12) Specific Activity of Diluted Solution dpm/g	<u>1.1323E+03</u>	±	<u>6.106E+00</u>
13) Specific Activity of Diluted Solution ug/g	<u>7.3623E+02</u>	±	<u>3.970E+00</u>
14) Total Uncertainty	<u>0.539</u>	%	
15) Dilution Identification Number / Ref. Number	<u>U30886A136</u>	<u>5759</u>	
16) Calibration Reference Date	<u>8/9/2004</u>		
17) Isotope Inventory File update by/date	<u>W.G</u>		<u>8/9/2004</u>
18) Reviewed by/date	<u>sew</u>		<u>8/11/2004</u>
19) Location <u>QCLB/STWT1026</u>	20) Exhausted		

CALCULATIONS

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

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

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

14) % Total Uncertainty = $\sqrt{(\% \text{ error of Source Activity } ^2 + \% \text{ error of Wt. Used } ^2 + \% \text{ error of Dilution Wt. } ^2)}$

ISOTOPE DILUTION RECORD

1) Prepared by S.S 2) Date Prepared 9/14/1987

3) Source Identification Number / Ref. Num U30886A100 **752**

4) Source Activity (dpm ± dpm/g) 4.7985E+04 ± 1.731E+02

5) Source Activity (ug ± ug/g) 3.1200E+04 1.1255E+02

6) Percent error of Source Activity 0.361 %

7) Weight of Source Material used (g) 20.4345

8) (% Error) of Weight of Source Material used 0.0005 %

9) Diluent 2M HNO3

10) Total Weight of the Dilution (g) 80.57

11) (% Error) of Total Weight of the Dilution 0.1386 %

12) Specific Activity of Diluted Solution dpm 1.2170E+04 ± 6.317E+01

13) Specific Activity of Diluted Solution ug/g 7.9130E+03 ± 4.107E+01

14) Total Uncertainty 0.519 %

15) Dilution Identification Number / Ref. Num U30886A130 **1162**

16) Calibration Reference Date 2/1/1986

17) Isotope Inventory File update by/date S.S. 9/14/1987

18) Reviewed by/date D.M. 6/14/1994

19) Location PF-9 20) Exhausted 12/13/1990

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100) ^2$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100) ^2$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

12) % Total Uncertainty = $\sqrt{(\% \text{ error of Source Activity} ^2 + \% \text{ error of Wt. used} + \% \text{ error of Dilution Wt.})}$

ISOTOPE DILUTION RECORD

1) Prepared by	<u>C.S.</u>	2) Date Prepared	<u>3/24/86</u>
3) Source Identification Number / Ref. Number	<u>U3O886A000</u>	<u>751</u>	
4) Source Activity (dpm ± dpm/g)	<u>1.3045E+06</u>	±	<u>2.610E+02</u>
5) Source Activity (ug ± ug/g)	<u>8.4818E+05</u>		<u>1.6970E+02</u>
6) Percent error of Source Activity	<u>0.02</u>		%
7) Weight of Source Material used (g)	<u>3.3411</u>		
8) (% Error) of Weight of Source Material used	<u>0.0206</u>		%
9) Diluent	<u>8M HNO3</u>		
10) Total Weight of the Dilution (g)	<u>90.83</u>		
11) (% Error) of Total Weight of the Dilution	<u>0.1091</u>		%
12) Specific Activity of Diluted Solution dpm/g	<u>4.7985E+04</u>	±	<u>1.731E+02</u>
13) Specific Activity of Diluted Solution ug/g	<u>3.1200E+04</u>	±	<u>1.125E+02</u>
14) Total Uncertainty	<u>0.361</u>		%
15) Dilution Identification Number / Ref. Number	<u>U3O886A100</u>	<u>752</u>	
16) Calibration Reference Date	<u>2/1/86</u>		
17) Isotope Inventory File update by/date	<u>D.D.</u>		<u>5/7/86</u>
18) Reviewed by/date	<u>D.M.</u>		<u>6/15/94</u>
19) Location	<u>PF-8</u>	20) Exhausted	<u>11/8/93</u>

CALCULATIONS

$$7) \% \text{ Error of Wt. used} = (0.0048 / \text{Weight of Source Material used} * 100) ^2$$

$$10) \% \text{ error of Dilution Wt.} = (0.3 / \text{Total Weight of Dilution} * 100) ^2$$

$$11) \text{ Specific Activity} = \text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$$

$$12) \% \text{ Total Uncertainty} = \sqrt{(\% \text{ error of Source Activity} ^2 + \% \text{ error of Wt. used} + \% \text{ error of Dilution Wt.})}$$

ISOTOPE RECORD FORM

1) Isotope U-NAT 2) Reference Number #751
 3) Half Life Negligible Decay 4) Storage Location STD LAB
 5) Source Identification Number U3O886A000

 CALIBRATION DATA

6) Activity as Received Units 1.304E+06 dpm/g
 7) Overall Uncertainty Percent 0.02%
 8) Reference Date / Time 1-Feb-86
 9) Activity dpm/g 1.304E+06 ± 2.61E+02 (0.02%) dpm/g
 10) Volume or Mass (ml/g) 10 g
 11) Calibrated by NBS
 12) Certificate Solution Number SRM 950B Uranium Oxide

 SURVEY DATA

13) Date Received 2/1/86
 14) Surveyed by D.D. & A.V.R.
 15) Survey Reading (Beta/Gamma) cpm 100,000 cpm at Contact
 16) Survey Reading (Alpha) cpm Background

 17) Activity Conversion (0.8481g U-nat / g U3O8) (0.99968) (1.538E+06 dpm / g U-nat) =
1.304E+06 ± 2.61E+02 (0.02%) dpm/g U3O8

18) Remarks MW U3O8 = (3 * 238.0289) + (8 * 15.9994) = 842.0819 g / mole U3O8
Material was ignited at 800°C in a crucible for 1 hr and cooled to room temperature in a sealed dessicator.

19) Isotope File Updated by D.D.
 20) QC Approved D.B.

National Bureau of Standards

751

Certificate

Standard Reference Material 950b

Uranium Oxide (U_3O_8)

(In Cooperation with the Department of Energy, New Brunswick Laboratory, Argonne, Illinois)

This material consists of normal uranium in the form of oxide, U_3O_8 . It is intended to provide a reference material of known uranium content.

CERTIFIED VALUE

Uranium Oxide (U_3O_8) . . . 99.968 ± 0.020 percent

The stated uncertainty of ±0.020 percent associated with the certified value is the linear sum of 0.0076 percent, which is the limit of the random error of the assay measurements at the 99 percent confidence level ($2.307 S_m$, where S_m is the standard error of the mean with $n = 24$), and 0.312 percent, the estimated upper limit of conceivable systematic errors including material variability. The above certified value is based on material heated at 800 °C for one hour in an open crucible in a muffle furnace and cooled in a desiccator. It is recommended that the material be freshly ignited in this manner to obtain accurate results.

The total impurities as determined by spectrochemical analysis are estimated to be less than 50 µg/g. The determined iron content is ~3 µg/g and the determined vanadium content is ~1 µg/g. The assay of this material is based on the use of NBS Potassium Dichromate (SRM 136c) as the oxidizing agent as described in the NBS titrimetric method for the precise assay of uranium metal. The assay values obtained are comparable with those obtained from the assay of NBS Uranium Metal (SRM 950) and NBS Uranium Oxide (SRM 950a). The certified value for this lot of uranium oxide has also been confirmed using a coulometric procedure.

The atomic weights used in the calculations were uranium, 238.029, and oxygen, 15.9994.

This material was prepared under contract with the National Lead Company of Ohio, Cincinnati, Ohio. Assay of the material was performed by N. M. Trahey of the New Brunswick Laboratory, Argonne, Illinois and J. R. Moody and W. Kocz of the NBS Analytical Chemistry Division. Iron and vanadium were measured by B. I. Diamondstone and S. A. Weiss of the NBS Analytical Chemistry Division.

Overall direction and coordination of the technical measurements leading to the certification were performed under the chairmanship of J. L. Barnum.

The technical and support aspects involved in the preparation, certification, and issuance of this Standard Reference Material were coordinated through the Office of Standard Reference Materials by W. P. Reed.

Washington, D.C. 20234
March 1, 1973

J. Paul Cali, Chief
Office of Standard Reference Materials

(over)

URANIUM ISOTOPIC
CONTINUING CALIBRATION

Quality Assurance Report. Generated 25-MAR-2008 18:13:08.41

QA Filename : \$DISK1:[ALP7.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.352356 Std Deviation : 0.005641

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3558		
1-MAR-2008 05:27	chk		0.3460		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 6.811476 Std Deviation : 0.287833

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		6.6667		
1-MAR-2008 05:27	chk		6.8333		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 352.506622 Std Deviation : 1.223419

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		351.1161		
1-MAR-2008 05:27	chk		351.5854		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.366566 Std Deviation : 0.003389

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3682		
1-MAR-2008 05:27	chk		0.3647		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3682		
1-MAR-2008 05:27	chk		0.3647		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.468111 Std Deviation : 0.055237

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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3-FEB-2008 10:58  chk          7.5167  | | |
1-MAR-2008 05:27  chk          7.3664  | | |

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Quality Assurance Report. Generated 25-MAR-2008 18:13:09.11

QA Filename : \$DISK1:[ALP7.QA]GROUP_1_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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000806 Std Deviation : 0.000973

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06  bkg          0.0000  | | |
2-MAR-2008 06:38  bkg          0.0020  | | |

```

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.001761 Std Deviation : 0.001915

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06  bkg          0.0010  | | |
2-MAR-2008 06:38  bkg          0.0010  | | |

```

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000343 Std Deviation : 0.000565

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001806 Std Deviation : 0.002039

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
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4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.001776 Std Deviation : 0.002288

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	bkg		0.0020		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.001552 Std Deviation : 0.002203

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	bkg		0.0030		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000925 Std Deviation : 0.001049

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	bkg		0.0020		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000746 Std Deviation : 0.000893

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000582 Std Deviation : 0.000819

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000985 Std Deviation : 0.001174

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002134 Std Deviation : 0.002102

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0030	
2-MAR-2008 06:38	bkg		0.0060	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002850 Std Deviation : 0.002606

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
4-FEB-2008 06:06	bkg		0.0070	
2-MAR-2008 06:38	bkg		0.0110	Ac

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.004373 Std Deviation : 0.003646

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0110		
2-MAR-2008 06:38	bkg		0.0140	In	

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.031652 Std Deviation : 0.023391

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0630		
2-MAR-2008 06:38	bkg		0.0670		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.031160 Std Deviation : 0.023231

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg 0.0600 | | |
 2-MAR-2008 06:38 bkg 0.0650 | | |

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.029414 Std Deviation : 0.022060

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.0560		
2-MAR-2008 06:38 bkg			0.0620		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.029832 Std Deviation : 0.024627

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.0460		
2-MAR-2008 06:38 bkg			0.0680		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.026534 Std Deviation : 0.022488

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0430		
2-MAR-2008 06:38	bkg		0.0640		

-- 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 : 9-AUG-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.009193 Std Deviation : 0.007069

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0180		
2-MAR-2008 06:38	bkg		0.0190		

Quality Assurance Report. Generated 25-MAR-2008 18:10:12.93

QA Filename : \$DISK1:[ALP6.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.325596 Std Deviation : 0.006286

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3269		
1-MAR-2008 05:27	chk		0.3273		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 6.668651 Std Deviation : 0.443225

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		6.6667		
1-MAR-2008 05:27	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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 347.786224 Std Deviation : 1.373586

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:58	chk		346.2343	
1-MAR-2008 05:27	chk		346.6425	

3-FEB-2008 10:58	chk		346.2343	
1-MAR-2008 05:27	chk		346.6425	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.332977 Std Deviation : 0.003597

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:58	chk		0.3294	
1-MAR-2008 05:27	chk		0.3344	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:58	chk		0.3294	
1-MAR-2008 05:27	chk		0.3344	

3-FEB-2008 10:58	chk		0.3294	
1-MAR-2008 05:27	chk		0.3344	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.488939 Std Deviation : 0.067328

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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3-FEB-2008 10:58  chk          7.4984  | | |
1-MAR-2008 05:27  chk          7.5890  | | |

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Quality Assurance Report. Generated 25-MAR-2008 18:10:13.64

QA Filename : \$DISK1:[ALP6.QA]GROUP_1_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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000725 Std Deviation : 0.000978

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06  bkg          0.0000  | | |
2-MAR-2008 06:38  bkg          0.0000  | | |

```

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.001143 Std Deviation : 0.001070

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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-----
4-FEB-2008 06:06  bkg          0.0010  | | |
2-MAR-2008 06:38  bkg          0.0010  | | |

```

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000560 Std Deviation : 0.000819

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000989 Std Deviation : 0.001049

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
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4-FEB-2008 06:06	bkg		0.0020		
2-MAR-2008 06:38	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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000967 Std Deviation : 0.001016

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0010		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000978 Std Deviation : 0.001022

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000736 Std Deviation : 0.000905

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	bkg		0.0020		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000604 Std Deviation : 0.000842

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0020	
2-MAR-2008 06:38	bkg		0.0010	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000527 Std Deviation : 0.000779

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0020	
2-MAR-2008 06:38	bkg		0.0010	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.001253 Std Deviation : 0.001296

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0040	In
2-MAR-2008 06:38	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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002318 Std Deviation : 0.002361

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0030	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.003164 Std Deviation : 0.003066

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
4-FEB-2008 06:06	bkg		0.0030	
2-MAR-2008 06:38	bkg		0.0060	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.004571 Std Deviation : 0.004484

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0050		
2-MAR-2008 06:38	bkg		0.0090		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.044476 Std Deviation : 0.021869

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0780		
2-MAR-2008 06:38	bkg		0.0750		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.044268 Std Deviation : 0.021668

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg 0.0810 | | |
 2-MAR-2008 06:38 bkg 0.0700 | | |

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.041719 Std Deviation : 0.020522

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.0780		
2-MAR-2008 06:38 bkg			0.0640		

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.037829 Std Deviation : 0.022874

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg			0.0750		
2-MAR-2008 06:38 bkg			0.0690		

-- 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
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4-FEB-2008 06:06	bkg		0.0700	
2-MAR-2008 06:38	bkg		0.0570	

-- 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 : 3-SEP-2002 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.011570 Std Deviation : 0.007071

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0170	
2-MAR-2008 06:38	bkg		0.0220	

Quality Assurance Report. Generated 25-MAR-2008 17:57:21.61

QA Filename : \$DISK1:[ALP5.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.387492 Std Deviation : 0.005712

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		0.3891	
1-MAR-2008 05:27	chk		0.3950	

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.312500 Std Deviation : 0.242195

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 10:57	chk		7.5000	
1-MAR-2008 05:27	chk		7.0000	

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 357.539337 Std Deviation : 1.944102

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		357.0847		
1-MAR-2008 05:27	chk		357.2202		

3-FEB-2008 10:57	chk		357.0847		
1-MAR-2008 05:27	chk		357.2202		

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.397028 Std Deviation : 0.002308

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		0.3969		
1-MAR-2008 05:27	chk		0.4009		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:57	chk		0.3969		
1-MAR-2008 05:27	chk		0.4009		

3-FEB-2008 10:57	chk		0.3969		
1-MAR-2008 05:27	chk		0.4009		

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.408459 Std Deviation : 0.062026

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 3-FEB-2008 10:57 chk 7.4202 | | |
 1-MAR-2008 05:27 chk 7.5694 |In| |

Quality Assurance Report. Generated 25-MAR-2008 17:57:22.26

QA Filename : \$DISK1:[ALP5.QA]GROUP_1_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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.006499 Std Deviation : 0.003092

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 4-FEB-2008 06:06 bkg 0.0000 |In| |
 2-MAR-2008 06:38 bkg 0.0050 | | |

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.010798 Std Deviation : 0.004793

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 4-FEB-2008 06:06 bkg 0.0060 | | |
 2-MAR-2008 06:38 bkg 0.0040 | | |

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.002080 Std Deviation : 0.001536

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0010		
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2-MAR-2008 06:38	bkg		0.0000		
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-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.009919 Std Deviation : 0.003629

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
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4-FEB-2008 06:06	bkg		0.0040		
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2-MAR-2008 06:38	bkg		0.0070		
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-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.009979 Std Deviation : 0.003966

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0040	
2-MAR-2008 06:38	bkg		0.0080	

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.009099 Std Deviation : 0.003676

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0040	
2-MAR-2008 06:38	bkg		0.0070	

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.004679 Std Deviation : 0.002853

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0010	
2-MAR-2008 06:38	bkg		0.0050	

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002020 Std Deviation : 0.001463

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0050	In

-- 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
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4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0030	

-- 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
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4-FEB-2008 06:06	bkg		0.0030	
2-MAR-2008 06:38	bkg		0.0030	

-- 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
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4-FEB-2008 06:06 bkg 0.0040 | | |
 2-MAR-2008 06:38 bkg 0.0020 | | |

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.004119 Std Deviation : 0.002479

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0060	
2-MAR-2008 06:38	bkg		0.0030	

4-FEB-2008 06:06 bkg 0.0060 | | |
 2-MAR-2008 06:38 bkg 0.0030 | | |

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.005419 Std Deviation : 0.003104

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0060	
2-MAR-2008 06:38	bkg		0.0060	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0060	
2-MAR-2008 06:38	bkg		0.0060	

4-FEB-2008 06:06 bkg 0.0060 | | |
 2-MAR-2008 06:38 bkg 0.0060 | | |

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.040874 Std Deviation : 0.028236

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0860		
2-MAR-2008 06:38	bkg		0.0880		

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.039935 Std Deviation : 0.027586

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0870		
2-MAR-2008 06:38	bkg		0.0830		

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.038055 Std Deviation : 0.026500

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0850		
2-MAR-2008 06:38	bkg		0.0780		

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.037695 Std Deviation : 0.025607

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0660		
2-MAR-2008 06:38	bkg		0.0650		

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.033595 Std Deviation : 0.023088

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0580		
2-MAR-2008 06:38	bkg		0.0600		

-- 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 : 7-FEB-2005 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.011118 Std Deviation : 0.008548

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0180		
2-MAR-2008 06:38	bkg		0.0250		

Quality Assurance Report. Generated 25-MAR-2008 18:22:41.11

QA Filename : \$DISK1:[ALP8.QA]GROUP_1_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.375300 Std Deviation : 0.005814

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3760		
1-MAR-2008 05:27	chk		0.3705		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 8.564816 Std Deviation : 0.215774

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		8.5000		
1-MAR-2008 05:27	chk		8.8333		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 363.823730 Std Deviation : 1.395498

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		364.5159		
1-MAR-2008 05:27	chk		364.9947		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.388212 Std Deviation : 0.003624

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3892		
1-MAR-2008 05:27	chk		0.3879		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3892		
1-MAR-2008 05:27	chk		0.3879		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 7.337713 Std Deviation : 0.059876

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

```

-----
3-FEB-2008 10:58  chk          7.3816  | | |
1-MAR-2008 05:27  chk          7.3840  | | |

```

Quality Assurance Report. Generated 25-MAR-2008 18:22:41.82

QA Filename : \$DISK1:[ALP8.QA]GROUP_1_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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000273 Std Deviation : 0.000489

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

```

-----
4-FEB-2008 06:06  bkg          0.0010  | | |
2-MAR-2008 06:38  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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
Mean : 0.000618 Std Deviation : 0.000850

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

```

-----
4-FEB-2008 06:06  bkg          0.0010  | | |
2-MAR-2008 06:38  bkg          0.0030  |In| |

```

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000273 Std Deviation : 0.000489

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

4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000582 Std Deviation : 0.000738

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
------------------	-----------	----------------	-------	-------------	-----

4-FEB-2008 06:06	bkg		0.0010		
2-MAR-2008 06:38	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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000727 Std Deviation : 0.000912

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0030	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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000745 Std Deviation : 0.000907

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0030	In

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000600 Std Deviation : 0.000894

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0030	In

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000509 Std Deviation : 0.000814

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000491 Std Deviation : 0.000717

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

4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0020	In

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.000945 Std Deviation : 0.001079

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0000	
2-MAR-2008 06:38	bkg		0.0020	

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002018 Std Deviation : 0.001810

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:06	bkg		0.0040	
2-MAR-2008 06:38	bkg		0.0060	In

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.002381 Std Deviation : 0.002095

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
4-FEB-2008 06:06	bkg		0.0040	
2-MAR-2008 06:38	bkg		0.0060	

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.003054 Std Deviation : 0.002669

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06	bkg		0.0080		
2-MAR-2008 06:38	bkg		0.0090	In	

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.029142 Std Deviation : 0.020744

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

4-FEB-2008 06:06	bkg		0.0620		
2-MAR-2008 06:38	bkg		0.0590		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.034432 Std Deviation : 0.024465

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:06 bkg 0.0690 | | |
 2-MAR-2008 06:38 bkg 0.0630 | | |

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.032850 Std Deviation : 0.023341

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06 bkg			0.0650	
2-MAR-2008 06:38 bkg			0.0550	

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.028323 Std Deviation : 0.021259

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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4-FEB-2008 06:06 bkg			0.0460	
2-MAR-2008 06:38 bkg			0.0570	

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.025924 Std Deviation : 0.019373

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0420		
2-MAR-2008 06:38	bkg		0.0520		

-- 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 : 13-SEP-2004 00:00 End Date : 30-MAY-2030 00:00
 Mean : 0.008490 Std Deviation : 0.006154

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:06	bkg		0.0110		
2-MAR-2008 06:38	bkg		0.0180		

RADIUM 228

SAMPLE AND QC DATA

Lot No., Due Date: F8A290183; 02/28/2008
Client, Site: 1418995; LANDWELL - Tronox Parcel H
QC Batch No., Method Test: 8035244; RRA228 Ra-228 by GPC
SDG, Matrix: ;

1.0 COC

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

Yes No N/A

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes No N/A

Yes No N/A

2.2 Are the QC appropriate for the analysis included in the batch? Yes No N/A

Yes No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes No N/A

Yes No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A

Yes No N/A

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits? Yes No N/A

Yes No N/A

3.2 Is the LCS result, yield, and MDA within contract limits? Yes No N/A

Yes No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A

Yes No N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes No N/A

Yes No N/A

3.5 Are the sample yields and MDAs within contract limits? Yes No N/A

Yes No N/A

4.0 Raw Data

4.1 Were results calculated in the correct units? Yes No N/A

Yes No N/A

4.2 Were analysis volumes entered correctly? Yes No N/A

Yes No N/A

4.3 Were Yields entered correctly? Yes No N/A

Yes No N/A

4.4 Were spectra reviewed/meet contractual requirements? Yes No N/A

Yes No N/A

4.5 Were raw counts reviewed for anomalies? Yes No N/A

Yes No N/A

5.0 Other

5.1 Are all nonconformances included and noted? Yes No N/A

Yes No N/A

5.2 Are all required forms filled out? Yes No N/A

Yes No N/A

5.3 Was the correct methodology used? Yes No N/A

Yes No N/A

5.4 Was transcription checked? Yes No N/A

Yes No N/A

5.5 Were all calculations checked at a minimum frequency? Yes No N/A

Yes No N/A

5.6 Are worksheet entries complete and correct? Yes No N/A

Yes No N/A

6.0 Comments on any No response:

NCM 10-11849

First Level Review

Thomas DWE

Date

2/14/08

Data Review Checklist
RADIOCHEMISTRY
 Second Level Review

Batch Number: 8035244

Review Item	Yes (✓)	No (✓)	NA (✓)
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 within contract acceptance criteria?			✓
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?	✓		
8. Do the duplicate sample results and yields meet acceptance criteria?		✓	✓ 2/17/18
C. Other			
1. Are all Non-conformances 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 Num

Second Level Review: Erika Ford Date: 2/17/18

Clouseau Nonconformance Memo



NCM #: 10-11849 NCM Initiated By: Tom McGinnis Date Opened: 02/14/2008 Date Closed:	Classification: Deficiency Status: GLREVIEW Production Area: Environmental - Prep Tests: Ra-228 by GPC Lot #'s (Sample #'s): J8B040000 (244), QC Batches: 8035244,
Nonconformance: Other (describe in detail) Subcategory: Other (explanation required)	

Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
Tom McGinnis	02/14/2008	Insufficient sample volume for duplicate analysis.

Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
Tom McGinnis	02/14/2008	N/A

Client Notification Summary

<u>Client</u>	<u>Project Manager</u>	<u>Notified</u>	<u>Response</u>	<u>How Notified</u>	<u>Note</u>
			<u>Response</u>		<u>Response Note</u>

Quality Assurance Verification

<u>Verified By</u>	<u>Due Date</u>	<u>Status</u>	<u>Notes</u>
			This section not yet completed by QA.

Approval History

<u>Date Approved</u>	<u>Approved By</u>	<u>Position</u>
----------------------	--------------------	-----------------

2/5/2008 11:13:17 AM

1418995, Landwell Company
Landwell Company

Analyte Date: 02/08/2008

Batch: 8035244
SEQ Batch, Test: 8035242, BUTE 8035242, BUTE

Sample Preparation/Analysis

BU Ra-226/228 Prp/SepRC5005
TF Radium-228 by GPC
01 STANDARD TEST SET

Balance Id: 1120403183

Pipet #:

Sep1 DT/Tm Tech: 2/6/08 12:49 DL

Sep2 DT/Tm Tech: 2/13/08 11:25 YW

Prep Tech: LucasD

PM, Quote: JAE, 78254

pCi/L

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 KF8PH-1-AC		972.30g.in	RATA30207	✓ 1.0000	1.5"		3X50	6B	1707	2/12/08 YW	
F8A290183-10-SAMP			01/31/08					6B	0817	2/14/08 YW	

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
01/28/2008 11:15											
2 KF8PH-1-AJ-X											

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
F8A290183-10-DUP											

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
01/28/2008 11:15											
3 KGH1D-1-AA-B		1000.50g.in	RATA30206	✓ 1.0000							
J8B040000-244-BLK			01/31/08								

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
01/28/2008 11:15											
4 KGH1D-1-AC-C		1000.00g.in	RASC4693	✓ 1.0000							
J8B040000-244-LCS			01/21/08								

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
01/28/2008 11:15											

2/5/2008 11:13:18 AM

Sample Preparation/Analysis

Balance Id:1120403183

BU Ra-226/228 Prp/SepRC5005
TF Radium-228 by GPC

Pipet #:

AnalytDueDate: 02/08/2008

01 STANDARD TEST SET

Sep1 DT/Tm Tech:

Batch: 8035244

pCi/L

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: LucasD



Work Order, Lot, Sample Date Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
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Comments: KF8PH-SAMP *Comments: ISV for DUP- DL 2/5/08*

All Clients for Batch:

1418995, Landwell Company

Landwell Company

JAE, 78254

KF8PH1AC-SAMP Constituent List:

KGH1D1AA-BLK:

RDL:	RDL:	pCi/L	LCL:20	UCL:115	RA-228	RDL:3	pCi/L	LCL:	UCL:	RPD:
Ba-133	RA-228DA	RA-228	LCL:20	UCL:115	RA-228	RDL:3	pCi/L	LCL:	UCL:	RPD:
Ba-133	RA-228	RA-228	LCL:20	UCL:115	RA-226	RDL:	pCi/L	LCL:70	UCL:130	RPD:20
RA-228		RA-228DA	LCL:70	UCL:130	RA-228DA	RDL:3	pCi/L	LCL:70	UCL:130	RPD:20

KF8PH1AC-SAMP Calc Info:

Uncert Level (#s): 4	Decay to SaDt: N	Blk Subt.: N	Sci.Not.: N	ODRs: B
Uncert Level (#s): 4	Decay to SaDt: N	Blk Subt.: N	Sci.Not.: N	ODRs: B
Uncert Level (#s): 4	Decay to SaDt: N	Blk Subt.: N	Sci.Not.: N	ODRs: B

Approved By

Date:

2/14/2008 11:47:52 AM

ICOC Fraction Transfer/Status Report

ByDate: 2/14/2007, 2/19/2008, Batch: '8035244', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
8035244				
AC		Rev1C	LucasD 2/6/2008 12:59:14 PM	
SC		wagarr	IsBatched 2/4/2008 1:30:07 PM	ICOC_RADCALC v4.8.32
SC		LucasD	Sep1C 2/6/2008 12:59:14 PM	RICH-RC-5005 REVISION 6
SC		McGinnisT	Sep2C 2/13/2008 12:44:52 PM	RICH-RC-5005 REVISION 6
SC		ClarkR	InCnt1 2/13/2008 2:33:35 PM	RICH-RD-0003 REVISION 5
SC		mcginnist	Rev1C 2/14/2008 11:47:18 AM	RICH-RC-0002 REV 8
AC		McGinnisT	2/13/2008 12:44:52	
AC		ClarkR	2/13/2008 2:33:35 PM	
AC		mcginnist	2/14/2008 11:47:18	

AC: Accepting Entry; SC: Status Change

TAL Richland
Richland Wa.

2/14/2008 11:47:51 AM

Rpt DB Transfer log (Batch Results)

SDG or Batch Isotope	Rpt Db Id Method	RTst Qc	LotSample Analysis Date	Client Id Result	Matrix	Received Date	Sample Date	Units	Expected Yield	Volumes
8035240	9KF8PH10		F8A29018310	RINSATE-2	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
RA-226	BUTE	0	2/11/2008 3:18:00 PM	-1.9786E-02	2.294E-02	2.301E-02	1.092E-01	pCi/L	1.0	9.723E-1
RA-226	TBD	0	2/11/2008 3:18:00 PM	-1.9786E-02	2.294E-02	2.301E-02	1.092E-01	pCi/L	1.0	9.723E-1
RA-228	BUTF	0	2/14/2008 8:22:30 AM	5.4958E-02	1.183E-01	1.183E-01	5.519E-01	pCi/L	0.922	9.723E-1
TH-228	9NS1	0	2/8/2008 4:53:02 PM	-8.0577E-02	6.511E-02	6.541E-02	4.726E-01	pCi/L	0.887	2.002E-1
TH-230	9NS1	0	2/8/2008 4:53:02 PM	4.5531E-02	5.804E-02	5.815E-02	2.726E-01	pCi/L	0.887	2.002E-1
TH-232	9NS1	0	2/8/2008 4:53:02 PM	0.0E+00	0.0E+00	5.804E-02	2.726E-01	pCi/L	0.887	2.002E-1
U-234	7YSR	0	2/12/2008 8:08:07 AM	3.5873E-02	4.394E-02	4.404E-02	2.054E-01	pCi/L	0.911	2.001E-1
U-235	7YSR	0	2/12/2008 8:08:07 AM	2.3917E-02	3.049E-02	3.055E-02	1.432E-01	pCi/L	0.911	2.001E-1
U-238	7YSR	0	2/12/2008 8:08:07 AM	-6.4766E-06	3.275E-02	3.275E-02	2.201E-01	pCi/L	0.911	2.001E-1
8035240	KGH1D1AB		J8B040000244	INTRA-LAB BLANK	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
RA-228	BUTF	0 B	2/14/2008 8:22:30 AM	1.8796E-01	1.055E-01	1.098E-01	4.857E-01	pCi/L	0.922	1.0E+0
8035240	KGH1D1CS		J8B040000244	INTRA-LAB CHECK	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
RA-228	BUTF	0 S	2/14/2008 8:22:30 AM	4.3877E+00	2.325E-01	3.405E-01	5.284E-01	pCi/L	4.9945E+00	0.924

8035244, **Samples Inserted | Updated | NotUpdated => 2 | 0 | 1,
 **Results Inserted | ReTestInserted | Updated | NotInserted => 3 | 0 | 0 | 0.
 **Diff RptDb | Qtims => .

Alpha Beta, Ra-228 by GPC , Results

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC Trc	Yld	LCS	Yld
Ra-228 by GPC			Ra-226/Ra-228 Deem With Out Blk Subt. *CntU: 0+1, + *SystU, `MDCConst:2.71												
Calc	TF	WATER	KF8PH1AC	RA-228	-7.05E-02	(1.74E-01)	U4	pCi/L	R	3.93E-01	8.58E-01		92%		
Calc	TF	WATER	KF8PH1AC	RA-228	1.90E-01	(2.13E-01)	U4	pCi/L	R	4.36E-01	9.53E-01		92%		
Calc	TF	WATER	KF8PH1AC	RA-228	4.54E-02	(2.24E-01)	U4	pCi/L	R	4.84E-01	1.06E+00		92%		
Calc	TF	WATER	KF8PH1AC	RA-228	5.50E-02	(1.18E-01)	U4	pCi/L	A	2.53E-01	5.52E-01	✓	92%		
Calc	TF	WATER	KF8PH1AC	RA-228	1.50E+00	(1.38E+00)	U4	pCi/L	R	2.79E+00	6.06E+00		92%		
Calc	TF	WATER	KGH1D1AA	RA-228	2.53E-01	(1.78E-01)	U4	pCi/L	R	3.43E-01	7.55E-01	B	92%		
Calc	TF	WATER	KGH1D1AA	RA-228	2.23E-01	(1.92E-01)	U4	pCi/L	R	3.80E-01	8.38E-01	B	92%		
Calc	TF	WATER	KGH1D1AA	RA-228	8.79E-02	(2.00E-01)	U4	pCi/L	R	4.22E-01	9.30E-01	B	92%		
Calc	TF	WATER	KGH1D1AA	RA-228	1.88E-01	(1.10E-01)		pCi/L	A	2.20E-01	4.86E-01	✓B	92%		JK
Calc	TF	WATER	KGH1D1AA	RA-228	-8.23E-01	(1.04E+00)	U4	pCi/L	R	2.41E+00	5.29E+00	B	92%		
Calc	TF	WATER	KGH1D1AC	RA-228	4.58E+00	(5.88E-01)		pCi/L	R	3.76E-01	8.22E-01	S	92%	92%	
Calc	TF	WATER	KGH1D1AC	RA-228	3.75E+00	(5.27E-01)		pCi/L	R	4.17E-01	9.12E-01	S	92%	75%	
Calc	TF	WATER	KGH1D1AC	RA-228	4.84E+00	(6.48E-01)		pCi/L	R	4.63E-01	1.01E+00	S	92%	97%	
Calc	TF	WATER	KGH1D1AC	RA-228	4.39E+00	(3.40E-01)		pCi/L	A	2.42E-01	5.28E-01	✓S	92%	88%	JK
Calc	TF	WATER	KGH1D1AC	RA-228	5.05E+00	(1.54E+00)		pCi/L	R	2.45E+00	5.37E+00	S	92%	101%	

Tom DME

2/14/08

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

Detailed Report

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk	Ord	Units/Matrix	QC/BB	Sa/On	Date	AnalysisDate/PptWt	Sep1/Sep2	Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy	Vol	Final/Count	Vol											
1	Calc	TF	WATER	*STLE	Ra228WoBS	KF8PH1AC			pCi/L			01/28/08 11:15	02/14/08 08:22	02/06/08 12:49	02/13/08 11:25	RATA30207	1	100%	972.30	g													
							FBA290183-10		WATER			31.7																					
0			RA-228		37	317	GPC6B	1.5	N	N	5.7362E-01	1.0000E+00	N	92%	N	1.5265E+00	(0.000E+00)	4.5045E+02	1.0030E+00														
					50	400			Y		(1.359E-02)	(0.000E+00)		7%				0.001028															
1			RA-228		46	317	GPC6B	1.5	N	N	5.7362E-01	1.0000E+00	N	92%	N	1.6941E+00	(0.000E+00)	4.5045E+02	1.0030E+00														
					50	400			Y		(1.359E-02)	(0.000E+00)		7%				0.001028															
2			RA-228		41	317	GPC6B	1.5	N	N	5.7362E-01	1.0000E+00	N	92%	N	1.8801E+00	(0.000E+00)	4.5045E+02	1.0030E+00														
					50	400			Y		(1.359E-02)	(0.000E+00)		7%				0.001028															
3			RA-228		53	357	GPC6B	1.5	N	N	5.7362E-01	1.0000E+00	N	92%	N	1.0200E+01	(0.000E+00)	4.5045E+02	1.0030E+00														
					50	400			N		(1.359E-02)	(0.000E+00)		7%				0.001028															
Sq	CalcDate	TrcAct	Parameter	Avg	Sa	Act, Total	U	Q	Net	Cnt	Rt	Dpm	Wo	Blk	Dpm	Blk	Vol	Used	TrcYld	EntFct	LCSYld	EFctU	IDC	ILcC	BkLc	C/MDC	StdDv	MdC/LcC					
	02/14/08	RA-228	R	-0.07045			U4	-5.25000E-02	-0.151613			0.9723L			0.858314				92%														
				(0.17397)				(1.2954E-01)	(0.374316)			(0.173205)			0.393024																		
	02/14/08	RA-228	R	0.189875			U4	1.27500E-01	0.408622			0.9723L			0.952532				92%														
				(0.213406)				(1.4276E-01)	(0.458807)			(0.173205)			0.436167																		
	02/14/08	RA-228	R	0.045449			U4	2.75000E-02	0.097809			0.9723L			1.057093				92%														
				(0.224111)				(1.3558E-01)	(0.482276)			(0.173205)			0.484046																		
	02/14/08	RA-228	A	0.054958			U4	3.41667E-02	0.118273			0.9723L			0.551935				92%														
				(0.118337)				(7.8559E-02)	(0.25456)			(0.10)			0.252733																		
	02/14/08	RA-228	R	1.501844			U4	1.67500E-01	3.232058			0.9723L			6.056315				92%														
				(1.380238)				(1.5307E-01)	(2.965956)			(0.173205)			2.786827																		
Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk	Ord	Units/Matrix	QC/BB	Sa/On	Date <td>AnalysisDate/PptWt <td>Sep1/Sep2 <td>Date <td>QC/Tracer <td>Vial <td>Multi/EntYld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td></td></td>	AnalysisDate/PptWt <td>Sep1/Sep2 <td>Date <td>QC/Tracer <td>Vial <td>Multi/EntYld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td></td>	Sep1/Sep2 <td>Date <td>QC/Tracer <td>Vial <td>Multi/EntYld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td>	Date <td>QC/Tracer <td>Vial <td>Multi/EntYld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td>	QC/Tracer <td>Vial <td>Multi/EntYld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td>	Vial <td>Multi/EntYld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td>	Multi/EntYld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td>	Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td>	Vol <td>Final/Count <td>Vol </td></td>	Final/Count <td>Vol </td>	Vol											
2	Calc	TF	WATER	*STLE	Ra228WoBS	KGH1D1AA			pCi/L			01/28/08 11:15	02/14/08 08:22	02/06/08 12:49	02/13/08 11:25	RATA30206	Alq	100%	1000.50	g													
									WATER			31.7																					
0			RA-228		42	258	GPC6C	1.5	N	N	5.7675E-01	1.0000E+00	N	92%	N	1.5265E+00	(0.000E+00)	4.5045E+02	1.0030E+00														
					50	400			Y		(1.577E-02)	(0.000E+00)		7%				0.001															
1			RA-228		40	258	GPC6C	1.5	N	N	5.7675E-01	1.0000E+00	N	92%	N	1.6941E+00	(0.000E+00)	4.5045E+02	1.0030E+00														
					50	400			Y		(1.577E-02)	(0.000E+00)		7%				0.001															
2			RA-228		35	258	GPC6C	1.5	N	N	5.7675E-01	1.0000E+00	N	92%	N	1.8801E+00	(0.000E+00)	4.5045E+02	1.0030E+00														
					50	400			Y		(1.577E-02)	(0.000E+00)		7%				0.001															

() - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

Alpha Beta, Ra-228 by GPC , Calculated Results

Batch Nbr: 8035244

2/14/2008 8:42:05 AM

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlC/MDC	StdDvMdc/LcC
3	02/14/08 08:22	RA-228	31	286	GPC6C 1.5	N N	5.7675E-01	1.0000E+00	N	92%	N	1.0200E+01	4.5045E+02	1.0030E+00
			50	400		N	(1.577E-02)	(0.000E+00)		7%		(0.000E+00)	0.001	
	02/14/08	RA-228	R	0.252921	U4	1.95000E-01	0.560088	0.560088	1.0005 L	92%		0.755311		
				(0.177742)		(1.3569E-01)	(0.392609)	(0.392609)	(0.173205)			0.342709		
	02/14/08	RA-228	R	0.223108	U4	1.55000E-01	0.494068	0.494068	1.0005 L	92%		0.838223		
				(0.19228)		(1.3271E-01)	(0.425082)	(0.425082)	(0.173205)			0.380329		
	02/14/08	RA-228	R	0.087858	U4	5.50000E-02	0.194559	0.194559	1.0005 L	92%		0.930236		
				(0.199783)		(1.2495E-01)	(0.442309)	(0.442309)	(0.173205)			0.422079		
	02/14/08	RA-228	A	0.187962		1.35000E-01	0.416238	0.416238	1.0005 L	92%		0.4857		
				(0.109786)		(7.5746E-02)	(0.242779)	(0.242779)	(0.10)			0.220378		
	02/14/08	RA-228	R	-0.823304	U4	-9.50000E-02	-1.823187	-1.823187	1.0005 L	92%		5.288721		
				(1.035423)		(1.1911E-01)	(2.291108)	(2.291108)	(0.173205)			2.410934		

Sq Status Method Matrix Protocol Equation Set Wk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Sep1/Sep2 Date QC/Tracer Vial Mult/EntYld Total/Analy Vol Final/Count Vol

Sq	Calc	TF	WATER	*STLE	Ra228WoBS	KGH1DIAC	pC/L	S	01/28/08 11:15	02/14/08 08:22	02/06/08 12:49	RASC4693	1	RASC4693	Alq	100%	1000.00	g
0	02/13/08 15:34	RA-228	215	310	GPC6D	1.5	N	N	5.7482E-01	1.0000E+00	N	92%	N	1.5265E+00	4.5045E+02	1.0030E+00		
			50	400			Y		(1.349E-02)	(0.000E+00)		7%		(0.000E+00)	0.001			
1	02/13/08 16:29	RA-228	169	310	GPC6D	1.5	N	N	5.7482E-01	1.0000E+00	N	92%	N	1.6941E+00	4.5045E+02	1.0030E+00		
			50	400			Y		(1.349E-02)	(0.000E+00)		7%		(0.000E+00)	0.001			
2	02/13/08 17:25	RA-228	190	310	GPC6D	1.5	N	N	5.7482E-01	1.0000E+00	N	92%	N	1.8801E+00	4.5045E+02	1.0030E+00		
			50	400			Y		(1.349E-02)	(0.000E+00)		7%		(0.000E+00)	0.001			
3	02/14/08 08:22	RA-228	66	295	GPC6D	1.5	N	N	5.7482E-01	1.0000E+00	N	92%	N	1.0200E+01	4.5045E+02	1.0030E+00		
			50	400			N		(1.349E-02)	(0.000E+00)		7%		(0.000E+00)	0.001			

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlC/MDC	StdDvMdc/LcC
0	02/14/08	RA-228	R	4.575221		3.52500E+00	10.126656	10.126656	1.00 L	92%		0.821749		
				(0.588187)		(2.9654E-01)	(1.199378)	(1.199378)	(0.173205)			0.375924		
0	02/14/08	RA-228	R	3.752272		2.60500E+00	8.305166	8.305166	1.00 L	92%		0.911954		
				(0.526624)		(2.6370E-01)	(1.089134)	(1.089134)	(0.173205)			0.417189		
0	02/14/08	RA-228	R	4.835546		3.02500E+00	10.702853	10.702853	1.00 L	92%		1.01206		
				(0.648172)		(2.7917E-01)	(1.331099)	(1.331099)	(0.173205)			0.462985		
0	02/14/08	RA-228	A	4.387679		3.05167E+00	9.711558	9.711558	1.00 L	92%		0.528422		
				(0.340494)		(1.6173E-01)	(0.698931)	(0.698931)	(0.10)			0.241736		
0	02/14/08	RA-228	R	5.051669		5.82500E-01	11.181213	11.181213	1.00 L	92%		5.367696		
				(1.537983)		(1.6806E-01)	(3.357904)	(3.357904)	(0.173205)			2.450281		

0 - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - 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

UST Number: KF8PH1AC Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 6-B File: [quad6.sample.B]KF8PH1AC.180
Dish Size: 15 Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.B_15;6158

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00037	0050	01310	1800	13-FEB-2008 15:34:39.65
2	00000	00046	0050	01302	1800	13-FEB-2008 16:29:55.48
3	00000	00041	0050	01291	1800	13-FEB-2008 17:25:11.30

Bkg File: [quad6.bkgrnd]2008-02-13_0208.B_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00317	0400	0.79	10422	1800	13-FEB-2008 02:08:19.79 ✓

UST Number: KF8PH1AC Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 6-B File: [quad6.sample.B]KF8PH1AC.430
Dish Size: 15 Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.B_15;6159

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00053	0050	01271	1800	14-FEB-2008 08:22:30.89

Bkg File: [quad6.bkgrnd]2008-02-14_0231.B_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00357	0400	0.89	10301	1800	14-FEB-2008 02:31:26.67

UST Number: KGH1D1AA Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 6-C File: [quad6.sample.C] KGH1D1AA.180
Dish Size: 15 Bkg File: \$DISK1:[QUAD6.BKGRND] CURRENT.C_15;6120

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00042	0050	01310	1800	13-FEB-2008 15:34:39.65
2	00000	00040	0050	01302	1800	13-FEB-2008 16:29:55.48
3	00000	00035	0050	01291	1800	13-FEB-2008 17:25:11.30

Bkg File: [quad6.bkgrnd]2008-02-13_0208.C_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00258	0400	0.65	10422	1800	13-FEB-2008 02:08:19.79

UST Number: KGH1D1AA Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 6-C File: [quad6.sample.C] KGH1D1AA.430
Dish Size: 15 Bkg File: \$DISK1:[QUAD6.BKGRND] CURRENT.C_15;6121

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00031	0050	01271	1800	14-FEB-2008 08:22:30.89

Bkg File: [quad6.bkgrnd]2008-02-14_0231.C_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00286	0400	0.72	10301	1800	14-FEB-2008 02:31:26.67

UST Number: KGH1D1AC Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 6-D File: [quad6.sample.D]KGH1D1AC.180
Dish Size: 15 Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.D_15;6119

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00215	0050	01310	1800	13-FEB-2008 15:34:39.65
2	00000	00169	0050	01302	1800	13-FEB-2008 16:29:55.48
3	00000	00190	0050	01291	1800	13-FEB-2008 17:25:11.30

Bkg File: [quad6.bkgrnd]2008-02-13_0208.D_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00310	0400	0.78	10422	1800	13-FEB-2008 02:08:19.79 ✓

UST Number: KGH1D1AC Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 6-D File: [quad6.sample.D]KGH1D1AC.430
Dish Size: 15 Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.D_15;6120

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00066	0050	01271	1800	14-FEB-2008 08:22:30.89

Bkg File: [quad6.bkgrnd]2008-02-14_0231.D_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00295	0400	0.74	10301	1800	14-FEB-2008 02:31:26.67

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: Ra22606A100		Ref: 11/1/2001	2.1060E+01 ± 3.234E-01	DPM/G		
RASC4693	RA-226	3.0266E+00 ± 4.657E-02 DPM	0.1441 g	1/21/2008 1/21/2008	Armstron	2.1003E+01 ± 3.225E-01 DPM/G

3.0266E+000 ± 3.027E+000 (1)

3.0266E+000 , 3.0266E+000

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

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 = $\sqrt{(\% \text{ error of Source Activity})^2 + (\% \text{ error of Wt. Used})^2 + (\% \text{ error of Dilution Wt.})^2}$

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

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 _____

19) Isotope File Updated by tda 3/21/2006

20) QC Approved _____

Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
Parent Standard: RA22806A000		Ref: 12/15/2003	4.4881E+02 ±	DPM/G		
RASC4693	RA-228	1.1140E+01 ± 3.871E-02 DPM	0.0407 g	1/21/2008 1/21/2008	Armstron	2.7370E+02 ± 0.000E+00 DPM/G
		1.1140E+001 ± 1.114E+001 (1)	1.1140E+001 , 1.1140E+001			

Ra22806A000

Ra22806A000
Ref. 6076
448.81 ± 14.82
dpm/g
4/11/2007 DVF

ISOTOPE DILUTION RECORD

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>7/7/2004</u>
3) Source Identification Number / Ref. Number	<u>new source</u>		
4) Source Activity (dpm ± dpm/g)	<u>4.5507E+04</u>	±	<u>1.502E+03</u>
5) Percent error of Source Activity	<u>3.3</u>	%	
6) Weight of Source Material used (g)	<u>5.0063</u>		
7) (% Error) of Weight of Source Material used	<u>0.0959</u>	%	
8) Diluent	<u>1M HCL</u>		
9) Total Weight of the Dilution (g)	<u>507.61</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.0591</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>4.4881E+02</u>	±	<u>1.482E+01</u>
12) Total Uncertainty	<u>3.302</u>	%	
13) Dilution Identification Number / Ref. Number	<u>RA22806A000</u>		<u>6076</u>
14) Calibration Reference Date	<u>12/15/2003</u>		
15) Isotope Inventory File update by/date	<u>tda</u>		<u>3/30/2006</u>
16) Reviewed by/date	<u></u>		<u></u>
17) Location	<u>QCLAB</u>	18) Exhausted	<u></u>

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

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 _____

RADIUM 228
CONTINUING CALIBRATION

Quality Assurance Report.

Generated 26-MAR-2008 11:24:30.75

QA Filename : \$DISK1:[QUAD6.QA]CHK.QAF;2

-- Multi-Test Full Report --

Description : quad 6a 1.5" beta %eff

Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 44.000000 Upper Bound : 49.250000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 46.656689 Std Deviation : 0.904850

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-JAN-2008 04:34	CHK		45.8000		
12-JAN-2008 06:31	CHK		47.1000		
13-JAN-2008 09:02	CHK		44.3000	In	
14-JAN-2008 04:54	CHK		47.3000		
15-JAN-2008 04:39	CHK		45.9000		
16-JAN-2008 04:39	CHK		45.1000		
17-JAN-2008 04:40	CHK		46.1000		
18-JAN-2008 04:50	CHK		46.2000		
21-JAN-2008 05:37	CHK		46.2000		
22-JAN-2008 04:52	CHK		45.2000		
23-JAN-2008 04:41	CHK		45.9000		
24-JAN-2008 04:49	CHK		45.3000		
25-JAN-2008 04:58	CHK		45.7000		
28-JAN-2008 10:20	CHK		45.8000		
29-JAN-2008 05:01	CHK		46.2000		
30-JAN-2008 04:44	CHK		45.0000		
31-JAN-2008 04:33	CHK		46.2000		
1-FEB-2008 04:36	CHK		45.4000		
2-FEB-2008 04:44	CHK		46.6000		
4-FEB-2008 05:33	CHK		44.6000	In	
5-FEB-2008 04:49	CHK		45.1000		

6-FEB-2008 04:43	CHK	45.9000	
7-FEB-2008 04:46	CHK	45.4000	
8-FEB-2008 04:45	CHK	46.1000	
11-FEB-2008 04:45	CHK	45.5000	
12-FEB-2008 05:12	CHK	46.5000	
13-FEB-2008 05:17	CHK	44.4000	In
14-FEB-2008 05:45	CHK	46.6000	
15-FEB-2008 04:41	CHK	46.6000	
18-FEB-2008 05:37	CHK	46.8000	
19-FEB-2008 04:51	CHK	47.0000	
20-FEB-2008 04:48	CHK	45.7000	
21-FEB-2008 04:44	CHK	46.2000	
22-FEB-2008 04:49	CHK	46.6000	
25-FEB-2008 04:46	CHK	45.4000	
26-FEB-2008 04:44	CHK	44.9000	
27-FEB-2008 04:48	CHK	46.6000	
28-FEB-2008 04:49	CHK	45.7000	

Quality Assurance Multi-Test Full Report (continued)

Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
29-FEB-2008 04:47	CHK		45.5000	
3-MAR-2008 04:51	CHK		45.7000	
4-MAR-2008 04:50	CHK		45.0000	
5-MAR-2008 04:57	CHK		46.3000	
6-MAR-2008 05:07	CHK		45.6000	
7-MAR-2008 04:53	CHK		44.8000	In
8-MAR-2008 08:02	CHK		46.0000	
10-MAR-2008 05:20	CHK		45.0000	
11-MAR-2008 05:35	CHK		46.5000	
12-MAR-2008 05:01	CHK		46.3000	
13-MAR-2008 05:04	CHK		46.6000	
14-MAR-2008 05:43	CHK		46.6000	
17-MAR-2008 06:26	CHK		49.2000	In
18-MAR-2008 04:57	CHK		46.4000	
19-MAR-2008 04:55	CHK		45.9000	
20-MAR-2008 05:06	CHK		45.2000	
21-MAR-2008 05:02	CHK		47.5000	

-- Multi-Test Full Report --

Description : quad 6b 1.5" beta %eff

Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 50.000000 Upper Bound : 54.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 52.041027 Std Deviation : 0.696986

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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11-JAN-2008 04:34	CHK		51.4000	
12-JAN-2008 06:31	CHK		50.7000	
13-JAN-2008 09:02	CHK		51.2000	
14-JAN-2008 04:54	CHK		51.4000	
15-JAN-2008 04:39	CHK		50.9000	
16-JAN-2008 04:39	CHK		51.9000	
17-JAN-2008 04:40	CHK		51.2000	
18-JAN-2008 04:50	CHK		52.0000	
21-JAN-2008 05:37	CHK		52.0000	
22-JAN-2008 04:52	CHK		51.1000	
23-JAN-2008 04:41	CHK		50.6000	In
24-JAN-2008 04:49	CHK		51.4000	
25-JAN-2008 04:58	CHK		51.3000	
28-JAN-2008 10:20	CHK		51.4000	
29-JAN-2008 05:01	CHK		51.0000	
30-JAN-2008 04:44	CHK		51.3000	
31-JAN-2008 04:33	CHK		52.6000	
1-FEB-2008 04:36	CHK		51.9000	
2-FEB-2008 04:44	CHK		51.1000	
4-FEB-2008 05:33	CHK		52.2000	
5-FEB-2008 04:49	CHK		52.5000	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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6-FEB-2008 04:43	CHK		52.3000	
7-FEB-2008 04:46	CHK		52.1000	
8-FEB-2008 04:45	CHK		51.7000	
11-FEB-2008 04:45	CHK		53.0000	
12-FEB-2008 05:12	CHK		51.2000	
13-FEB-2008 05:17	CHK		52.0000	

14-FEB-2008 05:45	CHK	51.9000			
15-FEB-2008 04:41	CHK	51.6000			
18-FEB-2008 05:37	CHK	51.8000			
19-FEB-2008 04:51	CHK	52.1000			
20-FEB-2008 04:48	CHK	52.2000			
21-FEB-2008 04:44	CHK	52.9000			
22-FEB-2008 04:49	CHK	51.7000			
25-FEB-2008 04:46	CHK	51.0000			
26-FEB-2008 04:44	CHK	51.5000			
27-FEB-2008 04:48	CHK	51.4000			
28-FEB-2008 04:49	CHK	51.2000			
29-FEB-2008 04:47	CHK	51.3000			
3-MAR-2008 04:51	CHK	52.3000			
4-MAR-2008 04:50	CHK	51.4000			
5-MAR-2008 04:57	CHK	50.7000			
6-MAR-2008 05:07	CHK	51.0000			
7-MAR-2008 04:53	CHK	51.3000			
8-MAR-2008 08:02	CHK	51.7000			
10-MAR-2008 05:20	CHK	50.9000			
11-MAR-2008 05:35	CHK	52.1000			
12-MAR-2008 05:01	CHK	52.1000			
13-MAR-2008 05:04	CHK	53.2000			
14-MAR-2008 05:43	CHK	52.8000			
17-MAR-2008 06:26	CHK	52.0000			
18-MAR-2008 04:57	CHK	51.8000			
19-MAR-2008 04:55	CHK	51.1000			
20-MAR-2008 05:06	CHK	51.5000			
21-MAR-2008 05:02	CHK	52.4000			

-- Multi-Test Full Report --

Description : quad 6c 1.5" beta %eff

Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 50.000000 Upper Bound : 54.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 51.875000 Std Deviation : 0.608396

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 04:34	CHK		52.0000	
12-JAN-2008 06:31	CHK		49.6000	Be Ac
13-JAN-2008 09:02	CHK		51.6000	
14-JAN-2008 04:54	CHK		51.9000	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
15-JAN-2008 04:39	CHK		50.3000	In
16-JAN-2008 04:39	CHK		50.6000	In
17-JAN-2008 04:40	CHK		51.8000	
18-JAN-2008 04:50	CHK		51.8000	
21-JAN-2008 05:37	CHK		51.2000	
22-JAN-2008 04:52	CHK		50.9000	
23-JAN-2008 04:41	CHK		50.7000	
24-JAN-2008 04:49	CHK		50.8000	
25-JAN-2008 04:58	CHK		51.4000	
28-JAN-2008 10:20	CHK		51.4000	
29-JAN-2008 05:01	CHK		52.3000	
30-JAN-2008 04:44	CHK		52.8000	
31-JAN-2008 04:33	CHK		52.4000	
1-FEB-2008 04:36	CHK		51.1000	
2-FEB-2008 04:44	CHK		51.4000	
4-FEB-2008 05:33	CHK		52.0000	
5-FEB-2008 04:49	CHK		51.6000	
6-FEB-2008 04:43	CHK		51.8000	
7-FEB-2008 04:46	CHK		52.1000	
8-FEB-2008 04:45	CHK		51.6000	
11-FEB-2008 04:45	CHK		52.6000	
12-FEB-2008 05:12	CHK		51.5000	
13-FEB-2008 05:17	CHK		52.1000	
14-FEB-2008 05:45	CHK		51.4000	
15-FEB-2008 04:41	CHK		51.2000	
18-FEB-2008 05:37	CHK		51.6000	
19-FEB-2008 04:51	CHK		51.3000	
20-FEB-2008 04:48	CHK		51.4000	
21-FEB-2008 04:44	CHK		52.1000	
22-FEB-2008 04:49	CHK		51.6000	
25-FEB-2008 04:46	CHK		51.6000	
26-FEB-2008 04:44	CHK		50.7000	
27-FEB-2008 04:48	CHK		51.5000	

28-FEB-2008 04:49	CHK	51.7000			
29-FEB-2008 04:47	CHK	50.8000			
3-MAR-2008 04:51	CHK	51.8000			
4-MAR-2008 04:50	CHK	51.1000			
5-MAR-2008 04:57	CHK	52.1000			
6-MAR-2008 05:07	CHK	51.3000			
7-MAR-2008 04:53	CHK	52.3000			
8-MAR-2008 08:02	CHK	52.0000			
10-MAR-2008 05:20	CHK	51.6000			
11-MAR-2008 05:35	CHK	51.3000			
12-MAR-2008 05:01	CHK	51.1000			
13-MAR-2008 05:04	CHK	52.7000			
14-MAR-2008 05:43	CHK	51.6000			
17-MAR-2008 06:26	CHK	52.7000			
18-MAR-2008 04:57	CHK	51.6000			
19-MAR-2008 04:55	CHK	52.2000			
20-MAR-2008 05:06	CHK	51.7000			
21-MAR-2008 05:02	CHK	53.3000		In	

-- Multi-Test Full Report --

Description : quad 6d 1.5" beta %eff
 Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 49.000000 Upper Bound : 53.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 51.031212 Std Deviation : 0.623766

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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 Quality Assurance Multi-Test Full Report (continued) Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-JAN-2008 04:34	CHK	50.9000			
12-JAN-2008 06:31	CHK	49.9000			
13-JAN-2008 09:02	CHK	50.2000			
14-JAN-2008 04:54	CHK	50.1000			

15-JAN-2008 04:39	CHK	51.2000	
16-JAN-2008 04:39	CHK	50.8000	
17-JAN-2008 04:40	CHK	51.2000	
18-JAN-2008 04:50	CHK	50.1000	
21-JAN-2008 05:37	CHK	50.7000	
22-JAN-2008 04:52	CHK	50.7000	
23-JAN-2008 04:41	CHK	51.2000	
24-JAN-2008 04:49	CHK	50.3000	
25-JAN-2008 04:58	CHK	49.9000	
28-JAN-2008 10:20	CHK	51.6000	
29-JAN-2008 05:01	CHK	50.3000	
30-JAN-2008 04:44	CHK	50.9000	
31-JAN-2008 04:33	CHK	50.7000	
1-FEB-2008 04:36	CHK	50.7000	
2-FEB-2008 04:44	CHK	50.6000	
4-FEB-2008 05:33	CHK	50.5000	
5-FEB-2008 04:49	CHK	50.6000	
6-FEB-2008 04:43	CHK	51.7000	
7-FEB-2008 04:46	CHK	51.2000	
8-FEB-2008 04:45	CHK	50.2000	
11-FEB-2008 04:45	CHK	50.4000	
12-FEB-2008 05:12	CHK	49.7000	In
13-FEB-2008 05:17	CHK	49.9000	
14-FEB-2008 05:45	CHK	50.6000	
15-FEB-2008 04:41	CHK	51.7000	
18-FEB-2008 05:37	CHK	50.0000	
19-FEB-2008 04:51	CHK	50.7000	
20-FEB-2008 04:48	CHK	50.8000	
21-FEB-2008 04:44	CHK	50.8000	
22-FEB-2008 04:49	CHK	50.4000	
25-FEB-2008 04:46	CHK	51.2000	
26-FEB-2008 04:44	CHK	50.5000	
27-FEB-2008 04:48	CHK	50.5000	
28-FEB-2008 04:49	CHK	50.7000	
29-FEB-2008 04:47	CHK	51.2000	
3-MAR-2008 04:51	CHK	51.2000	
4-MAR-2008 04:50	CHK	50.5000	
5-MAR-2008 04:57	CHK	49.6000	In
6-MAR-2008 05:07	CHK	50.3000	
7-MAR-2008 04:53	CHK	51.0000	
8-MAR-2008 08:02	CHK	49.8000	
10-MAR-2008 05:20	CHK	51.7000	
11-MAR-2008 05:35	CHK	51.4000	

12-MAR-2008 05:01	CHK	51.0000	
13-MAR-2008 05:04	CHK	51.0000	
14-MAR-2008 05:43	CHK	50.8000	
17-MAR-2008 06:26	CHK	52.3000	In
18-MAR-2008 04:57	CHK	51.3000	
19-MAR-2008 04:55	CHK	50.2000	
20-MAR-2008 05:06	CHK	51.4000	
21-MAR-2008 05:02	CHK	51.1000	

Quality Assurance Report.

Generated 26-MAR-2008 11:24:32.13

QA Filename : \$DISK1:[QUAD6.QA]BKG_15.QAF;2

-- Multi-Test Full Report --

Description : quad 6a 1.5" 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 0.790939 Std Deviation : 0.059448

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 02:21	BKG		0.6900	
12-JAN-2008 03:05	BKG		0.7200	
12-JAN-2008 20:45	BKG		0.7300	
13-JAN-2008 21:48	BKG		0.7400	
15-JAN-2008 04:09	BKG		0.7300	
16-JAN-2008 02:26	BKG		0.8000	
17-JAN-2008 02:55	BKG		0.8200	
18-JAN-2008 02:08	BKG		0.8500	
19-JAN-2008 02:18	BKG		0.7200	
19-JAN-2008 15:44	BKG		0.7600	
20-JAN-2008 13:40	BKG		0.8100	
22-JAN-2008 02:15	BKG		0.7500	
23-JAN-2008 01:51	BKG		0.8600	
24-JAN-2008 02:11	BKG		0.7400	
25-JAN-2008 02:59	BKG		0.8500	
25-JAN-2008 23:31	BKG		0.7800	

27-JAN-2008 19:17	BKG	0.8300	
29-JAN-2008 01:37	BKG	0.8100	
30-JAN-2008 01:56	BKG	0.7800	
31-JAN-2008 02:16	BKG	0.7300	
1-FEB-2008 02:46	BKG	0.8500	
2-FEB-2008 00:10	BKG	0.7600	
2-FEB-2008 13:27	BKG	0.7700	
3-FEB-2008 18:42	BKG	0.8500	
5-FEB-2008 02:41	BKG	0.7300	
6-FEB-2008 01:44	BKG	0.7700	
7-FEB-2008 03:54	BKG	0.8800	
8-FEB-2008 01:55	BKG	0.7600	
8-FEB-2008 23:21	BKG	0.8400	
9-FEB-2008 13:59	BKG	0.9000	
10-FEB-2008 19:27	BKG	0.7900	
12-FEB-2008 02:16	BKG	0.7300	
13-FEB-2008 02:08	BKG	0.9300	In
14-FEB-2008 02:31	BKG	0.7600	
14-FEB-2008 23:17	BKG	0.7900	
16-FEB-2008 01:31	BKG	0.8500	
16-FEB-2008 15:12	BKG	0.7800	
17-FEB-2008 14:28	BKG	0.7500	
19-FEB-2008 02:09	BKG	0.7900	
19-FEB-2008 23:27	BKG	0.8100	
21-FEB-2008 03:20	BKG	0.9500	In

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
22-FEB-2008 03:23	BKG		0.8700	
22-FEB-2008 23:18	BKG		0.7700	
23-FEB-2008 18:45	BKG		0.7600	
24-FEB-2008 19:17	BKG		0.8200	
26-FEB-2008 04:10	BKG		0.7400	
27-FEB-2008 01:51	BKG		0.7900	
28-FEB-2008 03:05	BKG		0.8500	
29-FEB-2008 03:59	BKG		0.8000	
29-FEB-2008 23:16	BKG		0.7800	
1-MAR-2008 12:16	BKG		0.7100	
2-MAR-2008 13:58	BKG		0.7400	
4-MAR-2008 00:24	BKG		0.6900	
4-MAR-2008 00:24	BKG		0.7200	
5-MAR-2008 03:56	BKG		0.7900	

6-MAR-2008 00:47	BKG	0.8900	
6-MAR-2008 00:47	BKG	0.8300	
7-MAR-2008 02:47	BKG	0.8800	
7-MAR-2008 23:29	BKG	0.8200	
8-MAR-2008 17:08	BKG	0.8400	
9-MAR-2008 16:42	BKG	0.7800	
11-MAR-2008 02:57	BKG	0.7900	
12-MAR-2008 03:00	BKG	0.8200	
13-MAR-2008 02:13	BKG	0.7400	
14-MAR-2008 05:20	BKG	0.9100	In
14-MAR-2008 23:36	BKG	0.8700	
15-MAR-2008 23:29	BKG	0.8200	
16-MAR-2008 16:08	BKG	0.7500	
18-MAR-2008 03:37	BKG	0.8600	
19-MAR-2008 02:22	BKG	0.7900	
20-MAR-2008 01:34	BKG	0.8200	
21-MAR-2008 04:16	BKG	0.9300	In
21-MAR-2008 23:22	BKG	0.8300	
23-MAR-2008 20:02	BKG	0.8400	

-- Multi-Test Full Report --

Description : quad 6b 1.5" 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
Mean : 0.762541 Std Deviation : 0.051803

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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11-JAN-2008 02:21	BKG		0.7600	
12-JAN-2008 03:05	BKG		0.8100	
12-JAN-2008 20:45	BKG		0.7600	
13-JAN-2008 21:48	BKG		0.8000	
15-JAN-2008 04:09	BKG		0.7100	
16-JAN-2008 02:26	BKG		0.7800	
17-JAN-2008 02:55	BKG		0.7800	
18-JAN-2008 02:08	BKG		0.7000	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
19-JAN-2008 02:18	BKG		0.8200	
19-JAN-2008 15:44	BKG		0.8100	
20-JAN-2008 13:40	BKG		0.8300	
22-JAN-2008 02:15	BKG		0.7900	
23-JAN-2008 01:51	BKG		0.7600	
24-JAN-2008 02:11	BKG		0.8000	
25-JAN-2008 02:59	BKG		0.9800	Ac
25-JAN-2008 23:31	BKG		0.7900	
27-JAN-2008 19:17	BKG		0.7700	
29-JAN-2008 01:37	BKG		0.7200	
30-JAN-2008 01:56	BKG		0.8500	
31-JAN-2008 02:16	BKG		0.8400	
1-FEB-2008 02:46	BKG		0.8800	In
2-FEB-2008 00:10	BKG		0.7900	
2-FEB-2008 13:27	BKG		0.8200	
3-FEB-2008 18:42	BKG		0.8600	
5-FEB-2008 02:41	BKG		0.8000	
6-FEB-2008 01:44	BKG		0.8200	
7-FEB-2008 03:54	BKG		0.8600	
8-FEB-2008 01:55	BKG		0.8000	
8-FEB-2008 23:21	BKG		0.8400	
9-FEB-2008 13:59	BKG		0.8100	
10-FEB-2008 19:27	BKG		0.8200	
12-FEB-2008 02:16	BKG		0.9300	Ac
13-FEB-2008 02:08	BKG		0.7900	
14-FEB-2008 02:31	BKG		0.8900	In
14-FEB-2008 23:17	BKG		0.8700	In
16-FEB-2008 01:31	BKG		0.8600	
16-FEB-2008 15:12	BKG		0.7500	
17-FEB-2008 14:28	BKG		0.8500	
19-FEB-2008 02:09	BKG		0.8600	
19-FEB-2008 23:27	BKG		0.7800	
21-FEB-2008 03:20	BKG		0.8800	In
22-FEB-2008 03:23	BKG		0.9000	In
22-FEB-2008 23:18	BKG		0.9300	Ac
23-FEB-2008 18:45	BKG		0.8200	
24-FEB-2008 19:17	BKG		0.9800	Ac
26-FEB-2008 04:10	BKG		0.9200	Ac
27-FEB-2008 01:51	BKG		0.9100	In
28-FEB-2008 03:05	BKG		1.0300	Ac
29-FEB-2008 03:59	BKG		0.9300	Ac

29-FEB-2008 23:16	BKG	0.8400	
1-MAR-2008 12:16	BKG	0.9000	In
2-MAR-2008 13:58	BKG	0.8600	
4-MAR-2008 00:24	BKG	0.9800	Ac
4-MAR-2008 00:24	BKG	0.9600	Ac
5-MAR-2008 03:56	BKG	0.9300	Ac
6-MAR-2008 00:47	BKG	0.9900	Ac
6-MAR-2008 00:47	BKG	0.9200	Ac
7-MAR-2008 02:47	BKG	0.8500	
7-MAR-2008 23:29	BKG	1.0100	Ac
8-MAR-2008 17:08	BKG	0.8400	
9-MAR-2008 16:42	BKG	0.8800	In
11-MAR-2008 02:57	BKG	0.9500	Ac
12-MAR-2008 03:00	BKG	1.0000	Ac

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
13-MAR-2008 02:13	BKG		0.9500	Ac
14-MAR-2008 05:20	BKG		1.0800	Ac
14-MAR-2008 23:36	BKG		1.0900	Ac
15-MAR-2008 23:29	BKG		0.9100	In
16-MAR-2008 16:08	BKG		0.9800	Ac
18-MAR-2008 03:37	BKG		0.9800	Ac
19-MAR-2008 02:22	BKG		1.0400	Ac
20-MAR-2008 01:34	BKG		1.0100	Ac
21-MAR-2008 04:16	BKG		1.1000	Ac
21-MAR-2008 23:22	BKG		0.9700	Ac
23-MAR-2008 20:02	BKG		1.1000	Ac

-- Multi-Test Full Report --

Description : quad 6c 1.5" 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
Mean : 0.657514 Std Deviation : 0.045411

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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11-JAN-2008 02:21	BKG	0.7000	
12-JAN-2008 03:05	BKG	0.6400	
12-JAN-2008 20:45	BKG	0.6200	
13-JAN-2008 21:48	BKG	0.6500	
15-JAN-2008 04:09	BKG	0.6500	
16-JAN-2008 02:26	BKG	0.7300	
17-JAN-2008 02:55	BKG	0.6100	
18-JAN-2008 02:08	BKG	0.5900	
19-JAN-2008 02:18	BKG	0.6700	
19-JAN-2008 15:44	BKG	0.6200	
20-JAN-2008 13:40	BKG	0.6900	
22-JAN-2008 02:15	BKG	0.6400	
23-JAN-2008 01:51	BKG	0.6600	
24-JAN-2008 02:11	BKG	0.6900	
25-JAN-2008 02:59	BKG	0.6600	
25-JAN-2008 23:31	BKG	0.6700	
27-JAN-2008 19:17	BKG	0.6700	
29-JAN-2008 01:37	BKG	0.6300	
30-JAN-2008 01:56	BKG	0.6200	
31-JAN-2008 02:16	BKG	0.7100	
1-FEB-2008 02:46	BKG	0.6400	
2-FEB-2008 00:10	BKG	0.6100	
2-FEB-2008 13:27	BKG	0.7100	
3-FEB-2008 18:42	BKG	0.6500	
5-FEB-2008 02:41	BKG	0.6500	
6-FEB-2008 01:44	BKG	0.5500	In
7-FEB-2008 03:54	BKG	0.7200	
8-FEB-2008 01:55	BKG	0.5900	
8-FEB-2008 23:21	BKG	0.5800	
9-FEB-2008 13:59	BKG	0.6100	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
10-FEB-2008 19:27	BKG		0.5900	
12-FEB-2008 02:16	BKG		0.6100	
13-FEB-2008 02:08	BKG		0.6500	
14-FEB-2008 02:31	BKG		0.7200	
14-FEB-2008 23:17	BKG		0.6000	
16-FEB-2008 01:31	BKG		0.6700	
16-FEB-2008 15:12	BKG		0.6400	
17-FEB-2008 14:28	BKG		0.6300	
19-FEB-2008 02:09	BKG		0.7100	

19-FEB-2008 23:27 BKG	0.7300	
21-FEB-2008 03:20 BKG	0.7000	
22-FEB-2008 03:23 BKG	0.7600	In
22-FEB-2008 23:18 BKG	0.6100	
23-FEB-2008 18:45 BKG	0.5800	
24-FEB-2008 19:17 BKG	0.6800	
26-FEB-2008 04:10 BKG	0.6200	
27-FEB-2008 01:51 BKG	0.6500	
28-FEB-2008 03:05 BKG	0.6600	
29-FEB-2008 03:59 BKG	0.7100	
29-FEB-2008 23:16 BKG	0.6100	
1-MAR-2008 12:16 BKG	0.6200	
2-MAR-2008 13:58 BKG	0.6400	
4-MAR-2008 00:24 BKG	0.7400	
4-MAR-2008 00:24 BKG	0.7200	
5-MAR-2008 03:56 BKG	0.6400	
6-MAR-2008 00:47 BKG	0.6100	
6-MAR-2008 00:47 BKG	0.6900	
7-MAR-2008 02:47 BKG	0.7800	In
7-MAR-2008 23:29 BKG	0.6800	
8-MAR-2008 17:08 BKG	0.6500	
9-MAR-2008 16:42 BKG	0.6100	
11-MAR-2008 02:57 BKG	0.6400	
12-MAR-2008 03:00 BKG	0.6100	
13-MAR-2008 02:13 BKG	0.7400	
14-MAR-2008 05:20 BKG	0.6600	
14-MAR-2008 23:36 BKG	0.6200	
15-MAR-2008 23:29 BKG	0.6100	
16-MAR-2008 16:08 BKG	0.6300	
18-MAR-2008 03:37 BKG	0.6500	
19-MAR-2008 02:22 BKG	0.6200	
20-MAR-2008 01:34 BKG	0.7200	
21-MAR-2008 04:16 BKG	0.6800	
21-MAR-2008 23:22 BKG	0.5900	
23-MAR-2008 20:02 BKG	0.6400	

-- Multi-Test Full Report --

Description : quad 6d 1.5" 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-JAN-2007 00:00 End Date : 1-JUL-2007 00:00
 Mean : 0.732431 Std Deviation : 0.050174

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

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

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

 11-JAN-2008 02:21 BKG 0.7600 | | |
 12-JAN-2008 03:05 BKG 0.7800 | | |
 12-JAN-2008 20:45 BKG 0.7800 | | |
 13-JAN-2008 21:48 BKG 0.7500 | | |
 15-JAN-2008 04:09 BKG 0.8100 | | |
 16-JAN-2008 02:26 BKG 0.6800 | | |
 17-JAN-2008 02:55 BKG 0.7700 | | |
 18-JAN-2008 02:08 BKG 0.8000 | | |
 19-JAN-2008 02:18 BKG 0.8000 | | |
 19-JAN-2008 15:44 BKG 0.7600 | | |
 20-JAN-2008 13:40 BKG 0.7700 | | |
 22-JAN-2008 02:15 BKG 0.7700 | | |
 23-JAN-2008 01:51 BKG 0.7300 | | |
 24-JAN-2008 02:11 BKG 0.8800 |In| |
 25-JAN-2008 02:59 BKG 0.7800 | | |
 25-JAN-2008 23:31 BKG 0.8200 | | |
 27-JAN-2008 19:17 BKG 0.9100 |Ac| |
 29-JAN-2008 01:37 BKG 0.7700 | | |
 30-JAN-2008 01:56 BKG 0.8500 |In| |
 31-JAN-2008 02:16 BKG 0.8200 | | |
 1-FEB-2008 02:46 BKG 0.7800 | | |
 2-FEB-2008 00:10 BKG 0.7300 | | |
 2-FEB-2008 13:27 BKG 0.8400 |In| |
 3-FEB-2008 18:42 BKG 0.8000 | | |
 5-FEB-2008 02:41 BKG 0.7700 | | |
 6-FEB-2008 01:44 BKG 0.7500 | | |
 7-FEB-2008 03:54 BKG 0.8000 | | |
 8-FEB-2008 01:55 BKG 0.8300 | | |
 8-FEB-2008 23:21 BKG 0.7600 | | |
 9-FEB-2008 13:59 BKG 0.7500 | | |
 10-FEB-2008 19:27 BKG 0.7300 | | |
 12-FEB-2008 02:16 BKG 0.6900 | | |
 13-FEB-2008 02:08 BKG 0.7800 | | |

14-FEB-2008 02:31	BKG	0.7400	
14-FEB-2008 23:17	BKG	0.7500	
16-FEB-2008 01:31	BKG	0.7700	
16-FEB-2008 15:12	BKG	0.7800	
17-FEB-2008 14:28	BKG	0.8100	
19-FEB-2008 02:09	BKG	0.7100	
19-FEB-2008 23:27	BKG	0.7500	
21-FEB-2008 03:20	BKG	0.8300	
22-FEB-2008 03:23	BKG	0.7900	
22-FEB-2008 23:18	BKG	0.7700	
23-FEB-2008 18:45	BKG	0.6900	
24-FEB-2008 19:17	BKG	0.7900	
26-FEB-2008 04:10	BKG	0.7300	
27-FEB-2008 01:51	BKG	0.6600	
28-FEB-2008 03:05	BKG	0.8500	In
29-FEB-2008 03:59	BKG	0.7100	
29-FEB-2008 23:16	BKG	0.8200	
1-MAR-2008 12:16	BKG	0.7900	
2-MAR-2008 13:58	BKG	0.7100	
4-MAR-2008 00:24	BKG	0.7900	
4-MAR-2008 00:24	BKG	0.7600	
5-MAR-2008 03:56	BKG	0.7500	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
6-MAR-2008 00:47	BKG	0.8400	In	
6-MAR-2008 00:47	BKG	0.8500	In	
7-MAR-2008 02:47	BKG	0.7500		
7-MAR-2008 23:29	BKG	0.7600		
8-MAR-2008 17:08	BKG	0.8600	In	
9-MAR-2008 16:42	BKG	0.7600		
11-MAR-2008 02:57	BKG	0.7700		
12-MAR-2008 03:00	BKG	0.8300		
13-MAR-2008 02:13	BKG	0.8300		
14-MAR-2008 05:20	BKG	0.7700		
14-MAR-2008 23:36	BKG	0.8900	Ac	
15-MAR-2008 23:29	BKG	0.7600		
16-MAR-2008 16:08	BKG	0.7400		
18-MAR-2008 03:37	BKG	0.7300		
19-MAR-2008 02:22	BKG	0.9000	Ac	
20-MAR-2008 01:34	BKG	0.7700		
21-MAR-2008 04:16	BKG	0.7700		

21-MAR-2008 23:22 BKG
23-MAR-2008 20:02 BKG

0.7700 | | |
0.7800 | | |

RADIUM 226
SAMPLE AND QC DATA

Lot No., Due Date: F8A290183; 02/28/2008
Client, Site: 1418995; LANDWELL - Tronox Parcel H
QC Batch No., Method Test: 8035242; RRA2267 Ra-226 by ASC-7
SDG, Matrix: ;

1.0 COC

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

Yes No N/A

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes No N/A

Yes No N/A

2.2 Are the QC appropriate for the analysis included in the batch? Yes No N/A

Yes No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes No N/A

Yes No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A

Yes No N/A

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits? Yes No N/A

Yes No N/A

3.2 Is the LCS result, yield, and MDA within contract limits? Yes No N/A

Yes No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A

Yes No N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes No N/A

Yes No N/A

3.5 Are the sample yields and MDAs within contract limits? Yes No N/A

Yes No N/A

4.0 Raw Data

4.1 Were results calculated in the correct units? Yes No N/A

Yes No N/A

4.2 Were analysis volumes entered correctly? Yes No N/A

Yes No N/A

4.3 Were Yields entered correctly? Yes No N/A

Yes No N/A

4.4 Were spectra reviewed/meet contractual requirements? Yes No N/A

Yes No N/A

4.5 Were raw counts reviewed for anomalies? Yes No N/A

Yes No N/A

5.0 Other

5.1 Are all nonconformances included and noted? Yes No N/A

Yes No N/A

5.2 Are all required forms filled out? Yes No N/A

Yes No N/A

5.3 Was the correct methodology used? Yes No N/A

Yes No N/A

5.4 Was transcription checked? Yes No N/A

Yes No N/A

5.5 Were all calculations checked at a minimum frequency? Yes No N/A

Yes No N/A

5.6 Are worksheet entries complete and correct? Yes No N/A

Yes No N/A

6.0 Comments on any No response:
NCM 10-11848

First Level Review

Thomas DME

Date 2/14/08

Data Review Checklist
RADIOCHEMISTRY
 Second Level Review

Batch Number: 8035242

Review Item	Yes (✓)	No (✓)	NA (✓)
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 within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?		✓	
C. Other			
1. Are all Non-conformances 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 non

Second Level Review: Eiue Ford Date: 2/17/18

Clouseau Nonconformance Memo



NCM #: 10-11848 NCM Initiated By: Tom McGinnis Date Opened: 02/14/2008 Date Closed:	Classification: Deficiency Status: GLREVIEW Production Area: Environmental - Prep Tests: Ra-226 by ASC-7 Lot #'s (Sample #'s): J8B040000 (242), QC Batches: 8035242,
Nonconformance: Other (describe in detail) Subcategory: Other (explanation required)	

Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
Tom McGinnis	02/14/2008	Insufficient sample volume for duplicate analysis.

Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
Tom McGinnis	02/14/2008	N/A

Client Notification Summary

<u>Client</u>	<u>Project Manager</u>	<u>Notified</u>	<u>Response</u>	<u>How Notified</u>	<u>Note</u>
			<u>Response</u>		<u>Response Note</u>

Quality Assurance Verification

<u>Verified By</u>	<u>Due Date</u>	<u>Status</u>	<u>Notes</u>
		This section not yet completed by QA.	

Approval History

<u>Date Approved</u>	<u>Approved By</u>	<u>Position</u>
----------------------	--------------------	-----------------

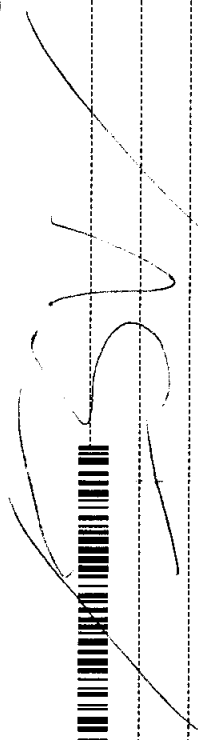
2/5/2008 11:13:16 AM **Sample Preparation/Analysis** Balance Id: 1120403183
 1418995, Landwell Company BU Ra-226/228 Prp/SepRC5005 Pipet #:
 Landwell Company TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow
 Analyze Date: 02/08/2008 01 STANDARD TEST SET Sep1 DT/Tm Tech: 2/6/08 / 2:49 DL
 Prep Tech: LucasD

BATCH: 8035242 pCi/L
 SEQ Batch, Test: 8035244, BUTF 8035244, BUTF
 PM, Quote: JAE, 78254
 Sep2 DT/Tm Tech:
 Prep Tech: LucasD

Work Order, Lot, Sample Date Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
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1 KF8PH-1-AA 972.30g.in RATA30207 01/31/08
 7.5220 ✓ 1.0000
 7.58
 9" 1540 2/6/08
 2-7-08 13:40 SB
 JUA 2-11-08 11:18 SB

01/28/2008 11:15 AmtRec: 2XLP #Containers: 2 Scr: (OSG) Alpha: -1.92E-04 uCi/Sa Beta: 1.09E-05 uCi/Sa

2 KF8PH-1-AA-X
 F8A290183-10-DUP


01/28/2008 11:15 AmtRec: 2XLP RATA30206 01/31/08
 1000.50g.in 7.5277 ✓ 1.0000
 7.85
 9" 1616 2/6/08

01/28/2008 11:15 AmtRec: 1 RASC4693 01/21/08
 1000.00g.in 7.5242 ✓ 1.0000
 8.02
 9" 1650 2/6/08

01/28/2008 11:15 AmtRec: 1 #Containers: 1 Scr: (OS4) Alpha: Beta:
 2-7-08 13:40 SB
 2-11-08 11:19 SB

01/28/2008 11:15 AmtRec: 1 #Containers: 1 Scr: (G11) Alpha: Beta:
 2-7-08 13:40 SB
 2-11-08 11:12 SB

2/5/2008 11:13:17 AM

Sample Preparation/Analysis

Balance Id:1120403183

BU Ra-226/228 Prp/SepRC5005

Pipet #:

TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow

Sep1 DT/Tm Tech:

AnalyDueDate: 02/08/2008

Sep2 DT/Tm Tech:

pCi/L

Batch: 8035242

SEQ Batch, Test: None

Prep Tech: ,LucasD



Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
-----------------------------------	----------------	--------------------------	---------------------	--------------	-----------	-----------------	----------------	-------------	------------------------------	-----------------------	-----------

Comments: KF8PH-SAMP "Comments: ISV for DUP- DL 2/5/08"

All Clients for Batch: 1418995, Landwell Company

Landwell Company, JAE, 78254

KF8PH1AA-SAMP Constituent List:

KGH1C1AA-BLK: Ba-133	RDL:	pCi/L	LCL:20	UCL:115	RPD:20	Ra-226	RDL:1	pCi/L	LCL:	UCL:	RPD:
KGH1C1AC-LCS: Ba-133	RDL:	pCi/L	LCL:20	UCL:115	RPD:20	Ra-226	RDL:1	pCi/L	LCL:70	UCL:130	RPD:20
KF8PH1AA-SAMP Calc Info:											
Uncert Level (#s):	4	Decay to SaDt:	N	Blk Subt.:	N	Sci.Not.:	N	ODRs:	B		
Uncert Level (#s):	4	Decay to SaDt:	N	Blk Subt.:	N	Sci.Not.:	N	ODRs:	B		
Uncert Level (#s):	4	Decay to SaDt:	N	Blk Subt.:	N	Sci.Not.:	N	ODRs:	B		

Approved By _____ Date: _____

ICOC Fraction Transfer/Status Report

ByDate: 2/14/2007, 2/19/2008, Batch: '8035242', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
8035242				
AC	Rev1C	LucasD	2/5/2008 10:10:48	
SC		wagarr	IsBatched	2/4/2008 1:30:07 PM
SC		LucasD	InPrep	2/5/2008 10:10:48 AM
SC		LucasD	Sep1C	2/6/2008 12:59:09 PM
SC		DAWKINSO	InCnt1	2/6/2008 3:10:08 PM
SC		DAWKINSO	Cnt1C	2/6/2008 10:03:06 PM
SC		BairdS	InSep2	2/7/2008 2:51:59 PM
SC		BairdS	CalcC	2/11/2008 5:04:37 PM
SC		mcginnist	Rev1C	2/14/2008 11:33:25 AM
AC		LucasD	2/6/2008 12:59:09 PM	ICOC_RADCALC v4.8.32
AC		DAWKINSO	2/6/2008 3:10:08 PM	RICH-RC-5005 REVISION 6
AC		DAWKINSO	2/6/2008 10:03:06 PM	RICH-RC-5005 REVISION 6
AC		BairdS	2/7/2008 2:51:59 PM	RICH-RD-0007 REVISION 6
AC		BairdS	2/11/2008 5:04:37 PM	RICH-RD-0007 REVISION 6
AC		mcginnist	2/14/2008 11:33:25	RICH-RC-5005 REVISION 6
				RICH-RC-0002 REV 8

AC: Accepting Entry; SC: Status Change

TAL Richland

Richland Wa.

Rpt DB Transfer log (Batch Results)

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 mga	Units	Expected Yield	Volumes
8035240	9KF8PH10		F8A29018310	RINSATE-2	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
RA-226	BUTE	0	2/11/2008 3:18:00 PM	-1.9786E-02	2.294E-02	2.301E-02	1.092E-01	pCi/L	1.0	9.723E-1
RA-226	TBD	0	2/11/2008 3:18:00 PM	-1.9786E-02	2.294E-02	2.301E-02	1.092E-01	pCi/L	1.0	9.723E-1
TH-228	9NS1	0	2/8/2008 4:53:02 PM	-8.0577E-02	6.511E-02	6.541E-02	4.726E-01	pCi/L	0.887	2.002E-1
TH-230	9NS1	0	2/8/2008 4:53:02 PM	4.5531E-02	5.804E-02	5.815E-02	2.726E-01	pCi/L	0.887	2.002E-1
TH-232	9NS1	0	2/8/2008 4:53:02 PM	0.0E+00	0.0E+00	5.804E-02	2.726E-01	pCi/L	0.887	2.002E-1
U-234	7YSR	0	2/12/2008 8:08:07 AM	3.5873E-02	4.394E-02	4.404E-02	2.054E-01	pCi/L	0.911	2.001E-1
U-235	7YSR	0	2/12/2008 8:08:07 AM	2.3917E-02	3.049E-02	3.055E-02	1.432E-01	pCi/L	0.911	2.001E-1
U-238	7YSR	0	2/12/2008 8:08:07 AM	-6.4766E-06	3.275E-02	3.275E-02	2.201E-01	pCi/L	0.911	2.001E-1
8035240	KGH1C1AB		J8B040000242	INTRA-LAB BLANK	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
RA-226	BUTE	0 B	2/11/2008 3:19:00 PM	7.6902E-02	3.455E-02	3.539E-02	1.054E-01	pCi/L	1.0	1.0E+0
8035240	KGH1C1CS		J8B040000242	INTRA-LAB CHECK	WATER	1/29/2008 9:20:00	1/28/2008 11:15:00 AM			
RA-226	BUTE	0 S	2/11/2008 3:12:00 PM	1.4187E+00	1.067E-01	1.72E-01	8.699E-02	pCi/L	1.3633E+00	1.0E+0

8035242, **Samples Inserted | Updated | NotUpdated => 0 | 0 | 3,
 **Results Inserted | ReTestInserted | Updated | NotInserted => 1 | 0 | 0 | 2.
 **Diff RptDb | Qtims => .

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	*Uncert	Q	Units	Av	ILcC	IDC	QC Trc Yld	LCS Yld
Ra-226 by ASC-7			Richland Standard Ra-226/Ra-228 Deem Wo Blk Subt. *CntU: 0+1, + *SystU, *MDCConst:2.71										
Calc	TE	WATER	KF8PH1AA	RA-226	-1.98E-02	(2.30E-02)	U4	pCi/L	R	4.46E-02	1.09E-01	✓	100%
Calc	TE	WATER	KGH1C1AA	RA-226	7.69E-02	(3.54E-02)		pCi/L	R	4.25E-02	1.05E-01	✓B	100% <i>JK</i>
Calc	TE	WATER	KGH1C1AC	RA-226	1.42E+00	(1.72E-01)		pCi/L	R	3.30E-02	8.70E-02	✓S	100% 104%

Tom DME 2/14/08

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

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol
1	Calc	TE	WATER	*STLE	Ra226WoBS	KF8PH1AA	pCi/L		01/28/08 11:15	02/11/08 15:18	02/07/08 13:40	RATA30207	1		
							WATER				02/11/08 11:18	RATA30207	Alq	100%	972.30 g
0															
2	Calc	TE	WATER	*STLE	Ra226WoBS	KGH1C1AA	pCi/L		01/28/08 11:15	02/11/08 15:19	02/07/08 13:40	RATA30206	1		
							WATER				02/11/08 11:19	RATA30206	Alq	100%	1000.50 G
3	Calc	TE	WATER	*STLE	Ra226WoBS	KGH1C1AC	pCi/L		01/28/08 11:15	02/11/08 15:12	02/07/08 13:40	RASC4693	1		
							WATER				02/11/08 11:12	RASC4693	Alq	100%	1000.00 G

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KF8PH1AA Isotope: RA-226
Client: STL Matrix Code: 103
Batch Nbr: 8035242 Activity Unit: PCI/L Multiplier: 1.0
Technician: SB
Analysis Size: 972.3 Analysis Unit: G
 Report Date: 11-FEB-2008 16:08:00.68
 First Separation Date: 7-FEB-2008 13:40:00.00
 Second Separation Date: 11-FEB-2008 11:18:00.00
Detector ID: 18 Cell ID: JUA
Bkg Date: 1-FEB-2008 09:12:46.58
 Bkg Counts: 000008 Bkg Duration: 000060.0
Count Date: 11-FEB-2008 15:18:00.33
 Counts: 000004 Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KGH1C1AA Isotope: RA-226
Client: STL Matrix Code: 103
Batch Nbr: 8035242 Activity Unit: PCI/L Multiplier: 1.0
Technician: SB

Analysis Size: 1000.5 Analysis Unit: G

 Report Date: 11-FEB-2008 16:09:00.61
 First Separation Date: 7-FEB-2008 13:40:00.00
 Second Separation Date: 11-FEB-2008 11:19:00.00

Detector ID: 19 Cell ID: KME

Bkg Date: 5-FEB-2008 09:17:32.03
 Bkg Counts: 000007 Bkg Duration: 000060.0

Count Date: 11-FEB-2008 15:19:00.30
 Counts: 000016 Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: KGH1C1AC Isotope: RA-226
Client: STL Matrix Code: 103
Batch Nbr: 8035242 Activity Unit: PCI/L Multiplier: 1.0
Technician: SB
Analysis Size: 1000.0 Analysis Unit: G
 Report Date: 11-FEB-2008 16:02:00.72
 First Separation Date: 7-FEB-2008 13:40:00.00
 Second Separation Date: 11-FEB-2008 11:12:00.00
Detector ID: 20 Cell ID: LMB
Bkg Date: 5-FEB-2008 09:17:41.29
 Bkg Counts: 000004 Bkg Duration: 000060.0
Count Date: 11-FEB-2008 15:12:00.31
 Counts: 000186 Count Duration: 000050.0

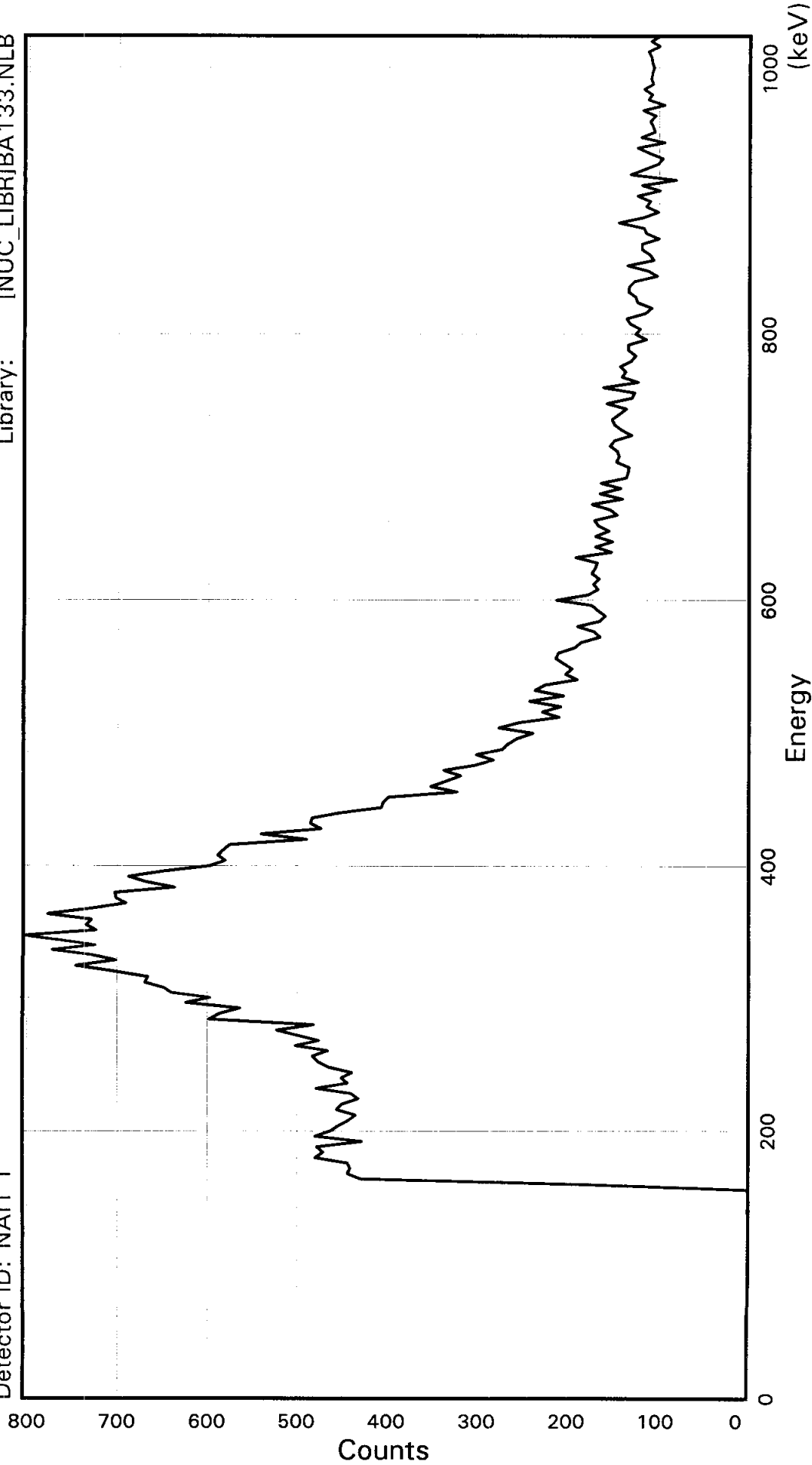
End of Report ✓

TAL Richland WA.

BA133

Sample ID: KF8PH1AA
Detector ID: NAI1 1

BatchID: 8035242
Library: [NUC_LIBR]BA133.NLB



Acquisition Start: 6-FEB-2008 15:10:36.73
Preset Live Time: 0 00:30:00
Elapsed Live Time: 0 00:30:00
Weighting: DERIVED

Start Channel: 80
End Channel: 113
Iterations: 5
Gain shift: Iter

SAMPLE IDENTIFICATION: KF8PH1AA

CONFIGURATION ID: NAI1:KF8PH1AA_060281510
TITLE : BA133
SAMPLE ID : KF8PH1AA

REPORT DATE: 06-FEB-08
ACQUIRE DATE: 06-FEB-08 15:10:36
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 31-JAN-2008 12:00:00.00
CALIB DATE: 17-NOV-1993 10:39:59.60
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY:

UNITS: SAMPL
SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV
ENERGY SLOPE: 4.0000E+00 keV/C
ENERGY Q COEFF: 0.0000E+00 keV/C²
PEAK SENSITIVITY: 5.000

FWHM OFFSET: -.2302E+02 keV
FWHM SLOPE: 5.7163E+00 sqr keV
ITERATIONS: 5
GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %
ENERGY TOLERANCE: 20.000 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]BA133.NLB

Configuration : RDND06\$DKA100:[NAI1.SAMPLE]KF8PH1AA_060281510.CNF;1
Analyses by : NAI V3.0
Sample title : BA133
Sample date : 31-JAN-2008 12:00:00 Acquisition date : 6-FEB-2008 15:10:36
Sample ID : KF8PH1AA Sample quantity : 1.0000 sampl
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.68 0.0%
Sample Multiplier: 1.00 Rejection Coeff. : 0.00
Gain shift type : ITER Threshold Shift : No
Weighting type : DERIVED Calculated counts: No
Iterations : 5

NAI Residuals Report

Ratio of Residuals Over Standard Deviation Per Channel

80:	5.2	6.3	3.5	3.1	4.4	1.5	4.2	4.0
88:	0.8	0.6	-1.0	1.0	1.2	-1.8	-0.5	-0.6
96:	-2.3	-0.9	0.0	-1.2	-4.3	-2.6	-3.6	-2.4
104:	-1.4	-4.3	-2.1	-4.7	-3.3	-2.2	-2.4	-4.6
112:	-3.5	-3.7						

List of Suspicious Channels

81 82 83

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	1.06E+01	0.00E+00	1.02E+00
2	5.00E+00	0.00E+00	1.04E+00
3	2.61E+00	0.00E+00	1.05E+00
4	7.11E-01	0.00E+00	1.07E+00

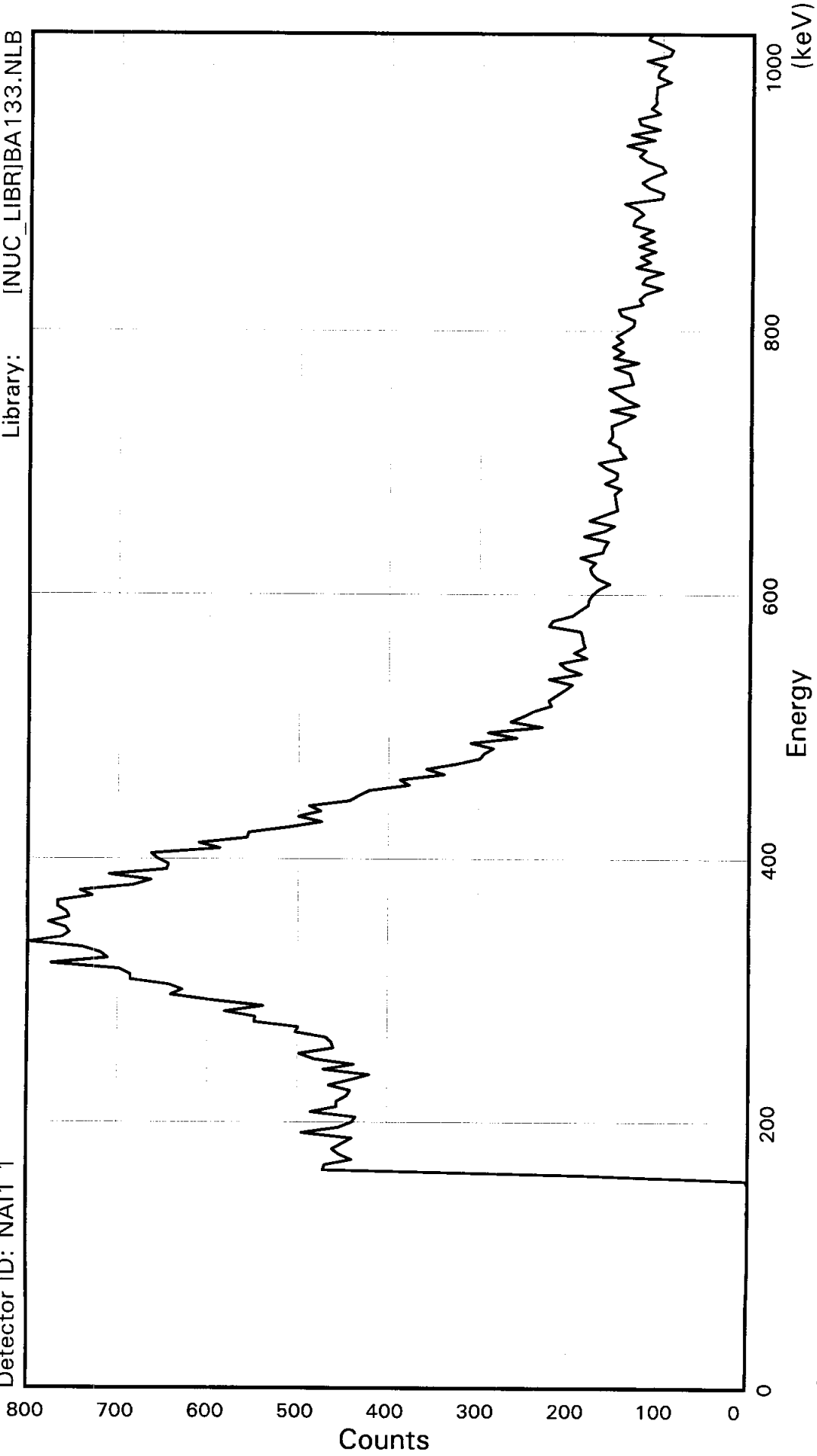
Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	758.	7.89

Total Activity :	758.	

TAL Richland WA.
BA133

Sample ID: KGH1C1AA
Detector ID: NAI1 1
Batch ID: 8035242
Library: [NUC_LIBR]BA133.NLB



Acquisition Start: 6-FEB-2008 15:46:58.39
Preset Live Time: 0 00:30:00
Elapsed Live Time: 0 00:30:00
Weighting: DERIVED

Start Channel: 80
End Channel: 113
Iterations: 5
Gain shift: lter

SAMPLE IDENTIFICATION: KGH1C1AA

CONFIGURATION ID: NAI1:KGH1C1AA_060281546
TITLE : BA133
SAMPLE ID : KGH1C1AA

REPORT DATE: 06-FEB-08
ACQUIRE DATE: 06-FEB-08 15:46:58
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 31-JAN-2008 12:00:00.00
CALIB DATE: 17-NOV-1993 10:39:59.60
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY:

UNITS: SAMPL
SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV
ENERGY SLOPE: 4.0000E+00 keV/C
ENERGY Q COEFF: 0.0000E+00 keV/C²
PEAK SENSITIVITY: 5.000

FWHM OFFSET: -.2302E+02 keV
FWHM SLOPE: 5.7163E+00 sqr keV
ITERATIONS: 5
GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %
ENERGY TOLERANCE: 20.000 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]BA133.NLB

Configuration : RDND06\$DKA100:[NAI1.SAMPLE]KGH1C1AA_060281546.CNF;1
 Analyses by : NAI V3.0
 Sample title : BA133
 Sample date : 31-JAN-2008 12:00:00 Acquisition date : 6-FEB-2008 15:46:58
 Sample ID : KGH1C1AA Sample quantity : 1.0000 sampl
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.69 0.0%
 Sample Multiplier: 1.00 Rejection Coeff. : 0.00
 Gain shift type : ITER Threshold Shift : No
 Weighting type : DERIVED Calculated counts: No
 Iterations : 5

NAI Residuals Report

Ratio of Residuals Over Standard Deviation Per Channel

80:	8.3	4.6	3.9	3.7	5.5	2.7	3.8	2.1
88:	1.9	0.6	0.4	0.4	1.0	-1.9	0.7	-1.5
96:	-2.4	-1.0	-2.6	-2.0	-3.0	-0.1	-3.7	-1.9
104:	-4.0	-4.0	-4.6	-4.8	-2.7	-3.7	-2.7	-3.6
112:	-2.7	-3.3						

List of Suspicious Channels

81	82	83	84	85	86
----	----	----	----	----	----

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	9.99E+00	0.00E+00	1.02E+00
2	3.96E+00	0.00E+00	1.05E+00
3	1.63E+00	0.00E+00	1.06E+00
4	7.02E-01	0.00E+00	1.07E+00

Brief Report

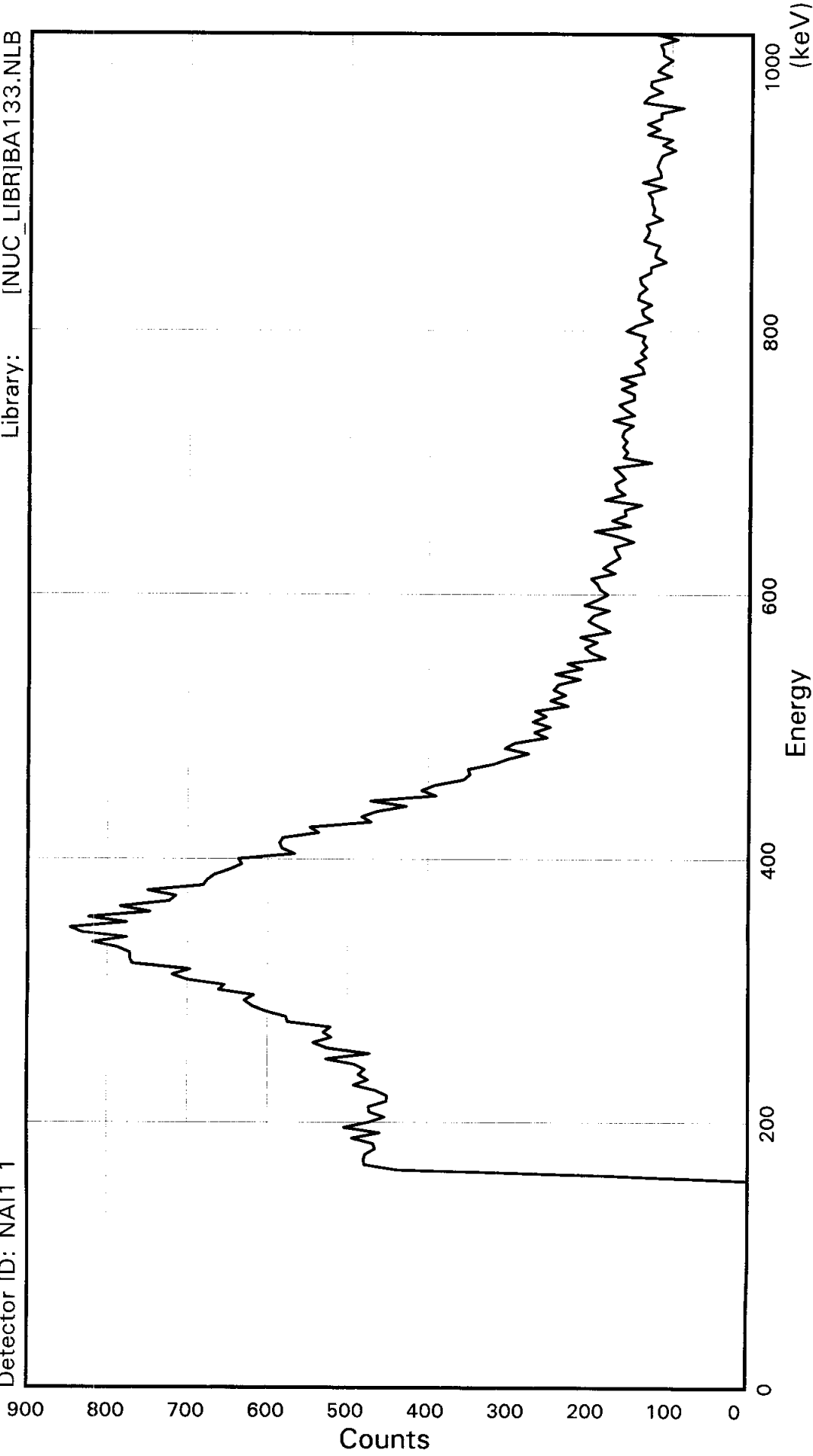
Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	785.	7.78

Total Activity :	785.	

TAL Richland WA.
BA133

Sample ID: KGH1C1AC
Detector ID: NAI1 1

BatchID: 8035242
Library: [NUC_LIBR]BA133.NLB



Acquisition Start: 6-FEB-2008 16:20:27.09
Preset Live Time: 0 00:30:00
Elapsed Live Time: 0 00:30:00
Weighting: DERIVED

Start Channel: 80
End Channel: 113
Iterations: 5
Gain shift: Iter

SAMPLE IDENTIFICATION: KGH1C1AC

CONFIGURATION ID: NAI1:KGH1C1AC_060281620
TITLE : BA133
SAMPLE ID : KGH1C1AC

REPORT DATE: 06-FEB-08
ACQUIRE DATE: 06-FEB-08 16:20:27
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 21-JAN-2008 12:00:00.00
CALIB DATE: 17-NOV-1993 10:39:59.60
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY:

UNITS: SAMPL
SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV
ENERGY SLOPE: 4.0000E+00 keV/C
ENERGY Q COEFF: 0.0000E+00 keV/C²
PEAK SENSITIVITY: 5.000

FWHM OFFSET: -.2302E+02 keV
FWHM SLOPE: 5.7163E+00 sqr keV
ITERATIONS: 5
GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %
ENERGY TOLERANCE: 20.000 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]BA133.NLB

Configuration : RDND06\$DKA100:[NAI1.SAMPLE] KGH1C1AC_060281620.CNF;1
Analyses by : NAI V3.0
Sample title : BA133
Sample date : 21-JAN-2008 12:00:00 Acquisition date : 6-FEB-2008 16:20:27
Sample ID : KGH1C1AC Sample quantity : 1.0000 sampl
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.70 0.0%
Sample Multiplier: 1.00 Rejection Coeff. : 0.00
Gain shift type : ITER Threshold Shift : No
Weighting type : DERIVED Calculated counts: No
Iterations : 5

NAI Residuals Report

Ratio of Residuals Over Standard Deviation Per Channel

80:	7.6	6.8	5.6	5.2	6.6	2.5	5.4	5.0
88:	2.0	2.8	-0.6	0.5	-1.2	-2.6	0.8	-1.6
96:	-1.9	-2.7	-2.7	-2.8	-4.5	-4.1	-3.7	-3.0
104:	-3.5	-4.8	-3.1	-5.0	-3.5	-4.6	-6.1	-3.1
112:	-5.0	-4.0						

List of Suspicious Channels

81 82 83 84 85 86 87 88

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	1.47E+01	0.00E+00	1.03E+00
2	6.17E+00	0.00E+00	1.05E+00
3	1.63E+00	0.00E+00	1.07E+00
4	8.36E-01	0.00E+00	1.08E+00

Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	802.	8.80

Total Activity :	802.	

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	
RASC4693	RA-226	3.0266E+00 ± 4.657E-02 DPM	0.1441 g	1/21/2008 1/21/2008	Armstron	2.1003E+01 ± 3.225E-01 DPM/G
		3.0266E+000 ± 3.027E+000 (1)		3.0266E+000 , 3.0266E+000		

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

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 = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

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 _____

19) Isotope File Updated by tda 3/21/2006

20) QC Approved _____

Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
Parent Standard: RA22806A000		Ref: 12/15/2003	4.4881E+02 ±	DPM/G		
RASC4693	RA-228	1.1140E+01 ± 3.871E-02 DPM	0.0407 g	1/21/2008 1/21/2008	Armstron	2.7370E+02 ± 0.000E+00 DPM/G
		1.1140E+001 ± 1.114E+001 (1)	1.1140E+001 , 1.1140E+001			
<p>STL Richland, SMFractions v4.8.29</p> <p>* - Isotope is an Impurity</p>						

Ra22806A000

Ra22806A000
Ref. 6076
448.81 ± 14.82
dpm/g
4/11/2007 DVF

ISOTOPE DILUTION RECORD

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>7/7/2004</u>
3) Source Identification Number / Ref. Number	<u>new source</u>		
4) Source Activity (dpm ± dpm/g)	<u>4.5507E+04</u>	±	<u>1.502E+03</u>
5) Percent error of Source Activity	<u>3.3</u>	%	
6) Weight of Source Material used (g)	<u>5.0063</u>		
7) (% Error) of Weight of Source Material used	<u>0.0959</u>	%	
8) Diluent	<u>1M HCL</u>		
9) Total Weight of the Dilution (g)	<u>507.61</u>		
10) (% Error) of Total Weight of the Dilution	<u>0.0591</u>	%	
11) Specific Activity of Diluted Solution dpm/g	<u>4.4881E+02</u>	±	<u>1.482E+01</u>
12) Total Uncertainty	<u>3.302</u>	%	
13) Dilution Identification Number / Ref. Number	<u>RA22806A000</u>		<u>6076</u>
14) Calibration Reference Date	<u>12/15/2003</u>		
15) Isotope Inventory File update by/date	<u>tda</u>		<u>3/30/2006</u>
16) Reviewed by/date	<u></u>		<u></u>
17) Location	<u>QCLAB</u>	18) Exhausted	<u></u>

CALCULATIONS

7) % Error of Wt. used = $(0.0048 / \text{Weight of Source Material used} * 100)$

10) % error of Dilution Wt. = $(0.3 / \text{Total Weight of Dilution} * 100)$

11) Specific Activity = $\text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$

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

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 Analytix
 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 _____

RADIUM 226
CONTINUING CALIBRATION

Quality Assurance Report.

Generated 26-MAR-2008 16:01:48.88

QA Filename : \$DISK1:[SCINT19.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-19

Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 17475.000000 Upper Bound : 19655.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JUL-2007 00:00 End Date : 1-JAN-2008 00:00

Mean : 18575.429688 Std Deviation : 360.684418

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:12	count		18681.0000		
12-FEB-2008 06:57	count		18614.0000		
13-FEB-2008 06:14	count		18681.0000		
14-FEB-2008 06:46	count		18961.0000		
14-FEB-2008 07:15	count		18771.0000		
18-FEB-2008 08:32	count		18882.0000		
18-FEB-2008 08:50	count		18835.0000		
19-FEB-2008 06:21	count		18737.0000		
20-FEB-2008 05:53	count		18871.0000		
20-FEB-2008 06:06	count		18797.0000		
21-FEB-2008 06:14	count		18702.0000		
25-FEB-2008 06:19	count		18687.0000		
26-FEB-2008 06:13	count		18669.0000		
27-FEB-2008 07:19	count		18555.0000		
28-FEB-2008 05:28	count		18215.0000		
3-MAR-2008 06:09	count		18444.0000		
4-MAR-2008 06:28	count		18449.0000		
5-MAR-2008 06:21	count		18466.0000		
6-MAR-2008 06:10	count		18248.0000		
10-MAR-2008 06:51	count		18123.0000		
11-MAR-2008 06:41	count		18567.0000		

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:12	count		18681.0000		
12-FEB-2008 06:57	count		18614.0000		
13-FEB-2008 06:14	count		18681.0000		
14-FEB-2008 06:46	count		18961.0000		
14-FEB-2008 07:15	count		18771.0000		
18-FEB-2008 08:32	count		18882.0000		
18-FEB-2008 08:50	count		18835.0000		
19-FEB-2008 06:21	count		18737.0000		
20-FEB-2008 05:53	count		18871.0000		
20-FEB-2008 06:06	count		18797.0000		
21-FEB-2008 06:14	count		18702.0000		
25-FEB-2008 06:19	count		18687.0000		
26-FEB-2008 06:13	count		18669.0000		
27-FEB-2008 07:19	count		18555.0000		
28-FEB-2008 05:28	count		18215.0000		
3-MAR-2008 06:09	count		18444.0000		
4-MAR-2008 06:28	count		18449.0000		
5-MAR-2008 06:21	count		18466.0000		
6-MAR-2008 06:10	count		18248.0000		
10-MAR-2008 06:51	count		18123.0000		
11-MAR-2008 06:41	count		18567.0000		

12-MAR-2008 06:43	count	18799.0000			
13-MAR-2008 06:39	count	18649.0000			
17-MAR-2008 06:30	count	18332.0000			
18-MAR-2008 06:06	count	18607.0000			
19-MAR-2008 06:39	count	18737.0000			
20-MAR-2008 06:29	count	18856.0000			
20-MAR-2008 06:43	count	18885.0000			
24-MAR-2008 06:15	count	19092.0000			
24-MAR-2008 06:28	count	18980.0000			
25-MAR-2008 06:07	count	19185.0000			
25-MAR-2008 06:20	count	18956.0000			

Quality Assurance Report. Generated 26-MAR-2008 16:01:49.30

QA Filename : \$DISK1:[SCINT19.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-19
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 : ----- End Date : -----
Mean : 0.421875 Std Deviation : 1.066141

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

6-MAR-2008 16:39	count		0.0000		

Quality Assurance Report.

Generated 26-MAR-2008 15:56:43.02

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 : 19590.000000 Upper Bound : 21654.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 20622.431641 Std Deviation : 344.169220

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:52	count		20589.0000		
12-FEB-2008 07:26	count		20407.0000		
13-FEB-2008 06:52	count		20588.0000		
14-FEB-2008 08:16	count		20634.0000		
18-FEB-2008 09:06	count		20661.0000		
19-FEB-2008 06:47	count		20526.0000		
20-FEB-2008 06:23	count		20755.0000		
21-FEB-2008 06:45	count		20528.0000		
25-FEB-2008 06:49	count		20395.0000		
26-FEB-2008 06:59	count		20579.0000		
27-FEB-2008 08:00	count		20779.0000		
28-FEB-2008 06:19	count		20747.0000		
3-MAR-2008 06:40	count		20733.0000		
4-MAR-2008 06:56	count		20620.0000		
5-MAR-2008 06:59	count		20763.0000		
6-MAR-2008 06:57	count		20621.0000		
10-MAR-2008 07:21	count		20537.0000		
11-MAR-2008 07:24	count		20808.0000		
12-MAR-2008 07:09	count		20883.0000		
13-MAR-2008 07:16	count		20873.0000		
17-MAR-2008 07:26	count		20967.0000		

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:52	count		20589.0000		
12-FEB-2008 07:26	count		20407.0000		
13-FEB-2008 06:52	count		20588.0000		
14-FEB-2008 08:16	count		20634.0000		
18-FEB-2008 09:06	count		20661.0000		
19-FEB-2008 06:47	count		20526.0000		
20-FEB-2008 06:23	count		20755.0000		
21-FEB-2008 06:45	count		20528.0000		
25-FEB-2008 06:49	count		20395.0000		
26-FEB-2008 06:59	count		20579.0000		
27-FEB-2008 08:00	count		20779.0000		
28-FEB-2008 06:19	count		20747.0000		
3-MAR-2008 06:40	count		20733.0000		
4-MAR-2008 06:56	count		20620.0000		
5-MAR-2008 06:59	count		20763.0000		
6-MAR-2008 06:57	count		20621.0000		
10-MAR-2008 07:21	count		20537.0000		
11-MAR-2008 07:24	count		20808.0000		
12-MAR-2008 07:09	count		20883.0000		
13-MAR-2008 07:16	count		20873.0000		
17-MAR-2008 07:26	count		20967.0000		

18-MAR-2008 06:58	count	20369.0000	
19-MAR-2008 07:11	count	20473.0000	
20-MAR-2008 06:56	count	20732.0000	
24-MAR-2008 06:45	count	20444.0000	
25-MAR-2008 06:32	count	20684.0000	

Quality Assurance Report. Generated 26-MAR-2008 15:56:43.66

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
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6-MAR-2008 16:39	count		0.0000	
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Quality Assurance Report.

Generated 26-MAR-2008 17:02:49.31

QA Filename : \$DISK1:[SCINT20.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-20

Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 445416.000000 Upper Bound : 467249.000000

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 07:06	count		449057.0000		
12-FEB-2008 07:39	count		459028.0000		
13-FEB-2008 07:11	count		450452.0000		
14-FEB-2008 08:30	count		437933.0000	Be	
14-FEB-2008 09:20	count		448052.0000		
18-FEB-2008 09:23	count		448467.0000		
19-FEB-2008 06:58	count		454815.0000		
20-FEB-2008 06:53	count		454774.0000		
21-FEB-2008 06:45	count		451890.0000		
25-FEB-2008 07:19	count		448036.0000		
26-FEB-2008 07:19	count		450953.0000		
27-FEB-2008 08:11	count		456226.0000		
28-FEB-2008 06:33	count		450119.0000		
3-MAR-2008 06:52	count		449413.0000		
4-MAR-2008 07:09	count		459342.0000		
5-MAR-2008 07:22	count		454895.0000		
6-MAR-2008 07:19	count		446050.0000		
10-MAR-2008 07:36	count		458222.0000		
11-MAR-2008 07:36	count		460734.0000		
12-MAR-2008 07:32	count		455546.0000		
13-MAR-2008 07:43	count		454851.0000		
17-MAR-2008 07:49	count		452160.0000		
18-MAR-2008 07:27	count		451713.0000		
19-MAR-2008 07:37	count		455857.0000		
20-MAR-2008 07:26	count		453486.0000		
24-MAR-2008 07:04	count		448652.0000		
25-MAR-2008 06:58	count		454943.0000		

Quality Assurance Report.

Generated 26-MAR-2008 17:02:49.60

QA Filename : \$DISK1:[SCINT20.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-20

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
6-MAR-2008 16:39	count		0.0000		

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