

## **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.: 38628

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
8030210		RINSATE-1	F8A260145-19	KF6FN1AE	9KF6FN10	8030208
		RINSATE-1	F8A260145-19	KF6FN1AD	9KF6FN10	8030210
		RINSATE-1	F8A260145-19	KF6FN1AA	9KF6FN10	8030211
		RINSATE-1	F8A260145-19	KF6FN1AC	9KF6FN10	8030212
8030213		TSB-HJ-01-0'	F8A260145-18	KF6FM1AA	9KF6FM10	8030213
		TSB-HJ-01-0'	F8A260145-18	KF6FM1AD	9KF6FM10	8030214
		TSB-HJ-01-0'	F8A260145-18	KF6FM1AH	9KF6FM10	8042387
		TSB-HJ-01-0'	F8A260145-18	KF6FM1AJ	9KF6FM10	8042389
		TSB-HJ-01-10'	F8A260145-1	KF6EM1AA	9KF6EM10	8030213
		TSB-HJ-01-10'	F8A260145-1	KF6EM1AD	9KF6EM10	8030214
		TSB-HJ-01-10'	F8A260145-1	KF6EM1AE	9KF6EM10	8042381
		TSB-HJ-01-10'	F8A260145-1	KF6EM1AF	9KF6EM10	8042382
		TSB-HJ-02-0'	F8A260145-9	KF6E11AA	9KF6E110	8030213
		TSB-HJ-02-0'	F8A260145-9	KF6E11AD	9KF6E110	8030214
		TSB-HJ-02-0'	F8A260145-9	KF6E11AE	9KF6E110	8042381
		TSB-HJ-02-0'	F8A260145-9	KF6E11AF	9KF6E110	8042382
		TSB-HJ-02-10'	F8A260145-10	KF6E21AA	9KF6E210	8030213
		TSB-HJ-02-10'	F8A260145-10	KF6E21AD	9KF6E210	8030214
		TSB-HJ-02-10'	F8A260145-10	KF6E21AH	9KF6E210	8042381
		TSB-HJ-02-10'	F8A260145-10	KF6E21AJ	9KF6E210	8042382
		TSB-HJ-03-0'	F8A260145-4	KF6ER1AA	9KF6ER10	8030213
		TSB-HJ-03-0'	F8A260145-4	KF6ER1AD	9KF6ER10	8030214
		TSB-HJ-03-0'	F8A260145-4	KF6ER1AE	9KF6ER10	8042381
		TSB-HJ-03-0'	F8A260145-4	KF6ER1AF	9KF6ER10	8042382
		TSB-HJ-03-0' FD	F8A260145-5	KF6ET1AA	9KF6ET10	8030213
		TSB-HJ-03-0' FD	F8A260145-5	KF6ET1AD	9KF6ET10	8030214

Report No.: 38628

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
8030213		TSB-HJ-03-0' FD	F8A260145-5	KF6ET1AE	9KF6ET10	8042381
		TSB-HJ-03-0' FD	F8A260145-5	KF6ET1AF	9KF6ET10	8042382
		TSB-HJ-03-10'	F8A260145-6	KF6EV1AA	9KF6EV10	8030213
		TSB-HJ-03-10'	F8A260145-6	KF6EV1AD	9KF6EV10	8030214
		TSB-HJ-03-10'	F8A260145-6	KF6EV1AE	9KF6EV10	8042381
		TSB-HJ-03-10'	F8A260145-6	KF6EV1AF	9KF6EV10	8042382
		TSB-HJ-09-0'	F8A260145-2	KF6EP1AA	9KF6EP10	8030213
		TSB-HJ-09-0'	F8A260145-2	KF6EP1AD	9KF6EP10	8030214
		TSB-HJ-09-0'	F8A260145-2	KF6EP1AE	9KF6EP10	8042381
		TSB-HJ-09-0'	F8A260145-2	KF6EP1AF	9KF6EP10	8042382
		TSB-HJ-09-10'	F8A260145-3	KF6EQ1AA	9KF6EQ10	8030213
		TSB-HJ-09-10'	F8A260145-3	KF6EQ1AD	9KF6EQ10	8030214
		TSB-HJ-09-10'	F8A260145-3	KF6EQ1AE	9KF6EQ10	8042381
		TSB-HJ-09-10'	F8A260145-3	KF6EQ1AF	9KF6EQ10	8042382
		TSB-HJ-11-0'	F8A260145-13	KF6FD1AA	9KF6FD10	8030213
		TSB-HJ-11-0'	F8A260145-13	KF6FD1AD	9KF6FD10	8030214
		TSB-HJ-11-0'	F8A260145-13	KF6FD1AE	9KF6FD10	8042387
		TSB-HJ-11-0'	F8A260145-13	KF6FD1AF	9KF6FD10	8042389
		TSB-HJ-11-10'	F8A260145-14	KF6FF1AA	9KF6FF10	8030213
		TSB-HJ-11-10'	F8A260145-14	KF6FF1AD	9KF6FF10	8030214
		TSB-HJ-11-10'	F8A260145-14	KF6FF1AE	9KF6FF10	8042387
		TSB-HJ-11-10'	F8A260145-14	KF6FF1AF	9KF6FF10	8042389
		TSB-HJ-11-10' FD	F8A260145-15	KF6FJ1AA	9KF6FJ10	8030213
		TSB-HJ-11-10' FD	F8A260145-15	KF6FJ1AD	9KF6FJ10	8030214
		TSB-HJ-11-10' FD	F8A260145-15	KF6FJ1AE	9KF6FJ10	8042387
		TSB-HJ-11-10' FD	F8A260145-15	KF6FJ1AF	9KF6FJ10	8042389
		TSB-HR-01-0'	F8A260145-16	KF6FK1AA	9KF6FK10	8030213
		TSB-HR-01-0'	F8A260145-16	KF6FK1AD	9KF6FK10	8030214
		TSB-HR-01-0'	F8A260145-16	KF6FK1AE	9KF6FK10	8042387
		TSB-HR-01-0'	F8A260145-16	KF6FK1AF	9KF6FK10	8042389
		TSB-HR-01-10'	F8A260145-17	KF6FL1AA	9KF6FL10	8030213
		TSB-HR-01-10'	F8A260145-17	KF6FL1AD	9KF6FL10	8030214
		TSB-HR-01-10'	F8A260145-17	KF6FL1AE	9KF6FL10	8042387
		TSB-HR-01-10'	F8A260145-17	KF6FL1AF	9KF6FL10	8042389
		TSB-HR-02-0'	F8A260145-11	KF6E51AA	9KF6E510	8030213
		TSB-HR-02-0'	F8A260145-11	KF6E51AD	9KF6E510	8030214
		TSB-HR-02-0'	F8A260145-11	KF6E51AE	9KF6E510	8042381
		TSB-HR-02-0'	F8A260145-11	KF6E51AF	9KF6E510	8042382
		TSB-HR-02-10'	F8A260145-12	KF6FA1AA	9KF6FA10	8030213

Report No.: 38628

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
8030213		TSB-HR-02-10'	F8A260145-12	KF6FA1AD	9KF6FA10	8030214
		TSB-HR-02-10'	F8A260145-12	KF6FA1AE	9KF6FA10	8042387
		TSB-HR-02-10'	F8A260145-12	KF6FA1AF	9KF6FA10	8042389
		TSB-HR-03-0'	F8A260145-7	KF6EW1AA	9KF6EW10	8030213
		TSB-HR-03-0'	F8A260145-7	KF6EW1AD	9KF6EW10	8030214
		TSB-HR-03-0'	F8A260145-7	KF6EW1AE	9KF6EW10	8042381
		TSB-HR-03-0'	F8A260145-7	KF6EW1AF	9KF6EW10	8042382
		TSB-HR-03-10'	F8A260145-8	KF6E01AA	9KF6E010	8030213
		TSB-HR-03-10'	F8A260145-8	KF6E01AD	9KF6E010	8030214
		TSB-HR-03-10'	F8A260145-8	KF6E01AE	9KF6E010	8042381
		TSB-HR-03-10'	F8A260145-8	KF6E01AF	9KF6E010	8042382

## Certificate of Analysis

March 26, 2008

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

Attention: Jerry Everett

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Date Received at Lab	:	January 29, 2008
Sample Type	:	Eighteen (18) Soil / One (1) Water
Project Name	:	Basic Remediation / Tronox Parcel H

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### CASE NARRATIVE

#### **I. Introduction**

On January 29, 2008, one water and eighteen 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 F8A260145 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 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 samples were processed in two analytical batches: 8042382 and 8042389. The LCS recovery is just below acceptance limits in batch 8042389; 72%. All other QC is acceptable and everything indicates that the method is in control. Data is accepted. 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:

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 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:

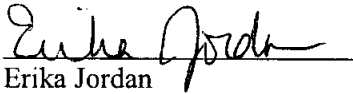
There was insufficient sample volume available to process a sample duplicate. Except as noted, the LCS, batch blank, sample and sample duplicate results are within acceptance limits.

TestAmerica St. Louis  
March 26, 2008

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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

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

### Sample Results Summary

Date: 26-Mar-08

#### TestAmerica

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

Report No. : 38628

SDG No: 8030213

Batch	Client Id Work Order	Parameter	Result +- Uncertainty ( 1s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
8042381 EPA 903.1									
	TSB-HJ-01-10'								
	KF6EM1AE	RADIUM-226	1.37E+00 +- 1.60E-01		pci/g	100%	1.37E-01	1.00E+00	
	TSB-HJ-02-0'								
	KF6E11AE	RADIUM-226	8.30E-01 +- 1.29E-01	J	pci/g	100%	1.62E-01	1.00E+00	
	TSB-HJ-02-10'								
	KF6E21AH	RADIUM-226	1.58E+00 +- 1.79E-01		pci/g	97%	8.26E-02	1.00E+00	
	TSB-HJ-02-10' DUP								
	KF6E21AM	RADIUM-226	1.91E+00 +- 2.44E-01		pci/g	100%	1.31E-01		1.1
	KF6E21AK	RADIUM-226	1.63E+00 +- 2.06E-01		pci/g	100%	1.56E-01		0.2
	TSB-HJ-03-0'								
	KF6ER1AE	RADIUM-226	1.12E+00 +- 1.43E-01		pci/g	94%	1.81E-01	1.00E+00	
	TSB-HJ-03-0' FD								
	KF6ET1AE	RADIUM-226	1.05E+00 +- 1.45E-01		pci/g	95%	2.05E-01	1.00E+00	
	TSB-HJ-03-10'								
	KF6EV1AE	RADIUM-226	1.25E+00 +- 1.64E-01		pci/g	94%	1.67E-01	1.00E+00	
	TSB-HJ-09-0'								
	KF6EP1AE	RADIUM-226	1.25E+00 +- 1.53E-01		pci/g	95%	1.55E-01	1.00E+00	
	TSB-HJ-09-10'								
	KF6EQ1AE	RADIUM-226	1.70E+00 +- 2.09E-01		pci/g	95%	1.30E-01	1.00E+00	
	TSB-HR-02-0'								
	KF6E51AE	RADIUM-226	1.25E+00 +- 1.48E-01		pci/g	100%	9.29E-02	1.00E+00	
	TSB-HR-03-0'								
	KF6EW1AE	RADIUM-226	8.05E-01 +- 1.26E-01	J	pci/g	100%	1.98E-01	1.00E+00	
	TSB-HR-03-10'								
	KF6E01AE	RADIUM-226	2.09E+00 +- 2.48E-01		pci/g	99%	1.15E-01	1.00E+00	
8042382 EPA 904.0									
	TSB-HJ-01-10'								
	KF6EM1AF	RADIUM-228	1.42E+00 +- 1.90E-01	J	pci/g	92%	5.71E-01	2.00E+00	
	TSB-HJ-02-0'								
	KF6E11AF	RADIUM-228	1.54E+00 +- 1.90E-01	J	pci/g	89%	4.60E-01	2.00E+00	
	TSB-HJ-02-10'								
	KF6E21AJ	RADIUM-228	1.45E+00 +- 1.83E-01	J	pci/g	86%	4.39E-01	2.00E+00	
	TSB-HJ-02-10' DUP								
	KF6E21AL	RADIUM-228	8.58E-01 +- 1.36E-01		pci/g	91%	4.38E-01		2.6
	KF6E21AN	RADIUM-228	1.71E+00 +- 1.91E-01		pci/g	90%	4.90E-01		1.0
	TSB-HJ-03-0'								
	KF6ER1AF	RADIUM-228	1.55E+00 +- 1.83E-01	J	pci/g	87%	4.13E-01	2.00E+00	
	TSB-HJ-03-0' FD								
	KF6ET1AF	RADIUM-228	1.57E+00 +- 1.98E-01	J	pci/g	81%	5.17E-01	2.00E+00	

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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. : 38628

SDG No: 8030213

Batch	Client Id Work Order	Parameter	Result +- Uncertainty ( 1s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
<b>8042382 EPA 904.0</b>									
	TSB-HJ-03-10'								
	KF6EV1AF	RADIUM-228	1.53E+00 +- 1.80E-01	J	pci/g	86%	4.11E-01	2.00E+00	
	TSB-HJ-09-0'								
	KF6EP1AF	RADIUM-228	1.56E+00 +- 1.96E-01	J	pci/g	86%	5.62E-01	2.00E+00	
	TSB-HJ-09-10'								
	KF6EQ1AF	RADIUM-228	1.68E+00 +- 2.01E-01	J	pci/g	84%	5.38E-01	2.00E+00	
	TSB-HR-02-0'								
	KF6E51AF	RADIUM-228	2.24E+00 +- 2.27E-01		pci/g	88%	5.37E-01	2.00E+00	
	TSB-HR-03-0'								
	KF6EW1AF	RADIUM-228	1.05E+00 +- 1.46E-01	J	pci/g	90%	3.89E-01	2.00E+00	
	TSB-HR-03-10'								
	KF6E01AF	RADIUM-228	1.21E+00 +- 1.58E-01	J	pci/g	90%	3.79E-01	2.00E+00	
<b>8042387 EPA 903.1</b>									
	TSB-HJ-01-0'								
	KF6FM1AH	RADIUM-226	1.01E+00 +- 1.46E-01		pci/g	95%	2.08E-01	1.00E+00	
	TSB-HJ-11-0'								
	KF6FD1AE	RADIUM-226	1.26E+00 +- 1.56E-01		pci/g	100%	7.54E-02	1.00E+00	
	TSB-HJ-11-10'								
	KF6FF1AE	RADIUM-226	2.32E+00 +- 2.64E-01		pci/g	94%	9.43E-02	1.00E+00	
	TSB-HJ-11-10' FD								
	KF6FJ1AE	RADIUM-226	1.55E+00 +- 1.78E-01		pci/g	91%	1.36E-01	1.00E+00	
	TSB-HR-01-0'								
	KF6FK1AE	RADIUM-226	8.07E-01 +- 1.12E-01	J	pci/g	100%	1.59E-01	1.00E+00	
	TSB-HR-01-10'								
	KF6FL1AE	RADIUM-226	1.80E+00 +- 2.21E-01		pci/g	91%	1.09E-01	1.00E+00	
	TSB-HR-02-10'								
	KF6FA1AE	RADIUM-226	2.46E+00 +- 2.82E-01		pci/g	100%	1.44E-01	1.00E+00	
<b>8042389 EPA 904.0</b>									
	TSB-HJ-01-0'								
	KF6FM1AJ	RADIUM-228	1.89E+00 +- 2.10E-01	J	pci/g	88%	4.69E-01	2.00E+00	
	TSB-HJ-11-0'								
	KF6FD1AF	RADIUM-228	2.10E+00 +- 2.16E-01		pci/g	94%	5.20E-01	2.00E+00	
	TSB-HJ-11-10'								
	KF6FF1AF	RADIUM-228	1.59E+00 +- 1.92E-01	J	pci/g	88%	5.29E-01	2.00E+00	
	TSB-HJ-11-10' FD								
	KF6FJ1AF	RADIUM-228	1.59E+00 +- 2.03E-01	J	pci/g	82%	5.71E-01	2.00E+00	
	TSB-HR-01-0'								
	KF6FK1AF	RADIUM-228	1.41E+00 +- 1.77E-01	J	pci/g	91%	4.16E-01	2.00E+00	
	TSB-HR-01-10'								

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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. : 38628

SDG No: 8030213

Client Id	Batch	Work Order	Parameter	Result +/- Uncertainty ( 1s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
8042389 EPA 904.0										
TSB-HR-01-10'										
	KF6FL1AF		RADIUM-228	1.83E+00 +- 2.08E-01	J	pci/g	86%	4.69E-01	2.00E+00	
TSB-HR-02-10'										
	KF6FA1AF		RADIUM-228	1.48E+00 +- 2.01E-01	J	pci/g	93%	6.35E-01	2.00E+00	
8030214 HASL-300 Th Mod										
TSB-HJ-01-0'										
	KF6FM1AD		THORIUM-228	1.73E+00 +- 1.77E-01		pci/g	88%	4.05E-02	1.00E-01	
			THORIUM-230	1.22E+00 +- 1.34E-01		pci/g	88%	3.34E-02	1.00E-01	
			THORIUM-232	1.55E+00 +- 1.61E-01		pci/g	88%	3.34E-02	1.00E-01	
TSB-HJ-01-0' DUP										
	KF6FM1AG		THORIUM-228	1.90E+00 +- 1.92E-01		pci/g	87%	5.02E-02		0.7
			THORIUM-230	1.09E+00 +- 1.24E-01		pci/g	87%	3.40E-02		0.7
			THORIUM-232	1.97E+00 +- 1.97E-01		pci/g	87%	3.40E-02		1.7
TSB-HJ-01-10'										
	KF6EM1AD		THORIUM-228	1.82E+00 +- 2.09E-01		pci/g	86%	5.87E-02	1.00E-01	
			THORIUM-230	1.65E+00 +- 1.92E-01		pci/g	86%	4.84E-02	1.00E-01	
			THORIUM-232	2.41E+00 +- 2.61E-01		pci/g	86%	4.84E-02	1.00E-01	
TSB-HJ-02-0'										
	KF6E11AD		THORIUM-228	1.88E+00 +- 2.10E-01		pci/g	76%	6.52E-02	1.00E-01	
			THORIUM-230	1.29E+00 +- 1.59E-01		pci/g	76%	5.38E-02	1.00E-01	
			THORIUM-232	1.76E+00 +- 1.99E-01		pci/g	76%	5.38E-02	1.00E-01	
TSB-HJ-02-10'										
	KF6E21AD		THORIUM-228	1.97E+00 +- 2.13E-01		pci/g	87%	7.18E-02	1.00E-01	
			THORIUM-230	1.79E+00 +- 1.97E-01		pci/g	87%	7.93E-02	1.00E-01	
			THORIUM-232	1.49E+00 +- 1.71E-01		pci/g	87%	5.74E-02	1.00E-01	
TSB-HJ-02-10' DUP										
	KF6E21AG		THORIUM-228	1.96E+00 +- 2.34E-01		pci/g	78%	7.41E-02		0.0
			THORIUM-230	2.14E+00 +- 2.48E-01		pci/g	78%	7.21E-02		1.1
			THORIUM-232	1.72E+00 +- 2.11E-01		pci/g	78%	7.21E-02		0.8
TSB-HJ-03-0'										
	KF6ER1AD		THORIUM-228	1.58E+00 +- 1.97E-01		pci/g	92%	6.21E-02	1.00E-01	
			THORIUM-230	9.59E-01 +- 1.37E-01		pci/g	92%	6.04E-02	1.00E-01	
			THORIUM-232	1.74E+00 +- 2.11E-01		pci/g	92%	6.04E-02	1.00E-01	
TSB-HJ-03-0' FD										
	KF6ET1AD		THORIUM-228	2.15E+00 +- 2.45E-01		pci/g	98%	5.88E-02	1.00E-01	
			THORIUM-230	1.37E+00 +- 1.74E-01		pci/g	98%	5.72E-02	1.00E-01	
			THORIUM-232	2.13E+00 +- 2.42E-01		pci/g	98%	5.72E-02	1.00E-01	
TSB-HJ-03-10'										

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RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPU)+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. : 38628

SDG No: 8030213

Client Id	Batch	Work Order	Parameter	Result +- Uncertainty ( 1s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
8030214 HASL-300 Th Mod										
TSB-HJ-03-10'										
	KF6EV1AD		THORIUM-228	1.86E+00 +- 2.11E-01		pci/g	88%	4.73E-02	1.00E-01	
			THORIUM-230	1.49E+00 +- 1.76E-01		pci/g	88%	5.43E-02	1.00E-01	
			THORIUM-232	1.57E+00 +- 1.83E-01		pci/g	88%	4.60E-02	1.00E-01	
TSB-HJ-09-0'										
	KF6EP1AD		THORIUM-228	2.05E+00 +- 2.29E-01		pci/g	90%	7.07E-02	1.00E-01	
			THORIUM-230	9.40E-01 +- 1.27E-01		pci/g	90%	7.82E-02	1.00E-01	
			THORIUM-232	1.62E+00 +- 1.89E-01		pci/g	90%	5.66E-02	1.00E-01	
TSB-HJ-09-10'										
	KF6EQ1AD		THORIUM-228	1.82E+00 +- 2.18E-01		pci/g	95%	6.18E-02	1.00E-01	
			THORIUM-230	1.50E+00 +- 1.87E-01		pci/g	95%	6.02E-02	1.00E-01	
			THORIUM-232	1.39E+00 +- 1.78E-01		pci/g	95%	6.02E-02	1.00E-01	
TSB-HJ-11-0'										
	KF6FD1AD		THORIUM-228	2.92E+00 +- 2.99E-01		pci/g	72%	5.70E-02	1.00E-01	
			THORIUM-230	1.52E+00 +- 1.81E-01		pci/g	72%	6.55E-02	1.00E-01	
			THORIUM-232	2.74E+00 +- 2.83E-01		pci/g	72%	5.55E-02	1.00E-01	
TSB-HJ-11-10'										
	KF6FF1AD		THORIUM-228	2.09E+00 +- 2.35E-01		pci/g	81%	6.28E-02	1.00E-01	
			THORIUM-230	3.02E+00 +- 3.11E-01		pci/g	81%	6.11E-02	1.00E-01	
			THORIUM-232	1.62E+00 +- 1.93E-01		pci/g	81%	6.11E-02	1.00E-01	
TSB-HJ-11-10' FD										
	KF6FJ1AD		THORIUM-228	1.87E+00 +- 2.06E-01		pci/g	76%	5.15E-02	1.00E-01	
			THORIUM-230	1.49E+00 +- 1.72E-01		pci/g	76%	5.01E-02	1.00E-01	
			THORIUM-232	1.99E+00 +- 2.15E-01		pci/g	76%	5.01E-02	1.00E-01	
TSB-HR-01-0'										
	KF6FK1AD		THORIUM-228	1.91E+00 +- 2.10E-01		pci/g	75%	5.16E-02	1.00E-01	
			THORIUM-230	1.25E+00 +- 1.52E-01		pci/g	75%	5.02E-02	1.00E-01	
			THORIUM-232	2.02E+00 +- 2.18E-01		pci/g	75%	5.02E-02	1.00E-01	
TSB-HR-01-10'										
	KF6FL1AD		THORIUM-228	1.60E+00 +- 1.90E-01		pci/g	86%	6.98E-02	1.00E-01	
			THORIUM-230	1.89E+00 +- 2.13E-01		pci/g	86%	5.76E-02	1.00E-01	
			THORIUM-232	1.73E+00 +- 2.00E-01		pci/g	86%	5.76E-02	1.00E-01	
TSB-HR-02-0'										
	KF6E51AD		THORIUM-228	2.58E+00 +- 2.93E-01		pci/g	73%	7.98E-02	1.00E-01	
			THORIUM-230	1.41E+00 +- 1.89E-01		pci/g	73%	7.77E-02	1.00E-01	
			THORIUM-232	2.08E+00 +- 2.47E-01		pci/g	73%	7.77E-02	1.00E-01	
TSB-HR-02-10'										
	KF6FA1AD		THORIUM-228	1.79E+00 +- 2.11E-01		pci/g	90%	6.49E-02	1.00E-01	

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

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### Sample Results Summary

Date: 26-Mar-08

#### TestAmerica

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

Report No. : 38628

SDG No: 8030213

Client Id	Batch	Work Order	Parameter	Result +/- Uncertainty ( 1s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
8030214 HASL-300 Th Mod										
TSB-HR-02-10'										
	KF6FA1AD		THORIUM-230	2.81E+00 +/- 2.95E-01		pci/g	90%	6.32E-02	1.00E-01	
			THORIUM-232	1.78E+00 +/- 2.09E-01		pci/g	90%	6.32E-02	1.00E-01	
TSB-HR-03-0'										
	KF6EW1AD		THORIUM-228	2.29E+00 +/- 2.75E-01		pci/g	60%	8.83E-02	1.00E-01	
			THORIUM-230	1.38E+00 +/- 1.92E-01		pci/g	60%	8.59E-02	1.00E-01	
			THORIUM-232	1.78E+00 +/- 2.29E-01		pci/g	60%	8.59E-02	1.00E-01	
TSB-HR-03-10'										
	KF6E01AD		THORIUM-228	2.02E+00 +/- 2.23E-01		pci/g	70%	5.65E-02	1.00E-01	
			THORIUM-230	3.03E+00 +/- 3.06E-01		pci/g	70%	5.50E-02	1.00E-01	
			THORIUM-232	1.92E+00 +/- 2.13E-01		pci/g	70%	5.50E-02	1.00E-01	
8030213 KWSR										
TSB-HJ-01-0'										
	KF6FM1AA		URANIUM-233/234	1.05E+00 +/- 1.18E-01		pci/g	104%	3.28E-02	1.00E+00	
			URANIUM-235/236	2.41E-02 +/- 1.25E-02	U	pci/g	104%	2.47E-02	1.00E+00	
			URANIUM-238	1.09E+00 +/- 1.22E-01		pci/g	104%	3.28E-02	1.00E+00	
TSB-HJ-01-0' DUP										
	KF6FM1AE		URANIUM-233/234	9.68E-01 +/- 1.15E-01		pci/g	99%	2.71E-02		0.5
			URANIUM-235/236	4.03E-02 +/- 1.68E-02		pci/g	99%	2.71E-02		0.8
			URANIUM-238	1.07E+00 +/- 1.24E-01		pci/g	99%	2.71E-02		0.1
TSB-HJ-01-10'										
	KF6EM1AA		URANIUM-233/234	1.69E+00 +/- 1.74E-01		pci/g	95%	3.43E-02	1.00E+00	
			URANIUM-235/236	8.50E-02 +/- 2.38E-02	J	pci/g	95%	2.91E-02	1.00E+00	
			URANIUM-238	1.61E+00 +/- 1.67E-01		pci/g	95%	2.91E-02	1.00E+00	
TSB-HJ-02-0'										
	KF6E11AA		URANIUM-233/234	9.81E-01 +/- 1.14E-01	J	pci/g	93%	3.01E-02	1.00E+00	
			URANIUM-235/236	3.77E-02 +/- 1.58E-02	J	pci/g	93%	3.01E-02	1.00E+00	
			URANIUM-238	1.11E+00 +/- 1.25E-01		pci/g	93%	3.01E-02	1.00E+00	
TSB-HJ-02-10'										
	KF6E21AA		URANIUM-233/234	2.11E+00 +/- 2.09E-01		pci/g	100%	2.91E-02	1.00E+00	
			URANIUM-235/236	6.07E-02 +/- 1.99E-02	J	pci/g	100%	2.91E-02	1.00E+00	
			URANIUM-238	1.55E+00 +/- 1.62E-01		pci/g	100%	3.43E-02	1.00E+00	
TSB-HJ-02-10' DUP										
	KF6E21AE		URANIUM-233/234	2.13E+00 +/- 2.10E-01		pci/g	91%	2.81E-02		0.1
			URANIUM-235/236	1.03E-01 +/- 2.64E-02		pci/g	91%	3.31E-02		1.3
			URANIUM-238	1.65E+00 +/- 1.68E-01		pci/g	91%	2.81E-02		0.4
TSB-HJ-03-0'										
	KF6ER1AA		URANIUM-233/234	1.17E+00 +/- 1.29E-01		pci/g	95%	4.59E-02	1.00E+00	

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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.  
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.

### Sample Results Summary

Date: 26-Mar-08

#### TestAmerica

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

Report No. : 38628

SDG No: 8030213

Batch	Client Id Work Order	Parameter	Result +- Uncertainty ( 1s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
8030213	KWSR								
	TSB-HJ-03-0'								
	KF6ER1AA	URANIUM-235/236	2.99E-02 +- 1.42E-02	J	pci/g	95%	2.98E-02	1.00E+00	
		URANIUM-238	9.76E-01 +- 1.13E-01	J	pci/g	95%	3.52E-02	1.00E+00	
	TSB-HJ-03-0' FD								
	KF6ET1AA	URANIUM-233/234	9.90E-01 +- 1.12E-01	J	pci/g	92%	3.97E-02	1.00E+00	
		URANIUM-235/236	6.24E-02 +- 1.99E-02	J	pci/g	92%	2.77E-02	1.00E+00	
		URANIUM-238	1.06E+00 +- 1.18E-01		pci/g	92%	4.25E-02	1.00E+00	
	TSB-HJ-03-10'								
	KF6EV1AA	URANIUM-233/234	1.59E+00 +- 1.67E-01		pci/g	92%	3.02E-02	1.00E+00	
		URANIUM-235/236	3.02E-02 +- 1.44E-02	J	pci/g	92%	3.02E-02	1.00E+00	
		URANIUM-238	1.33E+00 +- 1.44E-01		pci/g	92%	3.02E-02	1.00E+00	
	TSB-HJ-09-0'								
	KF6EP1AA	URANIUM-233/234	1.01E+00 +- 1.16E-01		pci/g	101%	3.00E-02	1.00E+00	
		URANIUM-235/236	1.13E-02 +- 8.99E-03	U	pci/g	101%	3.00E-02	1.00E+00	
		URANIUM-238	1.05E+00 +- 1.19E-01		pci/g	101%	3.00E-02	1.00E+00	
	TSB-HJ-09-10'								
	KF6EQ1AA	URANIUM-233/234	2.64E+00 +- 2.55E-01		pci/g	94%	4.29E-02	1.00E+00	
		URANIUM-235/236	9.99E-02 +- 2.64E-02	J	pci/g	94%	2.99E-02	1.00E+00	
		URANIUM-238	2.37E+00 +- 2.32E-01		pci/g	94%	4.88E-02	1.00E+00	
	TSB-HJ-11-0'								
	KF6FD1AA	URANIUM-233/234	1.29E+00 +- 1.40E-01		pci/g	96%	3.36E-02	1.00E+00	
		URANIUM-235/236	5.61E-02 +- 1.94E-02	J	pci/g	96%	2.53E-02	1.00E+00	
		URANIUM-238	1.17E+00 +- 1.30E-01		pci/g	96%	3.36E-02	1.00E+00	
	TSB-HJ-11-10'								
	KF6FF1AA	URANIUM-233/234	2.68E+00 +- 2.62E-01		pci/g	106%	2.76E-02	1.00E+00	
		URANIUM-235/236	1.10E-01 +- 2.90E-02	J	pci/g	106%	2.76E-02	1.00E+00	
		URANIUM-238	1.79E+00 +- 1.86E-01		pci/g	106%	2.76E-02	1.00E+00	
	TSB-HJ-11-10' FD								
	KF6FJ1AA	URANIUM-233/234	1.36E+00 +- 1.60E-01		pci/g	101%	4.90E-02	1.00E+00	
		URANIUM-235/236	1.67E-02 +- 1.24E-02	U	pci/g	101%	3.49E-02	1.00E+00	
		URANIUM-238	1.30E+00 +- 1.55E-01		pci/g	101%	3.49E-02	1.00E+00	
	TSB-HR-01-0'								
	KF6FK1AA	URANIUM-233/234	9.83E-01 +- 1.14E-01	J	pci/g	110%	3.12E-02	1.00E+00	
		URANIUM-235/236	2.47E-02 +- 1.32E-02	U	pci/g	110%	3.12E-02	1.00E+00	
		URANIUM-238	8.39E-01 +- 1.02E-01	J	pci/g	110%	3.12E-02	1.00E+00	
	TSB-HR-01-10'								
	KF6FL1AA	URANIUM-233/234	2.25E+00 +- 2.20E-01		pci/g	95%	2.92E-02	1.00E+00	
		URANIUM-235/236	5.72E-02 +- 1.91E-02	J	pci/g	95%	2.92E-02	1.00E+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.

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.



### Sample Results Summary

Date: 26-Mar-08

#### TestAmerica

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

Report No. : 38628

SDG No: 8030213

Client Id	Batch	Work Order	Parameter	Result +- Uncertainty ( 1s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
<b>8030213 KWSR</b>										
TSB-HR-01-10'										
	KF6FL1AA		URANIUM-238	1.79E+00 +- 1.80E-01		pci/g	95%	3.13E-02	1.00E+00	
TSB-HR-02-0'										
	KF6E51AA		URANIUM-233/234	1.11E+00 +- 1.23E-01		pci/g	95%	2.92E-02	1.00E+00	
			URANIUM-235/236	4.27E-02 +- 1.66E-02	J	pci/g	95%	2.92E-02	1.00E+00	
			URANIUM-238	1.15E+00 +- 1.27E-01		pci/g	95%	2.92E-02	1.00E+00	
TSB-HR-02-10'										
	KF6FA1AA		URANIUM-233/234	3.52E+00 +- 3.28E-01		pci/g	93%	3.06E-02	1.00E+00	
			URANIUM-235/236	1.59E-01 +- 3.39E-02	J	pci/g	93%	2.47E-02	1.00E+00	
			URANIUM-238	2.57E+00 +- 2.48E-01		pci/g	93%	3.27E-02	1.00E+00	
TSB-HR-03-0'										
	KF6EW1AA		URANIUM-233/234	1.09E+00 +- 1.22E-01		pci/g	97%	2.96E-02	1.00E+00	
			URANIUM-235/236	4.21E-02 +- 1.68E-02	J	pci/g	97%	2.96E-02	1.00E+00	
			URANIUM-238	9.58E-01 +- 1.11E-01	J	pci/g	97%	2.96E-02	1.00E+00	
TSB-HR-03-10'										
	KF6E01AA		URANIUM-233/234	3.36E+00 +- 3.11E-01		pci/g	103%	2.78E-02	1.00E+00	
			URANIUM-235/236	6.96E-02 +- 2.09E-02	J	pci/g	103%	2.78E-02	1.00E+00	
			URANIUM-238	2.60E+00 +- 2.48E-01		pci/g	103%	2.78E-02	1.00E+00	
<b>8030208 HASL-300 U Mod</b>										
RINSATE-1										
	KF6FN1AE		URANIUM-233/234	4.71E-02 +- 4.91E-02	U	pci/l	88%	2.12E-01	1.00E+00	
			URANIUM-235/236	5.05E-02 +- 4.20E-02	U	pci/l	88%	1.61E-01	1.00E-01	
			URANIUM-238	-1.68E-02 +- 2.82E-02	U	pci/l	88%	2.48E-01	1.00E+00	
RINSATE-1 DUP										
	KF6FN1AF		URANIUM-233/234	9.37E-02 +- 5.50E-02	U	pci/l	104%	1.50E-01		0.6
			URANIUM-235/236	-6.25E-03 +- 3.19E-02	U	pci/l	104%	1.50E-01		1.1
			URANIUM-238	6.25E-02 +- 4.49E-02	U	pci/l	104%	1.50E-01		1.5
<b>8030210 HASL-300 Th Mod</b>										
RINSATE-1										
	KF6FN1AD		THORIUM-228	-2.94E-02 +- 5.18E-02	U	pci/l	82%	3.09E-01	1.00E+00	
			THORIUM-230	1.45E-01 +- 8.48E-02	U	pci/l	82%	2.31E-01	1.00E+00	
			THORIUM-232	0.00E+00 +- 4.92E-02	U	pci/l	82%	2.31E-01	1.00E+00	
RINSATE-1 DUP										
	KF6FN1AG		THORIUM-228	-3.51E-02 +- 6.20E-02	U	pci/l	89%	3.70E-01		0.1
			THORIUM-230	5.77E-02 +- 5.91E-02	U	pci/l	89%	2.77E-01		0.8
			THORIUM-232	0.00E+00 +- 5.89E-02	U	pci/l	89%	2.77E-01		0.0
<b>8030211 EPA 903.1</b>										
RINSATE-1										

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 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  
 A2002 gamma scan software.

# Sample Results Summary

Date: 26-Mar-08

## TestAmerica

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

Report No. : 38628

SDG No: 8030210

Batch	Client Id Work Order	Parameter	Result +- Uncertainty ( 1s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RER2
8030211	EPA 903.1								
	RINSATE-1								
	KF6FN1AA	RADIUM-226	6.93E-03 +- 2.05E-02	U	pci/l	100%	8.29E-02	1.00E+00	
8030212	EPA 904.0								
	RINSATE-1								
	KF6FN1AC	RADIUM-228	3.53E-01 +- 1.31E-01	U	pci/l	92%	5.46E-01	3.00E+00	
No. of Results:		174							

QC Results Summary

Date: 26-Mar-08

TestAmerica

Ordered by Method, Batch No, QC Type,.

Report No. : 38628

SDG No.: 8030213

Batch	Work Order	Parameter	Result +- Uncertainty ( 1s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDC MDA
<b>EPA 903.1</b>									
8042381	BLANK QC,								
	KGXJA1AA	RADIUM-226	1.48E-02 +- 2.39E-02	U	pci/g	97%			9.15E-02
8042381	LCS,								
	KGXJA1AC	RADIUM-226	1.53E+00 +- 1.89E-01		pci/g	91%	112%	0.1	9.12E-02
<b>EPA 904.0</b>									
8042382	BLANK QC,								
	KGXJE1AA	RADIUM-228	-1.45E-01 +- 1.01E-01	U	pci/g	88%			5.16E-01
8042382	LCS,								
	KGXJE1AC	RADIUM-228	5.09E+00 +- 3.90E-01		pci/g	82%	101%	0.0	5.82E-01
<b>EPA 903.1</b>									
8042387	BLANK QC,								
	KGXJM1AA	RADIUM-226	-6.69E-02 +- 4.79E-02	U	pci/g	100%			1.92E-01
8042387	LCS,								
	KGXJM1AC	RADIUM-226	1.20E+00 +- 1.40E-01		pci/g	100%	89%	-0.1	7.15E-02
<b>EPA 904.0</b>									
8042389	BLANK QC,								
	KGXJ01AA	RADIUM-228	1.27E-01 +- 8.69E-02	U	pci/g	94%			3.94E-01
8042389	LCS,								
	KGXJ01AC	RADIUM-228	3.54E+00 +- 2.93E-01		pci/g	92%	72%	-0.3	4.00E-01
<b>HASL-300 Th Mod</b>									
8030214	BLANK QC,								
	KGAF11AA	THORIUM-228	-4.32E-03 +- 1.12E-02	U	pci/g	95%			6.11E-02
		THORIUM-230	1.05E-02 +- 1.08E-02	U	pci/g	95%			5.04E-02
		THORIUM-232	0.00E+00 +- 1.07E-02	U	pci/g	95%			5.04E-02
8030214	LCS,								
	KGAF11AC	THORIUM-230	2.28E+00 +- 2.41E-01		pci/g	93%	105%	0.0	5.27E-02
<b>KWSR</b>									
8030213	BLANK QC,								
	KGAFX1AA	URANIUM-233/234	1.34E-02 +- 1.26E-02	U	pci/g	99%			5.21E-02
		URANIUM-235/236	1.69E-02 +- 1.25E-02	U	pci/g	99%			3.54E-02
		URANIUM-238	2.50E-02 +- 1.54E-02	U	pci/g	99%			4.02E-02
8030213	LCS,								
	KGAFX1AC	URANIUM-233/234	1.59E+00 +- 2.07E-01		pci/g	48%	95%	0.0	6.36E-02
		URANIUM-238	1.84E+00 +- 2.32E-01		pci/g	48%	105%	0.1	6.36E-02
<b>HASL-300 U Mod</b>									
8030208	BLANK QC,								
	KGAF11AA	URANIUM-233/234	7.69E-02 +- 6.25E-02	U	pci/l	86%			2.40E-01
		URANIUM-235/236	6.99E-02 +- 5.03E-02	U	pci/l	86%			1.67E-01
		URANIUM-238	-2.80E-02 +- 3.77E-02	U	pci/l	86%			2.40E-01
8030208	LCS,								
	KGAF11AC	URANIUM-233/234	8.92E+00 +- 9.19E-01		pci/l	87%	102%	0.0	2.52E-01
		URANIUM-238	9.17E+00 +- 9.40E-01		pci/l	87%	100%	0.0	2.16E-01

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.

QC Results Summary

Date: 26-Mar-08

TestAmerica

Ordered by Method, Batch No, QC Type,.

Report No. : 38628

SDG No.: 8030210

Batch	Work Order	Parameter	Result +- Uncertainty ( 1s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDC MDA
<b>HASL-300 Th Mod</b>									
8030210	BLANK QC,								
	KGAFJ1AA	THORIUM-228	0.00E+00 +- 3.70E-02	U	pci/l	87%			1.74E-01
		THORIUM-230	6.45E-02 +- 5.14E-02	U	pci/l	87%			1.72E-01
		THORIUM-232	-7.16E-03 +- 3.65E-02	U	pci/l	87%			1.72E-01
8030210	LCS,								
	KGAFJ1AC	THORIUM-230	1.14E+01 +- 1.09E+00		pci/l	91%	101%	0.0	1.66E-01
<b>EPA 903.1</b>									
8030211	BLANK QC,								
	KGAFM1AA	RADIUM-226	5.56E-02 +- 4.21E-02	U	pci/l	100%			1.45E-01
8030211	LCS,								
	KGAFM1AC	RADIUM-226	1.07E+00 +- 1.42E-01		pci/l	98%	78%	-0.2	1.19E-01
<b>EPA 904.0</b>									
8030212	BLANK QC,								
	KGAFN1AA	RADIUM-228	2.15E-01 +- 1.08E-01	U	pci/l	94%			4.71E-01
8030212	LCS,								
	KGAFN1AC	RADIUM-228	4.75E+00 +- 3.61E-01		pci/l	90%	97%	0.0	5.17E-01
No. of Results: 30									

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.: F8A260145-19  
 Client Sample ID: RINSATE-1  
 BASIC REMEDIATION - PARCEL H

SDG: 8030210  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 3:00:00 PM  
 Received Date: 1/26/2008 10:15:00 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
<b>Batch: 8030208 HASL-300 U Mod</b>											
URANIUM-233/234	<b>4.71E-02</b> U	U	4.9E-02	4.9E-02	2.12E-01	pci/l	88% 0.22	2/12/08 08:04 a	0.2	L	ALP1
URANIUM-235/236	<b>5.05E-02</b> U	U	4.2E-02	4.2E-02	1.61E-01	pci/l	88% 0.31	2/12/08 08:04 a	0.2	L	ALP1
URANIUM-238	<b>-1.68E-02</b> U	U	2.8E-02	2.8E-02	2.48E-01	pci/l	(1.2) -0.07	2/12/08 08:04 a	0.2	L	ALP1
<b>Work Order: KF6FN1AE Report DB ID: 9KF6FN10</b>											
<b>Ratio U-234/238 = -2.8</b>											
<b>Batch: 8030210 HASL-300 Th Mod</b>											
THORIUM-228	<b>-2.94E-02</b> U	U	5.2E-02	5.2E-02	3.09E-01	pci/l	82% -0.1	2/8/08 04:46 p	0.2001	L	ALP113
THORIUM-230	<b>1.45E-01</b> U	U	8.4E-02	8.5E-02	2.31E-01	pci/l	-0.57 0.63	2/8/08 04:46 p	0.2001	L	ALP113
THORIUM-232	<b>0.00E+00</b> U	U	0.0E+00	4.9E-02	2.31E-01	pci/l	(1.7) 0.0	2/8/08 04:46 p	0.2001	L	ALP113
<b>Work Order: KF6FN1AD Report DB ID: 9KF6FN10</b>											
<b>Batch: 8030211 EPA 903.1</b>											
RADIUM-226	<b>6.93E-03</b> U	U	2.0E-02	2.0E-02	8.29E-02	pci/l	100% 0.08	2/11/08 01:35 p	0.9601	L	ASC1MB
<b>Work Order: KF6FN1AA Report DB ID: 9KF6FN10</b>											
<b>Batch: 8030212 EPA 904.0</b>											
RADIUM-228	<b>3.53E-01</b> U	U	1.3E-01	1.3E-01	5.46E-01	pci/l	92% 0.65	2/13/08 06:23 a	0.9601	L	GPC6A
<b>Work Order: KF6FN1AC Report DB ID: 9KF6FN10</b>											

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.: F8A260145-19  
 Client Sample ID: RINSATE-1  
 BASIC REMEDIATION - PARCEL H

SDG: 8030210  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 3:00:00 PM  
 Received Date: 1/26/2008 10:15:00 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/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
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No. of Results: 8    Comments:

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TestAmerica    MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.  
 rpt\$TLRch\$Sample    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.: F8A260145-18  
 Client Sample ID: TSB-HJ-01-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 11:50:00 AM  
 Received Date: 1/26/2008 10:15:00 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: 8030213 KWSR Work Order: KF6FM1AA Report DB ID: 9KF6FM10												
URANIUM-233/234	1.05E+00		8.0E-02	1.2E-01	3.28E-02 pci/g	8.09E-03	104% (32.)	(8.9)	2/25/08 06:17 a	1.01	1.01	ALP71
URANIUM-235/236	2.41E-02 U		1.2E-02	1.2E-02	2.47E-02 pci/g	4.04E-03	104% (1.9)	(1.9)	2/25/08 06:17 a	1.01	1.01	ALP71
URANIUM-238	1.09E+00		8.2E-02	1.2E-01	3.28E-02 pci/g	8.09E-03	104% (33.3)	(8.9)	2/25/08 06:17 a	1.01	1.01	ALP71

Ratio U-234/238 = 1.0												
Batch: 8030214 HASL-300 Th Mod Work Order: KF6FM1AD Report DB ID: 9KF6FM10												
THORIUM-228	1.73E+00		1.1E-01	1.8E-01	4.05E-02 pci/g	1.05E-02	88% (42.8)	(9.8)	2/22/08 06:16 a	1.02	1.02	ALP117
THORIUM-230	1.22E+00		9.2E-02	1.3E-01	3.34E-02 pci/g	7.25E-03	88% (36.7)	(9.1)	2/22/08 06:16 a	1.02	1.02	ALP117
THORIUM-232	1.55E+00		1.0E-01	1.6E-01	3.34E-02 pci/g	7.25E-03	88% (46.3)	(9.6)	2/22/08 06:16 a	1.02	1.02	ALP117

Batch: 8042387 EPA 903.1 Work Order: KF6FM1AH Report DB ID: 9KF6FM10												
RADIUM-226	1.01E+00		9.9E-02	1.5E-01	2.08E-01 pci/g	9.52E-02	95% (4.9)	(7.)	3/11/08 01:52 p	1.03	1.03	ASC7RH

Batch: 8042389 EPA 904.0 Work Order: KF6FM1AJ Report DB ID: 9KF6FM10												
RADIUM-228	1.89E+00 J		1.8E-01	2.1E-01	4.69E-01 pci/g	2.05E-01	88% (4.)	(9.)	3/13/08 06:08 a	1.03	1.03	GPC2C

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.: F8A260145-18  
 Client Sample ID: TSB-HJ-01-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No. :  
 Matrix: SOLID SO

Collection Date: 1/25/2008 11:50:00 AM  
 Received Date: 1/26/2008 10:15:00 AM

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/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 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 SAMPLE RESULTS

Date: 26-Mar-08

Lab Name: TestAmerica  
 Lot-Sample No.: F8A260145-1  
 Client Sample ID: TSB-HJ-01-10'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 12:10:00 PM  
 Received Date: 1/26/2008 10:15:00 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
<b>Batch: 8030213 KWSR</b> Work Order: KF6EM1AA Report DB ID: 9KF6EM10											
URANIUM-233/234	<b>1.69E+00</b>		1.0E-01	1.7E-01	3.43E-02	pci/g	95% (49.3)	2/22/08 02:19 p	1.02		ALP1
					8.94E-03		(9.7)		G		
URANIUM-235/236	<b>8.50E-02</b>	J	2.3E-02	2.4E-02	2.91E-02	pci/g	95% (2.9)	2/22/08 02:19 p	1.02		ALP1
					6.32E-03		(3.6)		G		
URANIUM-238	<b>1.61E+00</b>		9.9E-02	1.7E-01	2.91E-02	pci/g	95% (55.5)	2/22/08 02:19 p	1.02		ALP1
					6.32E-03		(9.7)		G		
<b>Batch: 8030214 HASL-300 Th Mod</b> Work Order: KF6EM1AD Report DB ID: 9KF6EM10 Ratio U-234/238 = 1.0											
THORIUM-228	<b>1.82E+00</b>		1.4E-01	2.1E-01	5.87E-02	pci/g	86% (31.1)	2/21/08 03:24 p	1.01		ALP171
					1.53E-02		(8.7)		G		
THORIUM-230	<b>1.65E+00</b>		1.3E-01	1.9E-01	4.84E-02	pci/g	86% (34.)	2/21/08 03:24 p	1.01		ALP171
					1.05E-02		(8.6)		G		
THORIUM-232	<b>2.41E+00</b>		1.6E-01	2.6E-01	4.84E-02	pci/g	86% (49.9)	2/21/08 03:24 p	1.01		ALP171
					1.05E-02		(9.3)		G		
<b>Batch: 8042381 EPA 903.1</b> Work Order: KF6EM1AE Report DB ID: 9KF6EM10											
RADIUM-226	<b>1.37E+00</b>		9.4E-02	1.6E-01	1.37E-01	pci/g	100% (10.)	3/3/08 01:41 p	1.01		ASC4HC
					6.09E-02		(8.5)		G		
<b>Batch: 8042382 EPA 904.0</b> Work Order: KF6EM1AF Report DB ID: 9KF6EM10											
RADIUM-228	<b>1.42E+00</b>	J	1.7E-01	1.9E-01	5.71E-01	pci/g	92% (2.5)	3/5/08 06:02 a	1.01		GPC1B
					2.62E-01		(7.5)		G		

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  
 Lot-Sample No.: F8A260145-1  
 Client Sample ID: TSB-HJ-01-10'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 12:10:00 PM  
 Received Date: 1/26/2008 10:15:00 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

Date: 26-Mar-08

SAMPLE RESULTS

Lab Name: TestAmerica  
 Lot-Sample No.: F8A260145-9  
 Client Sample ID: TSB-HJ-02-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 8:40:00 AM  
 Received Date: 1/26/2008 10:15:00 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
<b>Batch: 8030213 KWSR</b>											
URANIUM-233/234	<b>9.81E-01</b>	J	7.9E-02	1.1E-01	3.01E-02	pci/g	93% (32.6)	2/22/08 02:21 p	1.02	1.02	ALP9
					6.54E-03		(8.6)		G		
URANIUM-235/236	<b>3.77E-02</b>	J	1.5E-02	1.6E-02	3.01E-02	pci/g	93% (1.3)	2/22/08 02:21 p	1.02	1.02	ALP9
					6.54E-03		(2.4)		G		
URANIUM-238	<b>1.11E+00</b>		8.4E-02	1.3E-01	3.01E-02	pci/g	93% (37.)	2/22/08 02:21 p	1.02	1.02	ALP9
					6.54E-03		(8.9)		G		
<b>Ratio U-234/238 = 0.9</b>											
<b>Batch: 8030214 HASL-300 Th Mod</b>											
THORIUM-228	<b>1.88E+00</b>		1.5E-01	2.1E-01	6.52E-02	pci/g	76% (28.8)	2/22/08 06:16 a	1.02	1.02	ALP171
					1.70E-02		(8.9)		G		
THORIUM-230	<b>1.29E+00</b>		1.2E-01	1.6E-01	5.38E-02	pci/g	76% (24.)	2/22/08 06:16 a	1.02	1.02	ALP171
					1.17E-02		(8.1)		G		
THORIUM-232	<b>1.76E+00</b>		1.4E-01	2.0E-01	5.38E-02	pci/g	76% (32.7)	2/22/08 06:16 a	1.02	1.02	ALP171
					1.17E-02		(8.8)		G		
<b>Batch: 8042381 EPA 903.1</b>											
RADIUM-226	<b>8.30E-01</b>	J	9.5E-02	1.3E-01	1.62E-01	pci/g	100% (5.1)	3/3/08 02:39 p	1.01	1.01	ASCDSA
					6.89E-02		(6.4)		G		
<b>Batch: 8042382 EPA 904.0</b>											
RADIUM-228	<b>1.54E+00</b>	J	1.6E-01	1.9E-01	4.60E-01	pci/g	89% (3.4)	3/5/08 06:56 a	1.01	1.01	GPC4B
					2.02E-01		(8.1)		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.: F8A260145-9  
 Client Sample ID: TSB-HJ-02-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No. :  
 Matrix: SOLID SO

Collection Date: 1/25/2008 8:40:00 AM

Received Date: 1/26/2008 10:15:00 AM

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.: F8A260145-10  
 Client Sample ID: TSB-HJ-02-10'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 8:55:00 AM  
 Received Date: 1/26/2008 10:15:00 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: 8030213 KWSR												
URANIUM-233/234	2.11E+00		1.1E-01	2.1E-01	2.91E-02	pci/g	100% (72.6)		2/22/08 02:21 p	1.03	G	ALP10
URANIUM-235/236	6.07E-02	J	1.9E-02	2.0E-02	2.91E-02	pci/g	100% (2.1)		2/22/08 02:21 p	1.03	G	ALP10
URANIUM-238	1.55E+00		9.7E-02	1.6E-01	3.43E-02	pci/g	100% (45.2)		2/22/08 02:21 p	1.03	G	ALP10

Ratio U-234/238 = 1.4

Batch: 8030214 HASL-300 Th Mod												
THORIUM-228	1.97E+00		1.4E-01	2.1E-01	7.18E-02	pci/g	87% (27.4)		2/22/08 06:16 a	1.02	G	ALP172
THORIUM-230	1.79E+00		1.4E-01	2.0E-01	7.93E-02	pci/g	87% (22.5)		2/22/08 06:16 a	1.02	G	ALP172
THORIUM-232	1.49E+00		1.2E-01	1.7E-01	5.74E-02	pci/g	87% (25.9)		2/22/08 06:16 a	1.02	G	ALP172

Batch: 8042381 EPA 903.1												
RADIUM-226	1.58E+00		9.6E-02	1.8E-01	8.26E-02	pci/g	97% (19.1)		3/3/08 02:34 p	1.01	G	ASCESD

Batch: 8042382 EPA 904.0												
RADIUM-228	1.45E+00	J	1.6E-01	1.8E-01	4.39E-01	pci/g	86% (3.3)		3/5/08 06:56 a	1.01	G	GPC4C

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:** 8030213      **Collection Date:** 1/25/2008 8:55:00 AM  
**Lot-Sample No.:** F8A260145-10      **Report No.:** 38628      **Received Date:** 1/26/2008 10:15:00 AM  
**Client Sample ID:** TSB-HJ-02-10'      **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/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

Date: 26-Mar-08

SAMPLE RESULTS

Lab Name: TestAmerica  
 Lot-Sample No.: F8A260145-4  
 Client Sample ID: TSB-HJ-03-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 7:25:00 AM  
 Received Date: 1/26/2008 10:15:00 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: 8030213 KWSR Work Order: KF6ER1AA Report DB ID: 9KF6ER10											
URANIUM-233/234	1.17E+00		8.5E-02	1.3E-01	4.59E-02 pci/g		95% (25.4)	2/22/08 02:19 p		1.01	ALP4
						1.45E-02	1.00E+00 (9.)			G	
URANIUM-235/236	2.99E-02	J	1.4E-02	1.4E-02	2.98E-02 pci/g		95% (1.)	2/22/08 02:19 p		1.01	ALP4
						6.48E-03	1.00E+00 (2.1)			G	
URANIUM-238	9.76E-01	J	7.8E-02	1.1E-01	3.52E-02 pci/g		95% (27.7)	2/22/08 02:19 p		1.01	ALP4
						9.17E-03	1.00E+00 (8.6)			G	

Batch: 8030214 HASL-300 Th Mod Work Order: KF6ER1AD Report DB ID: 9KF6ER10 Ratio U-234/238 = 1.2											
THORIUM-228	1.58E+00		1.4E-01	2.0E-01	6.21E-02 pci/g		92% (25.5)	2/21/08 03:24 p		1.03	ALP174
						1.35E-02	1.00E-01 (8.)			G	
THORIUM-230	9.59E-01		1.1E-01	1.4E-01	6.04E-02 pci/g		92% (15.9)	2/21/08 03:24 p		1.03	ALP174
						1.31E-02	1.00E-01 (7.)			G	
THORIUM-232	1.74E+00		1.5E-01	2.1E-01	6.04E-02 pci/g		92% (28.8)	2/21/08 03:24 p		1.03	ALP174
						1.31E-02	1.00E-01 (8.3)			G	

Batch: 8042381 EPA 903.1 Work Order: KF6ER1AE Report DB ID: 9KF6ER10											
RADIUM-226	1.12E+00		9.5E-02	1.4E-01	1.81E-01 pci/g		94% (6.2)	3/3/08 01:47 p		1.0	ASC7HB
						8.25E-02	1.00E+00 (7.8)			G	

Batch: 8042382 EPA 904.0 Work Order: KF6ER1AF Report DB ID: 9KF6ER10											
RADIUM-228	1.55E+00	J	1.6E-01	1.8E-01	4.13E-01 pci/g		87% (3.8)	3/5/08 06:55 a		1.0	GPC3A
						1.77E-01	2.00E+00 (8.5)			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.: F8A260145-4  
 Client Sample ID: TSB-HJ-03-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 7:25:00 AM  
 Received Date: 1/26/2008 10:15:00 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:

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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:** 8030213      **Collection Date:** 1/25/2008 7:25:00 AM  
**Lot-Sample No.:** F8A260145-5      **Report No.:** 38628      **Received Date:** 1/26/2008 10:15:00 AM  
**Client Sample ID:** TSB-HJ-03-0' 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
<b>Batch: 8030213 KWSR</b>												
URANIUM-233/234	<b>9.90E-01</b>	J	7.6E-02	1.1E-01	3.97E-02	pci/g	92% (24.9)		2/22/08 02:20 p	1.02	1.02	ALP5
					1.20E-02		1.00E+00 (8.9)			G		
URANIUM-235/236	<b>6.24E-02</b>	J	1.9E-02	2.0E-02	2.77E-02	pci/g	92% (2.3)		2/22/08 02:20 p	1.02	1.02	ALP5
					6.01E-03		1.00E+00 (3.1)			G		
URANIUM-238	<b>1.06E+00</b>		7.9E-02	1.2E-01	4.25E-02	pci/g	92% (25.)		2/22/08 02:20 p	1.02	1.02	ALP5
					1.34E-02		1.00E+00 (9.)			G		
<b>Ratio U-234/238 = 0.9</b>												
<b>Batch: 8030214 HASL-300 Th Mod</b>												
THORIUM-228	<b>2.15E+00</b>		1.6E-01	2.5E-01	5.88E-02	pci/g	98% (36.5)		2/21/08 03:24 p	1.02	1.02	ALP175
					1.28E-02		1.00E-01 (8.8)			G		
THORIUM-230	<b>1.37E+00</b>		1.3E-01	1.7E-01	5.72E-02	pci/g	98% (24.)		2/21/08 03:24 p	1.02	1.02	ALP175
					1.24E-02		1.00E-01 (7.9)			G		
THORIUM-232	<b>2.13E+00</b>		1.6E-01	2.4E-01	5.72E-02	pci/g	98% (37.2)		2/21/08 03:24 p	1.02	1.02	ALP175
					1.24E-02		1.00E-01 (8.8)			G		
<b>Batch: 8042381 EPA 903.1</b>												
RADIUM-226	<b>1.05E+00</b>		1.0E-01	1.5E-01	2.05E-01	pci/g	95% (5.1)		3/3/08 01:43 p	1.0	1.0	ASC8HA
					9.31E-02		1.00E+00 (7.2)			G		
<b>Batch: 8042382 EPA 904.0</b>												
RADIUM-228	<b>1.57E+00</b>	J	1.8E-01	2.0E-01	5.17E-01	pci/g	81% (3.)		3/5/08 06:55 a	1.0	1.0	GPC3B
					2.28E-01		2.00E+00 (7.9)			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      **SDG:** 8030213      **Collection Date:** 1/25/2008 7:25:00 AM  
**Lot-Sample No.:** F8A260145-5      **Report No.:** 38628      **Received Date:** 1/26/2008 10:15:00 AM  
**Client Sample ID:** TSB-HJ-03-0' 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	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
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No. of Results: 8      Comments:

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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.: F8A260145-6  
 Client Sample ID: TSB-HJ-03-10'  
 SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 7:45:00 AM  
 Received Date: 1/26/2008 10:15:00 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: 8030213	KWSR						Report DB ID: 9KF6EV10					
URANIUM-233/234	1.59E+00		1.0E-01	1.7E-01	3.02E-02	pci/g	92% (52.8)		2/22/08 02:20 p	1.02	1.02	ALP6
						6.55E-03	1.00E+00 (9.6)			G		
URANIUM-235/236	3.02E-02	J	1.4E-02	1.4E-02	3.02E-02	pci/g	92% (1.)		2/22/08 02:20 p	1.02	1.02	ALP6
						6.55E-03	1.00E+00 (2.1)			G		
URANIUM-238	1.33E+00		9.1E-02	1.4E-01	3.02E-02	pci/g	92% (44.)		2/22/08 02:20 p	1.02	1.02	ALP6
						6.55E-03	1.00E+00 (9.2)			G		

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: 8030214	HASL-300 Th Mod						Report DB ID: 9KF6EV10					
THORIUM-228	1.86E+00		1.4E-01	2.1E-01	4.73E-02	pci/g	88% (39.4)		2/21/08 03:24 p	1.0	1.0	ALP176
						1.03E-02	1.00E-01 (8.9)			G		
THORIUM-230	1.49E+00		1.2E-01	1.8E-01	5.43E-02	pci/g	88% (27.5)		2/21/08 03:24 p	1.0	1.0	ALP176
						1.41E-02	1.00E-01 (8.5)			G		
THORIUM-232	1.57E+00		1.2E-01	1.8E-01	4.60E-02	pci/g	88% (34.2)		2/21/08 03:24 p	1.0	1.0	ALP176
						1.00E-02	1.00E-01 (8.6)			G		

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: 8042381	EPA 903.1						Report DB ID: 9KF6EV10					
RADIUM-226	1.25E+00		1.1E-01	1.6E-01	1.67E-01	pci/g	94% (7.5)		3/3/08 02:37 p	1.0	1.0	ASC9RC
						7.30E-02	1.00E+00 (7.6)			G		
Batch: 8042382	EPA 904.0						Report DB ID: 9KF6EV10					
RADIUM-228	1.53E+00	J	1.6E-01	1.8E-01	4.11E-01	pci/g	86% (3.7)		3/5/08 06:56 a	1.0	1.0	GPC3C
						1.77E-01	2.00E+00 (8.5)			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.: F8A260145-6  
 Client Sample ID: TSB-HJ-03-10'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No. :  
 Matrix: SOLID SO

Collection Date: 1/25/2008 7:45:00 AM  
 Received Date: 1/26/2008 10:15:00 AM  
 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.: F8A260145-2  
 Client Sample ID: TSB-HJ-09-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 12:50:00 PM  
 Received Date: 1/26/2008 10:15:00 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: 8030213 KWSR												
URANIUM-233/234	1.01E+00		8.0E-02	1.2E-01	3.00E-02	pci/g	101% (33.8)		2/22/08 02:19 p		1.0	ALP2
							6.51E-03 (8.7)				G	
URANIUM-235/236	1.13E-02	U	8.9E-03	9.0E-03	3.00E-02	pci/g	101% 0.38		2/22/08 02:19 p		1.0	ALP2
							6.51E-03 (1.3)				G	
URANIUM-238	1.05E+00		8.1E-02	1.2E-01	3.00E-02	pci/g	101% (35.1)		2/22/08 02:19 p		1.0	ALP2
							6.51E-03 (8.8)				G	

Ratio U-234/238 = 1.0												
Batch: 8030214 HASL-300 Th Mod												
THORIUM-228	2.05E+00		1.5E-01	2.3E-01	7.07E-02	pci/g	90% (29.)		2/21/08 03:24 p		1.0	ALP172
							2.14E-02 (9.)				G	
THORIUM-230	9.40E-01		9.8E-02	1.3E-01	7.82E-02	pci/g	90% (12.)		2/21/08 03:24 p		1.0	ALP172
							2.55E-02 (7.4)				G	
THORIUM-232	1.62E+00		1.3E-01	1.9E-01	5.66E-02	pci/g	90% (28.6)		2/21/08 03:24 p		1.0	ALP172
							1.47E-02 (8.6)				G	

Batch: 8042381 EPA 903.1												
RADIUM-226	1.25E+00		9.5E-02	1.5E-01	1.55E-01	pci/g	95% (8.1)		3/3/08 01:44 p		1.01	ASC5HA
							6.96E-02 (8.2)				G	

Batch: 8042382 EPA 904.0												
RADIUM-228	1.56E+00	J	1.7E-01	2.0E-01	5.62E-01	pci/g	86% (2.8)		3/5/08 06:02 a		1.01	GPC1C
							2.55E-01 (7.9)				G	

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.  
 rptSLRchSample 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.: F8A260145-2  
 Client Sample ID: TSB-HJ-09-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 12:50:00 PM  
 Received Date: 1/26/2008 10:15:00 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  
 Lot-Sample No.: F8A260145-3  
 Client Sample ID: TSB-HJ-09-10'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 1:00:00 PM  
 Received Date: 1/26/2008 10:15:00 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
<b>Batch: 8030213 KWSR</b>											
URANIUM-233/234	<b>2.64E+00</b>		1.3E-01	2.5E-01	4.29E-02	pci/g	94% (61.5)	2/22/08 02:19 p	1.02	1.02	ALP3
URANIUM-235/236	<b>9.99E-02</b> J		2.5E-02	2.6E-02	2.99E-02	pci/g	94% (3.3)	2/22/08 02:19 p	1.02	1.02	ALP3
URANIUM-238	<b>2.37E+00</b>		1.2E-01	2.3E-01	4.88E-02	pci/g	94% (48.5)	2/22/08 02:19 p	1.02	1.02	ALP3
<b>Work Order: KF6EQ1AA Report DB ID: 9KF6EQ10</b>											
<b>Ratio U-234/238 = 1.1</b>											
<b>Batch: 8030214 HASL-300 Th Mod</b>											
THORIUM-228	<b>1.82E+00</b>		1.5E-01	2.2E-01	6.18E-02	pci/g	95% (29.4)	2/21/08 03:24 p	1.02	1.02	ALP173
THORIUM-230	<b>1.50E+00</b>		1.4E-01	1.9E-01	6.02E-02	pci/g	95% (24.8)	2/21/08 03:24 p	1.02	1.02	ALP173
THORIUM-232	<b>1.39E+00</b>		1.3E-01	1.8E-01	6.02E-02	pci/g	95% (23.2)	2/21/08 03:24 p	1.02	1.02	ALP173
<b>Work Order: KF6EQ1AE Report DB ID: 9KF6EQ10</b>											
RADIUM-226	<b>1.70E+00</b>		1.1E-01	2.1E-01	1.30E-01	pci/g	95% (13.1)	3/3/08 01:48 p	1.02	1.02	ASC6MB
<b>Batch: 8042382 EPA 904.0</b>											
RADIUM-228	<b>1.68E+00</b> J		1.7E-01	2.0E-01	5.38E-01	pci/g	84% (3.1)	3/5/08 06:55 a	1.02	1.02	GPC1D
<b>Work Order: KF6EQ1AF Report DB ID: 9KF6EQ10</b>											

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:** 8030213      **Collection Date:** 1/25/2008 1:00:00 PM  
**Lot-Sample No.:** F8A260145-3      **Report No.:** 38628      **Received Date:** 1/26/2008 10:15:00 AM  
**Client Sample ID:** TSB-HJ-09-10'      **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
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No. of Results: 8      Comments:

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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:** 8030213 **Collection Date:** 1/25/2008 10:30:00 AM  
**Lot-Sample No.:** F8A260145-13 **Report No.:** 38628 **Received Date:** 1/26/2008 10:15:00 AM  
**Client Sample ID:** TSB-HJ-11-0' **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: 8030213	KWSR						Report DB ID: 9KF6FD10				
URANIUM-233/234	1.29E+00		9.0E-02	1.4E-01	3.36E-02 pci/g	8.27E-03	96% (38.3) 1.00E+00 (9.2)	2/22/08 02:23 p	1.03	G	ALP71
URANIUM-235/236	5.61E-02 J		1.9E-02	1.9E-02	2.53E-02 pci/g	4.14E-03	96% (2.2) 1.00E+00 (2.9)	2/22/08 02:23 p	1.03	G	ALP71
URANIUM-238	1.17E+00		8.6E-02	1.3E-01	3.36E-02 pci/g	8.27E-03	96% (34.8) 1.00E+00 (9.)	2/22/08 02:23 p	1.03	G	ALP71

Ratio U-234/238 = 1.1

Batch: 8030214	HASL-300 Th Mod						Report DB ID: 9KF6FD10				
THORIUM-228	2.92E+00		1.9E-01	3.0E-01	5.70E-02 pci/g	1.24E-02	72% (51.1) 1.00E-01 (9.8)	2/22/08 06:16 a	1.02	G	ALP176
THORIUM-230	1.52E+00		1.3E-01	1.8E-01	6.55E-02 pci/g	1.70E-02	72% (23.3) 1.00E-01 (8.4)	2/22/08 06:16 a	1.02	G	ALP176
THORIUM-232	2.74E+00		1.8E-01	2.8E-01	5.55E-02 pci/g	1.21E-02	72% (49.4) 1.00E-01 (9.7)	2/22/08 06:16 a	1.02	G	ALP176

Batch: 8042387	EPA 903.1						Report DB ID: 9KF6FD10				
RADIUM-226	1.26E+00		8.4E-02	1.6E-01	7.54E-02 pci/g	3.04E-02	100% (16.7) 1.00E+00 (8.1)	3/11/08 01:34 p	1.02	G	ASC2MA

Batch: 8042389	EPA 904.0						Report DB ID: 9KF6FD10				
RADIUM-228	2.10E+00		1.8E-01	2.2E-01	5.20E-01 pci/g	2.37E-01	94% (4.) 2.00E+00 (9.7)	3/13/08 06:13 a	1.02	G	GPC1A

TestAmerica MDC\MDA\Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.  
 J Qual - No Uj< 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.

FORM I

Date: 26-Mar-08

SAMPLE RESULTS

Lab Name: TestAmerica  
 Lot-Sample No.: F8A260145-13  
 Client Sample ID: TSB-HJ-11-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 10:30:00 AM  
 Received Date: 1/26/2008 10:15:00 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 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  
SAMPLE RESULTS

Date: 26-Mar-08

Lab Name: TestAmerica  
 Lot-Sample No.: F8A260145-14  
 Client Sample ID: TSB-HJ-11-10'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 10:40:00 AM  
 Received Date: 1/26/2008 10:15:00 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
Work Order: KF6FF1AA Report DB ID: 9KF6FF10											
Batch: 8030213	KWSR										
URANIUM-233/234	<b>2.68E+00</b>		1.4E-01	2.6E-01	2.76E-02	pci/g	106% (96.9)	2/22/08 02:23 p		0.99	ALP84
						4.52E-03	1.00E+00 (10.2)			G	
URANIUM-235/236	<b>1.10E-01</b>	J	2.7E-02	2.9E-02	2.76E-02	pci/g	106% (4.)	2/22/08 02:23 p		0.99	ALP84
						4.52E-03	1.00E+00 (3.8)			G	
URANIUM-238	<b>1.79E+00</b>		1.1E-01	1.9E-01	2.76E-02	pci/g	106% (64.8)	2/22/08 02:23 p		0.99	ALP84
						4.52E-03	1.00E+00 (9.6)			G	

Ratio U-234/238 = 1.5

Batch:	8030214	HASL-300 Th Mod	Work Order:	KF6FF1AD	Report DB ID:	9KF6FF10	
THORIUM-228	<b>2.09E+00</b>		2.3E-01	6.28E-02	pci/g	81% (33.2)	
						1.37E-02	1.00E-01 (8.9)
THORIUM-230	<b>3.02E+00</b>		3.1E-01	6.11E-02	pci/g	81% (49.4)	
						1.33E-02	1.00E-01 (9.7)
THORIUM-232	<b>1.62E+00</b>		1.9E-01	6.11E-02	pci/g	81% (26.5)	
						1.33E-02	1.00E-01 (8.4)

Batch:	8042387	EPA 903.1	Work Order:	KF6FF1AE	Report DB ID:	9KF6FF10	
RADIUM-226	<b>2.32E+00</b>		2.6E-01	9.43E-02	pci/g	94% (24.6)	
						3.74E-02	1.00E+00 (8.8)

Batch:	8042389	EPA 904.0	Work Order:	KF6FF1AF	Report DB ID:	9KF6FF10	
RADIUM-228	<b>1.59E+00</b>	J	1.9E-01	5.29E-01	pci/g	88% (3.)	
						2.39E-01	2.00E+00 (8.2)

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.: F8A260145-14  
 Client Sample ID: TSB-HJ-11-10'  
 SDG: 8030213  
 Report No.: 38628  
 COC No.:  
 Collection Date: 1/25/2008 10:40:00 AM  
 Received Date: 1/26/2008 10:15:00 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

Date: 26-Mar-08

SAMPLE RESULTS

Lab Name: TestAmerica  
 Lot-Sample No.: F8A260145-15  
 Client Sample ID: TSB-HJ-11-10' FD  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 10:40:00 AM  
 Received Date: 1/26/2008 10:15:00 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
<b>Batch: 8030213 KWSR</b> <b>Work Order: KF6FJ1AA</b> <b>Report DB ID: 9KF6FJ10</b>											
URANIUM-233/234	<b>1.36E+00</b>		1.1E-01	1.6E-01	4.90E-02	pci/g	101% (27.7)	2/22/08 02:23 p	1.01	1.01	ALP85
					1.28E-02		(8.5)		G	G	
URANIUM-235/236	<b>1.67E-02</b> U		1.2E-02	1.2E-02	3.49E-02	pci/g	101% 0.48	2/22/08 02:23 p	1.01	1.01	ALP85
					5.71E-03		(1.3)		G	G	
URANIUM-238	<b>1.30E+00</b>		1.1E-01	1.5E-01	3.49E-02	pci/g	101% (37.2)	2/22/08 02:23 p	1.01	1.01	ALP85
					5.71E-03		(8.4)		G	G	
<b>Batch: 8030214 HASL-300 Th Mod</b> <b>Work Order: KF6FJ1AD</b> <b>Report DB ID: 9KF6FJ10</b> <i>Ratio U-234/238 = 1.0</i>											
THORIUM-228	<b>1.87E+00</b>		1.4E-01	2.1E-01	5.15E-02	pci/g	76% (36.3)	2/22/08 06:16 a	1.03	1.03	ALP178
					1.12E-02		(9.1)		G	G	
THORIUM-230	<b>1.49E+00</b>		1.2E-01	1.7E-01	5.01E-02	pci/g	76% (29.6)	2/22/08 06:16 a	1.03	1.03	ALP178
					1.09E-02		(8.6)		G	G	
THORIUM-232	<b>1.99E+00</b>		1.4E-01	2.1E-01	5.01E-02	pci/g	76% (39.6)	2/22/08 06:16 a	1.03	1.03	ALP178
					1.09E-02		(9.3)		G	G	
<b>Batch: 8042387 EPA 903.1</b> <b>Work Order: KF6FJ1AE</b> <b>Report DB ID: 9KF6FJ10</b>											
RADIUM-226	<b>1.55E+00</b>		9.9E-02	1.8E-01	1.36E-01	pci/g	91% (11.4)	3/11/08 01:46 p	1.01	1.01	ASC4HC
					6.04E-02		(8.7)		G	G	
<b>Batch: 8042389 EPA 904.0</b> <b>Work Order: KF6FJ1AF</b> <b>Report DB ID: 9KF6FJ10</b>											
RADIUM-228	<b>1.59E+00</b> J		1.8E-01	2.0E-01	5.71E-01	pci/g	82% (2.8)	3/13/08 06:08 a	1.01	1.01	GPC1D
					2.59E-01		(7.8)		G	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.: F8A260145-15  
 Client Sample ID: TSB-HJ-11-10' FD  
 SDG: 8030213  
 Report No.: 38628  
 COC No.:  
 Collection Date: 1/25/2008 10:40:00 AM  
 Received Date: 1/26/2008 10:15:00 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.  
 rptSTLRLchSample 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.: F8A260145-16  
 Client Sample ID: TSB-HR-01-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 11:30:00 AM  
 Received Date: 1/26/2008 10:15:00 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: 8030213	KWSR										
URANIUM-233/234	9.83E-01	J	8.0E-02	1.1E-01	3.12E-02	pci/g	110% (31.5)	2/22/08 02:24 p	1.01	1.01	ALP88
						6.78E-03	1.00E+00 (8.6)		G		
URANIUM-235/236	2.47E-02	U	1.3E-02	1.3E-02	3.12E-02	pci/g	110% 0.79	2/22/08 02:24 p	1.01	1.01	ALP88
						6.78E-03	1.00E+00 (1.9)		G		
URANIUM-238	8.39E-01	J	7.4E-02	1.0E-01	3.12E-02	pci/g	110% (26.9)	2/22/08 02:24 p	1.01	1.01	ALP88
						6.78E-03	1.00E+00 (8.3)		G		

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: 8030214	HASL-300 Th Mod										
THORIUM-228	1.91E+00		1.4E-01	2.1E-01	5.16E-02	pci/g	75% (37.1)	2/22/08 06:16 a	1.01	1.01	ALP113
						1.12E-02	1.00E-01 (9.1)		G		
THORIUM-230	1.25E+00		1.1E-01	1.5E-01	5.02E-02	pci/g	75% (24.8)	2/22/08 06:16 a	1.01	1.01	ALP113
						1.09E-02	1.00E-01 (8.2)		G		
THORIUM-232	2.02E+00		1.5E-01	2.2E-01	5.02E-02	pci/g	75% (40.3)	2/22/08 06:16 a	1.01	1.01	ALP113
						1.09E-02	1.00E-01 (9.3)		G		

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: 8042387	EPA 903.1										
RADIUM-226	8.07E-01	J	7.9E-02	1.1E-01	1.59E-01	pci/g	100% (5.1)	3/11/08 01:45 p	1.0	1.0	ASC5HB
						7.19E-02	1.00E+00 (7.2)		G		

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: 8042389	EPA 904.0										
RADIUM-228	1.41E+00	J	1.6E-01	1.8E-01	4.16E-01	pci/g	91% (3.4)	3/13/08 06:08 a	1.0	1.0	GPC2A
						1.79E-01	2.00E+00 (8.)		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 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.: F8A260145-16  
 Client Sample ID: TSB-HR-01-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 11:30:00 AM  
 Received Date: 1/26/2008 10:15:00 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 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 SAMPLE RESULTS

Date: 26-Mar-08

Lab Name: TestAmerica  
 Lot-Sample No.: F8A260145-17  
 Client Sample ID: TSB-HR-01-10'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 11:37:00 AM  
 Received Date: 1/26/2008 10:15:00 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: 8030213 KWSR											
URANIUM-233/234	2.25E+00		1.1E-01	2.2E-01	2.92E-02	pci/g	95% (77.1)	2/25/08 06:17 a	1.02		ALP69
					6.68E-03		1.00E+00 (10.3)		G		
URANIUM-235/236	5.72E-02	J	1.9E-02	1.9E-02	2.92E-02	pci/g	95% (2.)	2/25/08 06:17 a	1.02		ALP69
					6.68E-03		1.00E+00 (3.)		G		
URANIUM-238	1.79E+00		1.0E-01	1.8E-01	3.13E-02	pci/g	95% (57.)	2/25/08 06:17 a	1.02		ALP69
					7.71E-03		1.00E+00 (9.9)		G		
Work Order: KF6FL1AA Report DB ID: 9KF6FL10											
Ratio U-234/238 = 1.3											
Batch: 8030214 HASL-300 Th Mod											
THORIUM-228	1.60E+00		1.4E-01	1.9E-01	6.98E-02	pci/g	86% (22.9)	2/22/08 06:16 a	1.0		ALP116
					1.82E-02		1.00E-01 (8.4)		G		
THORIUM-230	1.89E+00		1.5E-01	2.1E-01	5.76E-02	pci/g	86% (32.8)	2/22/08 06:16 a	1.0		ALP116
					1.25E-02		1.00E-01 (8.9)		G		
THORIUM-232	1.73E+00		1.4E-01	2.0E-01	5.76E-02	pci/g	86% (30.1)	2/22/08 06:16 a	1.0		ALP116
					1.25E-02		1.00E-01 (8.7)		G		
Work Order: KF6FL1AE Report DB ID: 9KF6FL10											
8042387 EPA 903.1											
RADIUM-226	1.80E+00		1.1E-01	2.2E-01	1.09E-01	pci/g	91% (16.6)	3/11/08 01:47 p	1.0		ASC6MA
					4.64E-02		1.00E+00 (8.1)		G		
Work Order: KF6FL1AF Report DB ID: 9KF6FL10											
8042389 EPA 904.0											
RADIUM-228	1.83E+00	J	1.8E-01	2.1E-01	4.69E-01	pci/g	86% (3.9)	3/13/08 06:08 a	1.0		GPC2B
					2.05E-01		2.00E+00 (8.8)		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.: F8A260145-17  
 Client Sample ID: TSB-HR-01-10'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 11:37:00 AM  
 Received Date: 1/26/2008 10:15:00 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:

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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.: F8A260145-11  
 Client Sample ID: TSB-HR-02-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 9:45:00 AM  
 Received Date: 1/26/2008 10:15:00 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: 8030213 KWSR											
URANIUM-233/234	1.11E+00		8.2E-02	1.2E-01	2.92E-02 pci/g	6.35E-03	95% (37.8)	2/22/08 02:22 p	1.01	G	ALP12
URANIUM-235/236	4.27E-02 J		1.6E-02	1.7E-02	2.92E-02 pci/g	6.35E-03	95% (1.5)	2/22/08 02:22 p	1.01	G	ALP12
URANIUM-238	1.15E+00		8.4E-02	1.3E-01	2.92E-02 pci/g	6.35E-03	95% (39.3)	2/22/08 02:22 p	1.01	G	ALP12

Ratio U-234/238 = 1.0

Batch: 8030214 HASL-300 Th Mod											
THORIUM-228	2.58E+00		2.1E-01	2.9E-01	7.98E-02 pci/g	1.73E-02	73% (32.4)	2/22/08 06:16 a	1.01	G	ALP174
THORIUM-230	1.41E+00		1.5E-01	1.9E-01	7.77E-02 pci/g	1.69E-02	73% (18.1)	2/22/08 06:16 a	1.01	G	ALP174
THORIUM-232	2.08E+00		1.8E-01	2.5E-01	7.77E-02 pci/g	1.69E-02	73% (26.7)	2/22/08 06:16 a	1.01	G	ALP174

Batch: 8042381 EPA 903.1											
RADIUM-226	1.25E+00		8.5E-02	1.5E-01	9.29E-02 pci/g	3.92E-02	100% (13.5)	3/3/08 02:33 p	1.0	G	ASCHAC

Batch: 8042382 EPA 904.0											
RADIUM-228	2.24E+00		1.9E-01	2.3E-01	5.37E-01 pci/g	2.45E-01	88% (4.2)	3/5/08 05:57 a	1.0	G	GPC6A

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

SAMPLE RESULTS

Date: 26-Mar-08

Lab Name: TestAmerica  
 Lot-Sample No.: F8A260145-11  
 Client Sample ID: TSB-HR-02-0'  
 SDG: 8030213  
 Report No.: 38628  
 COC No. :  
 Collection Date: 1/25/2008 9:45:00 AM  
 Received Date: 1/26/2008 10:15:00 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/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 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  
SAMPLE RESULTS

Date: 26-Mar-08

Lab Name: TestAmerica      SDG: 8030213      Collection Date: 1/25/2008 10:00:00 AM  
 Lot-Sample No.: F8A260145-12      Report No.: 38628      Received Date: 1/26/2008 10:15:00 AM  
 Client Sample ID: TSB-HR-02-10'      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/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8030213	KWSR						Report DB ID: 9KF6FA10				
URANIUM-233/234	3.52E+00		1.5E-01	3.3E-01	3.06E-02 pci/g	6.99E-03	93% (115.) (10.7)	2/22/08 02:23 p	1.0	1.0	ALP69
URANIUM-235/236	1.59E-01	J	3.1E-02	3.4E-02	2.47E-02 pci/g	4.04E-03	93% (6.4) (4.7)	2/22/08 02:23 p	1.0	1.0	ALP69
URANIUM-238	2.57E+00		1.3E-01	2.5E-01	3.27E-02 pci/g	8.07E-03	93% (78.4) (10.4)	2/22/08 02:23 p	1.0	1.0	ALP69

Ratio U-234/238 = 1.4

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: 8030214	HASL-300 Th Mod						Report DB ID: 9KF6FA10				
THORIUM-228	1.79E+00		1.6E-01	2.1E-01	6.49E-02 pci/g	1.41E-02	90% (27.6) (8.5)	2/22/08 06:16 a	1.0	1.0	ALP175
THORIUM-230	2.81E+00		1.9E-01	3.0E-01	6.32E-02 pci/g	1.37E-02	90% (44.5) (9.5)	2/22/08 06:16 a	1.0	1.0	ALP175
THORIUM-232	1.78E+00		1.5E-01	2.1E-01	6.32E-02 pci/g	1.37E-02	90% (28.2) (8.5)	2/22/08 06:16 a	1.0	1.0	ALP175

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: 8042387	EPA 903.1						Report DB ID: 9KF6FA10				
RADIUM-226	2.46E+00		1.2E-01	2.8E-01	1.44E-01 pci/g	6.48E-02	100% (17.1) (8.7)	3/11/08 01:46 p	1.02	1.02	ASC1RH

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: 8042389	EPA 904.0						Report DB ID: 9KF6FA10				
RADIUM-228	1.48E+00	J	1.8E-01	2.0E-01	6.35E-01 pci/g	2.93E-01	93% (2.3) (7.4)	3/13/08 06:13 a	1.02	1.02	GPC7C

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.: F8A260145-12  
 Client Sample ID: TSB-HR-02-10'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 10:00:00 AM  
 Received Date: 1/26/2008 10:15:00 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  
 Lot-Sample No.: F8A260145-7  
 Client Sample ID: TSB-HR-03-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 8:05:00 AM  
 Received Date: 1/26/2008 10:15:00 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: 8030213 KWSR Work Order: KF6EW1AA Report DB ID: 9KF6EW10												
URANIUM-233/234	1.09E+00		8.2E-02	1.2E-01	2.96E-02	pci/g	97% (36.7)	(36.7)	2/22/08 02:20 p	1.0	G	ALP7
URANIUM-235/236	4.21E-02	J	1.6E-02	1.7E-02	2.96E-02	pci/g	97% (1.4)	(8.9)	2/22/08 02:20 p	1.0	G	ALP7
URANIUM-238	9.58E-01	J	7.7E-02	1.1E-01	2.96E-02	pci/g	97% (32.3)	(2.5)	2/22/08 02:20 p	1.0	G	ALP7
					6.44E-03	pci/g	97% (8.6)	(8.6)		1.0	G	

Ratio U-234/238 = 1.1												
Batch: 8030214 HASL-300 Th Mod Work Order: KF6EW1AD Report DB ID: 9KF6EW10												
THORIUM-228	2.29E+00		2.1E-01	2.8E-01	8.83E-02	pci/g	60% (25.9)	(8.3)	2/21/08 03:24 p	1.0	G	ALP177
THORIUM-230	1.38E+00		1.6E-01	1.9E-01	8.59E-02	pci/g	60% (16.)	(7.2)	2/21/08 03:24 p	1.0	G	ALP177
THORIUM-232	1.78E+00		1.8E-01	2.3E-01	8.59E-02	pci/g	60% (20.7)	(7.8)	2/21/08 03:24 p	1.0	G	ALP177
					1.92E-02	pci/g	60% (8.3)	(8.3)		1.0	G	
					1.87E-02	pci/g	60% (7.2)	(7.2)		1.0	G	
					1.87E-02	pci/g	60% (20.7)	(7.8)		1.0	G	

Batch: 8042381 EPA 903.1 Work Order: KF6EW1AE Report DB ID: 9KF6EW10												
RADIUM-226	8.05E-01	J	9.9E-02	1.3E-01	1.98E-01	pci/g	100% (4.1)	(6.4)	3/3/08 02:24 p	1.01	G	ASCASC

Batch: 8042382 EPA 904.0 Work Order: KF6EW1AF Report DB ID: 9KF6EW10												
RADIUM-228	1.05E+00	J	1.3E-01	1.5E-01	3.89E-01	pci/g	90% (2.7)	(7.2)	3/5/08 06:56 a	1.01	G	GPC3D

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  
 Lot-Sample No.: F8A260145-7  
 Client Sample ID: TSB-HR-03-0'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 8:05:00 AM  
 Received Date: 1/26/2008 10:15:00 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.  
 rptSTLRLchSample 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.: F8A260145-8  
 Client Sample ID: TSB-HR-03-10'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 8:20:00 AM  
 Received Date: 1/26/2008 10:15:00 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: 8030213 KWSR Work Order: KF6E01AA Report DB ID: 9KF6E010											
URANIUM-233/234	3.36E+00		1.4E-01	3.1E-01	2.78E-02	pci/g	103% (120.9)	2/22/08 02:21 p		1.0	ALP8
							6.03E-03 (10.8)			G	
URANIUM-235/236	6.96E-02	J	2.0E-02	2.1E-02	2.78E-02	pci/g	103% (2.5)	2/22/08 02:21 p		1.0	ALP8
							6.03E-03 (3.3)			G	
URANIUM-238	2.60E+00		1.2E-01	2.5E-01	2.78E-02	pci/g	103% (93.7)	2/22/08 02:21 p		1.0	ALP8
							6.03E-03 (10.5)			G	

Ratio U-234/238 = 1.3											
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: 8042381 EPA 903.1 Work Order: KF6E01AD Report DB ID: 9KF6E010											
THORIUM-228	2.02E+00		1.5E-01	2.2E-01	5.65E-02	pci/g	70% (35.7)	2/21/08 03:24 p		1.01	ALP178
							1.23E-02 (9.)			G	
THORIUM-230	3.03E+00		1.9E-01	3.1E-01	5.50E-02	pci/g	70% (55.1)	2/21/08 03:24 p		1.01	ALP178
							1.19E-02 (9.9)			G	
THORIUM-232	1.92E+00		1.5E-01	2.1E-01	5.50E-02	pci/g	70% (34.8)	2/21/08 03:24 p		1.01	ALP178
							1.19E-02 (9.)			G	

Ratio U-234/238 = 1.3											
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: 8042382 EPA 904.0 Work Order: KF6E01AF Report DB ID: 9KF6E010											
RADIUM-226	2.09E+00		1.2E-01	2.5E-01	1.15E-01	pci/g	99% (18.1)	3/3/08 02:35 p		1.01	ASCCSB
							4.87E-02 (8.4)			G	

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: 8042382 EPA 904.0 Work Order: KF6E01AF Report DB ID: 9KF6E010											
RADIUM-228	1.21E+00	J	1.4E-01	1.6E-01	3.79E-01	pci/g	90% (3.2)	3/5/08 06:56 a		1.01	GPC4A
							1.63E-01 (7.6)			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.: F8A260145-8  
 Client Sample ID: TSB-HR-03-10'  
 BASIC REMEDIATION - PARCEL H

SDG: 8030213  
 Report No.: 38628  
 COC No. :  
 Collection Date: 1/25/2008 8:20:00 AM  
 Received Date: 1/26/2008 10:15:00 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 II

Date: 26-Mar-08

DUPLICATE RESULTS

Lab Name: TestAmerica      SDG: 8030210      Collection Date: 1/25/2008 3:00:00 PM  
 Lot-Sample No.: F8A260145-19      Report No.: 38628      Received Date: 1/26/2008 10:15:00 AM  
 Client Sample ID: RINSATE-1 DUP      COC No.:      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: 8030208      HASL-300 U Mod      Work Order: KF6FN1AF      Report DB ID: KF6FN1FR      Orig Sa DB ID: 9KF6FN10												
URANIUM-233/234	9.37E-02	U	5.4E-02	5.5E-02	1.50E-01	pci/l	104%	0.63	2/12/08 08:04 a	0.2003	0.2003	ALP2
	4.71E-02	U	RER2 0.6					(1.7)		L		
URANIUM-235/236	-6.25E-03	U	3.2E-02	3.2E-02	1.50E-01	pci/l	104%	-0.04	2/12/08 08:04 a	0.2003	0.2003	ALP2
	5.05E-02	U	RER2 1.1					-0.2		L		
URANIUM-238	6.25E-02	U	4.5E-02	4.5E-02	1.50E-01	pci/l	104%	0.42	2/12/08 08:04 a	0.2003	0.2003	ALP2
	-1.68E-02	U	RER2 1.5					(1.4)		L		

Ratio U-234/238 = 1.5      Alpha Spec Result Sum = 1.5E-01

Batch: 8030210      HASL-300 Th Mod      Work Order: KF6FN1AG      Report DB ID: KF6FN1GR      Orig Sa DB ID: 9KF6FN10												
THORIUM-228	-3.51E-02	U	6.2E-02	6.2E-02	3.70E-01	pci/l	89%	-0.1	2/8/08 04:48 p	0.2002	0.2002	ALP116
	-2.94E-02	U	RER2 0.1					-0.57		L		
THORIUM-230	5.77E-02	U	5.9E-02	5.9E-02	2.77E-01	pci/l	89%	0.21	2/8/08 04:48 p	0.2002	0.2002	ALP116
	1.45E-01	U	RER2 0.8					0.98		L		
THORIUM-232	0.00E+00	U	0.0E+00	5.9E-02	2.77E-01	pci/l	89%	0.	2/8/08 04:48 p	0.2002	0.2002	ALP116
	0.00E+00	U	RER2 0.0					0.		L		

Alpha Spec Result Sum = 1.7E-01

No. of Results: 6      Comments:

TestAmerica      RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPU<sub>s</sub>)+sq(TPU<sub>d</sub>))] 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  
 Lot-Sample No.: F8A260145-18  
 Client Sample ID: TSB-HJ-01-0' DUP

SDG: 8030213  
 Report No.: 38628  
 COC No.:

Collection Date: 1/25/2008 11:50:00 AM  
 Received Date: 1/26/2008 10:15:00 AM  
 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: 8030213	KWSR											
URANIUM-233/234	9.68E-01		8.1E-02	1.1E-01	2.71E-02	pci/g	99%	Report DB ID: KF6FM1ER (35.7)	Orig Sa DB ID: 9KF6FM10 2/25/08 06:17 a	1.02	1.02	ALP84
	1.05E+00		RER2 0.5					(8.4)		G		
URANIUM-235/236	4.03E-02		1.6E-02	1.7E-02	2.71E-02	pci/g	99%	Report DB ID: KF6FM1ER (1.5)	2/25/08 06:17 a	1.02	1.02	ALP84
	2.41E-02	U	RER2 0.8					(2.4)		G		
URANIUM-238	1.07E+00		8.5E-02	1.2E-01	2.71E-02	pci/g	99%	Report DB ID: KF6FM1ER (39.5)	2/25/08 06:17 a	1.02	1.02	ALP84
	1.09E+00		RER2 0.1					(8.6)		G		

Ratio U-234/238 = 0.9

Alpha Spec Result Sum = 2.1E+00

Batch: 8030214	HASL-300 Th Mod											
THORIUM-228	1.90E+00		1.2E-01	1.9E-01	5.02E-02	pci/g	87%	Report DB ID: KF6FM1GR (37.9)	Orig Sa DB ID: 9KF6FM10 2/22/08 06:16 a	1.03	1.03	ALP118
	1.73E+00		RER2 0.7					(9.9)		G		
THORIUM-230	1.09E+00		8.8E-02	1.2E-01	3.40E-02	pci/g	87%	Report DB ID: KF6FM1GR (32.1)	2/22/08 06:16 a	1.03	1.03	ALP118
	1.22E+00		RER2 0.7					(8.8)		G		
THORIUM-232	1.97E+00		1.2E-01	2.0E-01	3.40E-02	pci/g	87%	Report DB ID: KF6FM1GR (58.)	2/22/08 06:16 a	1.03	1.03	ALP118
	1.55E+00		RER2 1.7					(10.)		G		

Alpha Spec Result Sum = 7.0E+00

No. of Results: 6

Comments: RER2 - Replicate Error Ratio =  $(S-D)/\sqrt{(\text{sq}(\text{TPUs})+\text{sq}(\text{TPUd}))}$  as defined by ICPT BOA.  
 MDC|MDA,Le - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.  
 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: 8030213 Collection Date: 1/25/2008 8:55:00 AM  
 Lot-Sample No.: F8A260145-10 Report No.: 38628 Received Date: 1/26/2008 10:15:00 AM  
 Client Sample ID: TSB-HJ-02-10' 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: 8030213	KWSR											
URANIUM-233/234	2.13E+00		1.1E-01	2.1E-01	2.81E-02	pci/g	91%	Report DB ID: KF6E21ER (76.)	Orig Sa DB ID: 9KF6E210 2/22/08 02:21 p	1.03	1.03	ALP11
	2.11E+00		RER2 0.1					(10.2)			G	
URANIUM-235/236	1.03E-01		2.5E-02	2.6E-02	3.31E-02	pci/g	91%	Report DB ID: KF6E21ER (3.1)	2/22/08 02:21 p	1.03	1.03	ALP11
	6.07E-02		RER2 1.3					(3.9)			G	
URANIUM-238	1.65E+00		9.8E-02	1.7E-01	2.81E-02	pci/g	91%	Report DB ID: KF6E21ER (58.6)	2/22/08 02:21 p	1.03	1.03	ALP11
	1.55E+00		RER2 0.4					(9.8)			G	

Ratio U-234/238 = 1.3

Alpha Spec Result Sum = 3.9E+00

Batch: 8030214	HASL-300 Th Mod											
THORIUM-228	1.96E+00		1.7E-01	2.3E-01	7.41E-02	pci/g	78%	Report DB ID: KF6E21GR (26.5)	Orig Sa DB ID: 9KF6E210 2/22/08 06:16 a	1.03	1.03	ALP173
	1.97E+00		RER2 0.0					(8.4)			G	
THORIUM-230	2.14E+00		1.8E-01	2.5E-01	7.21E-02	pci/g	78%	Report DB ID: KF6E21KR (29.6)	2/22/08 06:16 a	1.03	1.03	ALP173
	1.79E+00		RER2 1.1					(8.6)			G	
THORIUM-232	1.72E+00		1.6E-01	2.1E-01	7.21E-02	pci/g	78%	Report DB ID: KF6E21KR (23.8)	2/22/08 06:16 a	1.03	1.03	ALP173
	1.49E+00		RER2 0.8					(8.1)			G	

Alpha Spec Result Sum = 9.7E+00

Batch: 8042381	EPA 903.1											
RADIUM-226	1.63E+00		1.3E-01	2.1E-01	1.56E-01	pci/g	100%	Report DB ID: KF6E21KR (10.5)	Orig Sa DB ID: 9KF6E210 3/3/08 02:44 p	1.03	1.03	ASCFSA
	1.58E+00		RER2 0.2					(7.9)			G	

Alpha Spec Result Sum = 9.7E+00

Batch: 8042381	EPA 903.1											

TestAmerica RER2 - Replicate Error Ratio = (S-D)/|sqrt((sq(TPUs)+sq(TPUD))| 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  
 Lot-Sample No.: F8A260145-10  
 Client Sample ID: TSB-HJ-02-10' DUP

SDG: 8030213  
 Report No.: 38628  
 COC No. :  
 Collection Date: 1/25/2008 8:55:00 AM  
 Received Date: 1/26/2008 10:15:00 AM  
 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
RADIUM-226	1.91E+00 1.58E+00		1.3E-01 RER2 1.1	2.4E-01	1.31E-01	pci/g	100%	(14.6)	3/3/08 02:43 p	1.0	1.0	ASCGSA
Batch: 8042382	EPA 904.0											
RADIUM-228	8.58E-01 1.45E+00		1.3E-01 RER2 2.6	1.4E-01	4.38E-01	pci/g	91%	(2.) (6.3)	3/5/08 05:57 a	1.03	1.03	GPC5C
Batch: 8042382	EPA 904.0											
RADIUM-228	1.71E+00 1.45E+00		1.6E-01 RER2 1.0	1.9E-01	4.90E-01	pci/g	90%	(3.5) (9.)	3/5/08 05:57 a	1.0	1.0	GPC5D
Batch: 8042382	EPA 904.0											

No. of Results: 10    Comments:

TestAmerica    RER2    - Replicate Error Ratio = (S-D)/[sqrt((sq(TPUy)+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

FORM II  
BLANK RESULTS

Date: 26-Mar-08

Lab Name: TestAmerica  
Matrix: SOLID

SDG: 8030213  
Report No.: 38628

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
<b>Batch: 8030214</b> HASL-300 Th Mod <b>Report DB ID: KGAF11AB</b>												
THORIUM-228	-4.32E-03	U	1.1E-02	1.1E-02	6.11E-02	pci/g	95%	-0.07	2/22/08 06:16 a	1.01	1.01	ALP119
					1.59E-02	1.00E-01		-0.38		G		
THORIUM-230	1.05E-02	U	1.1E-02	1.1E-02	5.04E-02	pci/g	95%	0.21	2/22/08 06:16 a	1.01	1.01	ALP119
					1.09E-02	1.00E-01		0.98		G		
THORIUM-232	0.00E+00	U	0.0E+00	1.1E-02	5.04E-02	pci/g	95%	0.	2/22/08 06:16 a	1.01	1.01	ALP119
					1.09E-02	1.00E-01		0.		G		
<b>Batch: 8042381</b> EPA 903.1 <b>Report DB ID: KGXJA1AB</b>												
RADIUM-226	1.48E-02	U	2.4E-02	2.4E-02	9.15E-02	pci/g	97%	0.16	3/3/08 03:25 p	1.03	1.03	ASCJMA
					3.78E-02	1.00E+00		0.62		G		
<b>Batch: 8042387</b> EPA 903.1 <b>Report DB ID: KGXJM1AB</b>												
RADIUM-226	-6.69E-02	U	4.7E-02	4.8E-02	1.92E-01	pci/g	100%	-0.35	3/11/08 01:43 p	1.01	1.01	ASC8HA
					8.83E-02	1.00E+00		-(1.4)		G		
<b>Batch: 8042382</b> EPA 904.0 <b>Report DB ID: KGXJE1AB</b>												
RADIUM-228	-1.45E-01	U	1.0E-01	1.0E-01	5.16E-01	pci/g	88%	-0.28	3/5/08 05:57 a	1.03	1.03	GPC6C
					2.35E-01	2.00E+00		-(1.4)		G		
<b>Batch: 8042389</b> EPA 904.0 <b>Report DB ID: KGXJ01AA</b>												
RADIUM-228	1.27E-01	U	8.3E-02	8.7E-02	3.94E-01	pci/g	94%	0.32	3/13/08 07:09 a	1.01	1.01	GPC3A
					1.70E-01	2.00E+00		(1.5)		G		
<b>Batch: 8030213</b> KWSR <b>Report DB ID: KGAFX1AB</b>												
URANIUM-233/234	1.34E-02	U	1.3E-02	1.3E-02	5.21E-02	pci/g	99%	0.26	2/25/08 06:17 a	1.01	1.01	ALP85
					1.42E-02	1.22E+00		(1.1)		G		

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  
BLANK RESULTS

Date: 26-Mar-08

Lab Name: TestAmerica      SDG: 8030213  
 Matrix: SOLID              Report No.: 38628

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
URANIUM-235/236	1.69E-02	U	1.2E-02	1.3E-02	3.54E-02	pci/g	99%	0.48 (1.3)	2/25/08 06:17 a		1.01 G	ALP85
URANIUM-238	2.50E-02	U	1.5E-02	1.5E-02	4.02E-02	pci/g	99%	0.62 (1.6)	2/25/08 06:17 a		1.01 G	ALP85

No. of Results: 10      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  
BLANK RESULTS

Date: 26-Mar-08

Lab Name: TestAmerica  
Matrix: WATER

SDG: 8030210  
Report No.: 38628

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
<b>Batch: 8030208 HASL-300 U Mod</b>												
URANIUM-233/234	7.69E-02	U	6.2E-02	6.2E-02	2.40E-01	pci/l	86%	0.32	2/12/08 08:04 a	0.2	0.2	ALP3
URANIUM-235/236	6.99E-02	U	5.0E-02	5.0E-02	7.28E-02	1.00E+00	86%	(1.2)	2/12/08 08:04 a	0.2	L	ALP3
URANIUM-238	-2.80E-02	U	3.8E-02	3.8E-02	1.67E-01	1.00E+00	86%	(1.4)	2/12/08 08:04 a	0.2	L	ALP3
					3.64E-02	1.00E+00		-0.12		0.2	L	
					2.40E-01	1.00E+00		-0.74		0.2	L	
					7.28E-02	1.00E+00						

Ratio U-234/238 = -2.7

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
<b>Batch: 8030210 HASL-300 Th Mod</b>												
THORIUM-228	0.00E+00	U	0.0E+00	3.7E-02	1.74E-01	pci/l	87%	0.	2/8/08 04:50 p	0.2002	0.2002	ALP117
THORIUM-230	6.45E-02	U	5.1E-02	5.1E-02	3.78E-02	1.00E+00	87%	0.38	2/8/08 04:50 p	0.2002	L	ALP117
THORIUM-232	-7.16E-03	U	3.7E-02	3.7E-02	1.72E-01	1.00E+00	87%	(1.3)	2/8/08 04:50 p	0.2002	L	ALP117
					3.73E-02	1.00E+00		-0.04		0.2002	L	
					1.72E-01	1.00E+00		-0.2				
					3.73E-02	1.00E+00						

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
<b>Batch: 8030211 EPA 903.1</b>												
RADIUM-226	5.56E-02	U	4.2E-02	4.2E-02	1.45E-01	pci/l	100%	0.38	2/11/08 01:45 p	1.0005	1.0005	ASC2HA
					6.47E-02	1.00E+00		(1.3)			L	

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
<b>Batch: 8030212 EPA 904.0</b>												
RADIUM-228	2.15E-01	U	1.0E-01	1.1E-01	4.71E-01	pci/l	94%	0.46	2/13/08 06:23 a	1.0005	1.0005	GPC6C
					2.13E-01	3.00E+00		(2.)			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.  
 rpt\$TLRch\$Blank 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: 8030213  
Report No.: 38628

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: 8030214 HASL-300 Th Mod												
THORIUM-230	2.28E+00	1.6E-01	2.4E-01	5.27E-02	pci/g	93%	2.17E+00	6.5E-02	105%	2/22/08 06:17 a	1.03	ALP120
						Rec Limits:	75	125	0.0		G	
Work Order: KGAF11AC Report DB ID: KGAF11CS												
Batch: 8042381 EPA 903.1												
RADIUM-226	1.53E+00	1.0E-01	1.9E-01	9.12E-02	pci/g	91%	1.37E+00	2.1E-02	112%	3/3/08 03:19 p	1.0	ASCKMF
						Rec Limits:	70	130	0.1		G	
Work Order: KGXJA1AC Report DB ID: KGXJA1CS												
Batch: 8042387 EPA 903.1												
RADIUM-226	1.20E+00	8.0E-02	1.4E-01	7.15E-02	pci/g	100%	1.35E+00	2.1E-02	89%	3/11/08 02:33 p	1.01	ASC9MA
						Rec Limits:	70	130	-0.1		G	
Work Order: KGXJM1AC Report DB ID: KGXJM1CS												
Batch: 8042382 EPA 904.0												
RADIUM-228	5.09E+00	2.6E-01	3.9E-01	5.82E-01	pci/g	82%	5.01E+00	1.7E-02	101%	3/5/08 05:57 a	1.0	GPC6D
						Rec Limits:	70	130	0.0		G	
Work Order: KGXJE1AC Report DB ID: KGXJE1CS												
Batch: 8042389 EPA 904.0												
RADIUM-228	3.54E+00	2.1E-01	2.9E-01	4.00E-01	pci/g	92%	4.91E+00	1.7E-02	72%	3/13/08 07:09 a	1.01	GPC3C
						Rec Limits:	70	130	-0.3		G	
Work Order: KGXJ01AC Report DB ID: KGXJ01CS												
Batch: 8030213 KWSR												
URANIUM-233/234	1.59E+00	1.5E-01	2.1E-01	6.36E-02	pci/g	48%	1.68E+00	5.2E-02	95%	2/25/08 06:17 a	1.03	ALP88
						Rec Limits:	75	125	0.0		G	
URANIUM-238	1.84E+00	1.6E-01	2.3E-01	6.36E-02	pci/g	48%	1.75E+00	5.4E-02	105%	2/25/08 06:17 a	1.03	ALP88
						Rec Limits:	75	125	0.1		G	
Work Order: KGAFX1AC Report DB ID: KGAFX1CS												

No. of Results: 7 Comments:

FORM II  
LCS RESULTS

Date: 26-Mar-08

Lab Name: TestAmerica  
Matrix: WATER

SDG: 8030210  
Report No.: 38628

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: 8030208 HASL-300 U Mod													
URANIUM-233/234	8.92E+00		5.5E-01	9.2E-01	2.52E-01	pci/l	87%	8.78E+00	4.9E-02	102%	2/12/08 08:05 a	0.2003	ALP4
							Rec Limits:	75	125	0.0		L	
URANIUM-238	9.17E+00		5.6E-01	9.4E-01	2.16E-01	pci/l	87%	9.19E+00	5.2E-02	100%	2/12/08 08:05 a	0.2003	ALP4
							Rec Limits:	75	125	0.0		L	
Batch: 8030210 HASL-300 Th Mod													
THORIUM-230	1.14E+01		6.3E-01	1.1E+00	1.66E-01	pci/l	91%	1.13E+01	3.4E-01	101%	2/8/08 04:51 p	0.2001	ALP118
							Rec Limits:	70	130	0.0		L	
Batch: 8030211 EPA 903.1													
RADIUM-226	1.07E+00		9.5E-02	1.4E-01	1.19E-01	pci/l	98%	1.37E+00	2.1E-02	78%	2/11/08 01:51 p	1.0005	ASC3RC
							Rec Limits:	70	130	-0.2		L	
Batch: 8030212 EPA 904.0													
RADIUM-228	4.75E+00		2.4E-01	3.6E-01	5.17E-01	pci/l	90%	4.91E+00	1.7E-02	97%	2/13/08 06:23 a	1.0005	GPC6D
							Rec Limits:	70	130	0.0		L	

No. of Results: 5      Comments:

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

rptSTLRchLcs  
V5.1.5 A2002

# CHAIN OF CUSTODY

COMMENTS:

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

Date Received: 2008-01-26  
 Analytical Due Date: 2008-02-06  
 Report Due Date: 2008-02-12

**WORK LOCATION: 10 TestAmerica Richland**

SMP#: 1 CLIENT ID: TSB-HJ-01-10' DATE SAMPLED: 20080125 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 KF6EM1AC 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 KF6EM1AD 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 KF6EM1AA METAL: XX

SMP#: 2 CLIENT ID: TSB-HJ-09-0' DATE SAMPLED: 20080125 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 KF6EP1AC 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 KF6EP1AD 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 KF6EP1AA METAL: XX

SMP#: 3 CLIENT ID: TSB-HJ-09-10' DATE SAMPLED: 20080125 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 KF6EQ1AC 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 KF6EQ1AD 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 KF6EQ1AA METAL: XX

SMP#: 4 CLIENT ID: TSB-HJ-03-0' DATE SAMPLED: 20080125 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: 2008-01-26  
 Analytical Due Date: 2008-02-06  
 Report Due Date: 2008-02-12

WORKORDER KF6ER1AC METAL: XX

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

WORKORDER KF6ER1AD 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 KF6ER1AA METAL: XX

SMP#: 5 CLIENT ID: TSB-HJ-03-0' FD DATE SAMPLED: 20080125 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 KF6ET1AC METAL: XX

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

WORKORDER KF6ET1AD 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 KF6ET1AA METAL: XX

SMP#: 6 CLIENT ID: TSB-HJ-03-10' DATE SAMPLED: 20080125 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 KF6EV1AC METAL: XX

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

WORKORDER KF6EV1AD 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 KF6EV1AA METAL: XX

SMP#: 7 CLIENT ID: TSB-HR-03-0' DATE SAMPLED: 20080125 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 KF6EW1AC METAL: XX

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

WORKORDER KF6EW1AD METAL: XX

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

COMMENTS:

Project Manager:

Project:

Report Type:

Client:

LANDWELL - Tronox Parc

W  
1418995 - Landwell Company

Date Received: 2008-01-26

Analytical Due Date: 2008-02-06

Report Due Date: 2008-02-12

EXTRACTION: KW Uiso PrpRC5013/5032/5086 SepRC5067(5039 QC TYPE: 01 STANDARD TEST SET  
WORKORDER KF6EW1AA METAL: XX

SMP#: 8 CLIENT ID: TSB-HR-03-10' DATE SAMPLED: 20080125 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 KF6E01AC METAL: XX

METHOD: S1 NONE Thlso by ALP Thorium-228,230,232 by Alpha Spec  
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET  
WORKORDER KF6E01AD 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 KF6E01AA METAL: XX

SMP#: 9 CLIENT ID: TSB-HJ-02-0' DATE SAMPLED: 20080125 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 KF6E11AC METAL: XX

METHOD: S1 NONE Thlso by ALP Thorium-228,230,232 by Alpha Spec  
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET  
WORKORDER KF6E11AD 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 KF6E11AA METAL: XX

SMP#: 10 CLIENT ID: TSB-HJ-02-10' DATE SAMPLED: 20080125 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 KF6E21AC METAL: XX

WORKORDER KF6E21AF X METAL: XX

METHOD: S1 NONE Thlso by ALP Thorium-228,230,232 by Alpha Spec  
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET  
WORKORDER KF6E21AD METAL: XX

WORKORDER KF6E21AG 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 KF6E21AA METAL: XX

WORKORDER KF6E21AE X METAL: XX

COMMENTS:

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

Date Received: 2008-01-26  
 Analytical Due Date: 2008-02-06  
 Report Due Date: 2008-02-12

SMP#: 11 CLIENT ID: TSB-HR-02-0' DATE SAMPLED: 20080125 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 KF6E51AC METAL: XX

METHOD: S1 NONE Thlso by ALP Thorium-228,230,232 by Alpha Spec  
 EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET  
 WORKORDER KF6E51AD 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 KF6E51AA METAL: XX

SMP#: 12 CLIENT ID: TSB-HR-02-10' DATE SAMPLED: 20080125 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 KF6FA1AC METAL: XX

METHOD: S1 NONE Thlso by ALP Thorium-228,230,232 by Alpha Spec  
 EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET  
 WORKORDER KF6FA1AD 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 KF6FA1AA METAL: XX

SMP#: 13 CLIENT ID: TSB-HJ-11-0' DATE SAMPLED: 20080125 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 KF6FD1AC METAL: XX

METHOD: S1 NONE Thlso by ALP Thorium-228,230,232 by Alpha Spec  
 EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET  
 WORKORDER KF6FD1AD 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 KF6FD1AA METAL: XX

SMP#: 14 CLIENT ID: TSB-HJ-11-10' DATE SAMPLED: 20080125 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 KF6FF1AC METAL: XX



COMMENTS:

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

Date Received: 2008-01-26  
 Analytical Due Date: 2008-02-06  
 Report Due Date: 2008-02-12

METHOD: S1 NONE Thlso by ALP Thorium-228,230,232 by Alpha Spec  
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET  
WORKORDER KF6FF1AD 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 KF6FF1AA METAL: XX

SMP#: 15 CLIENT ID: TSB-HJ-11-10' FD DATE SAMPLED: 20080125 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 KF6FJ1AC METAL: XX

METHOD: S1 NONE Thlso by ALP Thorium-228,230,232 by Alpha Spec  
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET  
WORKORDER KF6FJ1AD 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 KF6FJ1AA METAL: XX

SMP#: 16 CLIENT ID: TSB-HR-01-0' DATE SAMPLED: 20080125 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 KF6FK1AC METAL: XX

METHOD: S1 NONE Thlso by ALP Thorium-228,230,232 by Alpha Spec  
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET  
WORKORDER KF6FK1AD 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 KF6FK1AA METAL: XX

SMP#: 17 CLIENT ID: TSB-HR-01-10' DATE SAMPLED: 20080125 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 KF6FL1AC METAL: XX

METHOD: S1 NONE Thlso by ALP Thorium-228,230,232 by Alpha Spec  
EXTRACTION: D2 Th PrpRC5013/5032, SepRC5084(5003) QC TYPE: 01 STANDARD TEST SET  
WORKORDER KF6FL1AD 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

COMMENTS:

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

Date Received: 2008-01-26
Analytical Due Date: 2008-02-06
Report Due Date: 2008-02-12

WORKORDER KF6FL1AA

METAL: XX

SMP#: 18 CLIENT ID: TSB-HJ-01-0' DATE SAMPLED: 20080125 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 KF6FM1AC METAL: XX
WORKORDER KF6FM1AF 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 KF6FM1AD METAL: XX
WORKORDER KF6FM1AG 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 KF6FM1AA METAL: XX
WORKORDER KF6FM1AE X METAL: XX

SMP#: 19 CLIENT ID: RINSATE-1 DATE SAMPLED: 20080125 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 KF6FN1AA 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 KF6FN1AC 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 KF6FN1AD METAL: XX

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 KF6FN1AE 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: Angela Broom

DATE: 1/28/08 17:30

RECEIVED FOR LAB BY: [Signature]

DATE: 1-28-08 1-29-08



# Sample Check-in List DUE 2-12-08

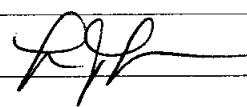
Date/Time Received: 1-29-08 1000 GM Screen Result 0.1K

Client: TA-STL SDG #: \_\_\_\_\_ NA [ ] SAF #: \_\_\_\_\_ NA [ ]

Work Order Number: F8A260145 Chain of Custody # \_\_\_\_\_

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: 19
7. Sample holding times exceeded? NA  Yes [ ] No [ ]
8. Samples have:  
     \_\_\_\_\_ Tape \_\_\_\_\_ Hazard Lables  
     \_\_\_\_\_ Custody Seals  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 HNO<sub>3</sub> 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:  Date: 1-29-08

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:** F8A260145; 02/25/2008  
**Client, Site:** 1418995; LANDWELL - Tronox Parcel H  
**QC Batch No., Method Test:** 8030214; RTHISO Thiso 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 Porter*

Date 2-25-8

**Data Review Checklist**  
**RADIOCHEMISTRY**  
 Second Level Review

Batch Number: 8030214

Review Item	Yes (✓)	No (✓)	NA (✓)
<b>A. Sample Analysis</b>			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery 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?	✓		
<b>C. Other</b>			
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: Eunice Jordan Date: 2/25/18

2/19/2008 8:21:15 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

Pipet #:

AnalyDueDate: 02/22/2008

Sep1 DT/Tm Tech:

Batch: 8030214

PM, Quote: JAE, 78254

Sep2 DT/Tm Tech:

SEQ Batch Test: None All Tests: BUTE, 8030208 7YSR, 8030210 9NS1, 8030211 BUTE, 8030212 BUTF, 8030213 KWSR, 8030214 D2S1, 8030216 AX19, 8042382 D9TE, 8042387 D9TE, 8042389 D9TE

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:
1 KF6EM-1-AD		1.01g.in	THTC12102							
F8A260145-1-SAMP		11/30/07.pd								
01/25/2008 12:10		AmtRec: 500SL								
2 KF6EP-1-AD		1.00g.in	THTC12103							
F8A260145-2-SAMP		11/30/07.pd								
01/25/2008 12:50		AmtRec: 500SL								
3 KF6EQ-1-AD		1.02g.in	THTC12104							
F8A260145-3-SAMP		11/30/07.pd								
01/25/2008 13:00		AmtRec: 500SL								
4 KF6ER-1-AD		1.03g.in	THTC12105							
F8A260145-4-SAMP		11/30/07.pd								
01/25/2008 07:25		AmtRec: 500SL								
5 KF6ET-1-AD		1.02g.in	THTC12106							
F8A260145-5-SAMP		11/30/07.pd								
01/25/2008 07:25		AmtRec: 500SL								
6 KF6EV-1-AD		1.00g.in	THTC12107							
F8A260145-6-SAMP		11/30/07.pd								
01/25/2008 07:45		AmtRec: 500SL								
7 KF6EW-1-AD		1.00g.in	THTC12222							
F8A260145-7-SAMP		02/06/08.pd								
01/25/2008 08:05		AmtRec: 500SL								

200

2/19/2008 8:21:16 AM

### Sample Preparation/Analysis

Balance Id: 1120373922

1418995, Landwell Company  
Landwell Company

D2 Th PrPrRC5013/5032, SepRC5084(5003)  
S1 Thorium-228,230,232 by Alpha Spec  
01 STANDARD TEST SET

Pipet #:

Analyte Due Date: 02/22/2008

Sep1 DT/Tm Tech:

Batch: 8030214

PM, Quote: JAE, 78254

Sep2 DT/Tm Tech:

SEO Batch, Test: None

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, Init/Date	Comments:
8 KF6E0-1-AD		1.01g.in	THTC12223 02:06:08.pd 11/29/07			300				
F8A260145-8-SAMP 01/25/2008 08:20										
9 KF6E1-1-AD		1.02g.in	THTC12224 02:06:08.pd 11/29/07							
F8A260145-9-SAMP 01/25/2008 08:40										
10 KF6E2-1-AD		1.02g.in	THTC12225 02:06:08.pd 11/29/07							
F8A260145-10-SAMP 01/25/2008 08:55										
11 KF6E2-1-AG-X		1.03g.in	THTC12226 02:06:08.pd 11/29/07							
F8A260145-10-DUP 01/25/2008 08:55										
12 KF6E5-1-AD		1.01g.in	THTC12227 02:06:08.pd 11/29/07							
F8A260145-11-SAMP 01/25/2008 09:45										
13 KF6FA-1-AD		1.00g.in	THTC12228 02:06:08.pd 11/29/07							
F8A260145-12-SAMP 01/25/2008 10:00										
14 KF6FD-1-AD		1.02g.in	THTC12229 02:06:08.pd 11/29/07							
F8A260145-13-SAMP 01/25/2008 10:30										



2/19/2008 8:21:17 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:1120373922

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

PM, Quote: JAE, 78254

Prep Tech: Barcotl

AnalyDueDate: 02/22/2008

Batch: 8030214

SEQ Batch, Test: None

PM, Quote: JAE, 78254

Batch: 8030214

SEQ Batch, Test: None

pCi/g

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 KF6FF-1-AD		1.03g.in	THTC12230 02:06:08.pd 11:20:07							
F8A260145-14-SAMP										
01/25/2008 10:40										
16 KF6FJ-1-AD		1.03g.in	THTC12231 02:06:08.pd 11:20:07							
F8A260145-15-SAMP										
01/25/2008 10:40										
17 KF6FK-1-AD		1.01g.in	THTC12232 02:06:08.pd 11:20:07							
F8A260145-16-SAMP										
01/25/2008 11:30										
18 KF6FL-1-AD		1.00g.in	THTC12233 02:06:08.pd 11:20:07							
F8A260145-17-SAMP										
01/25/2008 11:37										
19 KF6FM-1-AD		1.02g.in	THTC12234 02:06:08.pd 11:20:07							
F8A260145-18-SAMP										
01/25/2008 11:50										
20 KF6FM-1-AG-X		1.03g.in	THTC12235 02:06:08.pd 11:20:07							
F8A260145-18-DUP										
01/25/2008 11:50										
21 KGAF1-1-AA-B		1.01g.in	THTC12236 02:06:08.pd 11:20:07							
J8A300000-214-BLK										
01/25/2008 12:10										

*Jae*

### Sample Preparation/Analysis

Balance Id:1120373922

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

AnalyteDueDate: 02/22/2008

Batch: 8030214 pCi/g

SEQ Batch, Test: None

Prep Tech: ,Barcoll

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:

22 KGAF1-1-AC-C

1.03g.in THSN150

J8A300000-214-LCS

02:06:08.pd

11/20/07



01/25/2008 12:10

AmtRec:

#Containers: 1

Scr:

Alpha:

Beta:

#### Comments:

All Clients for Batch:

1418995, Landwell Company

Landwell Company

JAE, 78254

#### KF6EM1AD-SAMP Constituent List:

KGAF11AA-BLK:

Th-228 RDL:1.00E-01 pCi/g LCL: UCL: RPD: Th-230 RDL:1.00E-01 pCi/g LCL: UCL: RPD:

Th-232 RDL:1.00E-01 pCi/g LCL: UCL: RPD: Th-234 RDL:1.00E-01 pCi/g LCL: UCL: RPD:

KGAF11AC-LCS:

Th-230 RDL:0.1 pCi/g LCL:70 UCL:130 RPD:35

Th-234 RDL:1.00E-01 pCi/g LCL:20 UCL:115 RPD:35

#### KF6EM1AD-SAMP Calc Info:

Uncert Level (#s): 4 Decay to Sabt: N Blk Subt.: N Sci.Not.: N ODRs: B

Uncert Level (#s): 4 Decay to Sabt: N Blk Subt.: N Sci.Not.: N ODRs: B

Uncert Level (#s): 4 Decay to Sabt: N Blk Subt.: N Sci.Not.: N ODRs: B

Approved By

Date:

TAL Richland

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

Page 4

ISV - Insufficient Volume for Analysis

Richland Wa.

pd - Prep Dt. r - Reference Dt. ec-Enrichment Cell, ct-Cocktailed Added

WO Cnt: 22

Prep. SamplePrep v4.8.32

# ICOC Fraction Transfer/Status Report

ByDate: 2/25/2007, 3/1/2008, Batch: '8030214', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
<b>8030214</b>				
AC	Rev1C	Barcotl	2/19/2008 8:24:08	
SC		wagarr	IsBatched	1/30/2008 12:05:38 PM
SC		Barcotl	InPrep	2/19/2008 8:24:08 AM
SC		Barcotl	Prep1C	2/19/2008 8:24:28 AM
SC		AshworthA	Sep1C	2/20/2008 6:23:58 PM
SC		ClarkR	InCnt1	2/21/2008 11:46:40 AM
SC		BlackCL	CalcC	2/25/2008 7:07:21 AM
SC		nortonj	Rev1C	2/25/2008 11:33:30 AM
AC		<b>Barcotl</b>	2/19/2008 8:24:28	ICOC_RADCALC v4.8.32
AC		<b>AshworthA</b>	2/20/2008 6:23:58 PM	RICH-RC-5032 REVISION 3
AC		<b>AshworthA</b>	2/21/2008 8:20:42	RICH-RC-5032 REVISION 3
AC		<b>ClarkR</b>	2/21/2008 11:46:40	RICH-RC-5087 REV1
AC		<b>BlackCL</b>	2/25/2008 7:07:21	RICH-RD-0008 REVISION 4
AC		<b>nortonj</b>	2/25/2008 11:33:30	RICH-RD-0008 REVISION 4
				RICH-RC-0002 REV 8

AC: Accepting Entry; SC: Status Change

## Rpt DB Transfer log (Batch Results)

SDG or Batch	Rpt Db Id	LotSample	Client Id	Matrix	Received Date	Sample Date			Volumes	
Isotope	Method	RTst Qc	Analysis Date	Result	Cnt Uncert	Tot Uncert	mqa	Units	Expected Yield	
<b>8030213</b>	<b>9KF6E010</b>	<b>F8A2601458</b>	TSB-HR-03-10'	SOLID	1/26/2008 10:15:00	1/25/2008 8:20:00 AM				
TH-228	D2S1	0	2/21/2008 3:24:40 PM	2.0177E+00	1.543E-01	2.234E-01	5.651E-02	pCi/g	0.705	1.01E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	3.0318E+00	1.866E-01	3.062E-01	5.5E-02	pCi/g	0.705	1.01E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.9155E+00	1.484E-01	2.134E-01	5.5E-02	pCi/g	0.705	1.01E+0
U-234	KWSR	0	2/22/2008 2:21:12 PM	3.3576E+00	1.395E-01	3.106E-01	2.778E-02	PCI/G	1.025	1.0E+0
U-235	KWSR	0	2/22/2008 2:21:12 PM	6.9587E-02	2.012E-02	2.093E-02	2.778E-02	PCI/G	1.025	1.0E+0
U-238	KWSR	0	2/22/2008 2:21:12 PM	2.6037E+00	1.229E-01	2.478E-01	2.778E-02	PCI/G	1.025	1.0E+0
<b>8030213</b>	<b>9KF6E110</b>	<b>F8A2601459</b>	TSB-HJ-02-0'	SOLID	1/26/2008 10:15:00	1/25/2008 8:40:00 AM				
TH-228	D2S1	0	2/22/2008 6:16:09 AM	1.8774E+00	1.475E-01	2.104E-01	6.525E-02	pCi/g	0.764	1.02E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	1.2916E+00	1.205E-01	1.586E-01	5.379E-02	pCi/g	0.764	1.02E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	1.7611E+00	1.407E-01	1.99E-01	5.379E-02	pCi/g	0.764	1.02E+0
U-234	KWSR	0	2/22/2008 2:21:29 PM	9.8107E-01	7.856E-02	1.135E-01	3.012E-02	PCI/G	0.928	1.02E+0
U-235	KWSR	0	2/22/2008 2:21:29 PM	3.7734E-02	1.546E-02	1.577E-02	3.012E-02	PCI/G	0.928	1.02E+0
U-238	KWSR	0	2/22/2008 2:21:29 PM	1.1131E+00	8.368E-02	1.251E-01	3.012E-02	PCI/G	0.928	1.02E+0
<b>8030213</b>	<b>9KF6E210</b>	<b>F8A26014510</b>	TSB-HJ-02-10'	SOLID	1/26/2008 10:15:00	1/25/2008 8:55:00 AM				
TH-228	D2S1	0	2/22/2008 6:16:09 AM	1.9666E+00	1.437E-01	2.128E-01	7.178E-02	pCi/g	0.871	1.02E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	1.7869E+00	1.353E-01	1.966E-01	7.932E-02	pCi/g	0.871	1.02E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	1.4901E+00	1.233E-01	1.713E-01	5.744E-02	pCi/g	0.871	1.02E+0
U-234	KWSR	0	2/22/2008 2:21:45 PM	2.1117E+00	1.133E-01	2.091E-01	2.908E-02	PCI/G	1.001	1.03E+0
U-235	KWSR	0	2/22/2008 2:21:45 PM	6.0715E-02	1.924E-02	1.989E-02	2.908E-02	PCI/G	1.001	1.03E+0
U-238	KWSR	0	2/22/2008 2:21:45 PM	1.5519E+00	9.716E-02	1.616E-01	3.431E-02	PCI/G	1.001	1.03E+0
<b>8030213</b>	<b>9KF6E510</b>	<b>F8A26014511</b>	TSB-HR-02-0'	SOLID	1/26/2008 10:15:00	1/25/2008 9:45:00 AM				
TH-228	D2S1	0	2/22/2008 6:16:09 AM	2.5836E+00	2.076E-01	2.93E-01	7.983E-02	pCi/g	0.727	1.01E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	1.4074E+00	1.513E-01	1.886E-01	7.766E-02	pCi/g	0.727	1.01E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	2.0754E+00	1.835E-01	2.475E-01	7.766E-02	pCi/g	0.727	1.01E+0
U-234	KWSR	0	2/22/2008 2:22:10 PM	1.105E+00	8.215E-02	1.233E-01	2.924E-02	PCI/G	0.953	1.01E+0
U-235	KWSR	0	2/22/2008 2:22:10 PM	4.2736E-02	1.62E-02	1.658E-02	2.924E-02	PCI/G	0.953	1.01E+0
U-238	KWSR	0	2/22/2008 2:22:10 PM	1.1478E+00	8.372E-02	1.27E-01	2.924E-02	PCI/G	0.953	1.01E+0
<b>8030213</b>	<b>9KF6EM10</b>	<b>F8A2601451</b>	TSB-HJ-01-10'	SOLID	1/26/2008 10:15:00	1/25/2008 12:10:00 PM				
TH-228	D2S1	0	2/21/2008 3:24:40 PM	1.8241E+00	1.378E-01	2.095E-01	5.87E-02	pCi/g	0.857	1.01E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	1.6482E+00	1.291E-01	1.923E-01	4.843E-02	pCi/g	0.857	1.01E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	2.4147E+00	1.563E-01	2.608E-01	4.843E-02	pCi/g	0.857	1.01E+0
U-234	KWSR	0	2/22/2008 2:19:11 PM	1.6921E+00	1.015E-01	1.736E-01	3.432E-02	PCI/G	0.953	1.02E+0
U-235	KWSR	0	2/22/2008 2:19:11 PM	8.5031E-02	2.276E-02	2.383E-02	2.909E-02	PCI/G	0.953	1.02E+0
U-238	KWSR	0	2/22/2008 2:19:11 PM	1.6144E+00	9.907E-02	1.669E-01	2.909E-02	PCI/G	0.953	1.02E+0
<b>8030213</b>	<b>9KF6EP10</b>	<b>F8A2601452</b>	TSB-HJ-09-0'	SOLID	1/26/2008 10:15:00	1/25/2008 12:50:00 PM				
TH-228	D2S1	0	2/21/2008 3:24:40 PM	2.0512E+00	1.457E-01	2.291E-01	7.073E-02	pCi/g	0.901	1.0E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	9.4027E-01	9.783E-02	1.27E-01	7.823E-02	pCi/g	0.901	1.0E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.6199E+00	1.276E-01	1.891E-01	5.665E-02	pCi/g	0.901	1.0E+0
U-234	KWSR	0	2/22/2008 2:19:29 PM	1.014E+00	7.967E-02	1.162E-01	2.998E-02	PCI/G	1.008	1.0E+0
U-235	KWSR	0	2/22/2008 2:19:29 PM	1.1266E-02	8.94E-03	8.989E-03	2.998E-02	PCI/G	1.008	1.0E+0
U-238	KWSR	0	2/22/2008 2:19:29 PM	1.0515E+00	8.114E-02	1.194E-01	2.998E-02	PCI/G	1.008	1.0E+0
<b>8030213</b>	<b>9KF6EQ10</b>	<b>F8A2601453</b>	TSB-HJ-09-10'	SOLID	1/26/2008 10:15:00	1/25/2008 1:00:00 PM				
TH-228	D2S1	0	2/21/2008 3:24:40 PM	1.8173E+00	1.533E-01	2.183E-01	6.182E-02	pCi/g	0.948	1.02E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	1.4952E+00	1.371E-01	1.875E-01	6.018E-02	pCi/g	0.948	1.02E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.3947E+00	1.324E-01	1.782E-01	6.018E-02	pCi/g	0.948	1.02E+0
U-234	KWSR	0	2/22/2008 2:19:42 PM	2.6374E+00	1.285E-01	2.55E-01	4.291E-02	PCI/G	0.94	1.02E+0
U-235	KWSR	0	2/22/2008 2:19:42 PM	9.9949E-02	2.502E-02	2.637E-02	2.992E-02	PCI/G	0.94	1.02E+0
U-238	KWSR	0	2/22/2008 2:19:42 PM	2.3663E+00	1.218E-01	2.321E-01	4.875E-02	PCI/G	0.94	1.02E+0
<b>8030213</b>	<b>9KF6ER10</b>	<b>F8A2601454</b>	TSB-HJ-03-0'	SOLID	1/26/2008 10:15:00	1/25/2008 7:25:00 AM				
TH-228	D2S1	0	2/21/2008 3:24:40 PM	1.582E+00	1.432E-01	1.974E-01	6.21E-02	pCi/g	0.915	1.03E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	9.5912E-01	1.1E-01	1.374E-01	6.044E-02	pCi/g	0.915	1.03E+0

8030214, \*\*Samples Inserted | Updated | NotUpdated => 4 | 0 | 18,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 64 | 0 | 0 | 0.  
 \*\*Diff RptDb | Qtimes => .

SDG or Batch	Rpt Db Id	LotSample	Client Id	Matrix	Received Date	Sample Date	Yield	Volumes
Isotope	Method	Analysis Date	Result	Cnt Uncert	Tot Uncert	Units	Expected	
TH-232	D2S1	2/21/2008 3:24:40 PM	1.7416E+00	1.483E-01	2.106E-01	6.044E-02	pCi/g	1.03E+0
U-234	KWSR	2/22/2008 2:19:58 PM	1.1651E+00	8.547E-02	1.295E-01	4.586E-02	PCI/G	1.01E+0
U-235	KWSR	2/22/2008 2:19:58 PM	2.9906E-02	1.399E-02	1.421E-02	2.984E-02	PCI/G	1.01E+0
U-238	KWSR	2/22/2008 2:19:58 PM	9.7568E-01	7.809E-02	1.128E-01	3.521E-02	PCI/G	1.01E+0
<b>8030213</b>	<b>9KF6ET10</b>	<b>F8A2601455</b>	TSB-HJ-03-0' FD	SOLID	1/26/2008 10:15:00	1/25/2008 7:25:00 AM		
TH-228	D2S1	2/21/2008 3:24:40 PM	2.1485E+00	1.624E-01	2.451E-01	5.88E-02	pCi/g	1.02E+0
TH-230	D2S1	2/21/2008 3:24:40 PM	1.3741E+00	1.282E-01	1.738E-01	5.723E-02	pCi/g	1.02E+0
TH-232	D2S1	2/21/2008 3:24:40 PM	2.1269E+00	1.594E-01	2.418E-01	5.723E-02	pCi/g	1.02E+0
U-234	KWSR	2/22/2008 2:20:15 PM	9.8954E-01	7.584E-02	1.117E-01	3.971E-02	PCI/G	1.02E+0
U-235	KWSR	2/22/2008 2:20:15 PM	6.2424E-02	1.92E-02	1.989E-02	2.769E-02	PCI/G	1.02E+0
U-238	KWSR	2/22/2008 2:20:15 PM	1.0635E+00	7.866E-02	1.181E-01	4.255E-02	PCI/G	1.02E+0
<b>8030213</b>	<b>9KF6EV10</b>	<b>F8A2601456</b>	TSB-HJ-03-10'	SOLID	1/26/2008 10:15:00	1/25/2008 7:45:00 AM		
TH-228	D2S1	2/21/2008 3:24:40 PM	1.8638E+00	1.357E-01	2.106E-01	4.728E-02	pCi/g	1.0E+0
TH-230	D2S1	2/21/2008 3:24:40 PM	1.495E+00	1.2E-01	1.763E-01	5.429E-02	pCi/g	1.0E+0
TH-232	D2S1	2/21/2008 3:24:40 PM	1.5737E+00	1.231E-01	1.834E-01	4.602E-02	pCi/g	1.0E+0
U-234	KWSR	2/22/2008 2:20:30 PM	1.5931E+00	1.002E-01	1.665E-01	3.016E-02	PCI/G	1.02E+0
U-235	KWSR	2/22/2008 2:20:30 PM	3.0225E-02	1.414E-02	1.436E-02	3.016E-02	PCI/G	1.02E+0
U-238	KWSR	2/22/2008 2:20:30 PM	1.3274E+00	9.148E-02	1.437E-01	3.016E-02	PCI/G	1.02E+0
<b>8030213</b>	<b>9KF6EW10</b>	<b>F8A2601457</b>	TSB-HR-03-0'	SOLID	1/26/2008 10:15:00	1/25/2008 8:05:00 AM		
TH-228	D2S1	2/21/2008 3:24:40 PM	2.2854E+00	2.053E-01	2.754E-01	8.827E-02	pCi/g	1.0E+0
TH-230	D2S1	2/21/2008 3:24:40 PM	1.3777E+00	1.574E-01	1.925E-01	8.592E-02	pCi/g	1.0E+0
TH-232	D2S1	2/21/2008 3:24:40 PM	1.7759E+00	1.785E-01	2.285E-01	8.592E-02	pCi/g	1.0E+0
U-234	KWSR	2/22/2008 2:20:42 PM	1.0882E+00	8.213E-02	1.223E-01	2.965E-02	PCI/G	1.0E+0
U-235	KWSR	2/22/2008 2:20:42 PM	4.2093E-02	1.642E-02	1.679E-02	2.965E-02	PCI/G	1.0E+0
U-238	KWSR	2/22/2008 2:20:42 PM	9.5824E-01	7.708E-02	1.11E-01	2.965E-02	PCI/G	1.0E+0
<b>8030213</b>	<b>9KF6FA10</b>	<b>F8A26014512</b>	TSB-HR-02-10'	SOLID	1/26/2008 10:15:00	1/25/2008 10:00:00 AM		
TH-228	D2S1	2/22/2008 6:16:09 AM	1.7892E+00	1.558E-01	2.113E-01	6.492E-02	pCi/g	1.0E+0
TH-230	D2S1	2/22/2008 6:16:09 AM	2.8084E+00	1.924E-01	2.954E-01	6.315E-02	pCi/g	1.0E+0
TH-232	D2S1	2/22/2008 6:16:09 AM	1.78E+00	1.532E-01	2.089E-01	6.315E-02	pCi/g	1.0E+0
U-234	KWSR	2/22/2008 2:23:12 PM	3.5173E+00	1.469E-01	3.276E-01	3.058E-02	PCI/G	1.0E+0
U-235	KWSR	2/22/2008 2:23:12 PM	1.589E-01	3.126E-02	3.395E-02	2.468E-02	PCI/G	1.0E+0
U-238	KWSR	2/22/2008 2:23:12 PM	2.5666E+00	1.255E-01	2.478E-01	3.274E-02	PCI/G	1.0E+0
<b>8030213</b>	<b>9KF6FD10</b>	<b>F8A26014513</b>	TSB-HJ-11-0'	SOLID	1/26/2008 10:15:00	1/25/2008 10:30:00 AM		
TH-228	D2S1	2/22/2008 6:16:09 AM	2.9151E+00	1.864E-01	2.986E-01	5.703E-02	pCi/g	1.02E+0
TH-230	D2S1	2/22/2008 6:16:09 AM	1.5245E+00	1.331E-01	1.806E-01	6.546E-02	pCi/g	1.02E+0
TH-232	D2S1	2/22/2008 6:16:09 AM	2.7431E+00	1.783E-01	2.828E-01	5.548E-02	pCi/g	1.02E+0
U-234	KWSR	2/22/2008 2:23:29 PM	1.2867E+00	9.001E-02	1.403E-01	3.358E-02	PCI/G	1.03E+0
U-235	KWSR	2/22/2008 2:23:29 PM	5.6075E-02	1.887E-02	1.944E-02	2.531E-02	PCI/G	1.03E+0
U-238	KWSR	2/22/2008 2:23:29 PM	1.1673E+00	8.574E-02	1.299E-01	3.358E-02	PCI/G	1.03E+0
<b>8030213</b>	<b>9KF6FF10</b>	<b>F8A26014514</b>	TSB-HJ-11-10'	SOLID	1/26/2008 10:15:00	1/25/2008 10:40:00 AM		
TH-228	D2S1	2/22/2008 6:16:09 AM	2.0864E+00	1.655E-01	2.347E-01	6.285E-02	pCi/g	1.03E+0
TH-230	D2S1	2/22/2008 6:16:09 AM	3.0227E+00	1.965E-01	3.111E-01	6.114E-02	pCi/g	1.03E+0
TH-232	D2S1	2/22/2008 6:16:09 AM	1.6211E+00	1.439E-01	1.935E-01	6.114E-02	pCi/g	1.03E+0
U-234	KWSR	2/22/2008 2:23:43 PM	2.6778E+00	1.356E-01	2.619E-01	2.765E-02	PCI/G	9.9E-1
U-235	KWSR	2/22/2008 2:23:43 PM	1.0988E-01	2.748E-02	2.897E-02	2.765E-02	PCI/G	9.9E-1
U-238	KWSR	2/22/2008 2:23:43 PM	1.7919E+00	1.11E-01	1.865E-01	2.765E-02	PCI/G	9.9E-1
<b>8030213</b>	<b>9KF6FJ10</b>	<b>F8A26014515</b>	TSB-HJ-11-10' FD	SOLID	1/26/2008 10:15:00	1/25/2008 10:40:00 AM		
TH-228	D2S1	2/22/2008 6:16:09 AM	1.8722E+00	1.419E-01	2.062E-01	5.153E-02	pCi/g	1.03E+0
TH-230	D2S1	2/22/2008 6:16:09 AM	1.4863E+00	1.247E-01	1.722E-01	5.013E-02	pCi/g	1.03E+0
TH-232	D2S1	2/22/2008 6:16:09 AM	1.9866E+00	1.443E-01	2.145E-01	5.013E-02	pCi/g	1.03E+0
U-234	KWSR	2/22/2008 2:23:57 PM	1.3584E+00	1.087E-01	1.601E-01	4.902E-02	PCI/G	1.01E+0
U-235	KWSR	2/22/2008 2:23:57 PM	1.6655E-02	1.229E-02	1.237E-02	3.492E-02	PCI/G	1.01E+0
U-238	KWSR	2/22/2008 2:23:57 PM	1.3005E+00	1.062E-01	1.548E-01	3.492E-02	PCI/G	1.01E+0
<b>8030213</b>	<b>9KF6FK10</b>	<b>F8A26014516</b>	TSB-HR-01-0'	SOLID	1/26/2008 10:15:00	1/25/2008 11:30:00 AM		

8030214, \*\*Samples Inserted | Updated | NotUpdated => 4 | 0 | 18,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 64 | 0 | 0 | 0.  
 \*\*Diff RptDb | Qtims => .

SDG or Batch Isotope	Rpt Db Id Method	RTst Qc	LotSample Analysis Date	Client Id Result	Matrix Cnt Uncert	Received Date Tot Uncert	Sample Date mga	Units	Expected Yield	Volumes
TH-228	D2S1	0	2/22/2008 6:16:29 AM	1.9142E+00	1.437E-01	2.099E-01	5.157E-02	pCi/g	0.752	1.01E+0
TH-230	D2S1	0	2/22/2008 6:16:29 AM	1.2464E+00	1.143E-01	1.516E-01	5.016E-02	pCi/g	0.752	1.01E+0
TH-232	D2S1	0	2/22/2008 6:16:29 AM	2.0214E+00	1.455E-01	2.175E-01	5.016E-02	pCi/g	0.752	1.01E+0
U-234	KWSR	0	2/22/2008 2:24:09 PM	9.8332E-01	8.003E-02	1.143E-01	3.119E-02	PCI/G	1.1	1.01E+0
U-235	KWSR	0	2/22/2008 2:24:09 PM	2.4746E-02	1.309E-02	1.325E-02	3.119E-02	PCI/G	1.1	1.01E+0
U-238	KWSR	0	2/22/2008 2:24:09 PM	8.3875E-01	7.397E-02	1.016E-01	3.119E-02	PCI/G	1.1	1.01E+0
<b>8030213</b>	<b>9KF6FL10</b>		<b>F8A26014517</b>	TSB-HR-01-10'	SOLID	1/26/2008 10:15:00	1/25/2008 11:37:00 AM			
TH-228	D2S1	0	2/22/2008 6:16:38 AM	1.6007E+00	1.409E-01	1.902E-01	6.981E-02	pCi/g	0.857	1.0E+0
TH-230	D2S1	0	2/22/2008 6:16:38 AM	1.8864E+00	1.506E-01	2.13E-01	5.756E-02	pCi/g	0.857	1.0E+0
TH-232	D2S1	0	2/22/2008 6:16:38 AM	1.7302E+00	1.442E-01	1.997E-01	5.756E-02	pCi/g	0.857	1.0E+0
U-234	KWSR	0	2/25/2008 6:17:05 AM	2.2548E+00	1.15E-01	2.196E-01	2.923E-02	PCI/G	0.954	1.02E+0
U-235	KWSR	0	2/25/2008 6:17:05 AM	5.7197E-02	1.855E-02	1.915E-02	2.923E-02	PCI/G	0.954	1.02E+0
U-238	KWSR	0	2/25/2008 6:17:05 AM	1.7855E+00	1.024E-01	1.801E-01	3.13E-02	PCI/G	0.954	1.02E+0
<b>8030213</b>	<b>9KF6FM10</b>		<b>F8A26014518</b>	TSB-HJ-01-0'	SOLID	1/26/2008 10:15:00	1/25/2008 11:50:00 AM			
TH-228	D2S1	0	2/22/2008 6:16:41 AM	1.7296E+00	1.114E-01	1.773E-01	4.046E-02	pCi/g	0.878	1.02E+0
TH-230	D2S1	0	2/22/2008 6:16:41 AM	1.2243E+00	9.24E-02	1.344E-01	3.336E-02	pCi/g	0.878	1.02E+0
TH-232	D2S1	0	2/22/2008 6:16:41 AM	1.5461E+00	1.038E-01	1.611E-01	3.336E-02	pCi/g	0.878	1.02E+0
U-234	KWSR	0	2/25/2008 6:17:14 AM	1.0488E+00	8.036E-02	1.185E-01	3.282E-02	PCI/G	1.04	1.01E+0
U-235	KWSR	0	2/25/2008 6:17:14 AM	2.4086E-02	1.23E-02	1.246E-02	2.474E-02	PCI/G	1.04	1.01E+0
U-238	KWSR	0	2/25/2008 6:17:14 AM	1.0918E+00	8.198E-02	1.222E-01	3.282E-02	PCI/G	1.04	1.01E+0
<b>8030213</b>	<b>KF6E21GR</b>		<b>F8A26014510</b>	TSB-HJ-02-10' DUP	SOLID	1/26/2008 10:15:00	1/25/2008 8:55:00 AM			
TH-228	D2S1	0 R	2/22/2008 6:16:09 AM	1.9621E+00	1.744E-01	2.344E-01	7.411E-02	pCi/g	0.784	1.03E+0
TH-230	D2S1	0 R	2/22/2008 6:16:09 AM	2.1373E+00	1.794E-01	2.476E-01	7.209E-02	pCi/g	0.784	1.03E+0
TH-232	D2S1	0 R	2/22/2008 6:16:09 AM	1.7159E+00	1.607E-01	2.112E-01	7.209E-02	pCi/g	0.784	1.03E+0
<b>8030213</b>	<b>KF6FM1GR</b>		<b>F8A26014518</b>	TSB-HJ-01-0' DUP	SOLID	1/26/2008 10:15:00	1/25/2008 11:50:00 AM			
TH-228	D2S1	0 R	2/22/2008 6:16:51 AM	1.8994E+00	1.18E-01	1.92E-01	5.016E-02	pCi/g	0.866	1.03E+0
TH-230	D2S1	0 R	2/22/2008 6:16:51 AM	1.0937E+00	8.814E-02	1.24E-01	3.402E-02	pCi/g	0.866	1.03E+0
TH-232	D2S1	0 R	2/22/2008 6:16:51 AM	1.9743E+00	1.184E-01	1.97E-01	3.402E-02	pCi/g	0.866	1.03E+0
<b>8030213</b>	<b>KGAF11AB</b>		<b>J8A300000214</b>	INTRA-LAB BLANK	SOLID	1/26/2008 10:15:00	1/25/2008 12:10:00 PM			
TH-228	D2S1	0 B	2/22/2008 6:16:54 AM	-4.3239E-03	1.123E-02	1.124E-02	6.108E-02	pCi/g	0.951	1.01E+0
TH-230	D2S1	0 B	2/22/2008 6:16:54 AM	1.0514E-02	1.072E-02	1.076E-02	5.036E-02	pCi/g	0.951	1.01E+0
TH-232	D2S1	0 B	2/22/2008 6:16:54 AM	0.0E+00	0.0E+00	1.072E-02	5.036E-02	pCi/g	0.951	1.01E+0
<b>8030213</b>	<b>KGAF11CS</b>		<b>J8A300000214</b>	INTRA-LAB CHECK	SOLID	1/26/2008 10:15:00	1/25/2008 12:10:00 PM			
TH-230	D2S1	0 S	2/22/2008 6:17:02 AM	2.2786E+00	1.584E-01	2.409E-01	5.273E-02	pCi/g	2.1731E+00 0.933	1.03E+0

8030214, \*\*Samples Inserted | Updated | NotUpdated => 4 | 0 | 18,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 64 | 0 | 0 | 0.  
 \*\*Diff RptDb | Qtims => .

# 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	KF6EM1AD	TH-228	1.82E+00	(2.09E-01)		pCi/g	R	1.53E-02	5.87E-02			86%		
Calc	S1	SOLID	KF6EM1AD	TH-230	1.65E+00	(1.92E-01)		pCi/g	R	1.05E-02	4.84E-02			86%		
Calc	S1	SOLID	KF6EM1AD	TH-232	2.41E+00	(2.61E-01)		pCi/g	R	1.05E-02	4.84E-02			86%		
Calc	S1	SOLID	KF6EP1AD	TH-228	2.05E+00	(2.29E-01)		pCi/g	R	2.14E-02	7.07E-02			90%		
Calc	S1	SOLID	KF6EP1AD	TH-230	9.40E-01	(1.27E-01)		pCi/g	R	2.55E-02	7.82E-02			90%		
Calc	S1	SOLID	KF6EP1AD	TH-232	1.62E+00	(1.89E-01)		pCi/g	R	1.47E-02	5.66E-02			90%		
Calc	S1	SOLID	KF6EQ1AD	TH-228	1.82E+00	(2.18E-01)		pCi/g	R	1.34E-02	6.18E-02			95%		
Calc	S1	SOLID	KF6EQ1AD	TH-230	1.50E+00	(1.87E-01)		pCi/g	R	1.31E-02	6.02E-02			95%		
Calc	S1	SOLID	KF6EQ1AD	TH-232	1.39E+00	(1.78E-01)		pCi/g	R	1.31E-02	6.02E-02			95%		
Calc	S1	SOLID	KF6ER1AD	TH-228	1.58E+00	(1.97E-01)		pCi/g	R	1.35E-02	6.21E-02			92%		
Calc	S1	SOLID	KF6ER1AD	TH-230	9.59E-01	(1.37E-01)		pCi/g	R	1.31E-02	6.04E-02			92%		
Calc	S1	SOLID	KF6ER1AD	TH-232	1.74E+00	(2.11E-01)		pCi/g	R	1.31E-02	6.04E-02			92%		
Calc	S1	SOLID	KF6ET1AD	TH-228	2.15E+00	(2.45E-01)		pCi/g	R	1.28E-02	5.88E-02			98%		
Calc	S1	SOLID	KF6ET1AD	TH-230	1.37E+00	(1.74E-01)		pCi/g	R	1.24E-02	5.72E-02			98%		
Calc	S1	SOLID	KF6ET1AD	TH-232	2.13E+00	(2.42E-01)		pCi/g	R	1.24E-02	5.72E-02			98%		
Calc	S1	SOLID	KF6EV1AD	TH-228	1.86E+00	(2.11E-01)		pCi/g	R	1.03E-02	4.73E-02			88%		
Calc	S1	SOLID	KF6EV1AD	TH-230	1.49E+00	(1.76E-01)		pCi/g	R	1.41E-02	5.43E-02			88%		
Calc	S1	SOLID	KF6EV1AD	TH-232	1.57E+00	(1.83E-01)		pCi/g	R	1.00E-02	4.60E-02			88%		
Calc	S1	SOLID	KF6EW1AD	TH-228	2.29E+00	(2.75E-01)		pCi/g	R	1.92E-02	8.83E-02			60%		
Calc	S1	SOLID	KF6EW1AD	TH-230	1.38E+00	(1.92E-01)		pCi/g	R	1.87E-02	8.59E-02			60%		
Calc	S1	SOLID	KF6EW1AD	TH-232	1.78E+00	(2.29E-01)		pCi/g	R	1.87E-02	8.59E-02			60%		
Calc	S1	SOLID	KF6E01AD	TH-228	2.02E+00	(2.23E-01)		pCi/g	R	1.23E-02	5.65E-02			70%		
Calc	S1	SOLID	KF6E01AD	TH-230	3.03E+00	(3.06E-01)		pCi/g	R	1.19E-02	5.50E-02			70%		
Calc	S1	SOLID	KF6E01AD	TH-232	1.92E+00	(2.13E-01)		pCi/g	R	1.19E-02	5.50E-02			70%		
Calc	S1	SOLID	KF6E11AD	TH-228	1.88E+00	(2.10E-01)		pCi/g	R	1.70E-02	6.52E-02			76%		
Calc	S1	SOLID	KF6E11AD	TH-230	1.29E+00	(1.59E-01)		pCi/g	R	1.17E-02	5.38E-02			76%		
Calc	S1	SOLID	KF6E11AD	TH-232	1.76E+00	(1.99E-01)		pCi/g	R	1.17E-02	5.38E-02			76%		
Calc	S1	SOLID	KF6E21AD	TH-228	1.97E+00	(2.13E-01)		pCi/g	R	2.17E-02	7.18E-02			87%		
Calc	S1	SOLID	KF6E21AD	TH-230	1.79E+00	(1.97E-01)		pCi/g	R	2.59E-02	7.93E-02			87%		
Calc	S1	SOLID	KF6E21AD	TH-232	1.49E+00	(1.71E-01)		pCi/g	R	1.50E-02	5.74E-02			87%		
Calc	S1	SOLID	KF6E21AG	TH-228	1.96E+00	(2.34E-01)		pCi/g	R	1.61E-02	7.41E-02	R		78%		
Calc	S1	SOLID	KF6E21AG	TH-230	2.14E+00	(2.48E-01)		pCi/g	R	1.57E-02	7.21E-02	R		78%		
Calc	S1	SOLID	KF6E21AG	TH-232	1.72E+00	(2.11E-01)		pCi/g	R	1.57E-02	7.21E-02	R		78%		
Calc	S1	SOLID	KF6E51AD	TH-228	2.58E+00	(2.93E-01)		pCi/g	R	1.73E-02	7.98E-02			73%		
Calc	S1	SOLID	KF6E51AD	TH-230	1.41E+00	(1.89E-01)		pCi/g	R	1.69E-02	7.77E-02			73%		

(I) - (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	KF6E51AD	TH-232	2.08E+00	(2.47E-01)		pCi/g	R	1.69E-02	7.77E-02		73%	
Calc	S1	SOLID	KF6FA1AD	TH-228	1.79E+00	(2.11E-01)		pCi/g	R	1.41E-02	6.49E-02		90%	
Calc	S1	SOLID	KF6FA1AD	TH-230	2.81E+00	(2.95E-01)		pCi/g	R	1.37E-02	6.32E-02		90%	
Calc	S1	SOLID	KF6FA1AD	TH-232	1.78E+00	(2.09E-01)		pCi/g	R	1.37E-02	6.32E-02		90%	
Calc	S1	SOLID	KF6FD1AD	TH-228	2.92E+00	(2.99E-01)		pCi/g	R	1.24E-02	5.70E-02		72%	
Calc	S1	SOLID	KF6FD1AD	TH-230	1.52E+00	(1.81E-01)		pCi/g	R	1.70E-02	6.55E-02		72%	
Calc	S1	SOLID	KF6FD1AD	TH-232	2.74E+00	(2.83E-01)		pCi/g	R	1.21E-02	5.55E-02		72%	
Calc	S1	SOLID	KF6FF1AD	TH-228	2.09E+00	(2.35E-01)		pCi/g	R	1.37E-02	6.28E-02		81%	
Calc	S1	SOLID	KF6FF1AD	TH-230	3.02E+00	(3.11E-01)		pCi/g	R	1.33E-02	6.11E-02		81%	
Calc	S1	SOLID	KF6FF1AD	TH-232	1.62E+00	(1.93E-01)		pCi/g	R	1.33E-02	6.11E-02		81%	
Calc	S1	SOLID	KF6FJ1AD	TH-228	1.87E+00	(2.06E-01)		pCi/g	R	1.12E-02	5.15E-02		76%	
Calc	S1	SOLID	KF6FJ1AD	TH-230	1.49E+00	(1.72E-01)		pCi/g	R	1.09E-02	5.01E-02		76%	
Calc	S1	SOLID	KF6FJ1AD	TH-232	1.99E+00	(2.15E-01)		pCi/g	R	1.09E-02	5.01E-02		76%	
Calc	S1	SOLID	KF6FK1AD	TH-228	1.91E+00	(2.10E-01)		pCi/g	R	1.12E-02	5.16E-02		75%	
Calc	S1	SOLID	KF6FK1AD	TH-230	1.25E+00	(1.52E-01)		pCi/g	R	1.09E-02	5.02E-02		75%	
Calc	S1	SOLID	KF6FK1AD	TH-232	2.02E+00	(2.18E-01)		pCi/g	R	1.09E-02	5.02E-02		75%	
Calc	S1	SOLID	KF6FL1AD	TH-228	1.60E+00	(1.90E-01)		pCi/g	R	1.82E-02	6.98E-02		86%	
Calc	S1	SOLID	KF6FL1AD	TH-230	1.89E+00	(2.13E-01)		pCi/g	R	1.25E-02	5.76E-02		86%	
Calc	S1	SOLID	KF6FL1AD	TH-232	1.73E+00	(2.00E-01)		pCi/g	R	1.25E-02	5.76E-02		86%	
Calc	S1	SOLID	KF6FM1AD	TH-228	1.73E+00	(1.77E-01)		pCi/g	R	1.05E-02	4.05E-02		88%	
Calc	S1	SOLID	KF6FM1AD	TH-230	1.22E+00	(1.34E-01)		pCi/g	R	7.25E-03	3.34E-02		88%	
Calc	S1	SOLID	KF6FM1AD	TH-232	1.55E+00	(1.61E-01)		pCi/g	R	7.25E-03	3.34E-02		88%	
Calc	S1	SOLID	KF6FM1AG	TH-228	1.90E+00	(1.92E-01)		pCi/g	R	1.52E-02	5.02E-02	R	87%	
Calc	S1	SOLID	KF6FM1AG	TH-230	1.09E+00	(1.24E-01)		pCi/g	R	7.39E-03	3.40E-02	R	87%	
Calc	S1	SOLID	KF6FM1AG	TH-232	1.97E+00	(1.97E-01)		pCi/g	R	7.39E-03	3.40E-02	R	87%	
Calc	S1	SOLID	KGAF11AA	TH-228	-4.32E-03	(1.12E-02)	U4	pCi/g	R	1.59E-02	6.11E-02	B	95%	
Calc	S1	SOLID	KGAF11AA	TH-230	1.05E-02	(1.08E-02)	U4	pCi/g	R	1.09E-02	5.04E-02	B	95%	
Calc	S1	SOLID	KGAF11AA	TH-232	0.00E+00	(1.07E-02)	U4	pCi/g	R	1.09E-02	5.04E-02	B	95%	
Calc	S1	SOLID	KGAF11AC	TH-228	2.26E-03	(1.22E-02)	U4	pCi/g	R	2.36E-02	7.77E-02	S	93%	
Calc	S1	SOLID	KGAF11AC	TH-230	2.28E+00	(2.41E-01)		pCi/g	R	1.15E-02	5.27E-02	S	93%	105%
Calc	S1	SOLID	KGAF11AC	TH-232	1.10E-02	(1.13E-02)	U4	pCi/g	R	1.15E-02	5.27E-02	S	93%	

REF = 0.7

REF = 0.7

REF = 1.7

() - (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



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	S1	SOLID	*STLE	AlpIsoWoBS	KF6EM1AD		pci/g		01/25/08 12:10	02/21/08 15:24		105.66	Alq	1	9	1.01g	
								SOLID										
0	02/21/08	13:44	TH-228	175	2	ALP171	COP	N	N	2.5767E-01	N	86%	N	1.0000E+00	4.5045E-01	1.0273E+00		
				199.7833333	998.95			Y		(7.730E-03)		5%		(0.000E+00)	0.990099			
1	02/21/08	13:44	TH-230	163	0	ALP171	COP	N	N	2.5767E-01	N	86%	N	1.0000E+00	4.5045E-01	1.0000E+00		
				199.7833333	998.95			Y		(7.730E-03)		5%		(0.000E+00)	0.990099			
2	02/21/08	13:44	TH-232	239	1	ALP171	COP	N	N	2.5767E-01	N	86%	N	1.0000E+00	4.5045E-01	1.0000E+00		
				199.7833333	998.95			Y		(7.730E-03)		5%		(0.000E+00)	0.990099			
3	02/21/08	13:07	Th-234	839	728	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)	0.990099			
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/LcC	BiKlC/MDC	StdDVmDc/LcC			
02/25/08	TH-228		R	1.824088			8.78952E-01	3.981357	3.981357	1.01 G	86%	0.0587						
4.712E+01				(0.209455)			(6.6420E-02)	(0.40585)	(0.40585)	(0.017321)								
02/25/08	TH-230		R	1.648237			8.15884E-01	3.695679	3.695679	1.01 G	86%	0.048431						
4.712E+01				(0.192297)			(6.3913E-02)	(0.384375)	(0.384375)	(0.017321)								
02/25/08	TH-232		R	2.414717			1.19529E+00	5.414283	5.414283	1.01 G	86%	0.048431						
4.712E+01				(0.260821)			(7.7388E-02)	(0.509999)	(0.509999)	(0.017321)								
02/25/08	Th-234		R	40.375099			4.04940E+01	90.529137	90.529137	1.01 G	86%	0.01052						
4.712E+01				(3.041564)			(1.4493E+00)	(4.859082)	(4.859082)	(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	
2	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF6EP1AD		pci/g		01/25/08 12:50	02/21/08 15:24		106.49	Alq	1	9	1.00g	
								SOLID										
0	02/21/08	13:44	TH-228	200	4	ALP172	COP	N	N	2.4969E-01	N	90%	N	1.0000E+00	4.5045E-01	1.0273E+00		
				199.7833333	998.95			Y		(7.491E-03)		5%		(0.000E+00)	1.00			
1	02/21/08	13:44	TH-230	95	6	ALP172	COP	N	N	2.4969E-01	N	90%	N	1.0000E+00	4.5045E-01	1.0000E+00		
				199.7833333	998.95			Y		(7.491E-03)		5%		(0.000E+00)	1.00			
2	02/21/08	13:44	TH-232	162	2	ALP172	COP	N	N	2.4969E-01	N	90%	N	1.0000E+00	4.5045E-01	1.0000E+00		
				199.7833333	998.95			Y		(7.491E-03)		5%		(0.000E+00)	1.00			
3	02/21/08	13:07	Th-234	880	801	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			

Batch Nbr: 8030214 Alpha Spec, Thlso by ALP, Calculated Results 2/25/2008 7:06:44 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	BikLcC/MDC	StdVnMdc/LcC
02/25/08	4.797E+01	TH-228	R	2.051245 (0.22906)		9.97080E-01 (7.0816E-02)	4.432957 (0.435918)	4.432957 (0.435918)	1.00 G (0.017321)	90%	0.070733			
02/25/08	4.797E+01	TH-230	R	0.940273 (0.127025)		4.69509E-01 (4.8848E-02)	2.087407 (0.259463)	2.087407 (0.259463)	1.00 G (0.017321)	90%	0.078226			
02/25/08	4.797E+01	TH-232	R	1.619915 (0.189136)		8.08876E-01 (6.3724E-02)	3.596214 (0.374285)	3.596214 (0.374285)	1.00 G (0.017321)	90%	0.056646			
02/25/08	4.797E+01	Th-234	R	43.211023 (3.241012)		4.23980E+01 (1.4843E+00)	95.928566 (5.099253)	95.928566 (5.099253)	1.00 G (0.017321)	90%	0.014749			
<b>Sq Status Method Matrix</b> 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	KF6EQ1AD	pcI/g		01/25/08 13:00	02/21/08 15:24	107.08 Alq	1	g	
1418995,TSB-HJ-09-10',F8A260145-3 SOLID														
0	02/21/08 13:44	TH-228	141	1	ALP173	COP	N	N	1.8556E-01	95%	1.0000E+00	4.5045E-01	1.0272E+00	
			199.7833333	998.95			Y		(5.567E-03)	6%	(0.000E+00)	0.980392		
1	02/21/08 13:44	TH-230	119	0	ALP173	COP	N	N	1.8556E-01	95%	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(5.567E-03)	6%	(0.000E+00)	0.980392		
2	02/21/08 13:44	TH-232	111	0	ALP173	COP	N	N	1.8556E-01	95%	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(5.567E-03)	6%	(0.000E+00)	0.980392		
3	02/21/08 13:07	Th-234	946	721	GPC30C	COP	Y	N	4.5171E-01	100%	1.0000E+00	4.5045E-01	1.0000E+00	
			20	500			Y		(1.807E-02)		(0.000E+00)	0.980392		
<b>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 StdVnMdc/LcC</b>														
02/25/08	4.729E+01	TH-228	R	1.817307 (0.218294)		7.04764E-01 (5.9445E-02)	4.005967 (0.432206)	4.005967 (0.432206)	1.02 G (0.017321)	95%	0.061818			
02/25/08	4.729E+01	TH-230	R	1.495197 (0.18747)		5.95645E-01 (5.4612E-02)	3.385725 (0.385024)	3.385725 (0.385024)	1.02 G (0.017321)	95%	0.060179			
02/25/08	4.729E+01	TH-232	R	1.394678 (0.178206)		5.55602E-01 (5.2745E-02)	3.158113 (0.367459)	3.158113 (0.367459)	1.02 G (0.017321)	95%	0.060179			
02/25/08	4.729E+01	Th-234	R	44.833128 (3.329242)		4.58580E+01 (1.5388E+00)	101.520236 (5.300464)	101.520236 (5.300464)	1.02 G (0.017321)	95%	0.013072			
<b>Sq Status Method Matrix</b> 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	KF6ER1AD	pcI/g		01/25/08 07:25	02/21/08 15:24	106.24 Alq	1	g	
1418995,TSB-HJ-03-0',F8A260145-4 SOLID														
0	02/21/08 13:44	TH-228	122	0	ALP174	COP	N	N	1.8950E-01	92%	1.0000E+00	4.5045E-01	1.0275E+00	
			199.7833333	998.95			Y		(5.685E-03)	6%	(0.000E+00)	0.970874		
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:4  
RADCALC v4.8.29  
TA Richland

Alpha Spec, Thlso by ALP , Calculated Results

2/25/2008 7:06:44 AM

Batch Nbr: 8030214

Sq	Calc Date	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	02/21/08 13:44	TH-230	76 199.7833333 998.95	0	ALP174 COP	N N 1.8950E-01 (5.685E-03)	N N 92% 6%	N	92%	4.5045E-01	0.970874	1.0000E+00	1.0000E+00
2	02/21/08 13:44	TH-232	138 199.7833333 998.95	0	ALP174 COP	N N 1.8950E-01 (5.685E-03)	N N 92% 6%	N	92%	4.5045E-01	0.970874	1.0000E+00	1.0000E+00
3	02/21/08 13:07	Th-234	889 20 500	588 500	GPC30D COP	Y N 4.4500E-01 (1.780E-02)	N N 100%	N	100%	4.5045E-01	0.970874	1.0000E+00	1.0000E+00
	02/25/08	TH-228	R 1.581951 (0.197397)		6.10682E-01 (5.5296E-02)	3.520537 (0.398109)	3.520537 (0.398109)	1.03 G (0.017321)	92%		0.062105		
	02/25/08	TH-230	R 0.959119 (0.137444)		3.80412E-01 (4.3648E-02)	2.193121 (0.292212)	2.193121 (0.292212)	1.03 G (0.017321)	92%		0.060444		
	02/25/08	TH-232	R 1.741556 (0.210572)		6.90748E-01 (5.8809E-02)	3.982247 (0.433252)	3.982247 (0.433252)	1.03 G (0.017321)	92%		0.060443		
	02/25/08	Th-234	R 42.528119 (3.174223)		4.32740E+01 (1.4916E+00)	97.244895 (5.134755)	97.244895 (5.134755)	1.03 G (0.017321)	92%		0.013129		

Sq	Status Method	Matrix	Protocol	Equation Set	Wk Ord	Units/Matrix	QC/BB	Sa/On Date	Analysis Date/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol
5	Calc	S1 SOLID	*STLE	AlpIsoWoBS	KF6ETIAD	pCi/g		01/25/08 07:25	02/21/08 15:24		106.07 Alq	1	1.02 g	
		1418995,TSB-HJ-03-0' FD		,F8A260145-5	SOLID									
0	02/21/08 13:44	TH-228	175	0	ALP175 COP	N N 1.8939E-01 (5.682E-03)	Y	199.7833333 998.95	N N 98%	N	98%	1.0000E+00	4.5045E-01	1.0275E+00
1	02/21/08 13:44	TH-230	115	0	ALP175 COP	N N 1.8939E-01 (5.682E-03)	Y	199.7833333 998.95	N N 98%	N	98%	1.0000E+00	4.5045E-01	1.0000E+00
2	02/21/08 13:44	TH-232	178	0	ALP175 COP	N N 1.8939E-01 (5.682E-03)	Y	199.7833333 998.95	N N 98%	N	98%	1.0000E+00	4.5045E-01	1.0000E+00
3	02/21/08 13:29	Th-234	956	728	GPC30A COP	Y N 4.4730E-01 (1.789E-02)	Y	20 500	N N 100%	N	100%	1.0000E+00	4.5045E-01	1.0000E+00

Sq	Calc Date	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
0	02/25/08	TH-228	R 2.148499 (0.245137)		8.75949E-01 (6.6223E-02)	4.734935 (0.478901)	4.734935 (0.478901)	1.02 G (0.017321)	98%		0.058801		
	02/25/08	TH-230	R 1.374107 (0.173819)		5.75624E-01 (5.3687E-02)	3.111529 (0.357661)	3.111529 (0.357661)	1.02 G (0.017321)	98%		0.057229		
	02/25/08	TH-232	R 2.126877 (0.24177)		8.90965E-01 (6.6788E-02)	4.816106 (0.484812)	4.816106 (0.484812)	1.02 G (0.017321)	98%		0.057229		
	02/25/08	Th-234	R 45.754903 (3.394043)		4.63440E+01 (1.5469E+00)	103.607506 (5.397682)	103.607506 (5.397682)	1.02 G (0.017321)	98%		0.012431		

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 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	Mult/EntYld	Total/Analy Vol	Final/Count Vol		
6	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF6EVIAD	pCi/g		01/25/08 07:45	02/21/08 15:24			1	105.57	Alq	9		
1418995	TSB	HJ	03-10'			F8A260145-6	SOLID										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	02/21/08 13:44	TH-228	189	199.7833333	998.95	ALP176 COP	N	N	2.6546E-01	(7.964E-03)	N	88%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0275E+00	
1	02/21/08 13:44	TH-230	156	199.7833333	998.95	ALP176 COP	N	N	2.6546E-01	(7.964E-03)	N	88%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
2	02/21/08 13:44	TH-232	164	199.7833333	998.95	ALP176 COP	N	N	2.6546E-01	(7.964E-03)	N	88%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
3	02/21/08 13:29	Th-234	857	199.7833333	998.95	GPC30B COP	Y	N	4.4197E-01	(1.768E-02)	N	100%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
20			20				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/LcC	BIKLC/MDC	StdDvMdc/LcC				
02/25/08	4.755E+01	TH-228	R	1.863754		9.45024E-01	4.026924	4.026924	1.00 G	88%	0.04728	0.04728						
						(6.8820E-02)	(0.401977)	(0.401977)	(0.017321)		0.01027	0.01027						
02/25/08	4.755E+01	TH-230	R	1.494954		7.78844E-01	3.3188	3.3188	1.00 G	88%	0.054292	0.054292						
						(6.2534E-02)	(0.349779)	(0.349779)	(0.017321)		0.014136	0.014136						
02/25/08	4.755E+01	TH-232	R	1.573736		8.19888E-01	3.493698	3.493698	1.00 G	88%	0.046016	0.046016						
						(6.4109E-02)	(0.362657)	(0.362657)	(0.017321)		0.009996	0.009996						
02/25/08	4.755E+01	Th-234	R	42.03897		4.12480E+01	93.326607	93.326607	1.00 G	88%								
						(1.4648E+00)	(4.992007)	(4.992007)	(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		
7	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF6EW1AD	pCi/g		01/25/08 08:05	02/21/08 15:24			1	740.09	Alq	9		
1418995	TSB	HR	03-0'			F8A260145-7	SOLID										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	02/21/08 13:44	TH-228	124	199.7833333	998.95	ALP177 COP	N	N	2.1088E-01	(6.326E-03)	N	60%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0275E+00	
1	02/21/08 13:44	TH-230	77	199.7833333	998.95	ALP177 COP	N	N	2.1088E-01	(6.326E-03)	N	3%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
2	02/21/08 13:44	TH-232	99	199.7833333	998.95	ALP177 COP	N	N	2.1088E-01	(6.326E-03)	N	60%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
3	02/21/08 13:29	Th-234	4014	199.7833333	998.95	GPC30C COP	Y	N	4.5171E-01	(1.807E-02)	N	100%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
20			20				Y											

## Alpha Spec, Thiso by ALP , Calculated Results

**Batch Nbr: 8030214**

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	StdDvMdc/LcC
02/25/08	TH-228	R	2.285412	6.20672E-01	4.938047	4.938047	4.938047	1.00 G	60%			0.088274		
3.334E+02			(0.275389)	(5.5747E-02)	(0.534586)	(0.534586)	(0.534586)	(0.017321)				0.019175		
02/25/08	TH-230	R	1.377659	3.84416E-01	3.058404	3.058404	3.058404	1.00 G	60%			0.085915		
3.334E+02			(0.19245)	(4.3934E-02)	(0.395403)	(0.395403)	(0.395403)	(0.017321)				0.018662		
02/25/08	TH-232	R	1.775887	4.95537E-01	3.942473	3.942473	3.942473	1.00 G	60%			0.085915		
3.334E+02			(0.228517)	(4.9813E-02)	(0.462429)	(0.462429)	(0.462429)	(0.017321)				0.018662		
02/25/08	Th-234	R	198.700915	1.99258E+02	441.116473	441.116473	441.116473	1.00 G	60%					
3.334E+02			(13.553703)	(3.1683E+00)	(18.98759)	(18.98759)	(18.98759)	(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	
8	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF6E01AD	PCI/g			01/25/08 08:20	02/21/08 15:24				1		9	
1418995,TSB-HR-03-10'								SOLID										1.01 g
																		741.01 Alq
0		02/21/08 13:44	TH-228	171	0	ALP178	COP	N	N	2.7579E-01	N	70%	N	1.0000E+00	4.5045E-01	1.0274E+00		
								Y	Y	(8.274E-03)		4%		(0.000E+00)	0.990099			
1		02/21/08 13:44	TH-230	264	0	ALP178	COP	N	N	2.7579E-01	N	70%	N	1.0000E+00	4.5045E-01	1.0000E+00		
								Y	Y	(8.274E-03)		4%		(0.000E+00)	0.990099			
2		02/21/08 13:44	TH-232	167	1	ALP178	COP	N	N	2.7579E-01	N	70%	N	1.0000E+00	4.5045E-01	1.0000E+00		
								Y	Y	(8.274E-03)		4%		(0.000E+00)	0.990099			
3		02/21/08 13:29	Th-234	4672	588	GPC30D	COP	Y	N	4.4500E-01	N	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 <th>Dpm Wo Blk <th>Dpm-Blk <th>Vol Used</th> <th>Trc Yld,EnFct</th> <th>LCSYld,EFctU</th> <th>IDC/ILcC</th> <th>BIkLcC/MDC</th> <th>StdDvMdc/LcC</th> </th></th>	Dpm Wo Blk <th>Dpm-Blk <th>Vol Used</th> <th>Trc Yld,EnFct</th> <th>LCSYld,EFctU</th> <th>IDC/ILcC</th> <th>BIkLcC/MDC</th> <th>StdDvMdc/LcC</th> </th>	Dpm-Blk <th>Vol Used</th> <th>Trc Yld,EnFct</th> <th>LCSYld,EFctU</th> <th>IDC/ILcC</th> <th>BIkLcC/MDC</th> <th>StdDvMdc/LcC</th>	Vol Used	Trc Yld,EnFct	LCSYld,EFctU	IDC/ILcC	BIkLcC/MDC	StdDvMdc/LcC
02/25/08	TH-228	R	2.017676	8.55927E-01	4.403196	4.403196	4.403196	1.01 G	70%			0.056513		
3.305E+02			(0.223404)	(6.5462E-02)	(0.428392)	(0.428392)	(0.428392)	(0.017321)				0.012276		
02/25/08	TH-230	R	3.031805	1.32143E+00	6.797916	6.797916	6.797916	1.01 G	70%			0.055003		
3.305E+02			(0.306179)	(8.1335E-02)	(0.584965)	(0.584965)	(0.584965)	(0.017321)				0.011948		
02/25/08	TH-232	R	1.915549	8.34905E-01	4.295047	4.295047	4.295047	1.01 G	70%			0.055003		
3.305E+02			(0.213428)	(6.4692E-02)	(0.421267)	(0.421267)	(0.421267)	(0.017321)				0.011948		
02/25/08	Th-234	R	232.941012	2.32424E+02	522.30086	522.30086	522.30086	1.01 G	70%					
3.305E+02			(15.816583)	(3.4179E+00)	(22.259186)	(22.259186)	(22.259186)	(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	
9	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF6E11AD	PCI/g			01/25/08 08:40	02/22/08 06:16				1		9	
1418995,TSB-HJ-02-0								SOLID										1.02 g
																		740.76 Alq
0		02/22/08 04:36	TH-228	163	2	ALP171	COP	N	N	2.5767E-01	N	76%	N	1.0000E+00	4.5045E-01	1.0281E+00		
								Y	Y	(7.730E-03)		4%		(0.000E+00)	0.980392			

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, Thiso by ALP, Calculated Results

2/25/2008 7:06:45 AM

Batch Nbr: 8030214

Sq	Calc Date	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
1	02/22/08 04:36	TH-230	ALP171	0	199.7833333 998.95	N	2.5767E-01 (7.730E-03)	N	76% 4%	N	1.0000E+00 (0.0000E+00)	4.5045E-01 0.980392	1.0000E+00 (0.0000E+00)	4.5045E-01 0.980392	1.0000E+00 (0.0000E+00)
2	02/22/08 04:36	TH-232	ALP171	1	199.7833333 998.95	N	2.5767E-01 (7.730E-03)	N	76% 4%	N	1.0000E+00 (0.0000E+00)	4.5045E-01 0.980392	1.0000E+00 (0.0000E+00)	4.5045E-01 0.980392	1.0000E+00 (0.0000E+00)
3	02/21/08 20:59	Th-234	GPC30A	728	5091	N	4.4730E-01 (1.789E-02)	N	100%	N	1.0000E+00 (0.0000E+00)	4.5045E-01 0.980392	1.0000E+00 (0.0000E+00)	4.5045E-01 0.980392	1.0000E+00 (0.0000E+00)

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

Sq	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF6E21AD	pCi/g	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Bik Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
10	02/22/08 04:36	TH-228	SOLID	189	4	ALP172	COP	N	N	2.4969E-01	87%	5%	N	1.0000E+00 (0.0000E+00)	1.02 G	742.69 Alq	1.0000E+00 (0.0000E+00)	4.5045E-01 0.980392	1.0281E+00	9
1	02/22/08 04:36	TH-230	SOLID	177	6	ALP172	COP	N	N	2.4969E-01 (7.491E-03)	87%	5%	N	1.0000E+00 (0.0000E+00)	1.02 G	742.69 Alq	1.0000E+00 (0.0000E+00)	4.5045E-01 0.980392	1.0000E+00	9
2	02/22/08 04:36	TH-232	SOLID	147	2	ALP172	COP	N	N	2.4969E-01 (7.491E-03)	87%	5%	N	1.0000E+00 (0.0000E+00)	1.02 G	742.69 Alq	1.0000E+00 (0.0000E+00)	4.5045E-01 0.980392	1.0000E+00	9
3	02/21/08 20:59	Th-234	SOLID	5750	801	GPC30B	COP	Y	N	4.4197E-01 (1.768E-02)	100%	87%	N	1.0000E+00 (0.0000E+00)	1.02 G	742.69 Alq	1.0000E+00 (0.0000E+00)	4.5045E-01 0.980392	1.0000E+00	9

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
0	02/25/08 3:280E+02	TH-228	R	1.966607 (0.212765)	9.42021E-01 (6.8842E-02)	4.331685 (0.409029)	4.331685 (0.409029)	1.02 G (0.017321)	87%	0.071778 0.021743	0.071778 0.021743	0.071778 0.021743	0.071778 0.021743	0.071778 0.021743
1	02/25/08 3:280E+02	TH-230	R	1.786911 (0.196553)	8.79953E-01 (6.6638E-02)	4.046282 (0.390435)	4.046282 (0.390435)	1.02 G (0.017321)	87%	0.079321 0.025903	0.079321 0.025903	0.079321 0.025903	0.079321 0.025903	0.079321 0.025903
2	02/25/08 3:280E+02	TH-232	R	1.490107 (0.171251)	7.33795E-01 (6.0704E-02)	3.374203 (0.344425)	3.374203 (0.344425)	1.02 G (0.017321)	87%	0.057438 0.014955	0.057438 0.014955	0.057438 0.014955	0.057438 0.014955	0.057438 0.014955
3	02/25/08 3:280E+02	Th-234	R	285.667029 (19.299461)	2.85898E+02 (3.7919E+00)	646.865068 (27.25987)	646.865068 (27.25987)	1.02 G (0.017321)	87%	0.057438 0.014955	0.057438 0.014955	0.057438 0.014955	0.057438 0.014955	0.057438 0.014955

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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, Thlso by ALP , Calculated Results

Batch Nbr: 8030214

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	
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		
11	02/22/08 04:36	TH-228	127	1	ALP173	COP	N	N	1.8556E-01		N	78%	N	1.0000E+00	4.5045E-01	1.0281E+00			
			199.7833333	998.95			Y	(5.567E-03)				4%		(0.000E+00)	0.970874				
1	02/22/08 04:36	TH-230	142	0	ALP173	COP	N	N	1.8556E-01		N	78%	N	1.0000E+00	4.5045E-01	1.0000E+00			
			199.7833333	998.95			Y	(5.567E-03)				4%		(0.000E+00)	0.970874				
2	02/22/08 04:36	TH-232	114	0	ALP173	COP	N	N	1.8556E-01		N	78%	N	1.0000E+00	4.5045E-01	1.0000E+00			
			199.7833333	998.95			Y	(5.567E-03)				4%		(0.000E+00)	0.970874				
3	02/21/08 20:59	Th-234	5275	721	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)	0.970874				
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/LcC	BIK/LcC	BIK/LcC	MDC	StdDwMdc/LcC			
	02/25/08	TH-228	R	1.962095		6.34688E-01	4.364117	4.364117	1.03 G	78%		0.074113							
	3.240E+02			(0.234434)		(5.6417E-02)	(0.467858)	(0.467858)	(0.017321)			0.016099							
	02/25/08	TH-230	R	2.137347		7.10770E-01	4.88726	4.88726	1.03 G	78%		0.07209							
	3.240E+02			(0.247589)		(5.9655E-02)	(0.504027)	(0.504027)	(0.017321)			0.015659							
	02/25/08	TH-232	R	1.715897		5.70618E-01	3.923575	3.923575	1.03 G	78%		0.07209							
	3.240E+02			(0.211198)		(5.3453E-02)	(0.436324)	(0.436324)	(0.017321)			0.015659							
	02/25/08	Th-234	R	253.955962		2.62308E+02	580.696282	580.696282	1.03 G	78%									
	3.240E+02			(17.176294)		(3.6319E+00)	(24.580027)	(24.580027)	(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								
12	Calc S1 SOLID	*STLE AlplsoWoBS	KF6E51AD	pCi/g	01/25/08 09:45	02/22/08 06:16		740.93 Alq	1	g									
	1418995,TSB-HR-02-0'			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	02/22/08 04:36	TH-228	155	0	ALP174	COP	N	N	1.8950E-01		N	73%	N	1.0000E+00	4.5045E-01	1.0280E+00			
			199.7833333	998.95			Y	(5.685E-03)				4%		(0.000E+00)	0.990099				
1	02/22/08 04:36	TH-230	87	1	ALP174	COP	N	N	1.8950E-01		N	73%	N	1.0000E+00	4.5045E-01	1.0000E+00			
			199.7833333	998.95			Y	(5.685E-03)				4%		(0.000E+00)	0.990099				
2	02/22/08 04:36	TH-232	128	0	ALP174	COP	N	N	1.8950E-01		N	73%	N	1.0000E+00	4.5045E-01	1.0000E+00			
			199.7833333	998.95			Y	(5.685E-03)				4%		(0.000E+00)	0.990099				
3	02/21/08 20:59	Th-234	4822	588	GPC30D	COP	Y	N	4.4500E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00			
			20	500			Y	(1.780E-02)						(0.000E+00)	0.990099				

QC/BB Sa/On Date: 01/25/08 09:45  
 AnalysisDate/PptWt: 02/22/08 06:16  
 QC/Tracer Vial: 740.93 Alq  
 Mult/EntYld: 1  
 Total/Analy Vol: g  
 Final/Count Vol: 1.03 g

QC/BB Sa/On Date: 01/25/08 09:45  
 AnalysisDate/PptWt: 02/22/08 06:16  
 QC/Tracer Vial: 742.10 Alq  
 Mult/EntYld: 1  
 Total/Analy Vol: g  
 Final/Count Vol: 1.01 g

QC/BB Sa/On Date: 01/25/08 09:45  
 AnalysisDate/PptWt: 02/22/08 06:16  
 QC/Tracer Vial: 742.10 Alq  
 Mult/EntYld: 1  
 Total/Analy Vol: g  
 Final/Count Vol: 1.01 g

QC/BB Sa/On Date: 01/25/08 09:45  
 AnalysisDate/PptWt: 02/22/08 06:16  
 QC/Tracer Vial: 742.10 Alq  
 Mult/EntYld: 1  
 Total/Analy Vol: g  
 Final/Count Vol: 1.01 g

QC/BB Sa/On Date: 01/25/08 09:45  
 AnalysisDate/PptWt: 02/22/08 06:16  
 QC/Tracer Vial: 742.10 Alq  
 Mult/EntYld: 1  
 Total/Analy Vol: g  
 Final/Count Vol: 1.01 g

QC/BB Sa/On Date: 01/25/08 09:45  
 AnalysisDate/PptWt: 02/22/08 06:16  
 QC/Tracer Vial: 742.10 Alq  
 Mult/EntYld: 1  
 Total/Analy Vol: g  
 Final/Count Vol: 1.01 g

QC/BB Sa/On Date: 01/25/08 09:45  
 AnalysisDate/PptWt: 02/22/08 06:16  
 QC/Tracer Vial: 742.10 Alq  
 Mult/EntYld: 1  
 Total/Analy Vol: g  
 Final/Count Vol: 1.01 g

Batch Nbr: 8030214

Alpha Spec, Thiso by ALP

2/25/2008 7:06:45 AM

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	BkLcC/MDC	StdDvMdc/LcC				
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	BkLcC/MDC	StdDvMdc/LcC				
02/25/08	TH-228	R	2.583647	7.75840E-01	5.635189	5.635189	1.01 G	0.079835	73%									
3.310E+02			(0.292954)	(6.2325E-02)	(0.565284)	(0.565284)	(0.017321)	0.017342										
02/25/08	TH-230	R	1.407415	4.34471E-01	3.155706	3.155706	1.01 G	0.077659	73%									
3.310E+02			(0.188594)	(4.6698E-02)	(0.388576)	(0.388576)	(0.017321)	0.016869										
02/25/08	TH-232	R	2.075449	6.40694E-01	4.653576	4.653576	1.01 G	0.077659	73%									
3.310E+02			(0.247479)	(5.6639E-02)	(0.497397)	(0.497397)	(0.017321)	0.016869										
02/25/08	Th-234	R	240.457695	2.39924E+02	539.154784	539.154784	1.01 G		73%									
3.310E+02			(16.314927)	(3.4724E+00)	(22.934441)	(22.934441)	(0.017321)											
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																		
13	Calc S1 SOLID	*STLE AlplsoWoBS KF6FA1AD	pCi/g	01/25/08 10:00	02/22/08 06:16	1	9											
1418995,TSB-HR-02-10		.F8A260145-12	SOLID							745.03	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	02/22/08 04:36	TH-228	132	0	ALP175	COP	N	N	1.8939E-01	N	N	90%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0280E+00	
			199.7833333	998.95			Y		(5.682E-03)			5%		(0.000E+00)	1.00			
1	02/22/08 04:36	TH-230	213	0	ALP175	COP	N	N	1.8939E-01	N	N	90%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(5.682E-03)			5%		(0.000E+00)	1.00			
2	02/22/08 04:36	TH-232	135	0	ALP175	COP	N	N	1.8939E-01	N	N	90%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(5.682E-03)			5%		(0.000E+00)	1.00			
3	02/21/08 21:21	Th-234	6047	728	GPC30A	COP	Y	N	4.4730E-01	N	N	100%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			20	500			Y		(1.789E-02)					(0.000E+00)	1.00			
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																		
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	BkLcC/MDC	StdDvMdc/LcC				
02/25/08	TH-228	R	1.789174	6.60716E-01	3.863769	3.863769	1.00 G	0.064919	90%									
3.356E+02			(0.211282)	(5.7517E-02)	(0.407899)	(0.407899)	(0.017321)	0.014102										
02/25/08	TH-230	R	2.808431	1.06616E+00	6.234718	6.234718	1.00 G	0.06315	90%									
3.356E+02			(0.295389)	(7.3059E-02)	(0.566733)	(0.566733)	(0.017321)	0.013717										
02/25/08	TH-232	R	1.77999	6.75732E-01	3.951582	3.951582	1.00 G	0.06315	90%									
3.356E+02			(0.208924)	(5.8166E-02)	(0.414005)	(0.414005)	(0.017321)	0.013717										
02/25/08	Th-234	R	303.0106	3.00894E+02	672.684205	672.684205	1.00 G		90%									
3.356E+02			(20.477347)	(3.8885E+00)	(28.276813)	(28.276813)	(0.017321)											
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																		
14	Calc S1 SOLID	*STLE AlplsoWoBS KF6FD1AD	pCi/g	01/25/08 10:30	02/22/08 06:16	1	9											
1418995,TSB-HJ-11-0		.F8A260145-13	SOLID							743.77	Alq			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	02/22/08 04:36	TH-228	245	1	ALP176	COP	N	N	2.6546E-01	N	N	72%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0280E+00	
			199.7833333	998.95			Y		(7.964E-03)			4%		(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

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RecCnt:14 RADCALC v4.8.29

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Alpha Spec, Thiso by ALP, Calculated Results

Batch Nbr: 8030214

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFcU	IDC/ILcC	BIKLC/MDC	StdDvMdc/LcC	
1	02/22/08 04:36	TH-230	132	2		1.22533E+00	6.421313	6.421313	1.02 G	72%		0.057034	1.0000E+00	4.5045E-01	1.0000E+00
			199.7833333	998.95		(7.8354E-02)	(0.563543)	(0.563543)	(0.017321)	4%		0.012389	(0.000E+00)	0.980392	
2	02/22/08 04:36	TH-232	237	1		6.58714E-01	3.45198	3.45198	1.02 G	72%		0.06546	1.0000E+00	4.5045E-01	1.0000E+00
			199.7833333	998.95		(5.7525E-02)	(0.365968)	(0.365968)	(0.017321)	4%		0.017044	(0.000E+00)	0.980392	
3	02/21/08 21:21	Th-234	4758	801		1.18528E+00	6.211466	6.211466	1.02 G	100%		0.055482	1.0000E+00	4.5045E-01	1.0000E+00
			20	500		(7.7064E-02)	(0.549999)	(0.549999)	(0.017321)			0.012052	(0.000E+00)	0.980392	

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	KF6FFIAD	pCi/g	SOLID	1	9
15	141895,TSB-HJ-11-10'								744.44	Alq
0	02/22/08 04:36	TH-228	159	0	ALP177	COP	01/25/08 10:40	02/22/08 06:16		
			199.7833333	998.95						1.03 g
1	02/22/08 04:36	TH-230	237	1	ALP177	COP	01/25/08 10:40	02/22/08 06:16		
			199.7833333	998.95						
2	02/22/08 04:36	TH-232	127	0	ALP177	COP	01/25/08 10:40	02/22/08 06:16		
			199.7833333	998.95						
3	02/21/08 21:21	Th-234	5498	721	GPC30C	COP	01/25/08 10:40	02/22/08 06:16		
			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,EFcU	IDC/ILcC	BIKLC/MDC	StdDvMdc/LcC
0	02/25/08	TH-228	R	2.08638		7.95862E-01	4.640887	4.640887	1.03 G	81%		0.062847		
				(0.234729)		(6.3124E-02)	(0.461173)	(0.461173)	(0.017321)			0.013652		
1	02/25/08	TH-230	R	3.022701		1.18528E+00	6.911711	6.911711	1.03 G	81%		0.061137		
				(0.311116)		(7.7064E-02)	(0.61086)	(0.61086)	(0.017321)			0.01328		
2	02/25/08	TH-232	R	1.621127		6.35689E-01	3.706872	3.706872	1.03 G	81%		0.061137		
				(0.193473)		(5.6417E-02)	(0.396832)	(0.396832)	(0.017321)			0.01328		
3	02/25/08	Th-234	R	264.750939		2.73458E+02	605.380103	605.380103	1.03 G	81%		0.061137		
				(17.891023)		(3.7078E+00)	(25.568594)	(25.568594)	(0.017321)			0.01328		

0 - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 \* TP  
 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 and Y-90 Count, All Result Digits May Not be Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time  
 RecCnt:16  
 RADCALC v4.8.29  
 TA Richland

### Alpha Spec, Thisso by ALP , Calculated Results

**Batch Nbr: 8030214**

Sq	Calc	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/EntYid	Total/Analy Vol	Final/Count Vol	
16	Calc	S1	SOLID	*STLE	AlpIsWoBS	KF6FK1AD	pCi/g		01/25/08 10:40	02/22/08 06:16							
					.F8A260145-15		SOLID										
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	02/22/08 04:36	TH-228	174	0	ALP178	COP	N	N	2.7579E-01		N	76%	N	1.0000E+00	4.5045E-01	1.0280E+00	
			199.7833333	998.95			Y		(8.274E-03)			4%		(0.000E+00)	0.970874		
1	02/22/08 04:36	TH-230	142	0	ALP178	COP	N	N	2.7579E-01		N	76%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(8.274E-03)			4%		(0.000E+00)	0.970874		
2	02/22/08 04:36	TH-232	190	1	ALP178	COP	N	N	2.7579E-01		N	76%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			199.7833333	998.95			Y		(8.274E-03)			4%		(0.000E+00)	0.970874		
3	02/21/08 21:21	Th-234	5049	588	GPC30D	COP	Y	N	4.4500E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			20	500			Y		(1.780E-02)					(0.000E+00)	0.970874		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm	Wt	Blk	Dpm-Blk	Vol Used	TrcYld,EnrFct	LCSYld,EFctU	IDC/ILcC	BIKLC/MDC	StdDvMdC/LcC	
	02/25/08	TH-228	R	1.872198		8.70944E-01	4.164466	1.03 G	4.164466	4.164466	1.03 G	76%		0.051534			
	3.256E+02			(0.206207)		(6.6034E-02)	(0.40265)		(0.40265)	(0.40265)	(0.017321)			0.011194			
	02/25/08	TH-230	R	1.486306		7.10770E-01	3.398587	1.03 G	3.398587	3.398587	1.03 G	76%		0.050132			
	3.256E+02			(0.172225)		(5.9655E-02)	(0.350635)		(0.350635)	(0.350635)	(0.017321)			0.01089			
	02/25/08	TH-232	R	1.986624		9.50029E-01	4.542619	1.03 G	4.542619	4.542619	1.03 G	76%		0.050131			
	3.256E+02			(0.214501)		(6.9002E-02)	(0.427955)		(0.427955)	(0.427955)	(0.017321)			0.01089			
	02/25/08	Th-234	R	246.942983		2.51274E+02	564.660389	1.03 G	564.660389	564.660389	1.03 G	76%					
	3.256E+02			(16.717025)		(3.5531E+00)	(23.956209)		(23.956209)	(23.956209)	(0.017321)						

Sq	Calc	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/EntYid	Total/Analy Vol	Final/Count Vol	
17	Calc	S1	SOLID	*STLE	AlpIsWoBS	KF6FK1AD	pCi/g		01/25/08 11:30	02/22/08 06:16							
					.F8A260145-16		SOLID										
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	02/22/08 04:36	TH-228	178	1	ALP113	COP	N	N	2.8313E-01		N	75%	N	1.0000E+00	4.5045E-01	1.0279E+00	
			200.05	1000.1666			Y		(8.494E-03)			4%		(0.000E+00)	0.990099		
1	02/22/08 04:36	TH-230	119	0	ALP113	COP	N	N	2.8313E-01		N	75%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.05	1000.1666			Y		(8.494E-03)			4%		(0.000E+00)	0.990099		
2	02/22/08 04:36	TH-232	193	0	ALP113	COP	N	N	2.8313E-01		N	75%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.05	1000.1666			Y		(8.494E-03)			4%		(0.000E+00)	0.990099		
3	02/21/08 21:43	Th-234	5017	728	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)	0.990099		

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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, Thiso by ALP, Calculated Results

2/25/2008 7:06:45 AM

Batch Nbr: 8030214

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	BIKLC/MDC	StdDvMdc/LcC
02/25/08	TH-228		R	1.914226		8.88778E-01	4.175417	4.175417	1.01 G	75%		0.051566		
3.307E+02				(0.209935)		(6.6699E-02)	(0.401222)	(0.401222)	(0.017321)			0.011201		
02/25/08	TH-230		R	1.246352		5.94851E-01	2.794571	2.794571	1.01 G	75%		0.050164		
3.307E+02				(0.151635)		(5.4539E-02)	(0.306231)	(0.306231)	(0.017321)			0.010897		
02/25/08	TH-232		R	2.021393		9.64759E-01	4.532371	4.532371	1.01 G	75%		0.050164		
3.307E+02				(0.217506)		(6.9452E-02)	(0.42479)	(0.42479)	(0.017321)			0.010897		
02/25/08	Th-234		R	248.661713		2.49394E+02	557.54985	557.54985	1.01 G	75%				
3.307E+02				(16.857342)		(3.5420E+00)	(23.666026)	(23.666026)	(0.017321)					

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
18	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF6FL1AD	pCi/g	01/25/08 11:37	02/22/08 06:16	743.10	Alq	1	9	
							SOLID							1.00 g
0	02/22/08 04:36	TH-228		130	2	ALP116	COP	N	N	2.1858E-01		1.0000E+00	4.5045E-01	1.0279E+00
				200.1833333	1000.15			Y		(6.557E-03)		(0.000E+00)	1.00	
1	02/22/08 04:36	TH-230		157	0	ALP116	COP	N	N	2.1858E-01		1.0000E+00	4.5045E-01	1.0000E+00
				200.1833333	1000.15			Y		(6.557E-03)		(0.000E+00)	1.00	
2	02/22/08 04:36	TH-232		144	0	ALP116	COP	N	N	2.1858E-01		1.0000E+00	4.5045E-01	1.0000E+00
				200.1833333	1000.15			Y		(6.557E-03)		(0.000E+00)	1.00	
3	02/21/08 21:43	Th-234		5660	801	GPC30B	COP	Y	N	4.4197E-01		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	Trc Yld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKLC/MDC	StdDvMdc/LcC
02/25/08	TH-228		R	1.600676		6.47405E-01	3.456932	3.456932	1.00 G	86%		0.069808		
3.347E+02				(0.190227)		(5.6974E-02)	(0.367857)	(0.367857)	(0.017321)			0.018179		
02/25/08	TH-230		R	1.866398		7.84281E-01	4.187806	4.187806	1.00 G	86%		0.057557		
3.347E+02				(0.213003)		(6.2600E-02)	(0.417728)	(0.417728)	(0.017321)			0.012505		
02/25/08	TH-232		R	1.730199		7.19341E-01	3.841045	3.841045	1.00 G	86%		0.057557		
3.347E+02				(0.199725)		(5.9953E-02)	(0.39406)	(0.39406)	(0.017321)			0.012505		
02/25/08	Th-234		R	286.794078		2.81398E+02	636.68349	636.68349	1.00 G	86%				
3.347E+02				(19.406311)		(3.7621E+00)	(26.852169)	(26.852169)	(0.017321)					

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
19	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF6FM1AD	pCi/g	01/25/08 11:50	02/22/08 06:16	747.7	Alq	1	9	
							SOLID							1.02 g
0	02/22/08 04:36	TH-228		242	2	ALP117	COP	N	N	3.6088E-01		1.0000E+00	4.5045E-01	1.0279E+00
				200.0833333	1000.0666			Y		(1.083E-02)		(0.000E+00)	0.980392	

Alpha Spec, Thiso by ALP, Calculated Results

Batch Nbr: 8030214

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
1	02/22/08 04:36	TH-230	176	1	1000.0666	1.20750E+00 (7.7762E-02)	3.810038 (0.334692)	3.810038 (0.334692)	1.02 G (0.017321)	88%		0.040458	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392
2	02/22/08 04:36	TH-232	222	0	1000.0666	8.78634E-01 (6.6312E-02)	2.772371 (0.266861)	2.772371 (0.266861)	1.02 G (0.017321)	88%		0.033358	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392
3	02/21/08 21:43	Th-234	5961	721	1000.0666	1.10954E+00 (0.161142)	3.500947 (0.314594)	3.500947 (0.314594)	1.02 G (0.017321)	100%		0.033358	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392
			20	500		2.96608E+02 (3.8607E+00)	656.62947 (27.620812)	656.62947 (27.620812)	1.02 G (0.017321)	88%		0.007247		

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
20	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KF6FMIAG	pci/g			R	01/25/08 11:50	02/22/08 06:16			1	g	
141	18995	TSB-HJ-01-0'	DUP														

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	02/22/08 04:36	TH-228	261	4	ALP118	COP	N	N	3.5511E-01 (1.065E-02)		N	87%	N	1.0000E+00 (0.000E+00)	1.0000E+00	4.5045E-01	1.0279E+00	
1	02/22/08 04:36	TH-230	154	0	ALP118	COP	N	N	3.5511E-01 (1.065E-02)		N	4%	N	1.0000E+00 (0.000E+00)	1.0000E+00	4.5045E-01	1.0000E+00	
2	02/22/08 04:36	TH-232	278	0	ALP118	COP	N	N	3.5511E-01 (1.065E-02)		N	87%	N	1.0000E+00 (0.000E+00)	1.0000E+00	4.5045E-01	1.0000E+00	
3	02/21/08 21:43	Th-234	5770	588	GPC30D	COP	Y	N	4.4500E-01 (1.780E-02)		N	100%	N	1.0000E+00 (0.000E+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	BikLcC/MDC	StdDvMdc/LcC
02/25/08	TH-228	R	1.899444	1.29991E+00 (8.0735E-02)	4.225274 (0.364261)	4.225274 (0.364261)	4.225274 (0.364261)	1.03 G (0.017321)	87%			0.050156		
3.259E+02												0.015196		
02/25/08	TH-230	R	1.093652	7.69359E-01 (6.2005E-02)	2.500745 (0.250948)	2.500745 (0.250948)	2.500745 (0.250948)	1.03 G (0.017321)	87%			0.03402		
3.259E+02												0.007391		
02/25/08	TH-232	R	1.974253	1.38884E+00 (8.3303E-02)	4.514332 (0.382319)	4.514332 (0.382319)	4.514332 (0.382319)	1.03 G (0.017321)	87%			0.03402		
3.259E+02												0.007391		
02/25/08	Th-234	R	282.371616	2.87324E+02 (3.7983E+00)	645.671584 (27.200791)	645.671584 (27.200791)	645.671584 (27.200791)	1.03 G (0.017321)	87%			0.03402		
3.259E+02												0.007391		

( ) - (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:21 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					
21	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KGAF11AA	pCi/g	B	01/25/08 12:10	02/22/08 06:16			1								
0,INTRA-LAB BLANK																					
,JBA300000-214																					
SOLID																					
744.11 Alq																					
1.01 g																					
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn	
0	02/22/08 04:36	TH-228	0	200.08333333	1000.2166	ALP119	COP	N	2.2282E-01	(6.684E-03)	N	95%	N	5%	N	1.0000E+00	(0.0000E+00)	4.5045E-01	0.990099	1.0279E+00	
1	02/22/08 04:36	TH-230	1	200.08333333	1000.2166	ALP119	COP	N	2.2282E-01	(6.684E-03)	N	95%	N	5%	N	1.0000E+00	(0.0000E+00)	4.5045E-01	0.990099	1.0000E+00	
2	02/22/08 04:36	TH-232	0	200.08333333	1000.2166	ALP119	COP	N	2.2282E-01	(6.684E-03)	N	95%	N	5%	N	1.0000E+00	(0.0000E+00)	4.5045E-01	0.990099	1.0000E+00	
3	02/21/08 22:07	Th-234	6425	721	500	GPC30C	COP	Y	4.5171E-01	(1.807E-02)	N	100%	N		N	1.0000E+00	(0.0000E+00)	4.5045E-01	0.990099	1.0000E+00	
20																					
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	BIKlC/MDC	StdDvMdc/LcC				
	02/25/08	TH-228	R	-0.004324	U4	-1.99957E-03		-0.009432		1.01 G	95%	0.061077									
	3.319E+02			(0.011237)		(5.1941E-03)		(0.024507)		(0.017321)											
	02/25/08	TH-230	R	0.010514	U4	4.99792E-03		0.023575		1.01 G	95%	0.050361									
	3.319E+02			(0.010755)		(5.0969E-03)		(0.024083)		(0.017321)											
	02/25/08	TH-232	R	0.00E00	U4	0.00000E+00		0.00E00		1.01 G	95%	0.050361									
	3.319E+02			(0.010723)		(5.0969E-03)		(0.024042)		(0.017321)											
	02/25/08	Th-234	R	315.756319		3.19808E+02		707.989526		1.01 G	95%	0.01094									
	3.319E+02			(21.301657)		(4.0082E+00)		(29.677152)		(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					
22	Calc	S1	SOLID	*STLE	AlpIsoWoBS	KGAF11AC	pCi/g	S	01/25/08 12:10	02/22/08 06:17			1								
0,INTRA-LAB CHECK																					
,JBA300000-214																					
SOLID																					
744.77 Alq																					
1.03 g																					
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn	
0	02/22/08 04:36	TH-228	1	200.18333333	1000.1833	ALP120	COP	N	2.1268E-01	(6.380E-03)	N	93%	N	5%	N	1.0000E+00	(0.0000E+00)	4.5045E-01	0.970874	1.0279E+00	
1	02/22/08 04:36	TH-230	207	200.18333333	1000.1833	ALP120	COP	N	2.1268E-01	(6.380E-03)	N	93%	N	5%	N	1.0000E+00	(0.0000E+00)	4.5045E-01	0.970874	1.0000E+00	
2	02/22/08 04:36	TH-232	1	200.18333333	1000.1833	ALP120	COP	N	2.1268E-01	(6.380E-03)	N	93%	N	5%	N	1.0000E+00	(0.0000E+00)	4.5045E-01	0.970874	1.0000E+00	
3	02/21/08 22:07	Th-234	6209	588	500	GPC30D	COP	Y	4.4500E-01	(1.780E-02)	N	100%	N		N	1.0000E+00	(0.0000E+00)	4.5045E-01	0.970874	1.0000E+00	
20																					

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	StdDvMidC/LcC
02/25/08	3.257E+02	TH-228	R	0.002256 (0.012189)	U4	9.96154E-04 (5.3808E-03)	0.005019 (0.027114)	0.005019 (0.027114)	1.03 G (0.017321)	93%		0.077742 0.023553		
02/25/08	3.257E+02	TH-230	R	2.278629 (0.240899)	U4	1.03405E+00 (7.1879E-02)	5.210316 (0.477367)	5.210316 (0.477367)	1.03 G (0.017321)	93%	105%	0.052731 0.011457		
02/25/08	3.257E+02	TH-232	R	0.011008 (0.01126)	U4	4.99542E-03 (5.0945E-03)	0.025171 (0.025714)	0.025171 (0.025714)	1.03 G (0.017321)	93%		0.052731 0.011457		
02/25/08	3.257E+02	Th-234	R	303.943281 (20.491023)	U4	3.09274E+02 (3.9402E+00)	694.997401 (29.17589)	694.997401 (29.17589)	1.03 G (0.017321)	93%				

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 08:02:36.00

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>
21-FEB-2008 08:02:36.00	8583	20.00	728	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	25	9	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
 Richland, WA

**GPC Report**

21-FEB-2008 08:02:36.00

LBPRINT - Rev#: 2.5

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

<b>Sample Count Date/Time</b>	<b>Beta Counts</b>	<b>Count Duration*</b>	<b>Beta Bkg Counts</b>	<b>Bkg Count Duration*</b>	<b>Instr ID</b>
21-FEB-2008 08:02:36.00	8579	20.00	801	500.00	30B

<b>Alpha Counts</b>	<b>Alpha Bkg Counts</b>	<b>Guard Counts</b>	<b>HV</b>	<b>Bkg Count Date/Time</b>
2	14	9	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.



TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 08:02:36.00

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>
21-FEB-2008 08:02:36.00	8919	20.00	721	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	27	9	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 08:02:36.00

LBPRINT - Rev#: 2.5

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

<b>Sample Count Date/Time</b>	<b>Beta Counts</b>	<b>Count Duration*</b>	<b>Beta Bkg Counts</b>	<b>Bkg Count Duration*</b>	<b>Instr ID</b>
21-FEB-2008 08:02:36.00	8245	20.00	588	500.00	30D

<b>Alpha Counts</b>	<b>Alpha Bkg Counts</b>	<b>Guard Counts</b>	<b>HV</b>	<b>Bkg Count Date/Time</b>
3	20	9	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

GPC Report

21-FEB-2008 13:07:45.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6EM1AD	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>
21-FEB-2008 13:07:45.00	839	20.00	728	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	25	665	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 13:07:45.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6EP1AD	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>
21-FEB-2008 13:07:45.00	880	20.00	801	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	14	665	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 13:07:45.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6EQ1AD	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>
21-FEB-2008 13:07:45.00	946	20.00	721	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	27	665	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 13:07:45.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
KF6ER1AD	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
21-FEB-2008 13:07:45.00	889	20.00	588	500.00	30D

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
3	20	665	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 13:29:59.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6ET1AD	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>
21-FEB-2008 13:29:59.00	956	20.00	728	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	25	667	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 13:29:59.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6EV1AD	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>
21-FEB-2008 13:29:59.00	857	20.00	801	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	14	667	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.



TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 13:29:59.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6EW1AD	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>
21-FEB-2008 13:29:59.00	4014	20.00	721	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	27	667	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 13:29:59.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6E01AD	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>
21-FEB-2008 13:29:59.00	4672	20.00	588	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	20	667	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

GPC Report

21-FEB-2008 20:59:39.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6E11AD	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>
21-FEB-2008 20:59:39.00	5091	20.00	728	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	25	670	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 20:59:39.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6E21AD	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>
21-FEB-2008 20:59:39.00	5750	20.00	801	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>
5	14	670	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

GPC Report

21-FEB-2008 20:59:39.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6E21AG	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>
21-FEB-2008 20:59:39.00	5275	20.00	721	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>
5	27	670	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
 Richland, WA

**GPC Report**

21-FEB-2008 20:59:39.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6E51AD	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>
21-FEB-2008 20:59:39.00	4822	20.00	588	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	20	670	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 21:21:37.00

LBPRINT - Rev#: 2.5

Sample ID	Isotope	Geometry
KF6F1AD <i>AK</i>	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
21-FEB-2008 21:21:37.00	6047	20.00	728	500.00	30A

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
11	25	667	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 21:21:37.00

LBPRINT - Rev#: 2.5

<b>Sample ID</b>	<b>Isotope</b>	<b>Geometry</b>
KF6FD1AD	COP	COP

<b>Sample Count Date/Time</b>	<b>Beta Counts</b>	<b>Count Duration*</b>	<b>Beta Bkg Counts</b>	<b>Bkg Count Duration*</b>	<b>Instr ID</b>
21-FEB-2008 21:21:37.00	4758	20.00	801	500.00	30B

<b>Alpha Counts</b>	<b>Alpha Bkg Counts</b>	<b>Guard Counts</b>	<b>HV</b>	<b>Bkg Count Date/Time</b>
2	14	667	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.



TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 21:21:37.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6FF1AD	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>
21-FEB-2008 21:21:37.00	5498	20.00	721	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	27	667	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 21:21:37.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6FJ1AD	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>
21-FEB-2008 21:21:37.00	5049	20.00	588	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	20	667	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 21:43:43.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6FK1AD	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>
21-FEB-2008 21:43:43.00	5017	20.00	728	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	25	671	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 21:43:43.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6FL1AD	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>
21-FEB-2008 21:43:43.00	5660	20.00	801	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>
0	14	671	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 21:43:43.00

LBPRINT - Rev#: 2.5

<b>Sample ID</b>	<b>Isotope</b>	<b>Geometry</b>
KF6FM1AD	COP	COP

<b>Sample Count Date/Time</b>	<b>Beta Counts</b>	<b>Count Duration*</b>	<b>Beta Bkg Counts</b>	<b>Bkg Count Duration*</b>	<b>Instr ID</b>
21-FEB-2008 21:43:43.00	5961	20.00	721	500.00	30C

<b>Alpha Counts</b>	<b>Alpha Bkg Counts</b>	<b>Guard Counts</b>	<b>HV</b>	<b>Bkg Count Date/Time</b>
1	27	671	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 21:43:43.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6FM1AG	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>
21-FEB-2008 21:43:43.00	5770	20.00	588	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	20	671	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
 Richland, WA

**GPC Report**

21-FEB-2008 22:07:59.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KGAF11AA	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>
21-FEB-2008 22:07:59.00	6425	20.00	721	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	27	661	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.

TESTAMERICA LABORATORIES, INC.  
Richland, WA

**GPC Report**

21-FEB-2008 22:07:59.00

LBPRINT - Rev#: 2.5

<b>Sample ID</b>	<b>Isotope</b>	<b>Geometry</b>
KGAF11AC	COP	COP

<b>Sample Count Date/Time</b>	<b>Beta Counts</b>	<b>Count Duration*</b>	<b>Beta Bkg Counts</b>	<b>Bkg Count Duration*</b>	<b>Instr ID</b>
21-FEB-2008 22:07:59.00	6209	20.00	588	500.00	30D

<b>Alpha Counts</b>	<b>Alpha Bkg Counts</b>	<b>Guard Counts</b>	<b>HV</b>	<b>Bkg Count Date/Time</b>
2	20	661	1492	21-FEB-2008 03:20:20.00

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

\* Count Durations in Minutes.



# THORIUM ISOTOPICT COUNTING REQUEST

1704

C.R. Technician GS  
Date Counted 2/21/08  
C.R. Analyst BP  
Date Analyzed 2/21/08

Counting Time 20 Minutes  
Sample 20  
SOP's RICHRD008  
Operating: RICHRD008  
Background See Alpha Analysis Report  
Review: 1/28/08 RICHRD0016 2030214

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)		
KF6EM1AD	10		0				171	
KF6EP1AD	10		0				172	
KF6EQ1AD	10		0				173	
KF6ER1AD	10		0				174	
KF6ET1AD	10		0				175	
KF6EV1AD	10		0				176	
KF6EW1AD	10		0				177	
KF6EY1AD	10		0				178	
	10		0					

Comments:

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

Sample Identity: KF6EM1AD

Detector: ALP171 1  
Report Date: 21-Feb-08 08:51 PM  
Acquire Date: 21-FEB-2008 13:44:46.81  
Tracer Nuclide: TH-229  
Sample Live Time: 200 minutes  
Bkgrnd Live Time: 999 minutes

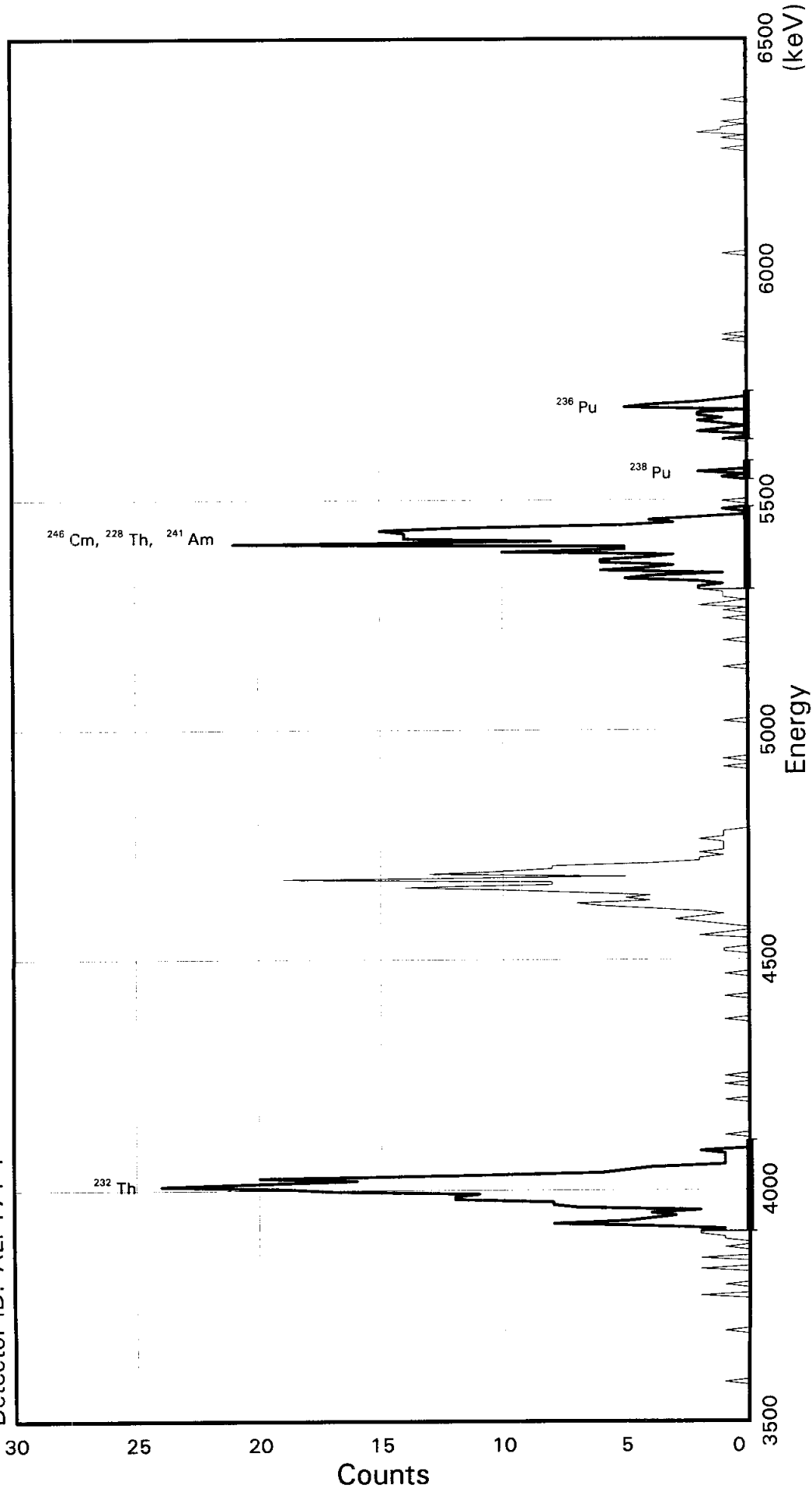
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Rght Chnl
TH-228	176	2	0.879	5423.2	145.7	314	339
TH-230	163	0	0.816	4687.7	162.8	186	214
TH-232	239	1	1.195	4013.0	162.4	69	97

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Batch ID: 8030214

Sample ID: KF6EM1AD  
Detector ID: ALP171 1



Energy Coefficients:  
Offset: 3.49866E+03  
Slope: 5.79205E+00  
Quadrature: 5.30073E-05

Acquisition Start: 21-FEB-2008 13:44:46.81  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:19:47.00

SAMPLE IDENTIITY: KF6EM1AD

TITLE : TH BRCO

DETECTOR : ALP171 1  
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6EM1AD\_210281344A.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 21-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 21-FEB-2008 13:44:46 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: KFG6M1AD  
Detector: ALP171 1  
Report Date: 21-Feb-08 05:29 PM  
Acquire Date: 21-FEB-2008 13:44:46.81

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

0 50 1 100 1 150 14 200 0 250 1 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 21-FEB-2008 17:29:15

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF6EM1AD_210281344A.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 21-FEB-2008 13:44:46
Sample ID        : KF6EM1AD           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     : 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	4009.43	242	0	52.13	88.11	71	34	2.02E-02	6.4	
2	0	5418.95	180	0	57.92	330.54	311	31	1.50E-02	7.5	
3	0	5558.60	4	0	23.17	354.50	352	7	3.34E-04	50.0	
4	0	5701.46	25	0	40.54	379.00	367	18	2.09E-03	20.0	

Error Report (Date: 21-Feb-08 05:29 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: KF6EP1AD

Detector: ALP171 2

Report Date: 21-Feb-08 08:54 PM

Acquire Date: 21-FEB-2008 13:44:46.81

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgnd Live Time: 999 minutes

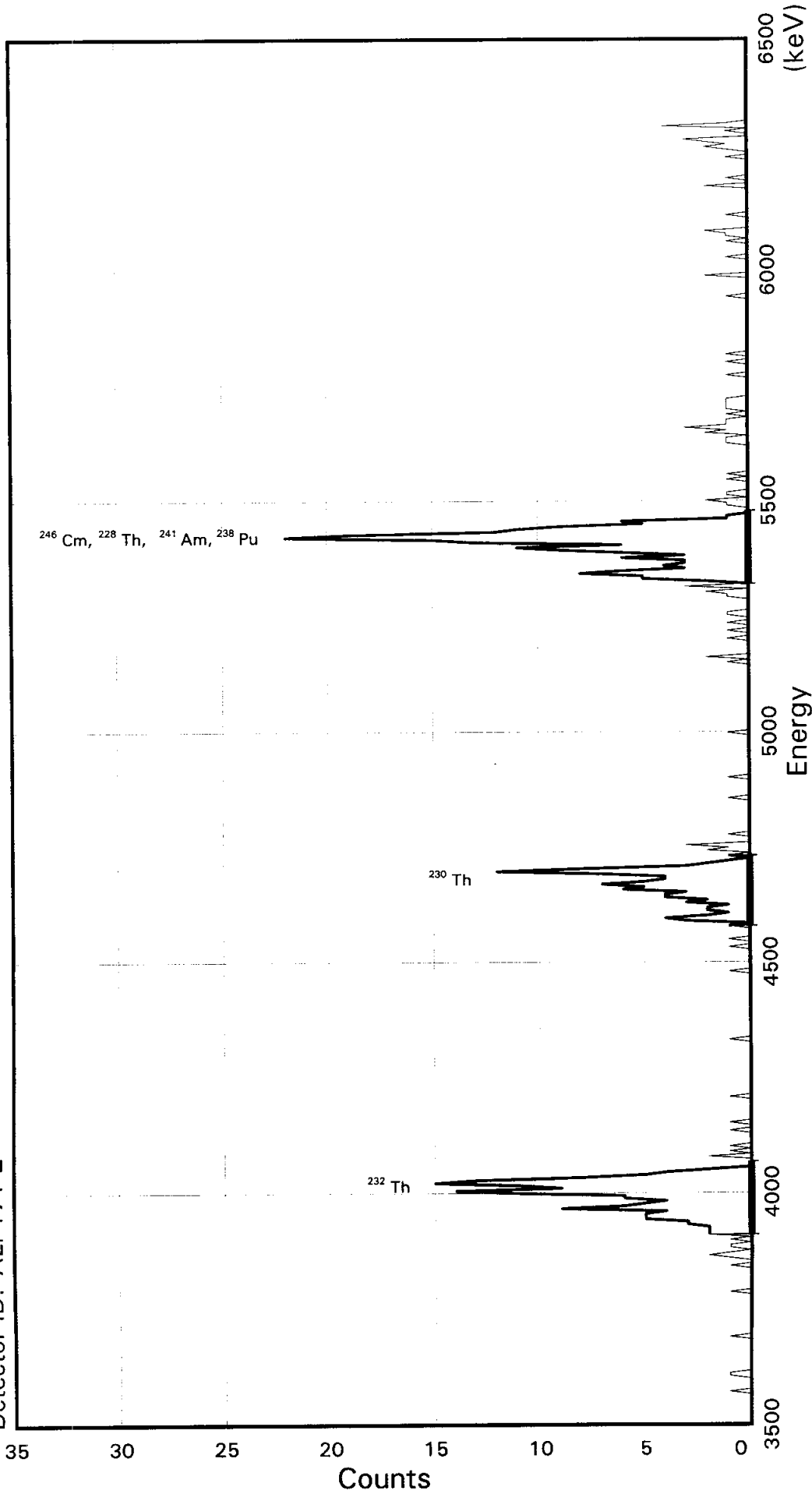
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	200	4	0.997	5423.2	169.8	313	343
TH-230	95	6	0.470	4687.7	141.1	187	212
TH-232	162	2	0.809	4013.0	157.7	65	93

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Batch ID: 8030214

Sample ID: KF6EP1AD  
Detector ID: ALP171 2



Energy Coefficients:  
Offset: 3.53220E + 03  
Slope: 5.62160E + 00  
Quadrature: 5.87552E-05

Acquisition Start: 21-FEB-2008 13:44:46.81  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:19:47.00

SAMPLE IDENTIITY: KF6EP1AD

TITLE : TH BRCO

DETECTOR : ALP171 2  
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE] KF6EP1AD\_210281344B.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 21-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 21-FEB-2008 13:44:46 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 %



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

VMS Peak Search Report V1.9 Generated 21-FEB-2008 17:30:48

Configuration : \$DISK1:[ALP171.SAMPLE]KF6EP1AD\_210281344B.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : TH BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 21-FEB-2008 13:44:46  
 Sample ID : KF6EP1AD 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	4015.85	161	0	50.59	85.96	67	28	1.34E-02	7.9	
2	0	4681.79	95	0	67.46	204.06	186	27	7.93E-03	10.3	
3	0	5422.42	196	0	39.35	335.07	317	28	1.64E-02	7.1	

Error Report (Date: 21-Feb-08 05:30 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: KF6EQ1AD

Detector: ALP171 3  
Report Date: 21-Feb-08 08:56 PM  
Acquire Date: 21-FEB-2008 13:44:46.81  
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	141	1	0.705	5423.2	143.5	306	330
TH-230	119	0	0.596	4687.7	155.5	181	207
TH-232	111	0	0.556	4013.0	149.4	73	98

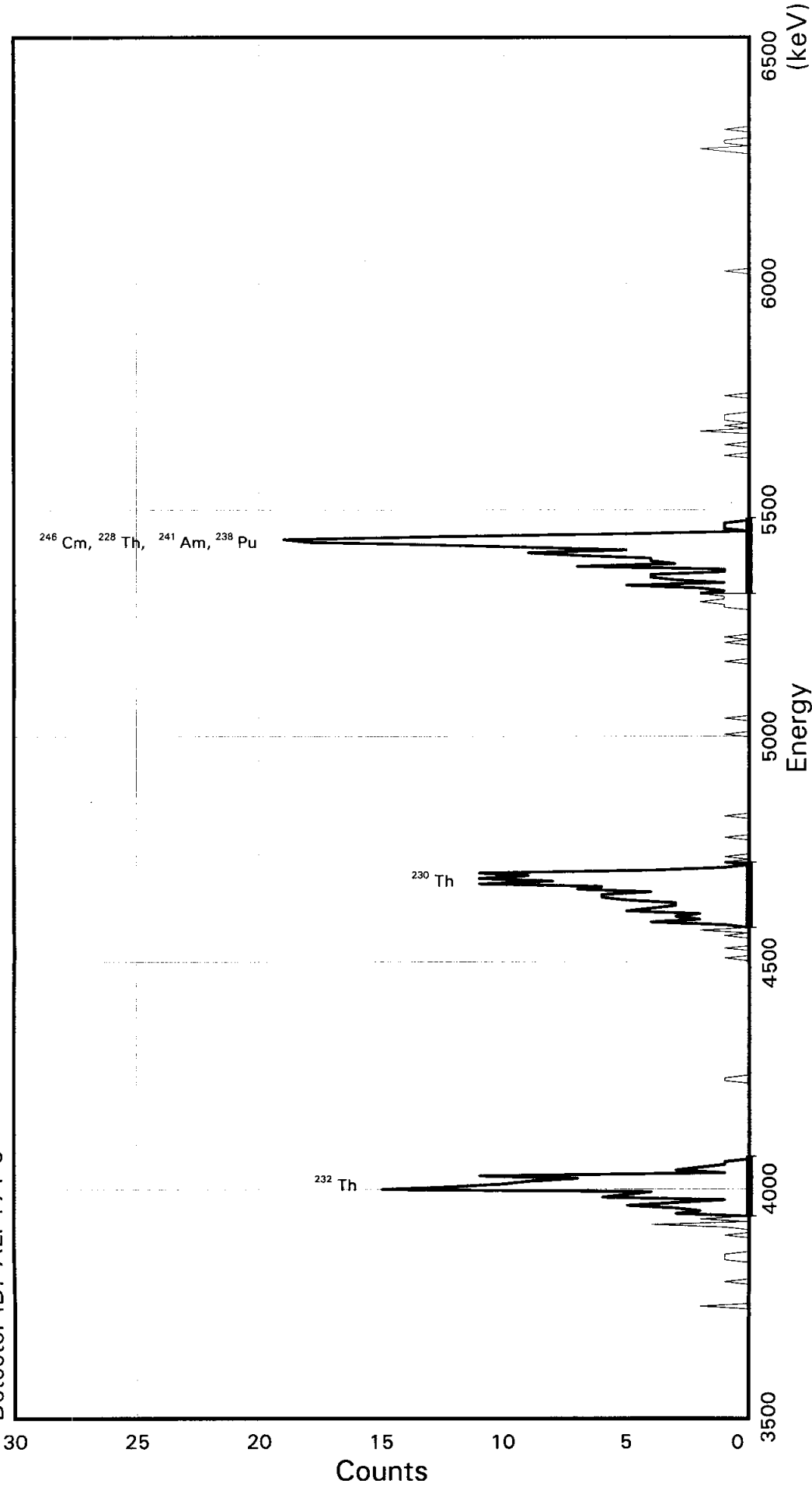
End of Alpha Region Report  
(Produced by ANAL Report)



TAL Richland WA.  
TH BRCO

Sample ID: KF6EQ1AD  
Detector ID: ALP171 3

Batch ID: 8030214



Acquisition Start: 21-FEB-2008 13:44:46.81  
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: KF6EQ1AD

TITLE : TH BRCO

DETECTOR : ALP171 3

CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6EQ1AD\_210281344C.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 21-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 21-FEB-2008 13:44:46 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: KFG6EQ1AD

Flags Key

Detector: ALP171 3

Report Date: 21 Feb 08 08:17 PM

Intersect Region: 3

Acquire Date: 21-FEB-2008 13:44:46.81

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

0 50 0 100 0 150 11 200 0 250 0 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 21-FEB-2008 20:17:01

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF6EQ1AD_210281344C.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 21-FEB-2008 13:44:46
Sample ID        : KF6EQ1AD           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	4010.56	107	0	41.84	88.82	77	22	8.93E-03	9.7	
2	0	4682.62	118	0	41.84	201.23	184	24	9.84E-03	9.2	
3	0	5429.40	141	0	29.88	326.12	307	28	1.18E-02	8.4	

Error Report (Date: 21-Feb-08 08:17 PM)

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: KF6ER1AD

Detector: ALP171 4

Report Date: 21-Feb-08 08:59 PM

Acquire Date: 21-FEB-2008 13:44:46.81

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

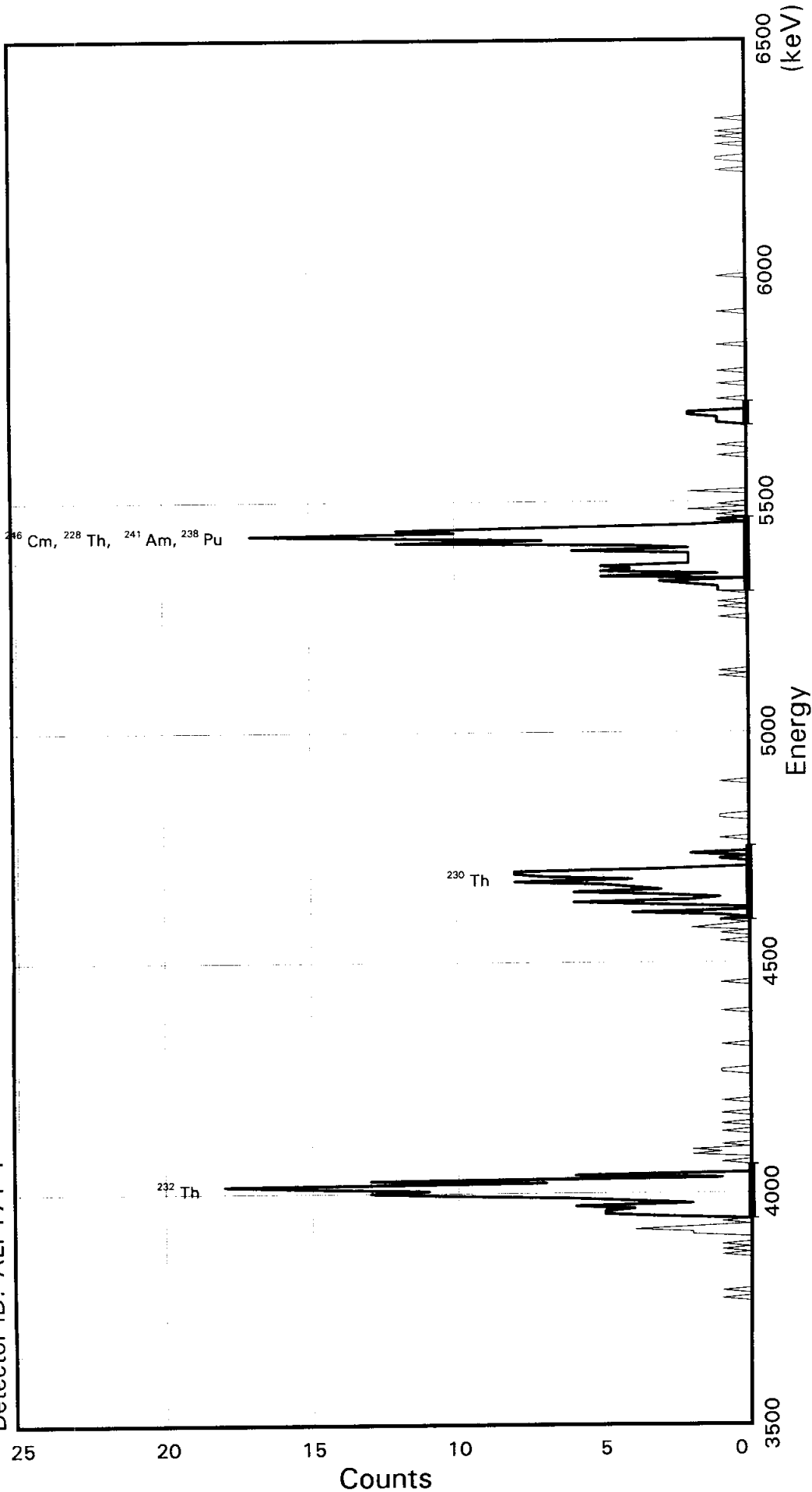
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	122	0	0.611	5423.2	127.9	310	333
TH-230	76	0	0.380	4687.7	116.7	178	199
TH-232	138	0	0.691	4013.0	127.7	55	78

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Batch ID: 8030214

Sample ID: KF6ER1AD  
Detector ID: ALP171 4



Energy Coefficients:  
Offset: 3.61090E + 03  
Slope: 5.54825E + 00  
Quadrature: 2.13419E-05

Acquisition Start: 21-FEB-2008 13:44:46.81  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:19:47.00



SAMPLE IDENTIITY: KF6ER1AD

TITLE : TH BRCO

DETECTOR : ALP171 4  
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6ER1AD\_210281344D.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 21-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 21-FEB-2008 13:44:46 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 %



1 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 21-FEB-2008 17:05:08

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF6ER1AD_210281344D.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 21-FEB-2008 13:44:46
Sample ID        : KF6ER1AD           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     : 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	4008.88	130	0	44.39	71.71	60	21	1.08E-02	8.8	
2	0	4681.27	80	0	55.48	192.78	177	29	6.67E-03	11.2	
3	0	5425.60	130	0	33.29	326.67	305	29	1.08E-02	8.8	
4	0	5682.44	8	0	22.19	372.83	370	9	6.67E-04	35.4	

Error Report (Date: 21-Feb-08 05:05 PM)

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: KF6ET1AD

Detector: ALP171 5

Report Date: 21-Feb-08 09:03 PM

Acquire Date: 21-FEB-2008 13:44:46.81

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgnd Live Time: 999 minutes

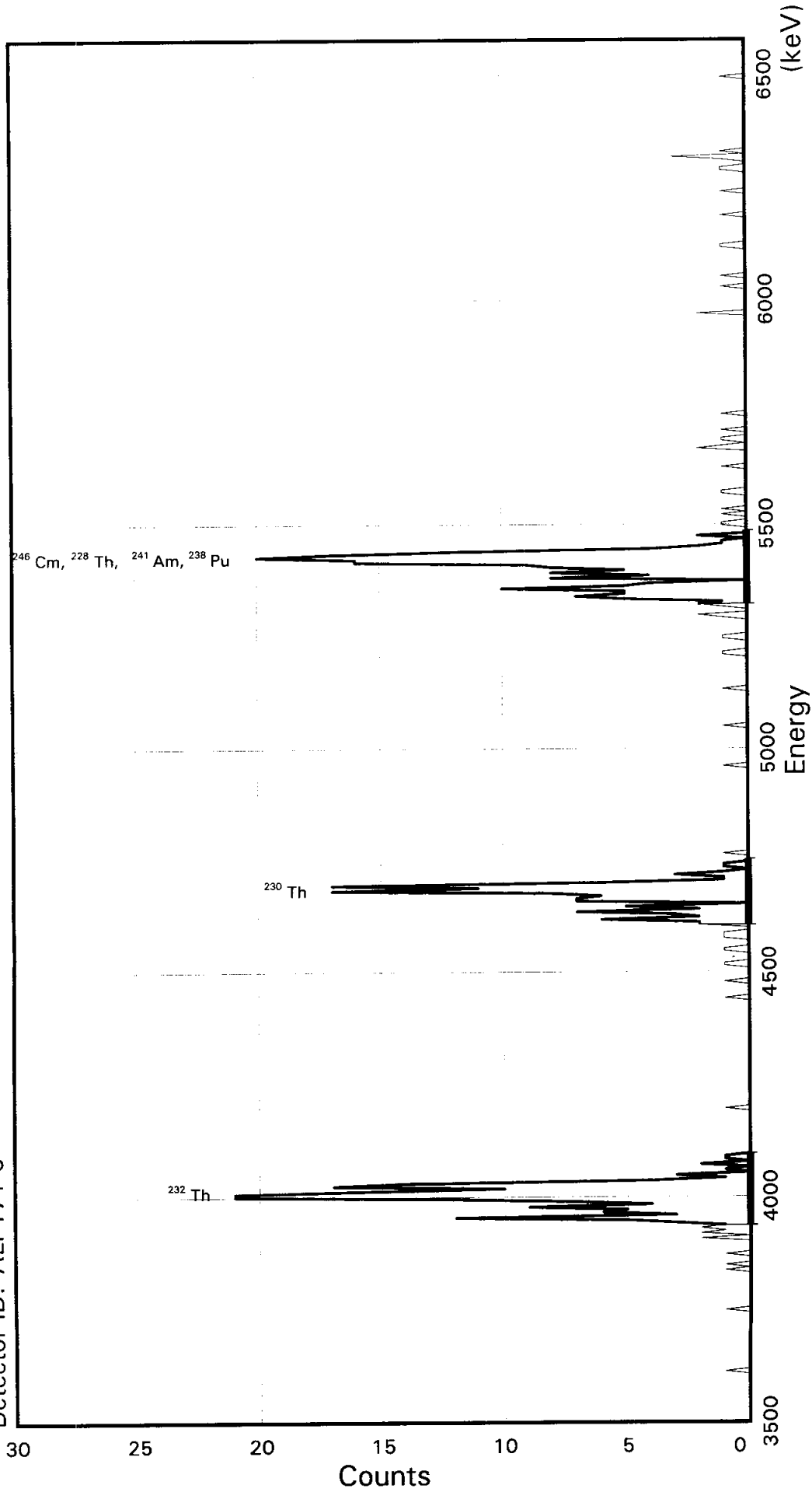
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	175	0	0.876	5423.2	141.6	299	323
TH-230	115	0	0.576	4687.7	135.5	177	200
TH-232	178	0	0.891	4013.0	135.3	62	85

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Batch ID: 8030214

Sample ID: KF6ET1AD  
Detector ID: ALP171 5



Energy Coefficients:  
Offset: 3.56014E+03  
Slope: 5.87973E+00  
Quadrature: 3.04036E-05

Acquisition Start: 21-FEB-2008 13:44:46.81  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:19:47.00

SAMPLE IDENTIITY: KF6ET1AD

TITLE : TH BRCO

DETECTOR : ALP171 5  
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6ET1AD\_210281344E.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 21-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 21-FEB-2008 13:44:46 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: KF6ET1AD  
 Detector: ALP171 5  
 Report Date: 21-Feb 08 05:05 PM  
 Acquire Date: 21-FEB 2008 13:44:46.81

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

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

VMS Peak Search Report V1.9 Generated 21-FEB-2008 17:05:15

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF6ET1AD_210281344E.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 21-FEB-2008 13:44:46
Sample ID        : KF6ET1AD           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     : 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	4010.04	177	0	47.04	76.49	64	27	1.48E-02	7.5	
2	0	4685.37	115	0	29.40	191.19	178	25	9.59E-03	9.3	
3	0	5424.72	176	0	35.28	316.60	299	28	1.47E-02	7.5	

Error Report (Date: 21-Feb-08 05:05 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: KF6EV1AD

Detector: ALP171 6

Report Date: 21-Feb-08 09:04 PM

Acquire Date: 21-FEB-2008 13:44:46.81

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

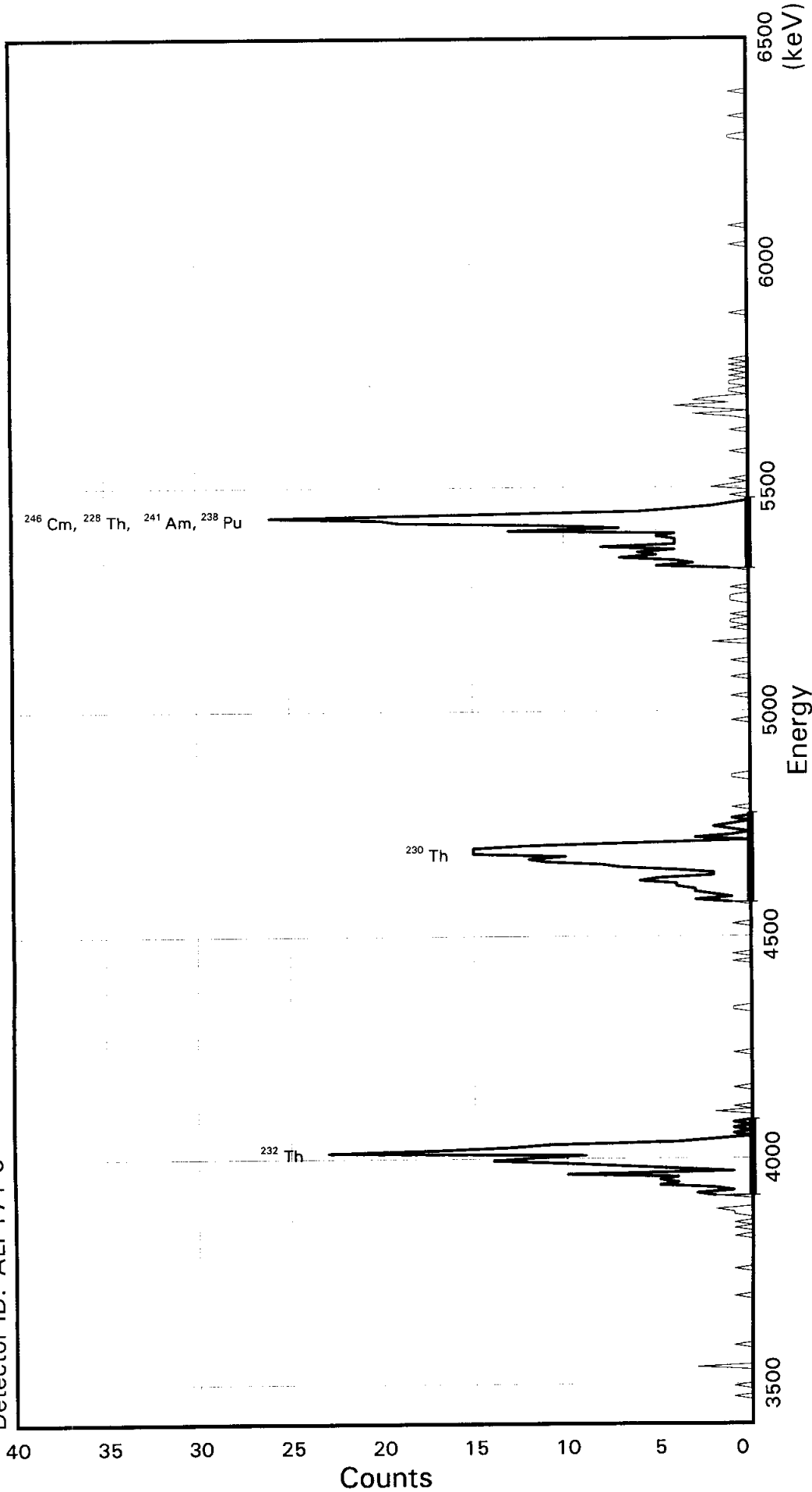
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	189	1	0.945	5423.2	151.5	319	344
TH-230	156	2	0.779	4687.7	163.1	196	223
TH-232	164	1	0.820	4013.0	138.6	87	110

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Batch ID: 8030214

Sample ID: KF6EV1AD  
Detector ID: ALP171 6



Acquisition Start: 21-FEB-2008 13:44:46.81  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:  
Offset: 3.39346E + 03  
Slope: 6.01107E + 00  
Quadrature: 7.10616E-05

SAMPLE IDENTIITY: KF6EV1AD

TITLE : TH BRCO

DETECTOR : ALP171 6  
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6EV1AD\_210281344F.CN  
F;1  
ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 21-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 21-FEB-2008 13:44:46 CALIB DATE : 09-FEB-2008 06:25:37

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

OFFSET : 3393.46 keV CONSTANT FWHM : 8.00000 Channels  
SLOPE : 6.01107 keV/C SENSITIVITY : 3.00000 Std Dev's  
QUAD COEFF : 7.106160E-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: KF6EV1AD  
Detector: ALP171 6

Flags Key

Report Date: 21 Feb-08 05:05 PM  
Acquire Date: 21-FEB-2008 13:44:46.81

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



1 50 14 100 0 150 3 200 0 250 1 300 1 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 21-FEB-2008 17:05:19

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF6EV1AD_210281344F.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 21-FEB-2008 13:44:46
Sample ID        : KF6EV1AD           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     : 3411.49 keV        End energy        : 6489.75 keV
Sensitivity      : 3.00               Sum Sensitivity   : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4010.87	162	0	48.09	102.59	87	28	1.35E-02	7.9	
2	0	4681.46	159	0	48.09	213.73	196	33	1.33E-02	7.9	
3	0	5427.94	190	0	30.06	337.11	319	26	1.59E-02	7.3	

Error Report (Date: 21-Feb-08 05:05 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: KF6EW1AD

Detector: ALP171 7

Report Date: 21-Feb-08 09:06 PM

Acquire Date: 21-FEB-2008 13:44:46.81

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

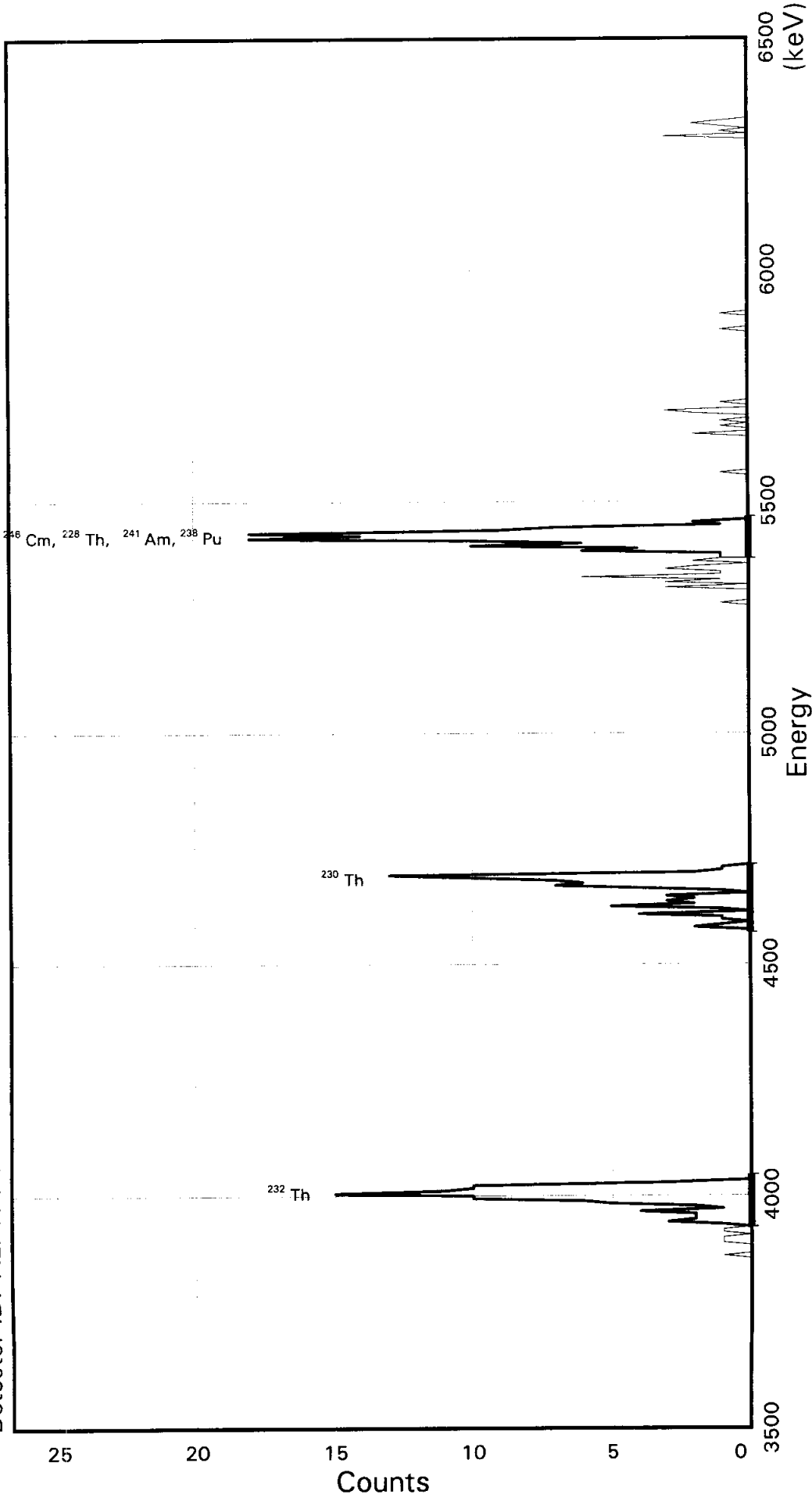
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	124	0	0.621	5423.2	135.2	309	333
TH-230	77	1	0.384	4687.7	141.1	175	200
TH-232	99	0	0.496	4013.0	124.3	58	80

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Sample ID: KF6EW1AD  
Detector ID: ALP171 7

Batch ID: 8030214



Energy Coefficients:  
Offset: 3.58678E + 03  
Slope: 5.65524E + 00  
Quadrature: -3.13946E-05

Acquisition Start: 21-FEB-2008 13:44:46.81  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:19:47.00

SAMPLE IDENTIITY: KF6EW1AD

TITLE : TH BRCO

DETECTOR : ALP171 7  
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6EW1AD\_210281344G.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 21-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 21-FEB-2008 13:44:46 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: KF6EWLAD  
Detector: ALP171 7

Flags Key

Report Date: 21 Feb 08 05:05 PM  
Acquire Date: 21-FEB-2008 13:44:46.81

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	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	1		55	0		105	0		155	0		205	0		255	0		305	0		355	1		405	0		455	0		505
0		6	1		56	0		106	0		156	0		206	0		256	3		306	0		356	0		406	0		456	0		506
0		7	1		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	3		308	0		358	0		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	0		509
0		10	1		60	0		110	0		160	0		210	0		260	6		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	1		311	0		361	1		411	0		461	0		511
0		12	1		62	0		112	0		162	0		212	0		262	1		312	0		362	0		412	0		462	0		512
0		13	3		63	0		113	0		163	0		213	0		263	3		313	0		363	0		413	0		463			
0		14	2		64	0		114	0		164	0		214	0		264	2		314	0		364	0		414	0		464			
0		15	2		65	0		115	0		165	0		215	0		265	0		315	2		365	0		415	0		465			
0		16	2		66	0		116	0		166	0		216	0		266	2		316	0		366	0		416	0		466			
0		17	4		67	0		117	0		167	0		217	0		267	1		317	0		367	0		417	0		467			
0		18	1		68	0		118	0		168	0		218	0		268	1		318	1		368	0		418	0		468			
0		19	2		69	0		119	0		169	0		219	0		269	1		319	0		369	0		419	0		469			
0		20	5		70	0		120	0		170	0		220	0		270	6		320	1		370	0		420	0		470			
0		21	6		71	0		121	0		171	0		221	0		271	4		321	0		371	0		421	0		471			
0		22	10		72	0		122	0		172	0		222	0		272	10		322	0		372	0		422	0		472			
0		23	10		73	0		123	0		173	0		223	0		273	6		323	2		373	0		423	0		473			
0		24	15		74	0		124	0		174	0		224	0		274	10		324	3		374	0		424	0		474			
0		25	11		75	0		125	0		175	0		225	0		275	18		325	0		375	0		425	0		475			
0		26	10		76	0		126	2		176	0		226	0		276	14		326	0		376	0		426	0		476			
0		27	10		77	0		127	1		177	0		227	0		277	18		327	1		377	0		427	0		477			
0		28	3		78	0		128	0		178	0		228	0		278	9		328	0		378	0		428	0		478			
0		29	0		79	0		129	1		179	0		229	0		279	7		329	0		379	0		429	3		479			
0		30	0		80	0		130	1		180	0		230	0		280	1		330	0		380	0		430	0		480			
0		31	0		81	0		131	4		181	0		231	0		281	2		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	0		482			
0		33	0		83	0		133	1		183	0		233	0		283	0		333	0		383	0		433	1		483			
0		34	0		84	0		134	5		184	0		234	0		284	0		334	0		384	0		434	2		484			
0		35	0		85	0		135	2		185	0		235	0		285	0		335	0		385	0		435	1		485			
0		36	0		86	0		136	3		186	0		236	0		286	0		336	0		386	0		436	0		486			
0		37	0		87	0		137	2		187	0		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	3		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	4		191	0		241	0		291	0		341	0		391	0		441	0		491			
0		42	0		92	0		142	7		192	0		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	6		193	0		243	0		293	0		343	0		393	0		443	0		493			
0		44	0		94	0		144	7		194	0		244	0		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	10		195	0		245	0		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	13		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	0		98	0		148	1		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			

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



VMS Peak Search Report V1.9 Generated 21-FEB-2008 17:05:22

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF6EW1AD_210281344G.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 21-FEB-2008 13:44:46
Sample ID         : KF6EW1AD           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	4005.59	96	0	39.59	74.09	61	20	8.01E-03	10.2	
2	0	4686.05	77	0	33.93	194.59	174	26	6.42E-03	11.4	
3	0	5424.83	108	0	33.93	325.61	317	16	9.01E-03	9.6	

Error Report (Date: 21-Feb-08 05:05 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: KF6E01AD

Detector: ALP171 8

Report Date: 21-Feb-08 09:08 PM

Acquire Date: 21-FEB-2008 13:44:46.81

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

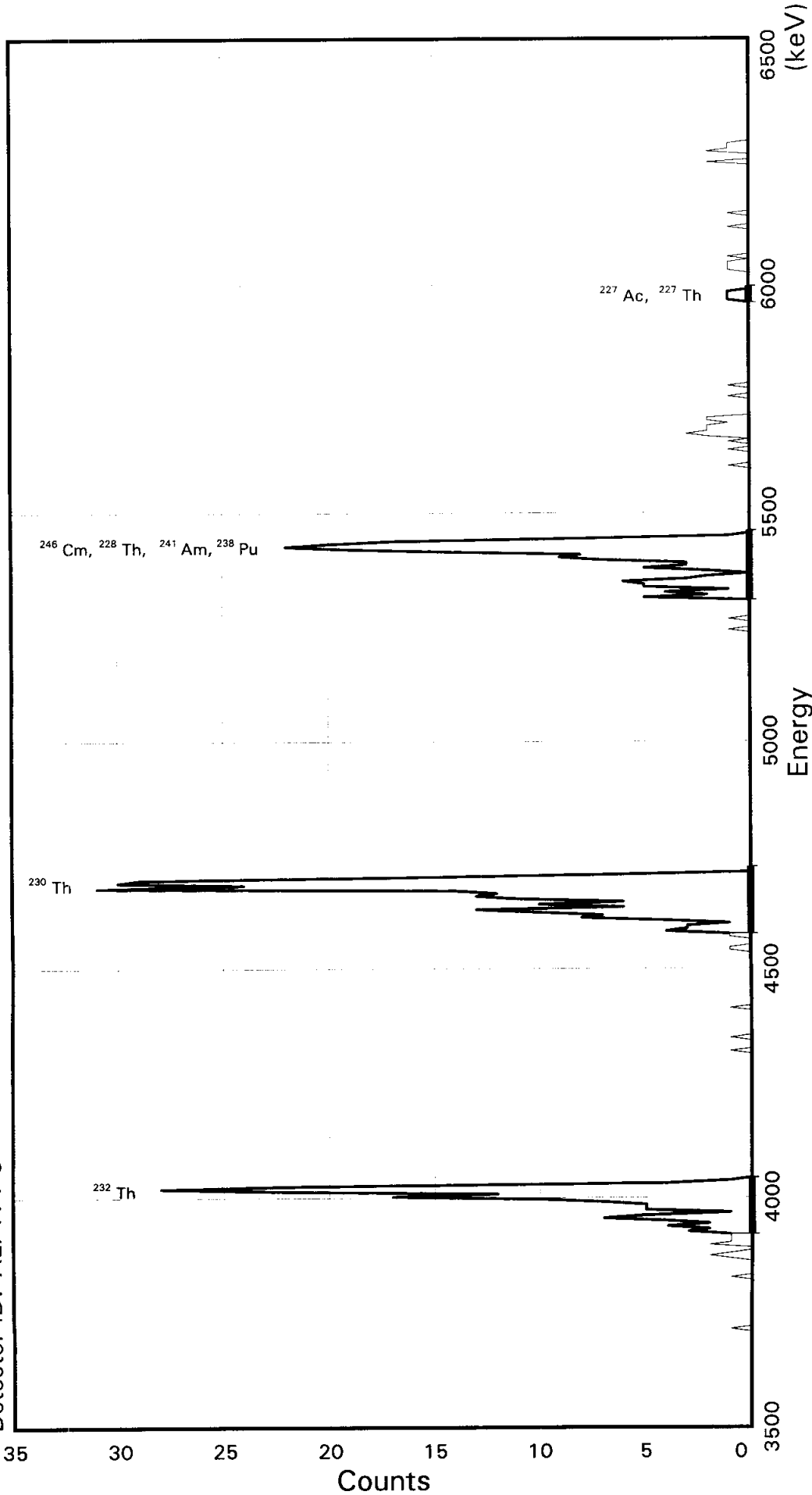
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	171	0	0.856	5423.2	147.0	303	328
TH-230	264	0	1.321	4687.7	135.3	179	202
TH-232	167	1	0.835	4013.0	135.4	66	89

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Batch ID: 8030214

Sample ID: KF6E01AD  
Detector ID: ALP171 8



Energy Coefficients:  
Offset: 3.52587E+03  
Slope: 5.88729E+00  
Quadrature: -1.05536E-05

Acquisition Start: 21-FEB-2008 13:44:46.81  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:19:47.00

SAMPLE IDENTIITY: KF6E01AD

TITLE : TH BRCO

DETECTOR : ALP171 8  
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6E01AD\_210281344H.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 21-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 21-FEB-2008 13:44:46 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: KP6E01AD  
Detector: ALP171 8  
Report Date: 21 Feb-08 05:05 PM  
Acquire Date: 21 FEB-2008 13:44:46.81

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	1		51	0		101	1		151	7		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	1		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	0		204	0		254	5		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0		205	0		255	2		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	1		307	0		357	0		407	0		457	0		507
0		8	1		58	0		108	0		158	0		208	0		258	5		308	0		358	0		408	0		458	0		508
0		9	2		59	0		109	0		159	0		209	0		259	5		309	1		359	0		409	0		459	0		509
0		10	1		60	0		110	0		160	0		210	0		260	6		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	3		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	0		212	0		262	2		312	1		362	0		412	0		462	0		512
0		13	2		63	0		113	0		163	0		213	0		263	0		313	0		363	0		413	0		463			
0		14	1		64	0		114	0		164	0		214	0		264	2		314	2		364	0		414	0		464			
0		15	1		65	0		115	0		165	0		215	0		265	5		315	3		365	1		415	0		465			
0		16	1		66	0		116	0		166	0		216	0		266	3		316	2		366	1		416	2		466			
0		17	1		67	0		117	0		167	0		217	0		267	3		317	2		367	1		417	0		467			
0		18	3		68	0		118	0		168	0		218	0		268	7		318	2		368	1		418	0		468			
0		19	2		69	0		119	0		169	0		219	0		269	9		319	1		369	0		419	0		469			
0		20	4		70	0		120	0		170	0		220	0		270	8		320	2		370	0		420	2		470			
0		21	2		71	0		121	0		171	0		221	0		271	14		321	2		371	0		421	1		471			
0		22	4		72	0		122	0		172	0		222	0		272	19		322	0		372	0		422	1		472			
0		23	7		73	0		123	1		173	0		223	0		273	22		323	0		373	0		423	1		473			
0		24	5		74	0		124	1		174	0		224	0		274	20		324	0		374	0		424	0		474			
0		25	1		75	0		125	0		175	0		225	0		275	17		325	0		375	0		425	0		475			
0		26	5		76	0		126	0		176	0		226	0		276	8		326	0		376	1		426	0		476			
0		27	5		77	0		127	0		177	0		227	0		277	1		327	0		377	1		427	0		477			
0		28	5		78	0		128	1		178	0		228	0		278	0		328	0		378	1		428	0		478			
0		29	7		79	0		129	1		179	0		229	0		279	0		329	1		379	1		429	0		479			
0		30	10		80	0		130	4		180	0		230	0		280	0		330	0		380	0		430	0		480			
0		31	17		81	0		131	3		181	0		231	0		281	0		331	0		381	1		431	0		481			
1		32	12		82	0		132	3		182	0		232	0		282	0		332	0		382	0		432	0		482			
0		33	22		83	0		133	1		183	0		233	0		283	0		333	1		383	0		433	0		483			
0		34	28		84	0		134	4		184	0		234	0		284	0		334	0		384	0		434	0		484			
0		35	21		85	1		135	8		185	0		235	0		285	0		335	0		385	0		435	0		485			
0		36	4		86	0		136	7		186	0		236	0		286	0		336	0		386	0		436	0		486			
0		37	1		87	0		137	10		187	0		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	13		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	0		339	0		389	0		439	0		489			
0		40	0		90	1		140	10		190	0		240	0		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	6		191	0		241	0		291	0		341	0		391	0		441	0		491			
0		42	0		92	0		142	11		192	0		242	1		292	0		342	0		392	1		442	0		492			
0		43	0		93	0		143	13		193	0		243	0		293	0		343	0		393	0		443	0		493			
0		44	0		94	0		144	12		194	0		244	0		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	14		195	0		245	0		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	31		196	0		246	1		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	24		197	0		247	0		297	0		347	0		397	1		447	0		497			
0		48	0		98	0		148	30		198	0		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	29		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 21-FEB-2008 17:05:26

Configuration : \$DISK1:[ALP171.SAMPLE]KF6E01AD\_210281344H.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : TH BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 21-FEB-2008 13:44:46  
 Sample ID : KF6E01AD 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	4015.32	167	0	29.44	83.15	67	21	1.39E-02	7.7	
2	0	4686.37	265	0	41.21	197.19	179	25	2.21E-02	6.1	
3	0	5424.64	172	0	35.32	322.71	303	26	1.43E-02	7.6	
4	0	5976.09	4	0	23.55	416.50	414	6	3.34E-04	50.0	



Error Report (Date: 21-Feb-08 05:05 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 1/28/04  
C.R. Analyst CO  
Date Analyzed 2/20/04

Counting Time 200 Minutes  
Sample 200

SOP's RICHRD008  
Operating: RICHRD008

Background See Alpha Analysis Report  
Review: 125108  
8030214

WorkOrder #	Th-229 (4845 KeV) Tracer				TOTAL COUNTS			Det #	Comment
	from Th-234 Beta Count (7)				Th-230 (4688 KeV)	Th-232 (4010 KeV)			
	ID	Activity	ROI Cts	BKG	(6)	(8)	(9)		
KF6E11AD	10		0	See Alpha Analysis Report for ROI Information				171	
KF6E21AD	10		0	See Alpha Analysis Report for ROI Information				172	
KF6E21AG	10		0	See Alpha Analysis Report for ROI Information				173	
KF6E51AD	10		0	See Alpha Analysis Report for ROI Information				174	
KF6FA1AD	10		0	See Alpha Analysis Report for ROI Information				175	
KF6FD1AD	10		0	See Alpha Analysis Report for ROI Information				176	
KF6FF1AD	10		0	See Alpha Analysis Report for ROI Information				177	
KF6FJ1AD	10		0	See Alpha Analysis Report for ROI Information				178	
	10		0	See Alpha Analysis Report for ROI Information					

Comments:

Approved by: S

Date: 2/25/04

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

Sample Identity: KF6E11AD

Detector: ALP171 1

Report Date: 25-Feb-08 05:23 AM

Acquire Date: 22-FEB-2008 04:36:15.36

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

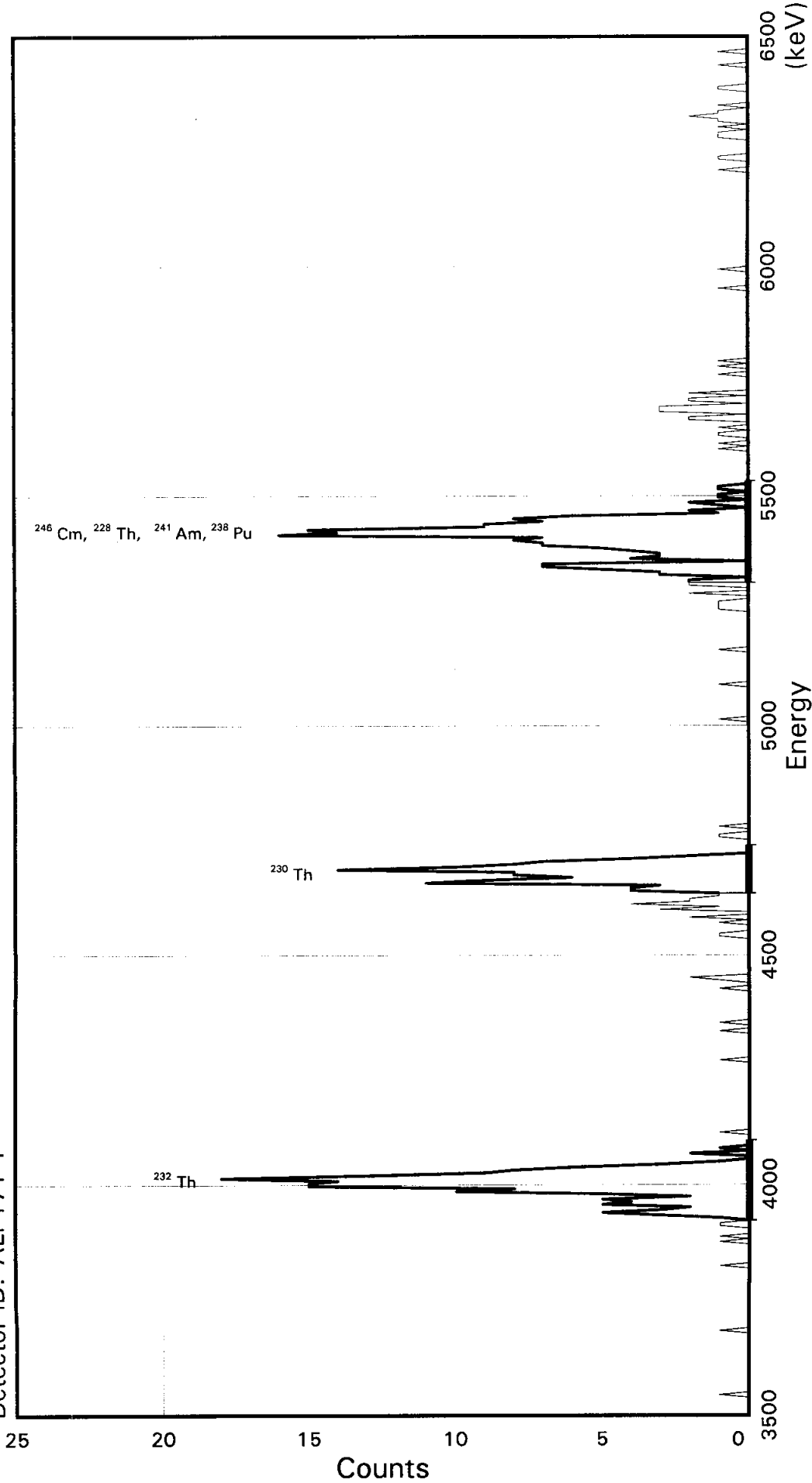
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	163	2	0.814	5423.2	169.0	314	343
TH-230	115	0	0.576	4687.7	186.0	184	216
TH-232	157	1	0.785	4013.0	145.0	74	99

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Batch ID: 8030214

Sample ID: KF6E11AD  
Detector ID: ALP171 1



Energy Coefficients:  
Offset: 3.49866E+03  
Slope: 5.79205E+00  
Quadrature: 5.30073E-05

Acquisition Start: 22-FEB-2008 04:36:15.36  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:19:47.00

SAMPLE IDENTIITY: KF6E11AD

TITLE : TH BRCO

DETECTOR : ALP171 1

CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6E11AD\_220280436A.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 22-Feb-08

SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 22-FEB-2008 04:36:15

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<sup>2</sup>

SUM SENSITIVITY: 1.00000 %



0 50 1 100 0 150 11 200 0 250 0 300 0 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 22-FEB-2008 08:16:25

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF6E11AD_220280436A.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:15
Sample ID         : KF6E11AD           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      : 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	4008.93	158	0	52.13	88.03	73	30	1.32E-02	8.0	
2	0	4679.17	98	0	63.71	203.44	196	18	8.18E-03	10.1	
3	0	5422.25	173	0	52.13	331.11	312	38	1.44E-02	7.6	



Error Report (Date: 22-Feb-08 08:16 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: KF6E21AD

Detector: ALP171 2

Report Date: 25-Feb-08 05:23 AM

Acquire Date: 22-FEB-2008 04:36:15.36

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

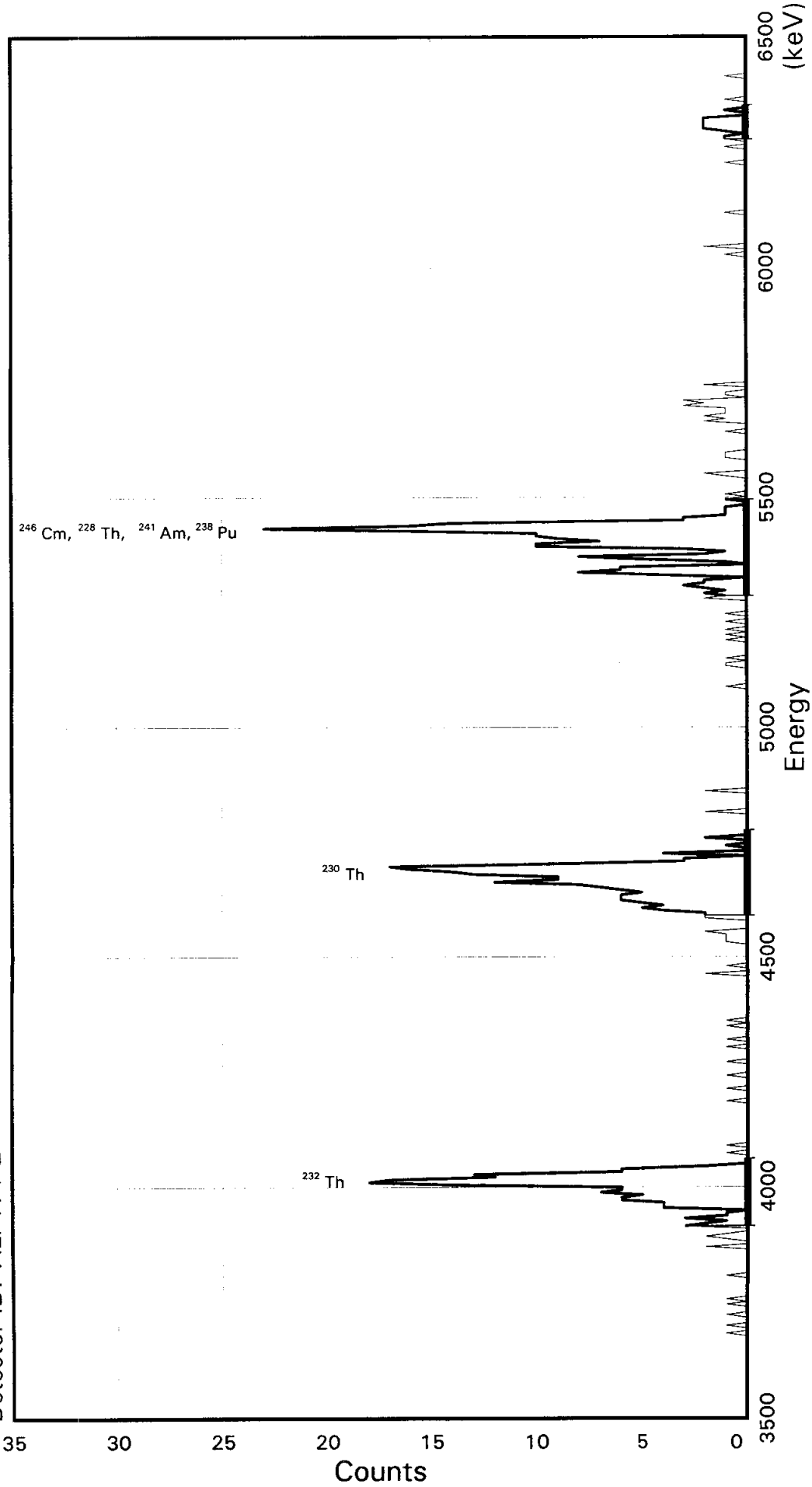
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	189	4	0.942	5423.2	186.8	313	346
TH-230	177	6	0.880	4687.7	152.4	186	213
TH-232	147	2	0.734	4013.0	152.0	66	93

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Batch ID: 8030214

Sample ID: KF6E21AD  
Detector ID: ALP171 2



Energy Coefficients:  
Offset: 3.53220E + 03  
Slope: 5.62160E + 00  
Quadrature: 5.87552E - 05

Acquisition Start: 22-FEB-2008 04:36:15.36  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:19:47.00

SAMPLE IDENTIITY: KF6E21AD

TITLE : TH BRCO

DETECTOR : ALP171 2  
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6E21AD\_220280436B.CN  
F;1  
ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 04:36:15 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: KF6E21AD

Flags Key

Detector: ALP171 2

Report Date: 22-Feb 08 07:56 AM

Intersect Region: %

Acquire Date: 22 FEB-2008 04:36:15.36

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	12		201	0		251	1		301	0		351	0		401	0		451	1		501
		2	0		52	0		102	0		152	9		202	0		252	0		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	9		203	0		253	0		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	13		204	0		254	1		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	14		205	0		255	0		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	16		206	0		256	0		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	17		207	0		257	0		307	1		357	0		407	0		457	0		507
0		8	0		58	0		108	0		158	9		208	0		258	0		308	2		358	0		408	1		458	0		508
0		9	0		59	0		109	0		159	3		209	0		259	0		309	0		359	0		409	0		459	0		509
0		10	2		60	0		110	0		160	3		210	0		260	2		310	0		360	0		410	0		460	1		510
0		11	0		61	0		111	0		161	0		211	0		261	1		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	4		212	0		262	2		312	0		362	0		412	0		462	0		512
0		13	1		63	0		113	0		163	0		213	0		263	1		313	0		363	0		413	0		463			
0		14	2		64	0		114	0		164	0		214	0		264	2		314	1		364	0		414	0		464			
0		15	1		65	0		115	2		165	1		215	0		265	3		315	1		365	0		415	0		465			
0		16	0		66	1		116	0		166	0		216	0		266	2		316	1		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	3		68	0		118	1		168	2		218	0		268	0		318	0		368	0		418	0		468			
0		19	2		69	0		119	0		169	0		219	0		269	4		319	0		369	0		419	0		469			
0		20	1		70	0		120	0		170	0		220	0		270	8		320	0		370	0		420	0		470			
0		21	3		71	1		121	0		171	0		221	0		271	6		321	0		371	0		421	0		471			
0		22	1		72	0		122	0		172	0		222	0		272	6		322	0		372	0		422	0		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	1		324	1		374	0		424	0		474			
0		25	4		75	0		125	0		175	0		225	0		275	5		325	0		375	0		425	0		475			
0		26	4		76	1		126	0		176	0		226	1		276	8		326	0		376	0		426	0		476			
1		27	4		77	0		127	0		177	0		227	0		277	2		327	0		377	0		427	1		477			
0		28	6		78	0		128	1		178	2		228	0		278	1		328	2		378	0		428	0		478			
0		29	6		79	0		129	1		179	0		229	0		279	3		329	1		379	0		429	0		479			
1		30	5		80	0		130	1		180	0		230	0		280	10		330	2		380	0		430	0		480			
0		31	7		81	1		131	1		181	0		231	0		281	10		331	1		381	0		431	0		481			
0		32	6		82	0		132	2		182	0		232	0		282	7		332	1		382	0		432	0		482			
0		33	6		83	0		133	0		183	0		233	0		283	9		333	1		383	0		433	1		483			
1		34	14		84	0		134	0		184	0		234	1		284	10		334	3		384	0		434	0		484			
0		35	18		85	0		135	0		185	0		235	1		285	10		335	2		385	0		435	0		485			
0		36	17		86	0		136	0		186	2		236	0		286	16		336	3		386	0		436	1		486			
0		37	12		87	1		137	2		187	0		237	1		287	23		337	0		387	0		437	1		487			
1		38	13		88	0		138	2		188	0		238	0		288	16		338	1		388	0		438	0		488			
0		39	6		89	0		139	2		189	0		239	0		289	14		339	1		389	0		439	1		489			
1		40	6		90	1		140	4		190	0		240	0		290	3		340	0		390	0		440	2		490			
0		41	2		91	0		141	5		191	0		241	0		291	3		341	0		391	0		441	2		491			
0		42	0		92	0		142	4		192	0		242	0		292	1		342	2		392	1		442	2		492			
0		43	0		93	0		143	5		193	0		243	0		293	1		343	0		393	0		443	2		493			
0		44	0		94	0		144	6		194	0		244	1		294	1		344	0		394	0		444	2		494			
0		45	0		95	1		145	6		195	0		245	0		295	1		345	0		395	2		445	0		495			
0		46	1		96	0		146	6		196	0		246	1		296	0		346	0		396	0		446	0		496			
0		47	0		97	1		147	5		197	0		247	0		297	0		347	0		397	0		447	1		497			
0		48	0		98	0		148	6		198	0		248	1		298	1		348	0		398	0		448	0		498			
1		49	1		99	0		149	7		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 1 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 22-FEB-2008 07:56:32

Configuration : \$DISK1:[ALP171.SAMPLE]KF6E21AD\_220280436B.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : TH BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:15  
 Sample ID : KF6E21AD 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	4013.70	149	0	33.73	85.57	68	26	1.24E-02	8.2	
2	0	4683.06	176	0	50.59	204.28	188	33	1.47E-02	7.5	
3	0	5426.98	192	0	44.97	335.87	311	37	1.60E-02	7.2	
4	0	6304.30	13	0	39.35	490.60	486	13	1.08E-03	27.7	

Error Report (Date: 22-Feb-08 07:56 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: KF6E21AG

Detector: ALP171 3

Report Date: 25-Feb-08 05:24 AM

Acquire Date: 22-FEB-2008 04:36:15.36

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

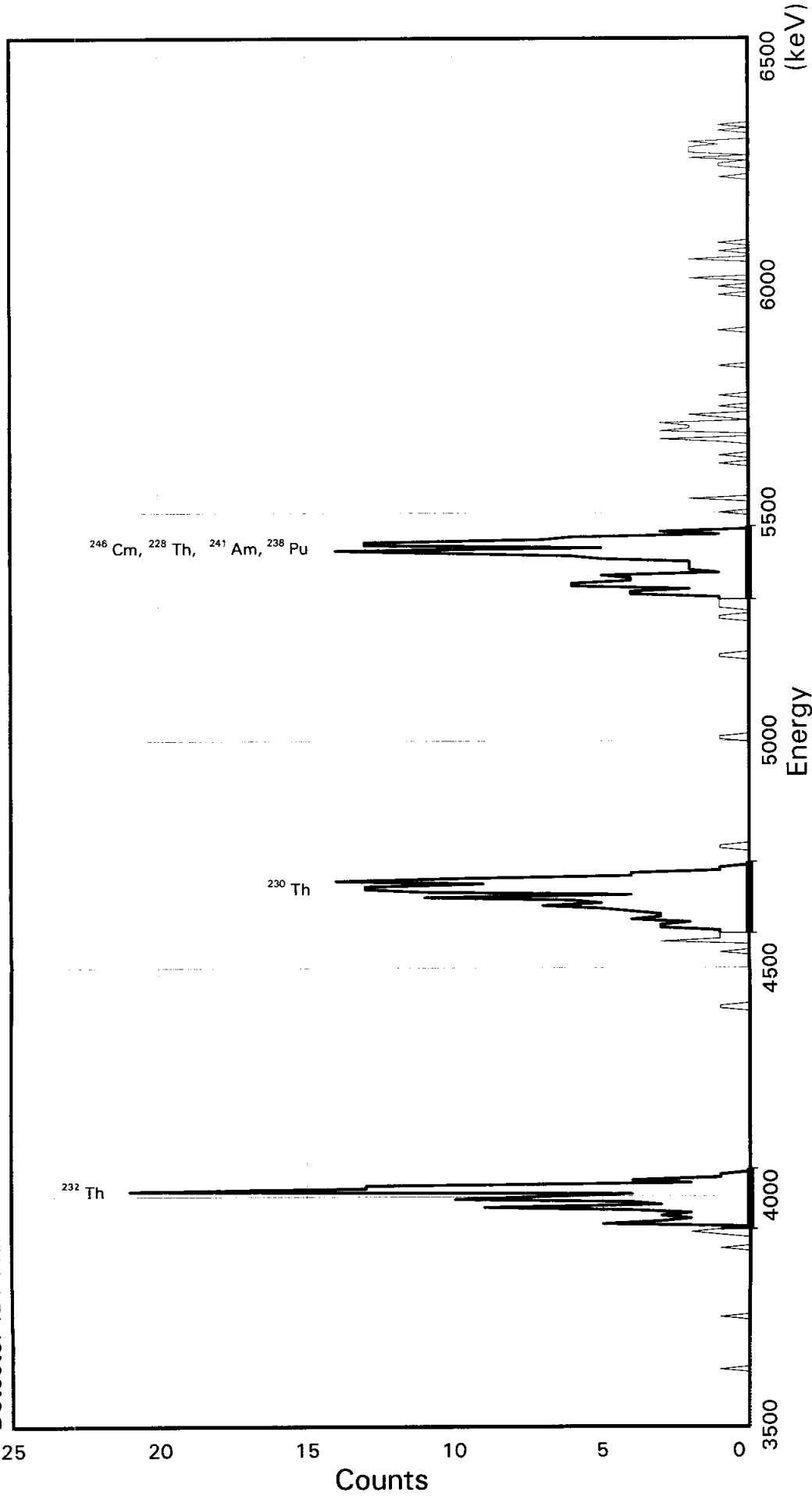
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	127	1	0.635	5423.2	149.5	305	330
TH-230	142	0	0.711	4687.7	143.5	183	207
TH-232	114	0	0.571	4013.0	131.5	72	94

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Batch ID: 8030214

Sample ID: KF6E21AG  
Detector ID: ALP171 3



Acquisition Start: 22-FEB-2008 04:36:15.36  
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: KF6E21AG

TITLE : TH BRCO

DETECTOR : ALP171 3  
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6E21AG\_220280436C.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 04:36:15 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: KF6E21AG

Flags Key

Detector: ALP171 3

Report Date: 22 Feb-08 07:56 AM

Intersect Region: \*

Acquire Date: 22-FEB 2008 04:36:15.36

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

0 50 0 100 0 150 13 200 0 250 1 300 0 350 0 400 0 450 0 500

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF6E21AG_220280436C.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:15
Sample ID        : KF6E21AG           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     : 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	4012.74	114	0	29.88	89.19	75	22	9.51E-03	9.4	
2	0	4676.95	144	0	65.75	200.29	184	26	1.20E-02	8.3	
3	0	5423.25	127	0	41.84	325.09	306	27	1.06E-02	8.9	

Error Report (Date: 22-Feb-08 07:56 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: KF6E51AD

Detector: ALP171 4  
Report Date: 25-Feb-08 05:25 AM  
Acquire Date: 22-FEB-2008 04:36:15.36  
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	155	0	0.776	5423.2	144.6	308	334
TH-230	87	1	0.434	4687.7	161.1	170	199
TH-232	128	0	0.641	4013.0	138.8	55	80

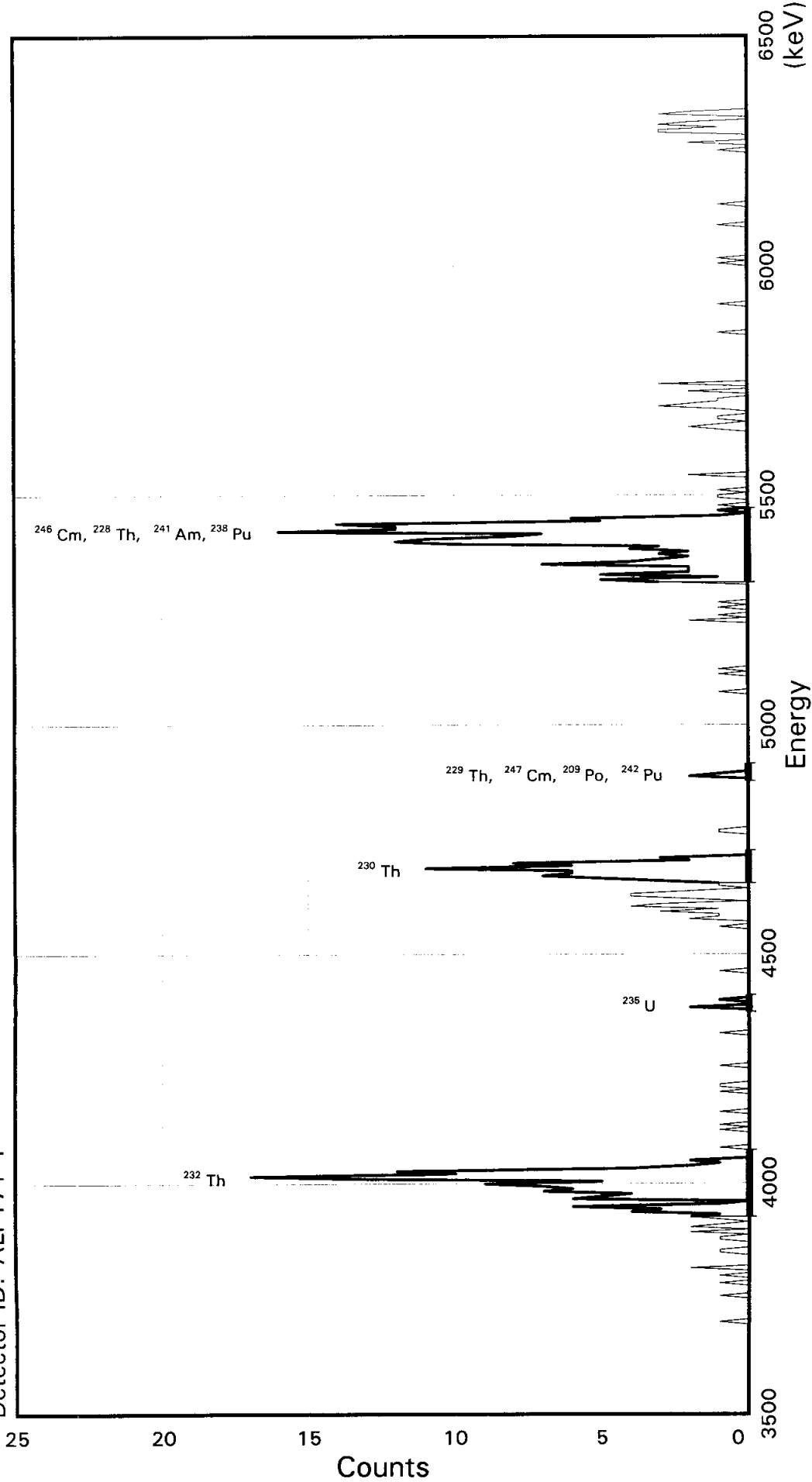
End of Alpha Region Report  
(Produced by ANAL Report)



TAL Richland WA.  
TH BRCO

Batch ID: 8030214

Sample ID: KF6E51AD  
Detector ID: ALP171 4



Acquisition Start: 22-FEB-2008 04:36:15.36  
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: KF6E51AD

TITLE : TH BRCO

DETECTOR : ALP171 4  
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE] KF6E51AD\_220280436D.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 04:36:15 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: KF6E51AD

Flags Key

Detector: ALP171 4  
 Report Date: 22-Feb-08 07:56 AM  
 Acquire Date: 22-FEB-2008 04:36:15.36  
 Tracer Nuclide: TH-229  
 High Counts Limit: 36  
 Sample Live Time: 200 minutes  
 Bkgrnd Live Time: 999 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 Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth	Right Wdth	Flags
PO-208	0	0	0	0.000	5160.5	38.9	276	283	0.00	0.00	S
PO-209	4	0	0	0.020	4928.8	38.9	228	235	0.00	0.00	P
PO-210	-9999	-9999	0	-40.040	5350.0	38.9	311	318	0.00	0.00	M I
AC-227	1	1	0	0.004	6083.6	39.0	442	449	0.00	0.00	
TH-227	1	1	0	0.004	6083.6	39.0	442	449	0.00	0.00	
TH-228	160	0	0	0.801	5468.8	161.3	306	335	0.00	0.00	P
TH-229	4	0	0	0.020	4890.9	38.9	228	235	0.00	0.00	P
TH-230	57	0	0	0.285	4733.3	72.2	188	201	0.00	0.00	P
TH-232	126	0	0	0.631	4058.6	144.3	57	83	0.00	0.00	P
U-232	-9999	-9999	0	-40.040	5365.8	38.9	313	320	0.00	0.00	S I
U-234	0	0	0	0.000	4820.2	38.9	215	222	0.00	0.00	S
U-235	4	0	0	0.020	4443.4	38.9	137	144	0.00	0.00	P
PU-236	0	0	0	0.000	5813.3	39.0	394	401	0.00	0.00	
NP-237	0	0	0	0.000	4833.6	38.9	218	225	0.00	0.00	S
PU-238	160	0	0	0.801	5544.6	161.3	306	335	0.00	0.00	P
U-238	1	0	0	0.005	4243.6	38.9	111	118	0.00	0.00	
PU-239	2	0	0	0.010	5202.2	38.9	284	291	0.00	0.00	
AM-241	160	0	0	0.801	5531.2	161.3	306	335	0.00	0.00	P
AM-242M	3	0	0	0.015	5252.4	38.9	293	300	0.00	0.00	
CM-242	0	0	0	0.000	6158.3	39.0	456	463	0.00	0.00	
PU-242	4	0	0	0.020	4946.1	38.9	228	235	0.00	0.00	P
AM-243	-9999	-9999	0	-40.040	5320.9	38.9	305	312	0.00	0.00	S I
CM-244	1	0	0	0.005	5850.4	39.0	401	408	0.00	0.00	
CM-246	160	0	0	0.801	5432.1	161.3	306	335	0.00	0.00	P
CM-247	4	0	0	0.020	4916.0	38.9	228	235	0.00	0.00	P
CM-248	2	0	0	0.010	5124.2	38.9	270	277	0.00	0.00	S

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 07:56:44

Configuration : \$DISK1:[ALP171.SAMPLE]KF6E51AD\_220280436D.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : TH BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:15  
 Sample ID : KF6E51AD 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 : 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	4009.99	126	0	44.39	71.91	57	26	1.05E-02	8.9	
2	0	4385.29	4	0	22.19	139.50	137	7	3.34E-04	50.0	
3	0	4683.45	57	0	38.84	193.17	188	13	4.76E-03	13.2	
4	0	4890.90	4	0	22.19	230.50	228	7	3.34E-04	50.0	
5	0	5419.43	160	0	55.48	325.56	306	29	1.33E-02	7.9	

Alpha Spectrum Listing

(Version: 1 Apr 07)

Sample Identity: KF6E5LAD

Flags Key

Detector: ALP171 4

Report Date: 22-Feb-08 07:56 AM

Intersect Region: 3

Acquire Date: 22 FEB 2008 04:36:15.36

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	2	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	2	53	0	103	1	153	0	203	0	253	0	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	1+	404	1	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	1	106	0	156	0	206	0	256	3+	306	0	356	0+	406	0+	456	0	506	
0		7	2+	57	0	107	0	157	0	207	0	257	5@	307	0	357	0+	407	0+	457	0	507	
0		8	1+	58	1	108	0	158	1	208	0	258	1@	308	0	358	0+	408	0+	458	0	508	
0		9	4+	59	1	109	0	159	1	209	0	259	5@	309	0	359	0	409	0+	459	0	509	
0		10	3+	60	0	110	0	160	0	210	0	260	2@	310	0	360	0	410	0+	460	0	510	
0		11	6+	61	0+	111	0	161	0	211	0	261	2@	311	0	361	0	411	0+	461	0	511	
0		12	1+	62	0+	112	0	162	0	212	0	262	2@	312	0	362	0	412	0+	462	0	512	
0		13	0+	63	0+	113	0	163	0	213	1	263	7@	313	0	363	0	413	0+	463			
0		14	6+	64	0+	114	0	164	0	214	0	264	4@	314	0	364	0	414	0	464			
0		15	5+	65	0+	115	0	165	0+	215	0	265	3@	315	0	365	1	415	0	465			
1		16	4+	66	1+	116	0	166	0+	216	0	266	2@	316	1	366	0	416	0	466			
0		17	7+	67	0+	117	0	167	0+	217	0	267	3@	317	2	367	0	417	0	467			
0		18	6+	68	0+	118	0	168	0@	218	0	268	2@	318	1	368	0	418	0	468			
0		19	7+	69	0	119	0	169	0@	219	0	269	4@	319	0	369	0	419	0	469			
0		20	9+	70	0	120	0	170	0@	220	1+	270	3@	320	1	370	0	420	0	470			
0		21	5+	71	0	121	1	171	0@	221	0+	271	10@	321	1	371	0	421	0	471			
0		22	13+	72	0	122	0	172	0@	222	1+	272	12@	322	0	372	0	422	0	472			
0		23	17+	73	0	123	0	173	0-	223	0+	273	11@	323	0	373	0	423	0	473			
0		24	10+	74	0	124	2	174	0-	224	0+	274	8@	324	1	374	0	424	0	474			
0		25	12+	75	0	125	1	175	0-	225	0+	275	7@	325	3	375	0	425	1	475			
1		26	4+	76	0	126	1	176	0	226	0@	276	16@	326	2	376	0	426	0	476			
0		27	2+	77	0	127	3	177	0	227	0@	277	12@	327	1	377	0	427	0	477			
0		28	1+	78	0	128	1	178	0@	228	0+	278	12@	328	1	378	0	428	2	478			
0		29	2+	79	1	129	4	179	0@	229	0+	279	14@	329	0	379	0	429	0	479			
0		30	0+	80	0	130	3	180	2@	230	0+	280	5@	330	0	380	0	430	0	480			
1		31	0+	81	0	131	0	181	1@	231	0+	281	6@	331	2	381	1	431	0	481			
0		32	0+	82	0	132	2	182	0@	232	0+	282	1@	332	0	382	0	432	3	482			
0		33	0	83	0	133	4	183	0@	233	0+	283	0@	333	0	383	1	433	3	483			
1		34	1	84	0	134	4	184	0@	234	0-	284	1@	334	3	384	0	434	1	484			
0		35	0	85	0	135	2	185	0	235	0-	285	0	335	0	385	0	435	3	485			
0		36	0	86	0	136	0	186	0	236	0-	286	1	336	0	386	0	436	2	486			
2		37	0	87	0+	137	1	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	2+	139	3+	189	0	239	0-	289	1	339	0	389	0	439	3	489			
0		40	0	90	0+	140	5+	190	0	240	0-	290	1	340	0	390	0	440	2	490			
0		41	1	91	0+	141	7+	191	0	241	2-	291	0	341	0	391	0	441	0	491			
0		42	0	92	1+	142	6+	192	0	242	0	292	1	342	0	392	0@	442	0	492			
1		43	1	93	0+	143	6+	193	0	243	1+	293	0	343	0	393	0@	443	0	493			
1		44	0	94	0	144	11+	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	8+	196	0	246	1+	296	0	346	0+	396	1@	446	0	496			
0		47	0	97	0	147	2+	197	0	247	0+	297	0	347	0+	397	0@	447	0	497			
1		48	1	98	0	148	3+	198	0	248	1+	298	2	348	0+	398	0@	448	0	498			
1		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:[ALP171.SAMPLE]KF6E51AD\_\_220280436D.CNF;1

Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4009.98	57	83	126	127	-0.09		
4385.29	137	144	4	3	0.50		
4683.45	188	201	57	58	-0.13		
4890.90	228	235	4	3	0.50		
5419.43	306	335	160	163	-0.24		

End of Report

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

Sample Identity: KF6FA1AD

Detector: ALP171 5

Report Date: 25-Feb-08 05:25 AM

Acquire Date: 22-FEB-2008 04:36:15.36

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

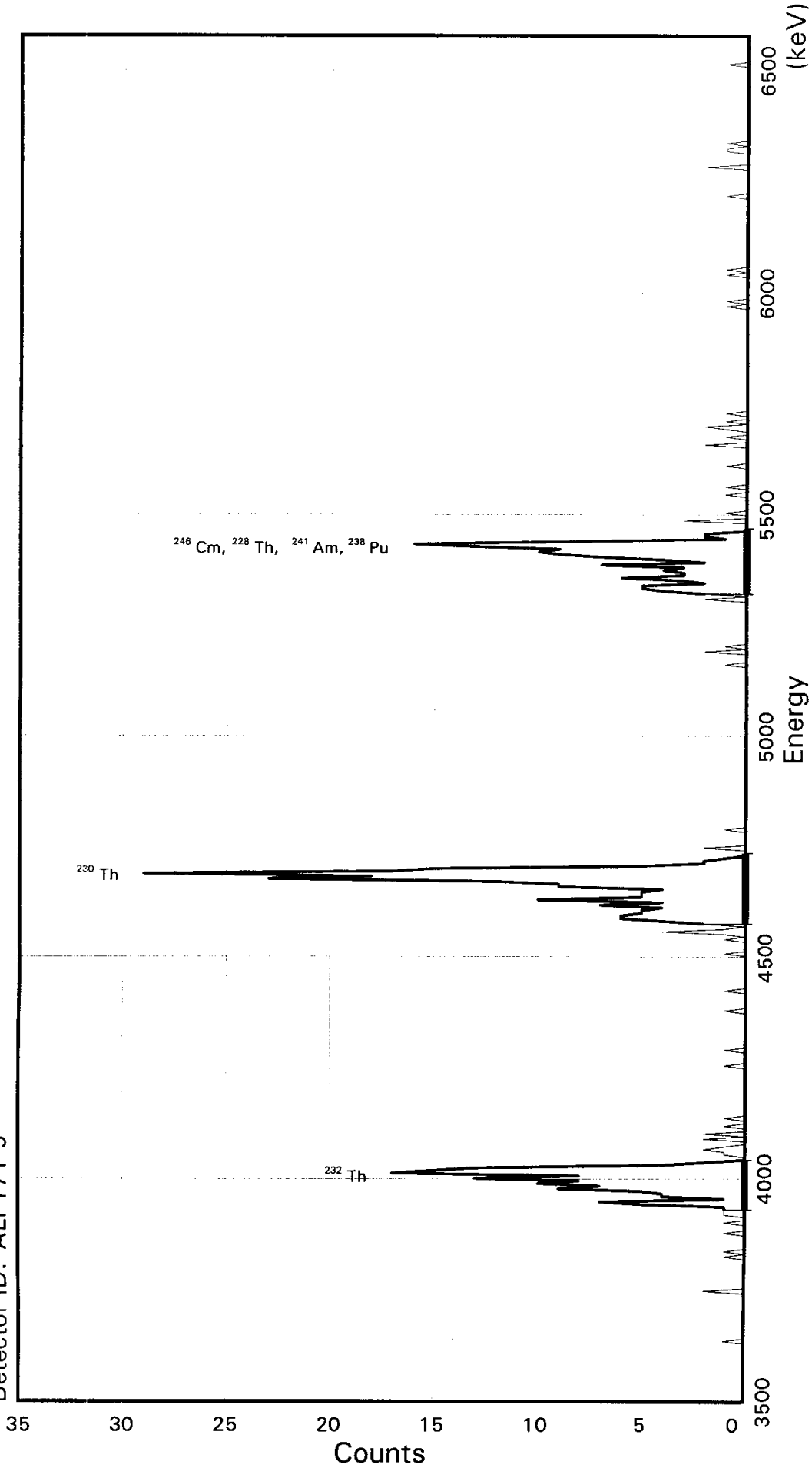
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	132	0	0.661	5423.2	159.3	296	323
TH-230	213	0	1.066	4687.7	141.4	173	197
TH-232	135	0	0.676	4013.0	117.7	62	82

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Sample ID: KF6FA1AD  
Detector ID: ALP171 5

Batch ID: 8030214



Acquisition Start: 22-FEB-2008 04:36:15.36  
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: KF6FA1AD

TITLE : TH BRCO

DETECTOR : ALP171 5  
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6FA1AD\_220280436E.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 04:36:15 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: KF6FA1AD  
Detector: ALP171 5

Flags Key

Report Date: 22 Feb 08 07:56 AM  
Acquire Date: 22 FEB 2008 04:36:15.36

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

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

VMS Peak Search Report V1.9 Generated 22-FEB-2008 07:56:49

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF6FA1AD_220280436E.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:15
Sample ID         : KF6FA1AD 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	4006.40	135	0	47.04	75.87	63	19	1.13E-02	8.6	
2	0	4687.22	213	0	35.28	191.50	173	27	1.78E-02	6.9	
3	0	5424.82	132	0	35.28	316.62	299	25	1.10E-02	8.7	

Error Report (Date: 22-Feb-08 07:56 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: KF6FD1AD

Detector: ALP171 6

Report Date: 25-Feb-08 05:25 AM

Acquire Date: 22-FEB-2008 04:36:15.36

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

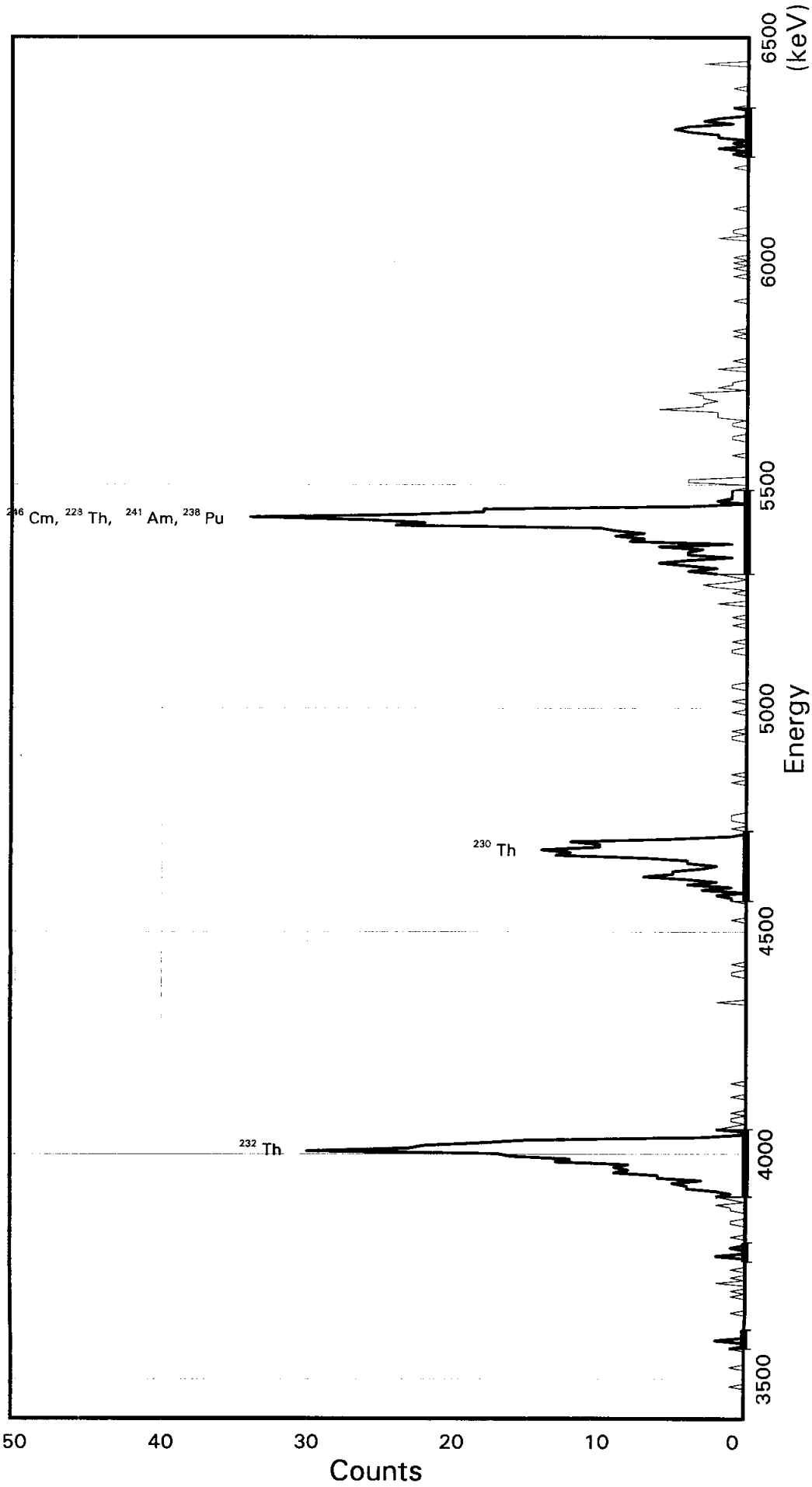
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	245	1	1.225	5423.2	139.3	321	344
TH-230	132	2	0.659	4687.7	157.1	194	220
TH-232	237	1	1.185	4013.0	144.6	84	108

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Sample ID: KF6FD1AD  
Detector ID: ALP171 6

Batch ID: 8030214



Acquisition Start: 22-FEB-2008 04:36:15.36  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:19:47.00

Energy Coefficients:  
Offset: 3.39346E+03  
Slope: 6.01107E+00  
Quadrature: 7.10616E-05

SAMPLE IDENTITY: KF6FD1AD

TITLE : TH BRCO

DETECTOR : ALP171 6

CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6FD1AD\_220280436F.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 22-FEB-2008 04:36:15 CALIB DATE : 09-FEB-2008 06:25:37

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

OFFSET : 3393.46 keV CONSTANT FWHM : 8.00000 Channels

SLOPE : 6.01107 keV/C SENSITIVITY : 3.00000 Std Dev's

QUAD COEFF : 7.106160E-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: KF6FD1AD  
 Detector: ALP171 6

Report Date: 22 Feb 08 08:05 AM

Acquire Date: 22 FEB 2008 04:36:15.36

Flags Key

Intersect Region: X

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

1 50 16 100 0 150 1 200 0 250 1 300 4 350 0 400 0 450 0 500

VMS Peak Search Report V1.9 Generated 22-FEB-2008 08:05:54

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF6FD1AD_220280436F.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:15
Sample ID        : KF6FD1AD           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     : 3411.49 keV         End energy        : 6489.75 keV
Sensitivity      : 3.00                Sum Sensitivity   : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3582.88	4	0	24.04	31.50	29	7	3.34E-04	50.0	
2	0	3775.45	4	0	24.04	63.50	61	7	3.34E-04	50.0	
3	0	4010.65	235	0	36.07	102.55	85	25	1.96E-02	6.5	
4	0	4683.24	132	0	42.08	214.03	195	26	1.10E-02	8.7	
5	0	5424.56	265	0	36.07	336.55	316	31	2.21E-02	6.1	
6	0	6295.14	29	0	30.06	480.00	470	18	2.42E-03	18.6	

Error Report (Date: 22-Feb-08 08:05 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: KF6FF1AD

Detector: ALP171 7

Report Date: 25-Feb-08 06:31 AM

Acquire Date: 22-FEB-2008 04:36:15.36

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

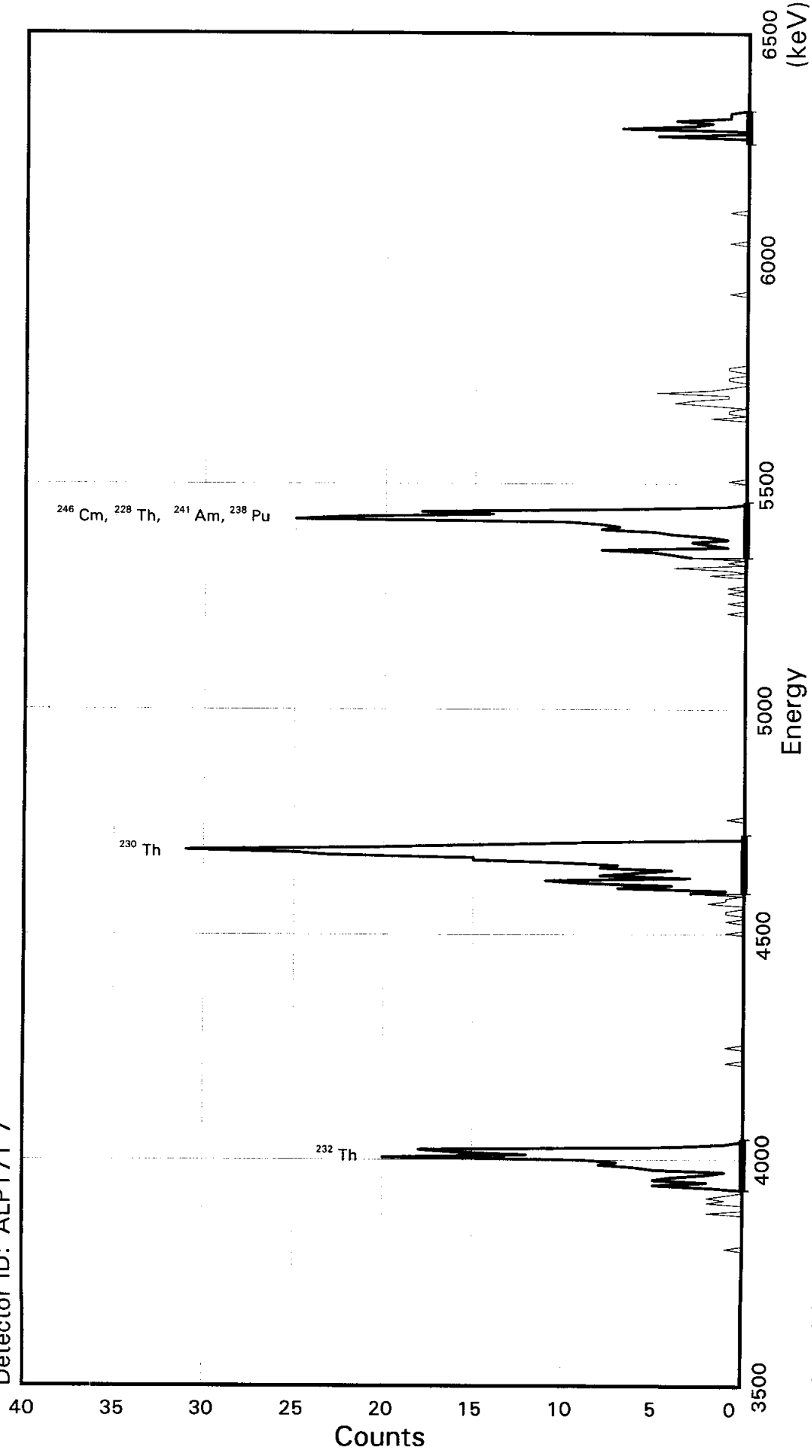
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	159	0	0.796	5423.2	129.6	307	330
TH-230	237	1	1.185	4687.7	141.1	175	200
TH-232	127	0	0.636	4013.0	113.0	60	80

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Sample ID: KF6FF1AD  
Detector ID: ALP171 7

Batch ID: 8030214



Energy Coefficients:  
Offset: 3.58678E+03  
Slope: 5.65524E+00  
Quadrature: -3.13946E-05

Acquisition Start: 22-FEB-2008 04:36:15.36  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:19:47.00

SAMPLE IDENTIITY: KF6FF1AD

TITLE : TH BRCO

DETECTOR : ALP171 7  
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6FF1AD\_220280436G.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 04:36:15 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: KF6FF1AD  
Detector: ALP171 7  
Report Date: 22-Feb-08 08:14 AM  
Acquire Date: 22 FEB-2008 04:36:15.36

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

VMS Peak Search Report V1.9 Generated 22-FEB-2008 08:14:43

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF6FF1AD_220280436G.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:15
Sample ID        : KF6FF1AD 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	4009.16	128	0	33.93	74.72	61	20	1.07E-02	8.8	
2	0	4685.46	236	0	33.93	194.48	178	23	1.97E-02	6.5	
3	0	5426.93	160	0	28.28	325.98	310	22	1.33E-02	7.9	
4	0	6290.20	24	0	28.28	479.31	473	13	2.00E-03	20.4	

Error Report (Date: 22-Feb-08 08:14 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: KF6FJ1AD

Detector: ALP171 8

Report Date: 25-Feb-08 05:26 AM

Acquire Date: 22-FEB-2008 04:36:15.36

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 999 minutes

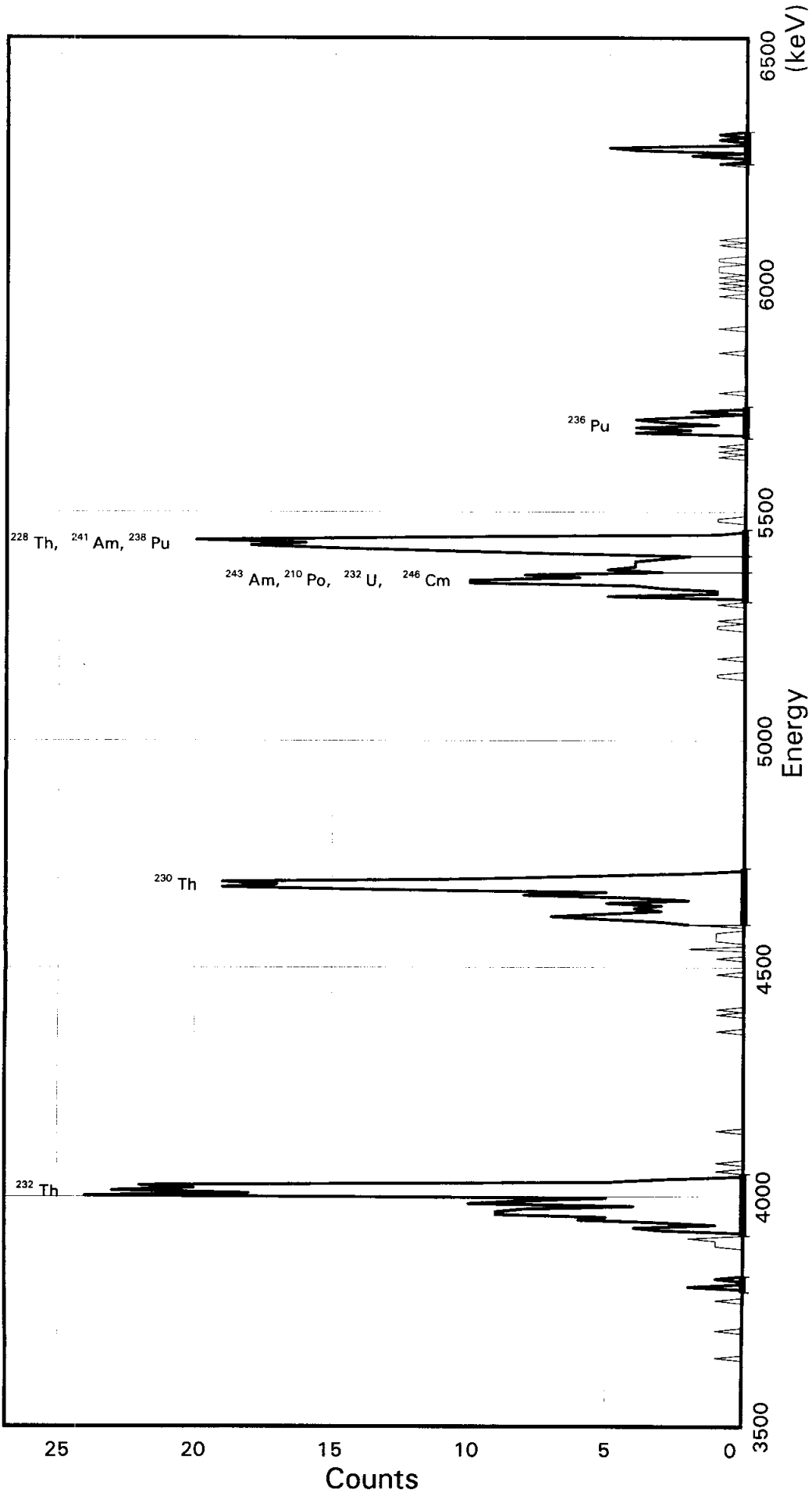
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	174	0	0.871	5423.2	158.8	300	327
TH-230	142	0	0.711	4687.7	117.7	182	202
TH-232	190	1	0.950	4013.0	129.5	66	88

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Sample ID: KF6FJ1AD  
Detector ID: ALP171 8

Batch ID: 8030214



Acquisition Start: 22-FEB-2008 04:36:15.36  
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: KF6FJ1AD

TITLE : TH BRCO

DETECTOR : ALP171 8

CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]KF6FJ1AD\_220280436H.CN  
F;1

ACQUIRE DATE of BACKGROUND: 09-FEB-2008 06:41:07

REPORT DATE : 22-Feb-08

SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 22-FEB-2008 04:36:15

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\_rcn\_cnts  
(Version: 1-Apr-07)

Sample Identity: KP6FJ1AD

Flags Key

Detector: ALP171 8

Report Date: 22 Feb 08 08:09 AM

Intersect Region: @

Acquire Date: 22 FEB 2008 04:36:15.36

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

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



VMS Peak Search Report V1.9 Generated 22-FEB-2008 08:09:51

```

Configuration      : $DISK1:[ALP171.SAMPLE]KF6FJ1AD_220280436H.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:15
Sample ID        : KF6FJ1AD           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     : 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	3805.49	4	0	23.55	47.50	45	6	3.34E-04	50.0	
2	0	4012.48	190	0	35.32	82.67	66	23	1.59E-02	7.3	
3	0	4684.87	141	0	29.44	196.93	182	21	1.18E-02	8.4	
4	0	5349.91	60	0	29.44	310.00	302	17	5.01E-03	12.9	
5	0	5429.57	116	0	35.32	323.55	313	16	9.68E-03	9.3	
6	0	5690.31	21	0	41.21	367.89	363	12	1.75E-03	21.8	
7	0	6293.50	14	0	23.55	470.50	465	12	1.17E-03	26.7	

Error Report (Date: 22-Feb-08 08:09 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 ISOTOPIC COUNTING REQUEST

0756

C.R. Technician AS  
Date Counted 7/25/08

Counting Time 200 Minutes  
Sample BRCO Operating: RICHRD008

C.R. Analyst AS  
Date Analyzed 7/25/08

Background See Alpha Analysis Report  
Review: 1/25/08  
8030214

WorkOrder #	Th-229 (4845 KeV) Tracer				TOTAL COUNTS			Det #	Comment
	ID	Activity	ROI Cts	BKG	Th-228 (5423 KeV)	Th-230 (4688 KeV)	Th-232 (4010 KeV)		
KF6FKIAD		10		0	(6)	(8)	(9)	113	See Alpha Analysis Report for ROI Information
KF6FLIAD		10		0				116	See Alpha Analysis Report for ROI Information
KF6FM1AD		10		0				117	See Alpha Analysis Report for ROI Information
KF6FM1AG		10		0				118	See Alpha Analysis Report for ROI Information
KGAF11AA		10		0				119	See Alpha Analysis Report for ROI Information
KGAF11AC		10		0				120	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:

Approved by: S Date: 7/25/08

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

Sample Identity: KF6FK1AD

Detector: ALP113 1

Report Date: 25-Feb-08 05:20 AM

Acquire Date: 22-FEB-2008 04:36:27.53

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

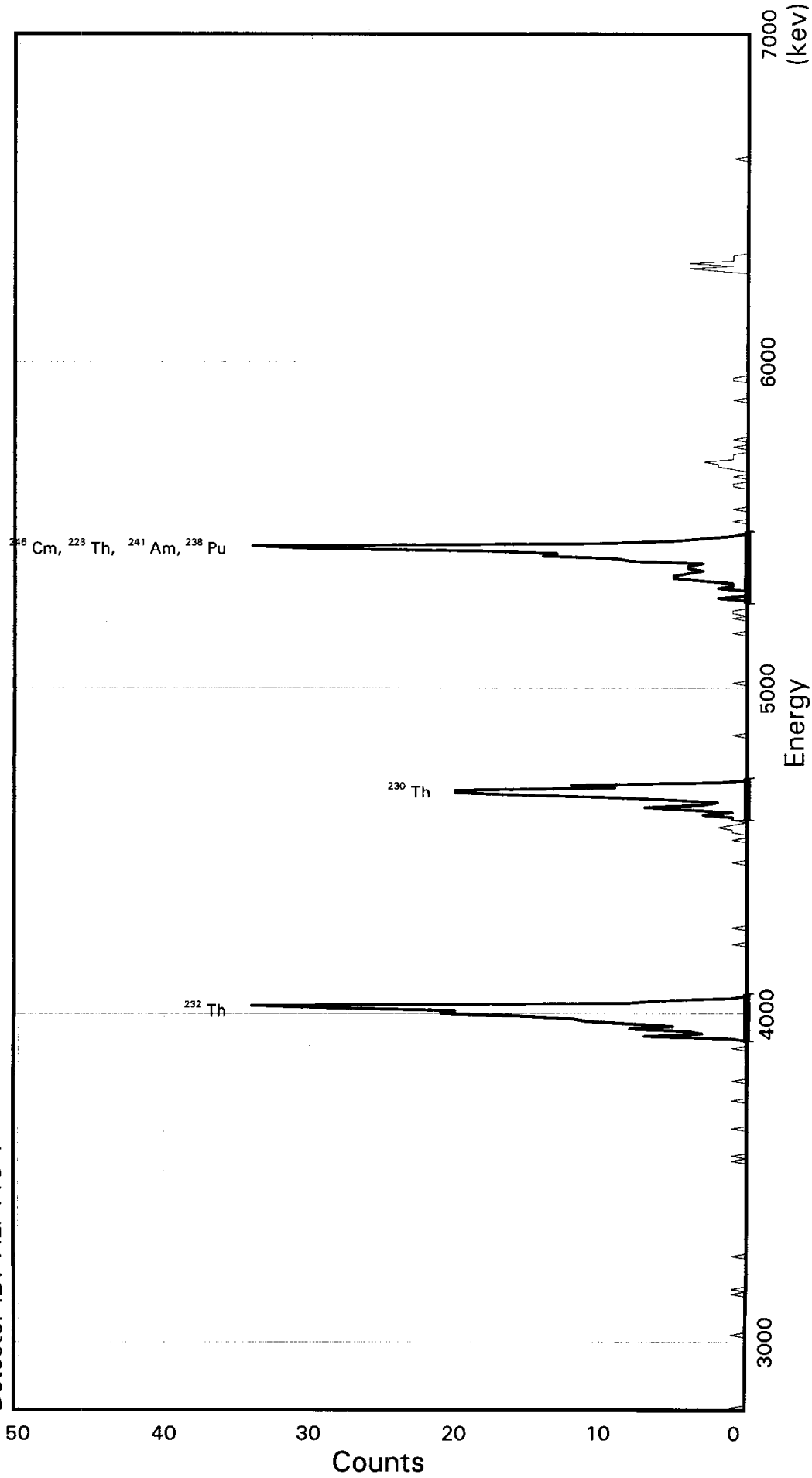
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	178	1	0.889	5423.2	152.1	333	353
TH-230	119	0	0.595	4687.7	175.3	233	256
TH-232	193	0	0.965	4013.0	152.8	148	168

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Sample ID: KF6FK1AD  
Detector ID: ALP113 1

Batch ID: 8030214



Acquisition Start: 22-FEB-2008 04:36:27.53  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:03.00

Energy Coefficients:  
Offset: 2.76885E + 03  
Slope: 7.66851E + 00  
Quadrature: -9.16186E-05

SAMPLE IDENTIITY: KF6FK1AD

TITLE : TH BRCO

DETECTOR : ALP113 1  
CONFIGURATION NAME : RDND06\$DKA100:[ALP113.SAMPLE]KF6FK1AD\_220280  
436.CNF;1  
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:12

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 04:36:27 CALIB DATE : 11-FEB-2008 02:49:33

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

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: KF6FKIAD

Flags Key

Detector: ALP113 1

Report Date: 22-Feb-08 07:56 AM

Intersect Region: \*

Acquire Date: 22-FEB 2008 04:36:27.53

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	1	151	0	201	20	251	0	301	5	351	0	401	0	451	0	501					
		2	0	52	1	102	7	152	0	202	9	252	0	302	3	352	0	402	0	452	0	502					
0		3	0	53	0	103	3	153	0	203	12	253	0	303	1	353	0	403	0	453	0	503					
1		4	0	54	1	104	4	154	0	204	2	254	0	304	0	354	0	404	0	454	0	504					
0		5	0	55	0	105	8	155	0	205	0	255	0	305	0	355	0	405	0	455	1	505					
0		6	0	56	0	106	5	156	0	206	0	256	0	306	0	356	0	406	0	456	0	506					
0		7	0	57	0	107	8	157	0	207	0	257	0	307	0	357	0	407	0	457	0	507					
0		8	0	58	0	108	11	158	0	208	0	258	0	308	0	358	1	408	0	458	0	508					
0		9	0	59	0	109	12	159	0	209	0	259	0	309	1	359	0	409	0	459	0	509					
0		10	0	60	0	110	16	160	0	210	0	260	0	310	0	360	0	410	2	460	0	510					
0		11	0	61	0	111	21	161	0	211	0	261	0	311	0	361	0	411	4	461	0	511					
0		12	0	62	0	112	20	162	0	212	0	262	0	312	0	362	0	412	1	462	0	512					
0		13	0	63	0	113	28	163	0	213	0	263	0	313	0	363	0	413	4	463							
0		14	1	64	0	114	34	164	0	214	0	264	1	314	1	364	0	414	1	464							
0		15	0	65	1	115	8	165	0	215	0	265	0	315	0	365	0	415	1	465							
0		16	0	66	0	116	6	166	0	216	0	266	0	316	0	366	1	416	1	466							
0		17	0	67	0	117	1	167	0	217	0	267	0	317	0	367	1	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	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	0	72	0	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	1	273	1	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	0	325	0	375	0	425	0	475							
0		26	0	76	1	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	2	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	1	380	0	430	0	480							
C		31	0	81	0	131	0	181	1	231	0	281	0	331	2	381	0	431	0	481							
C		32	0	82	0	132	0	182	0	232	0	282	2	332	2	382	0	432	0	482							
1		33	0	83	0	133	0	183	0	233	0	283	1	333	3	383	0	433	0	483							
C		34	0	84	1	134	0	184	1	234	0	284	1	334	1	384	0	434	0	484							
C		35	0	85	0	135	0	185	1	235	0	285	3	335	1	385	0	435	0	485							
C		36	0	86	0	136	0	186	2	236	0	286	5	336	1	386	0	436	0	486							
0		37	0	87	0	137	0	187	1	237	0	287	5	337	0	387	0	437	0	487							
0		38	0	88	0	138	0	188	0	238	0	288	4	338	0	388	0	438	0	488							
0		39	0	89	0	139	1	189	1	239	0	289	3	339	1	389	0	439	0	489							
0		40	0	90	0	140	0	190	1	240	0	290	4	340	0	390	0	440	0	490							
0		41	0	91	0	141	0	191	3	241	0	291	4	341	0	391	0	441	0	491							
0		42	0	92	0	142	0	192	1	242	0	292	3	342	1	392	0	442	0	492							
0		43	0	93	0	143	0	193	4	243	0	293	8	343	0	393	0	443	0	493							
0		44	0	94	0	144	0	194	7	244	1	294	9	344	0	394	0	444	0	494							
0		45	0	95	0	145	0	195	3	245	0	295	14	345	0	395	0	445	0	495							
0		46	0	96	0	146	1	196	2	246	0	296	13	346	0	396	0	446	0	496							
0		47	0	97	1	147	0	197	5	247	0	297	18	347	0	397	0	447	0	497							
0		48	0	98	0	148	0	198	9	248	0	298	30	348	0	398	0	448	0	498							
1		49	0	99	0	149	0	199	15	249	0	299	34	349	0	399	0	449	0	499							

0 50 0 100 0 150 0 200 20 250 0 300 10 350 0 400 0 450 0 500





VMS Peak Search Report V1.9 Generated 22-FEB-2008 07:56:33

Configuration : RDND06\$DKA100: [ALP113.SAMPLE] KF6FK1AD\_220280436.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : TH BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:27  
 Sample ID : KF6FK1AD Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP113 Detector geometry:  
 Elapsed live time: 0 03:20:03.00 Elapsed real time: 0 03:20:03.00 0.0%  
 Start energy : 2791.85 kev End energy : 6671.11 kev  
 Sensitivity : 6.00 Sum Sensitivity : 0.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4010.95	194	0	38.34	162.29	150	19	1.62E-02	7.2	
2	0	4683.53	113	0	30.67	250.43	239	17	9.41E-03	9.4	
3	0	5427.28	181	0	23.01	348.12	326	29	1.51E-02	7.4	

Error Report (Date: 22-Feb-08 07:56 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: KF6FL1AD

Detector: ALP116 1

Report Date: 25-Feb-08 05:20 AM

Acquire Date: 22-FEB-2008 04:36:32.51

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

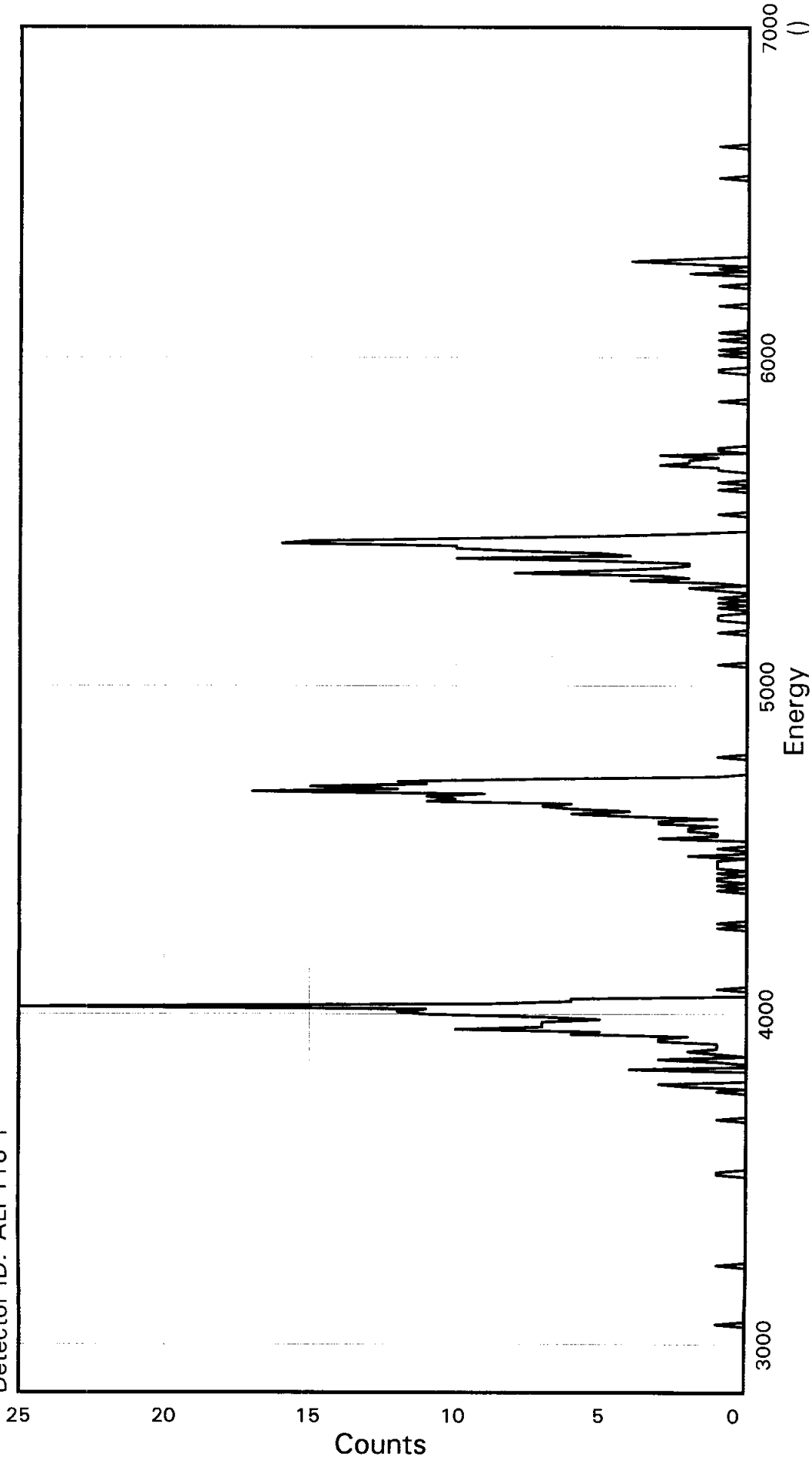
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	130	2	0.647	5423.2	150.0	327	347
TH-230	157	0	0.784	4687.7	151.0	229	249
TH-232	144	0	0.719	4013.0	151.9	140	160

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Sample ID: KF6FL1AD  
Detector ID: ALP116 1

Batch ID: 8030214



Acquisition Start: 22-FEB-2008 04:36:32.51  
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: KF6FL1AD

TITLE : TH BRCO

DETECTOR : ALP116 1  
CONFIGURATION NAME : RDND06\$DKA100: [ALP116.SAMPLE] KF6FL1AD\_220280  
436.CNF;1

ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:14

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 04:36:32 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: KF6FL1AD  
Detector: ALP116 1

Flags Key

Report Date: 22 Feb 08 07:56 AM

Intersect Region: X

Acquire Date: 22 FEB-2008 04:36:32.51

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									
		1	0		51	0		101	5		151	0		201	0		251	0		301	0		351	1	401	0		451	0		501	
		2	0		52	0		102	7		152	0		202	0		252	0		302	0		352	0		402	0		452	0		502
0		3	1		53	0		103	11		153	1		203	0		253	0		303	0		353	0		403	2		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	11		155	1		205	0		255	0		305	1		355	0		405	1		455	1		505
0		6	0		56	0		106	25		156	0		206	0		256	0		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	9		157	1		207	1		257	1		307	0		357	0		407	2		457	0		507
0		8	0		58	0		108	6		158	1		208	0		258	0		308	0		358	0		408	4		458	0		508
0		9	0		59	0		109	6		159	0		209	0		259	0		309	0		359	0		409	2		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	1		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	1		212	0		262	1		312	0		362	0		412	0		462	0		512
0		13	0		63	0		113	1		163	1		213	0		263	1		313	0		363	1		413	0		463			
0		14	0		64	0		114	0		164	1		214	0		264	1		314	0		364	1		414	0		464			
0		15	0		65	0		115	0		165	1		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	2		217	0		267	1		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	0		119	0		169	0		219	0		269	1		319	0		369	0		419	0		469			
0		20	0		70	0		120	0		170	1		220	0		270	0		320	0		370	1		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	0		222	0		272	0		322	0		372	1		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	2		124	0		174	3		224	0		274	1		324	1		374	0		424	0		474			
0		25	0		75	3		125	0		175	1		225	0		275	2		325	3		375	0		425	0		475			
0		26	0		76	0		126	0		176	1		226	0		276	0		326	2		376	1		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	2		228	0		278	4		328	1		378	0		428	0		478			
0		29	0		79	0		129	0		179	1		229	0		279	2		329	3		379	1		429	0		479			
1		30	0		80	0		130	0		180	3		230	0		280	3		330	0		380	0		430	0		480			
0		31	0		81	4		131	0		181	3		231	0		281	8		331	1		381	0		431	0		481			
0		32	0		82	0		132	0		182	1		232	0		282	5		332	1		382	0		432	0		482			
0		33	0		83	0		133	0		183	4		233	0		283	3		333	0		383	0		433	0		483			
0		34	0		84	1		134	0		184	6		234	0		284	2		334	0		384	0		434	0		484			
0		35	0		85	3		135	0		185	4		235	0		285	2		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	6		236	0		286	5		336	0		386	0		436	0		486			
0		37	0		87	1		137	0		187	7		237	0		287	10		337	0		387	0		437	0		487			
0		38	0		88	2		138	1		188	6		238	0		288	4		338	0		388	0		438	0		488			
0		39	1		89	1		139	0		189	11		239	0		289	5		339	0		389	0		439	0		489			
0		40	1		90	1		140	1		190	10		240	0		290	8		340	0		390	1		440	0		490			
0		41	0		91	1		141	0		191	11		241	0		291	10		341	0		391	0		441	0		491			
0		42	0		92	3		142	0		192	9		242	0		292	10		342	0		392	0		442	1		492			
0		43	0		93	3		143	0		193	17		243	0		293	16		343	0		393	0		443	0		493			
0		44	0		94	2		144	0		194	12		244	1		294	15		344	0		394	0		444	0		494			
0		45	0		95	6		145	0		195	15		245	0		295	10		345	0		395	0		445	0		495			
0		46	0		96	5		146	0		196	11		246	0		296	5		346	0		396	0		446	0		496			
0		47	0		97	10		147	0		197	12		247	0		297	2		347	0		397	0		447	0		497			
0		48	0		98	7		148	0		198	7		248	0		298	0		348	0		398	1		448	0		498			
0		49	0		99	7		149	0		199	1		249	0		299	0		349	0		399	0		449	0		499			

0 50 0 100 7 150 0 200 0 250 0 300 0 350 0 400 0 450 0 500





VMS Peak Search Report V1.9 Generated 22-FEB-2008 07:56:50

Configuration : RDND06\$DKA100:[ALP116.SAMPLE]KF6FL1AD\_220280436.CNF;1  
Analyses by : ALPHA V1.8  
Sample title : TH BRCO  
Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:32  
Sample ID : KF6FL1AD 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: 22-Feb-08 07:56 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: KF6FM1AD

Detector: ALP117 1

Report Date: 25-Feb-08 05:21 AM

Acquire Date: 22-FEB-2008 04:36:38.11

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgrnd Live Time: 1000 minutes

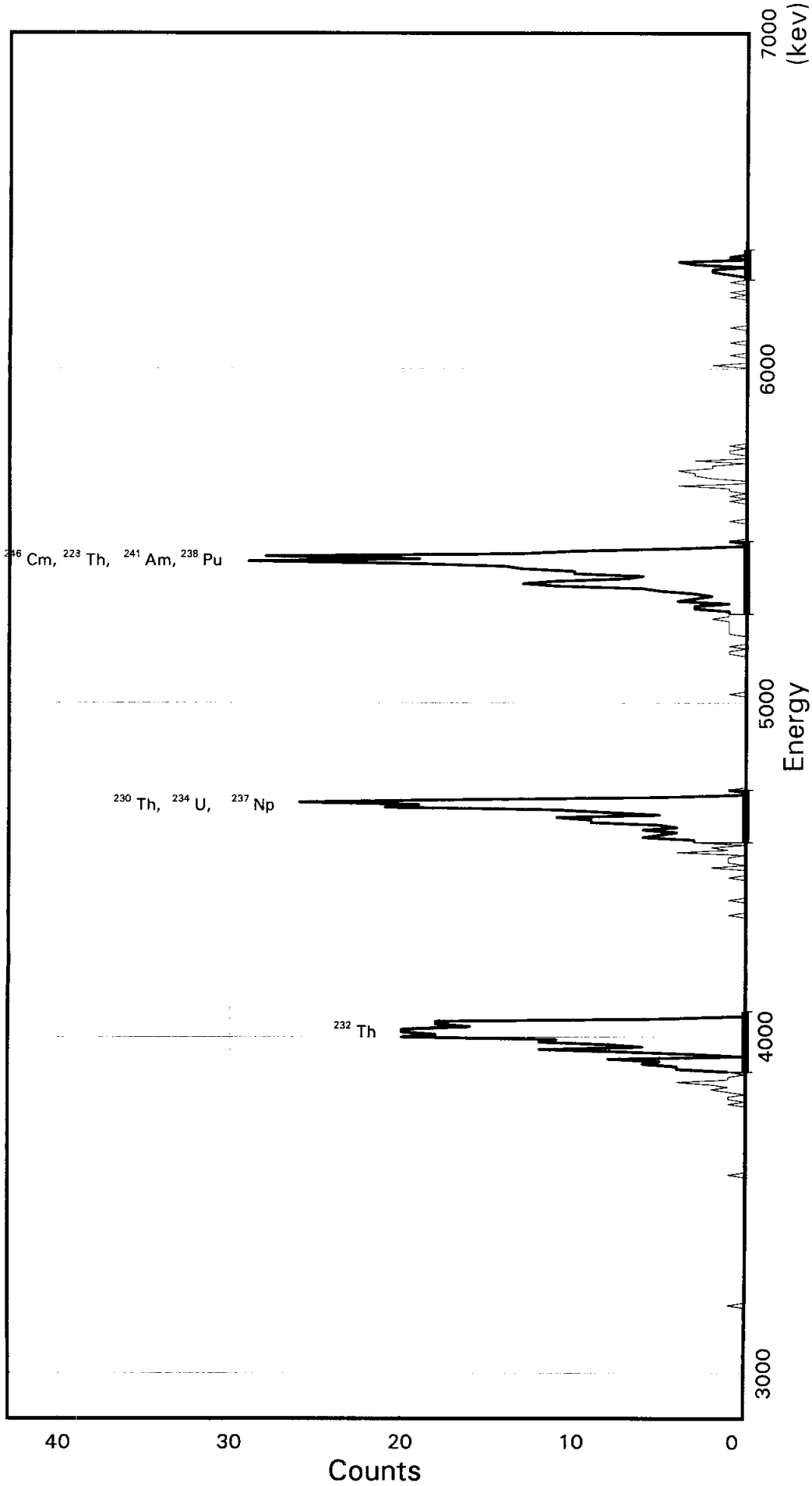
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	242	2	1.207	5423.2	195.2	328	354
TH-230	176	1	0.879	4687.7	149.9	232	252
TH-232	222	0	1.110	4013.0	179.5	140	164

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Batch ID: 8030214

Sample ID: KF6FM1AD  
Detector ID: ALP117 1



Acquisition Start: 22-FEB-2008 04:36:38.11  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:05.00

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

SAMPLE IDENTIITY: KF6FM1AD

TITLE : TH BRCO

DETECTOR : ALP117 1  
CONFIGURATION NAME : RDND06\$DKA100:[ALP117.SAMPLE] KF6FM1AD\_220280  
436.CNF;1  
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:18

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 04:36:38 CALIB DATE : 11-FEB-2008 02:49:42

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

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<sup>2</sup> SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing  
for Spectra Not Processed by Alp\_rgn\_cnts  
(Version: 1-Apr-07)

Sample Identity: KP6FM1AD

Flags Key

Detector: ALP117 1

Report Date: 22 Feb-08 07:56 AM

Intersect Region: \*

Acquire Date: 22 FEB 2008 04:36:38.11

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

0 50 1 100 12 150 0 200 16 250 0 300 4 350 0 400 1 450 0 500





VMS Peak Search Report V1.9 Generated 22-FEB-2008 07:56:47

Configuration : RDND06\$DKA100:[ALP117.SAMPLE]KF6FM1AD\_220280436.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : TH BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:38  
 Sample ID : KF6FM1AD Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP117 Detector geometry:  
 Elapsed live time: 0 03:20:05.00 Elapsed real time: 0 03:20:06.00 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	4016.13	222	0	67.10	157.16	141	24	1.85E-02	6.7	
2	0	4697.01	175	0	37.28	248.10	233	21	1.46E-02	7.6	
3	0	5427.74	249	0	44.74	345.51	324	29	2.07E-02	6.3	
4	0	6304.84	13	0	59.65	462.17	457	12	1.08E-03	27.7	

Error Report (Date: 22-Feb-08 07:56 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: KF6FM1AG

Detector: ALP118 1  
Report Date: 25-Feb-08 05:21 AM  
Acquire Date: 22-FEB-2008 04:36:45.81  
Tracer Nuclide: TH-229  
Sample Live Time: 200 minutes  
Bkgrnd Live Time: 1000 minutes

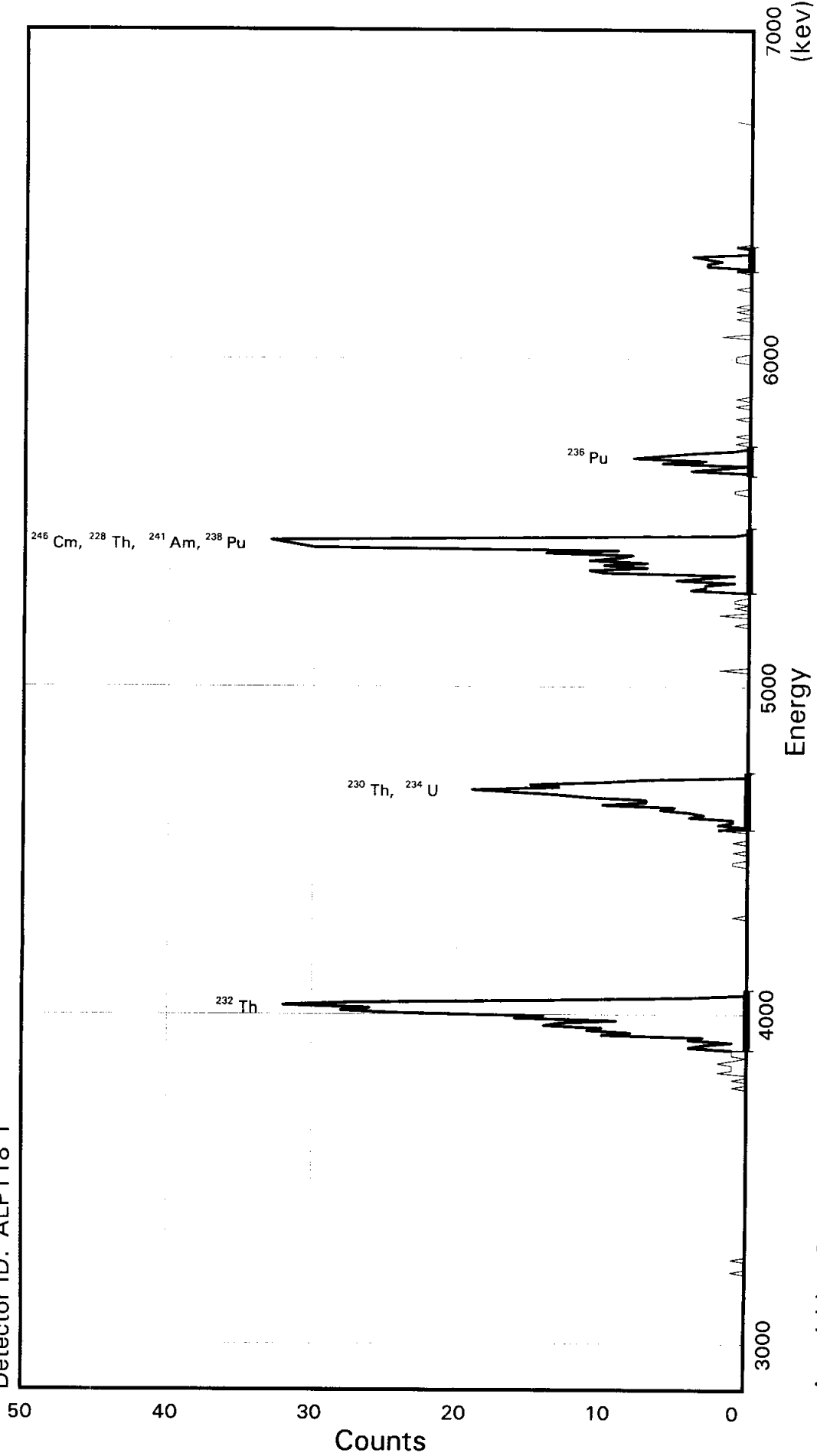
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	261	4	1.300	5423.2	182.2	322	346
TH-230	154	0	0.769	4687.7	151.7	229	249
TH-232	278	0	1.389	4013.0	197.1	137	163

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Sample ID: KF6FM1AG  
Detector ID: ALP118 1

Batch ID: 8030214



Acquisition Start: 22-FEB-2008 04:36:45.81  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:10.00

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

SAMPLE IDENTIITY: KF6FM1AG

TITLE : TH BRCO

DETECTOR : ALP118 1  
CONFIGURATION NAME : RDND06\$DKA100: [ALP118.SAMPLE] KF6FM1AG\_220280  
436.CNF;1

ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:22

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 04:36:45 CALIB DATE : 11-FEB-2008 02:49:46

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:10

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: KF6FM1AG

Flags Key

Detector: ALP118 1

Report Date: 22-Feb-08 07:57 AM

Intersect Region: X

Acquire Date: 22-FEB-2008 04:36:45.81

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

1 50 0 100 13 150 0 200 0 250 0 300 0 350 0 400 0 450 0 500





VMS Peak Search Report V1.9 Generated 22-FEB-2008 07:57:02

```

Configuration      : RDND06$DKA100: [ALP118.SAMPLE]KF6FM1AG_220280436.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:45
Sample ID        : KF6FM1AG Sample quantity : 0.00000E+00 LITER
Sample type      : disk Sample geometry :
Detector name    : ALP118 Detector geometry:
Elapsed live time: 0 03:20:10.00 Elapsed real time: 0 03:20:10.00 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	4019.37	278	0	53.01	156.01	139	24	2.31E-02	6.0	
2	0	4684.08	157	0	60.58	243.66	228	23	1.31E-02	8.0	
3	0	5434.53	265	0	30.29	342.56	323	26	2.21E-02	6.1	
4	0	5698.92	32	0	30.29	377.38	370	12	2.66E-03	17.7	
5	0	6296.67	14	0	37.86	456.08	452	10	1.17E-03	26.7	

Error Report (Date: 22-Feb-08 07:57 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: KGAF11AA

Detector: ALP119 1

Report Date: 25-Feb-08 05:22 AM

Acquire Date: 22-FEB-2008 04:36:51.04

Tracer Nuclide: TH-229

Sample Live Time: 200 minutes

Bkgnd 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	2	-0.002	5423.2	148.8	331	351
TH-230	1	0	0.005	4687.7	149.0	232	252
TH-232	0	0	0.000	4013.0	149.3	141	161

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Batch ID: 8030214

Sample ID: KGAF11AA  
Detector ID: ALP119 1



Acquisition Start: 22-FEB-2008 04:36:51.04  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:05.00

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

SAMPLE IDENTIITY: KGAF11AA

TITLE : TH BRCO

DETECTOR : ALP119 1  
CONFIGURATION NAME : RDND06\$DKA100:[ALP119.SAMPLE]KGAF11AA\_220280  
436.CNF;1

ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:25

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 04:36:51 CALIB DATE : 11-FEB-2008 02:49:55

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

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<sup>2</sup> SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing  
for Spectra Not Processed by Alp\_rgn\_cnts  
(Version: 1 Apr 07)

Sample Identity: KGAF11AA

Flags Key

Detector: ALP119 1

Report Date: 22 Feb-08 07:57 AM

Intersect Region: 0

Acquire Date: 22 FEB-2008 04:36:51.04

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	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	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	1		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	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	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	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			
1		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	1		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	1		397	0		447	0		497			
0		48	0		98	0		148	0		198	0		248	0		298	0		348	1		398	0		448	0		498			
0		49	0		99	0		149	0		199	0		249	0		299	0		349	0		399	1		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 22-FEB-2008 07:57:00

Configuration : RDND06\$DKA100:[ALP119.SAMPLE]KGAF11AA\_220280436.CNF;1  
Analyses by : ALPHA V1.8  
Sample title : TH BRCO  
Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:51  
Sample ID : KGAF11AA Sample quantity : 0.000000E+00 LITER  
Sample type : disk Sample geometry :  
Detector name : ALP119 Detector geometry:  
Elapsed live time: 0 03:20:05.00 Elapsed real time: 0 03:20:05.00 0.0%  
Start energy : 2865.89 kev End energy : 6657.98 kev  
Sensitivity : 3.00 Sum Sensitivity : 1.00  
No peaks were found

Error Report (Date: 22-Feb-08 07:57 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: KGAF11AC

Detector: ALP120 1  
Report Date: 25-Feb-08 06:30 AM  
Acquire Date: 22-FEB-2008 04:36:56.13  
Tracer Nuclide: TH-229  
Sample Live Time: 200 minutes  
Bkgrnd Live Time: 1000 minutes

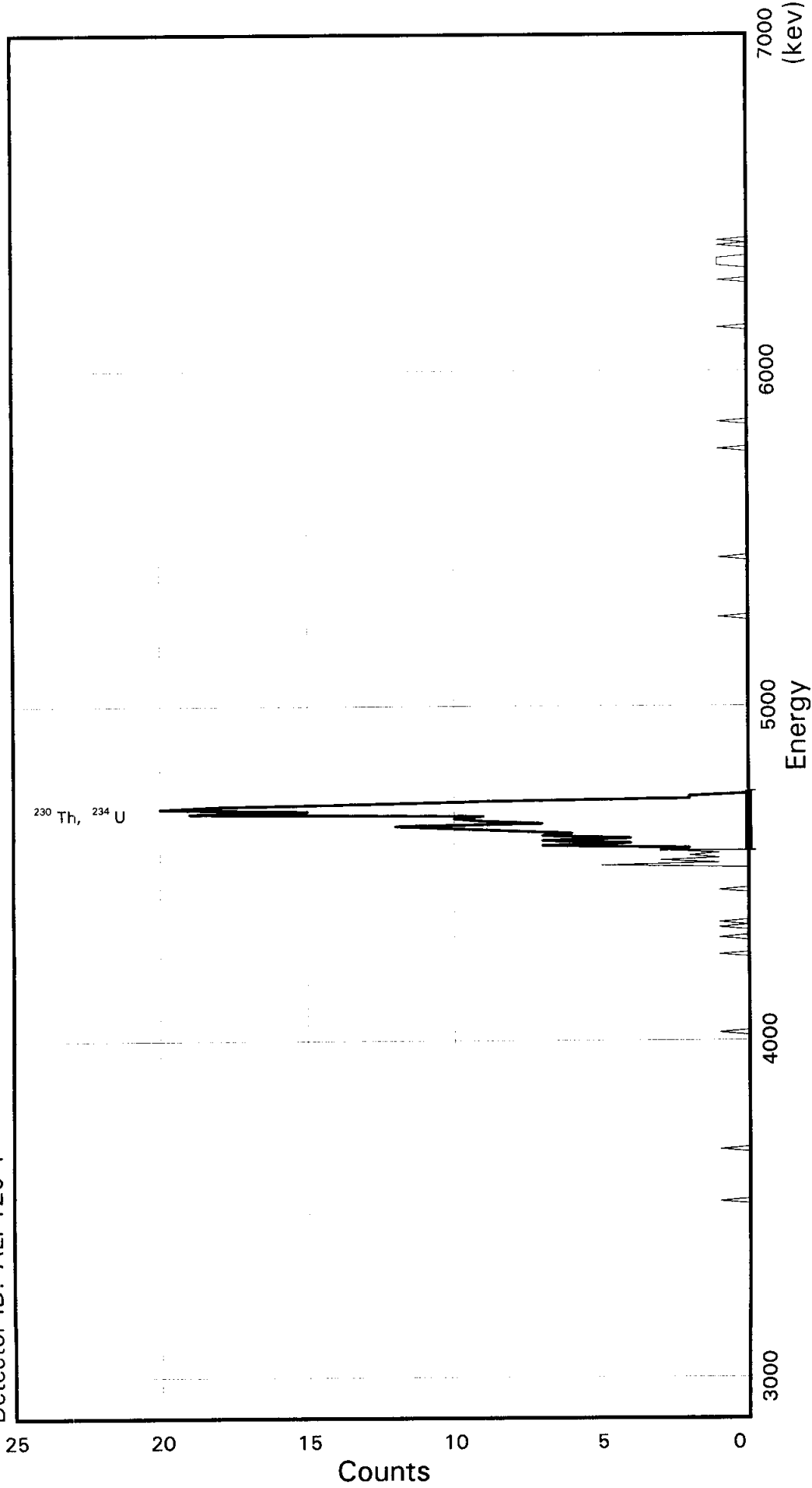
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl
TH-228	1	4	0.001	5423.2	147.8	333	353
TH-230	207	0	1.034	4687.7	192.0	229	255
TH-232	1	0	0.005	4013.0	147.7	142	162

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
TH BRCO

Batch ID: 8030214

Sample ID: KGAF11AC  
Detector ID: ALP120 1



Acquisition Start: 22-FEB-2008 04:36:56.13  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:11.00

Energy Coefficients:  
Offset: 2.85646E + 03  
Slope: 7.38113E + 00  
Quadrature: 1.04953E-05

SAMPLE IDENTIITY: KGAF11AC

TITLE : TH BRCO

DETECTOR : ALP120 1  
CONFIGURATION NAME : RDND06\$DKA100: [ALP120.SAMPLE] KGAF11AC\_220280  
436.CNF;1  
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:27

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 04:36:56 CALIB DATE : 11-FEB-2008 02:50:06

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:11

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: K3AF11AC

Flags Key

Detector: ALP120

Report Date: 22-Feb-08 07:57 AM

Intersect Region: F

Acquire Date: 22 FEB 2008 04:36:56.13

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	Cnt	F	Chn	Cnt	F	Chn			
		1	0		51	0		101	0		151	1		201	13		251	0		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0		202	9		252	0		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	1		203	2		253	0		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	0		204	2		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	1		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	1		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	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	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	0		368	0		418	1		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	1		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	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	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	5		226	0		276	1		326	0		376	0		426	1		476			
0		27	0		77	0		127	0		177	1		227	0		277	0		327	0		377	0		427	0		477			
0		28	0		78	0		128	0		178	3		228	0		278	0		328	0		378	0		428	1		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	2		230	0		280	0		330	0		380	0		430	0		480			
0		31	0		81	0		131	0		181	1		231	0		281	0		331	0		381	0		431	0		481			
0		32	0		82	0		132	0		182	3		232	0		282	0		332	0		382	0		432	0		482			
0		33	0		83	0		133	0		183	2		233	0		283	0		333	0		383	0		433	0		483			
0		34	0		84	0		134	0		184	7		234	0		284	0		334	0		384	0		434	0		484			
0		35	0		85	0		135	0		185	4		235	0		285	0		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	7		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	7		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	1		90	0		140	1		190	8		240	0		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	10		241	0		291	0		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	12		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	7		243	0		293	0		343	0		393	1		443	0		493			
0		44	0		94	0		144	0		194	9		244	0		294	0		344	1		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	9		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	1		197	19		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0		198	15		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	0		199	20		249	0		299	0		349	0		399	0		449	0		499			

0 50 0 100 0 150 0 200 18 250 0 300 1 350 0 400 0 450 0 500





VMS Peak Search Report V1.9 Generated 22-FEB-2008 07:57:10

Configuration : RDND06\$DKA100:[ALP120.SAMPLE]KGAF11AC\_220280436.CNF;1  
Analyses by : ALPHA V1.8  
Sample title : TH BRCO  
Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 04:36:56  
Sample ID : KGAF11AC Sample quantity : 0.000000E+00 LITER  
Sample type : disk Sample geometry :  
Detector name : ALP120 Detector geometry:  
Elapsed live time: 0 03:20:11.00 Elapsed real time: 0 03:20:11.00 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	4678.20	203	0	81.19	246.72	232	24	1.69E-02	7.0	

Error Report (Date: 22-Feb-08 07:57 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: 2/20/07 to 2/22/08, SMFractionIdentifier Between THTC12102 and THTC12107, Order by

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	
THTC12102	Th-234	5.0402E+02 ± 3.648E+01 CPM	0.1264 g	11/30/2007 11/30/2007	Armstron	3.9875E+03 ± 2.886E+02 CPM/G
THTC12103	Th-234	5.0800E+02 ± 3.677E+01 CPM	0.1274 g	11/30/2007 11/30/2007	Armstron	3.9875E+03 ± 2.886E+02 CPM/G
THTC12104	Th-234	5.1078E+02 ± 3.697E+01 CPM	0.1281 g	11/30/2007 11/30/2007	Armstron	3.9874E+03 ± 2.886E+02 CPM/G
THTC12105	Th-234	5.0680E+02 ± 3.669E+01 CPM	0.1271 g	11/30/2007 11/30/2007	Armstron	3.9874E+03 ± 2.886E+02 CPM/G
THTC12106	Th-234	5.0600E+02 ± 3.663E+01 CPM	0.1269 g	11/30/2007 11/30/2007	Armstron	3.9874E+03 ± 2.886E+02 CPM/G
THTC12107	Th-234	5.0360E+02 ± 3.645E+01 CPM	0.1263 g	11/30/2007 11/30/2007	Armstron	3.9874E+03 ± 2.886E+02 CPM/G

5.0653E+002 ± 2.665E+000 ( 6) 0.526% 5.0360E+002 , 5.1078E+002

## Standard Material Fractions (Vials)

Vial Prep: 2/20/07 to 2/22/08, SMFractionIdentifier Between THTC12222 and THTC12236, Order by

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	
THTC12222	Th-234	4.9956E+02 ± 3.616E+01 CPM	0.8854 g	2/6/2008 2/6/2008	Armstron	5.6422E+02 ± 4.084E+01 CPM/G
THTC12223	Th-234	5.0018E+02 ± 3.620E+01 CPM	0.8865 g	2/6/2008 2/6/2008	Armstron	5.6422E+02 ± 4.084E+01 CPM/G
THTC12224	Th-234	5.0001E+02 ± 3.619E+01 CPM	0.8862 g	2/6/2008 2/6/2008	Armstron	5.6422E+02 ± 4.084E+01 CPM/G
THTC12225	Th-234	5.0131E+02 ± 3.628E+01 CPM	0.8885 g	2/6/2008 2/6/2008	Armstron	5.6422E+02 ± 4.084E+01 CPM/G
THTC12226	Th-234	5.0012E+02 ± 3.620E+01 CPM	0.8864 g	2/6/2008 2/6/2008	Armstron	5.6421E+02 ± 4.084E+01 CPM/G
THTC12227	Th-234	5.0091E+02 ± 3.626E+01 CPM	0.8878 g	2/6/2008 2/6/2008	Armstron	5.6421E+02 ± 4.084E+01 CPM/G
THTC12228	Th-234	5.0287E+02 ± 3.640E+01 CPM	0.8913 g	2/6/2008 2/6/2008	Armstron	5.6420E+02 ± 4.084E+01 CPM/G
THTC12229	Th-234	5.0202E+02 ± 3.634E+01 CPM	0.8898 g	2/6/2008 2/6/2008	Armstron	5.6420E+02 ± 4.084E+01 CPM/G
THTC12230	Th-234	5.0247E+02 ± 3.637E+01 CPM	0.8906 g	2/6/2008 2/6/2008	Armstron	5.6420E+02 ± 4.084E+01 CPM/G
THTC12231	Th-234	5.0258E+02 ± 3.638E+01 CPM	0.8908 g	2/6/2008 2/6/2008	Armstron	5.6419E+02 ± 4.084E+01 CPM/G
THTC12232	Th-234	5.0055E+02 ± 3.623E+01 CPM	0.8872 g	2/6/2008 2/6/2008	Armstron	5.6419E+02 ± 4.084E+01 CPM/G
THTC12233	Th-234	5.0157E+02 ± 3.630E+01 CPM	0.889 g	2/6/2008 2/6/2008	Armstron	5.6419E+02 ± 4.084E+01 CPM/G
THTC12234	Th-234	5.0466E+02 ± 3.653E+01 CPM	0.8945 g	2/6/2008 2/6/2008	Armstron	5.6418E+02 ± 4.083E+01 CPM/G
THTC12235	Th-234	5.0302E+02 ± 3.641E+01 CPM	0.8916 g	2/6/2008 2/6/2008	Armstron	5.6418E+02 ± 4.083E+01 CPM/G
THTC12236	Th-234	5.0223E+02 ± 3.635E+01 CPM	0.8902 g	2/6/2008 2/6/2008	Armstron	5.6418E+02 ± 4.083E+01 CPM/G

5.0160E+002 ± 1.411E+000 ( 15) 0.281% 4.9956E+002 , 5.0466E+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	
<b>THSI1150</b>	Th-234	<b>5.0199E+02 ± 3.633E+01</b> CPM	0.891 g	2/6/2008 2/6/2008	Armstron	5.6340E+02 ± 4.078E+01 CPM/G
		5.0199E+002 ± 5.020E+002 ( 1)	5.0199E+002 , 5.0199E+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	1.2454	0.9229	4169.80	CAL6537
29-Nov-07	12:25	96274	20	726	500	4812.25	1.2533	0.9347	4107.84	CAL6538
29-Nov-07	12:25	95463	20	566	500	4772.02	1.2472	0.9795	3906.19	CAL6539
29-Nov-07	12:25	92146	20	675	500	4605.95	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 <sup>TDA</sup> 11/29/07

Sample ID	Isotopes of interest	Sample Date
CAL6537	Th 234076300 #6265	
CAL6538	Th 230023160 #6031	
CAL6539	...	
CAL6540		
CAL6541	Th 234 only	
CAL6542	Purity check	

ADDITIONAL INSTRUCTIONS:

#1070177                      COPRECIPITATE PLEASE

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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		

\* - Isotope is an Impurity

# 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

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

<b>Sample Count Date/Time</b>	<b>Beta Counts</b>	<b>Count Duration*</b>	<b>Beta Bkg Counts</b>	<b>Bkg Count Duration*</b>	<b>Instr ID</b>
29-NOV-2007 12:25:10.00	95877	20.00	675	500.00	30A

<b>Alpha Counts</b>	<b>Alpha Bkg Counts</b>	<b>Guard Counts</b>	<b>HV</b>	<b>Bkg Count Date/Time</b>
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 ISOTOPICT 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:

Approved by: S

Date: 11/30/07

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

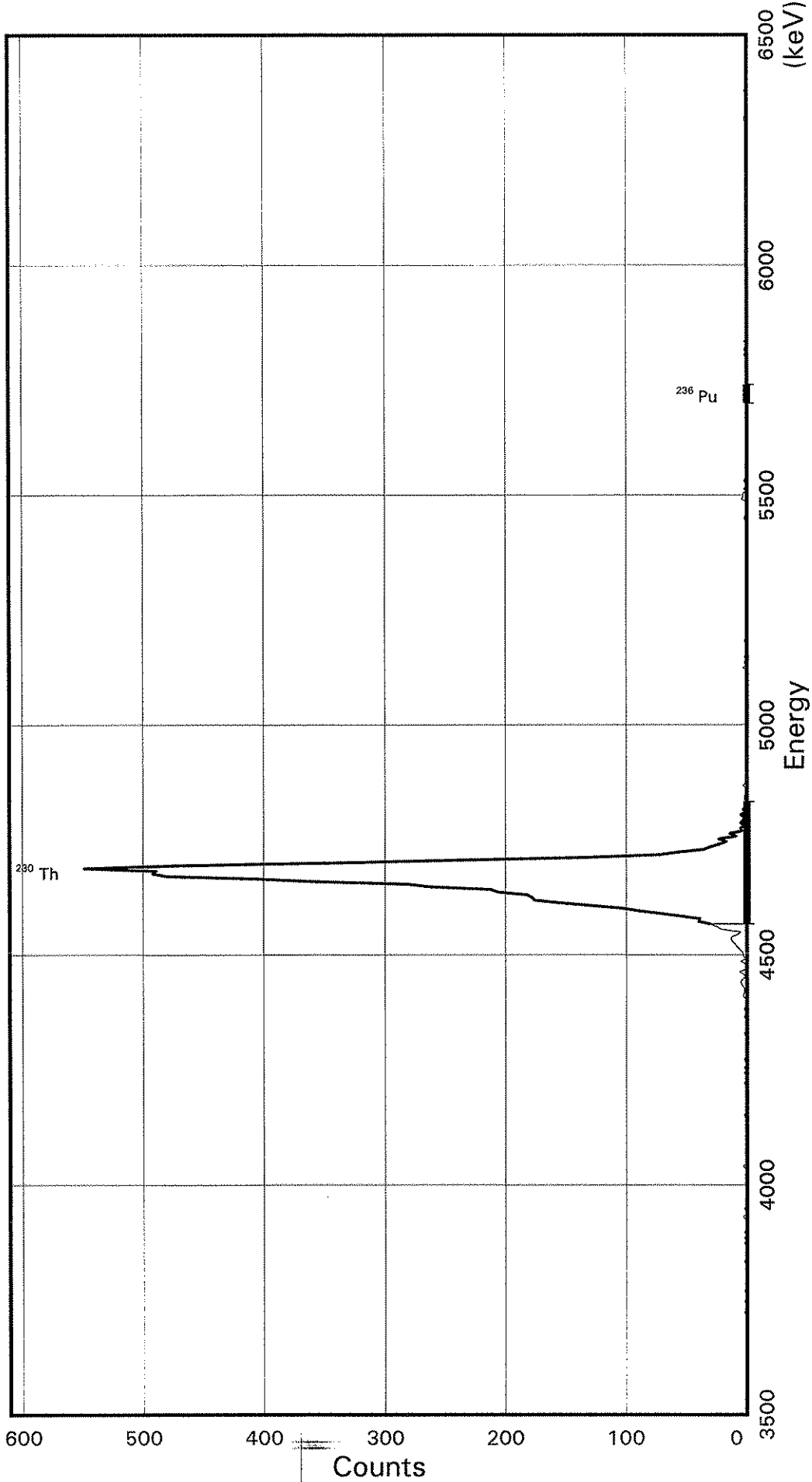
Nuclide Name	Smpl Count	Bkg Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl
TH-228	5	1	0.004	5423.2	116.4	316	336
TH-230	6616	5	6.618	4687.7	336.2	171	229
TH-232	18	0	0.018	4013.0	115.5	73	93

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

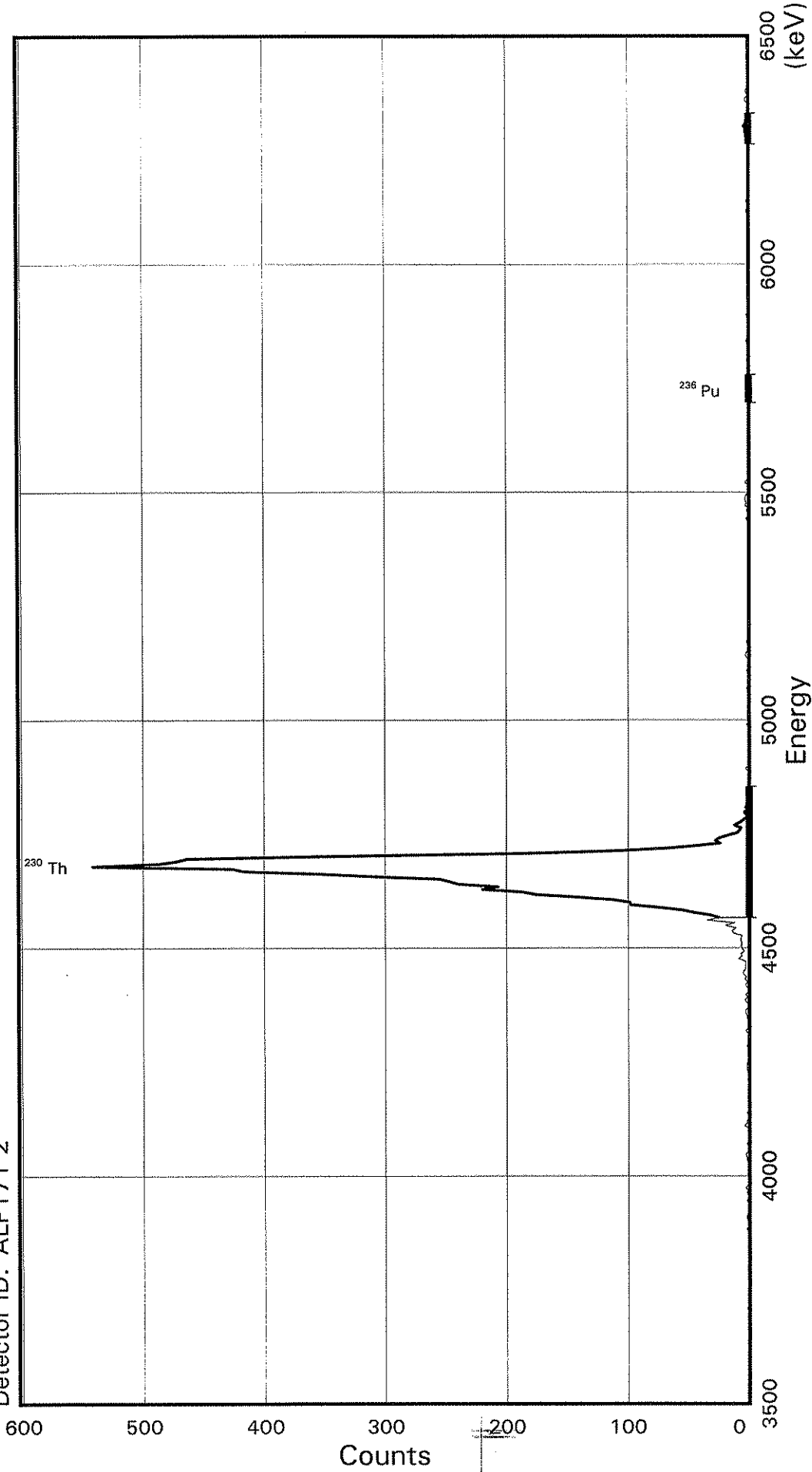
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	4	2	0.002	5423.2	113.1	321	341
TH-230	6728	3	6.732	4687.7	327.5	172	230
TH-232	18	0	0.018	4013.0	112.8	71	91

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

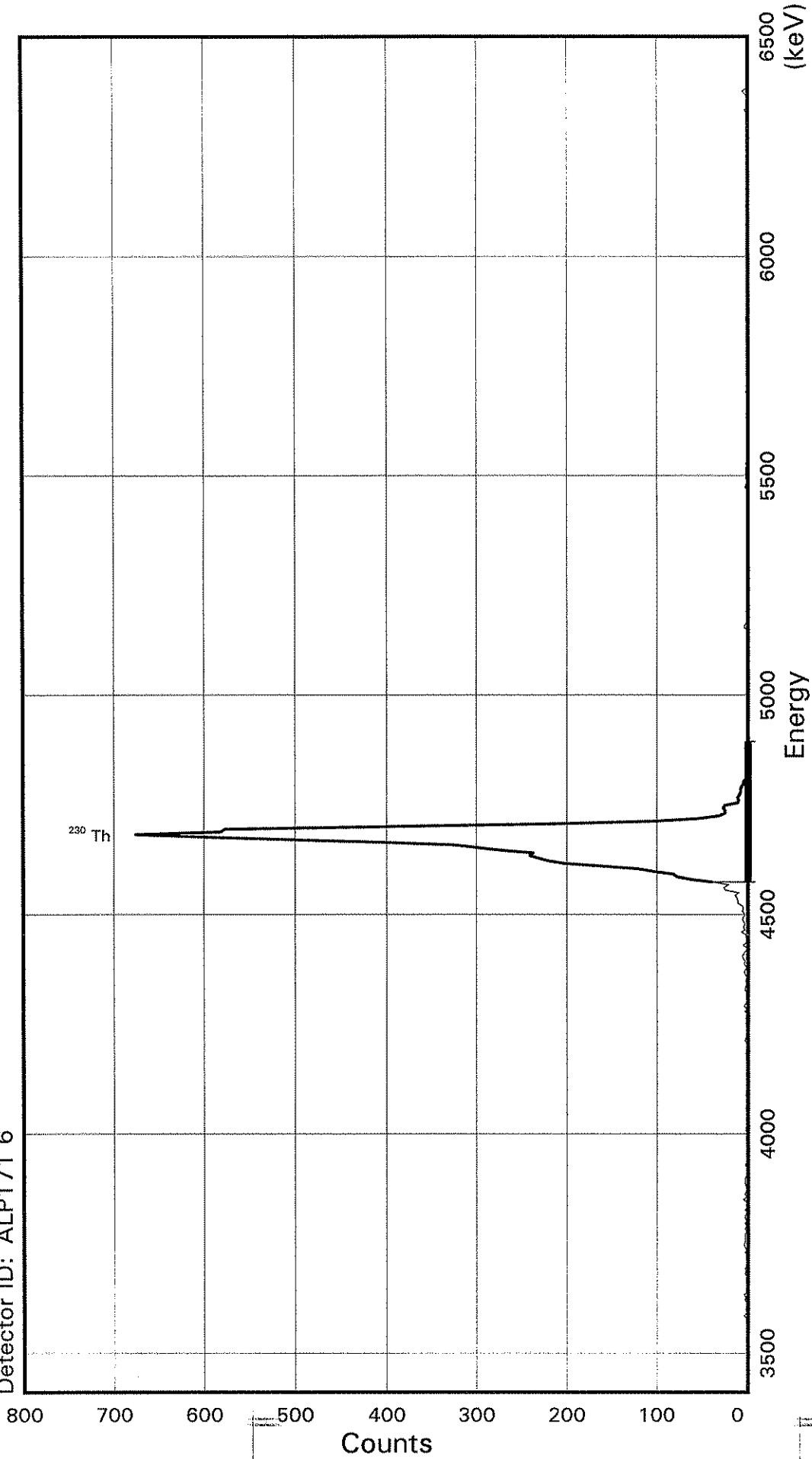
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	4	3	0.001	5423.2	120.9	322	342
TH-230	7153	3	7.158	4687.7	331.9	180	235
TH-232	15	1	0.014	4013.0	120.5	88	108

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									
		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

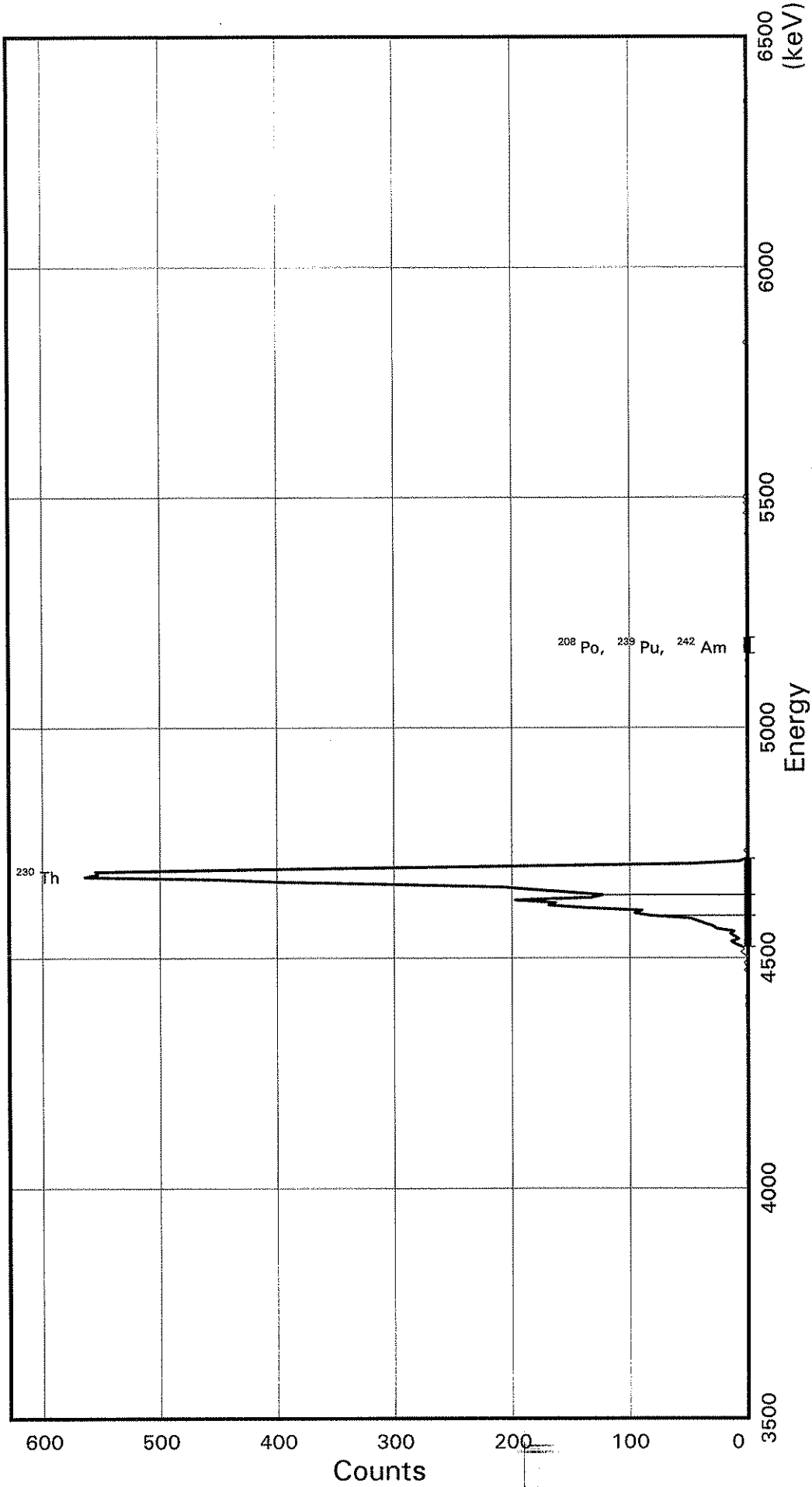
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	7	0	0.007	5423.2	112.6	311	331
TH-230	5502	1	5.507	4687.7	282.2	155	205
TH-232	2	0	0.002	4013.0	113.1	61	81

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  
Detector: ALP171 7

Flags Key

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
		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

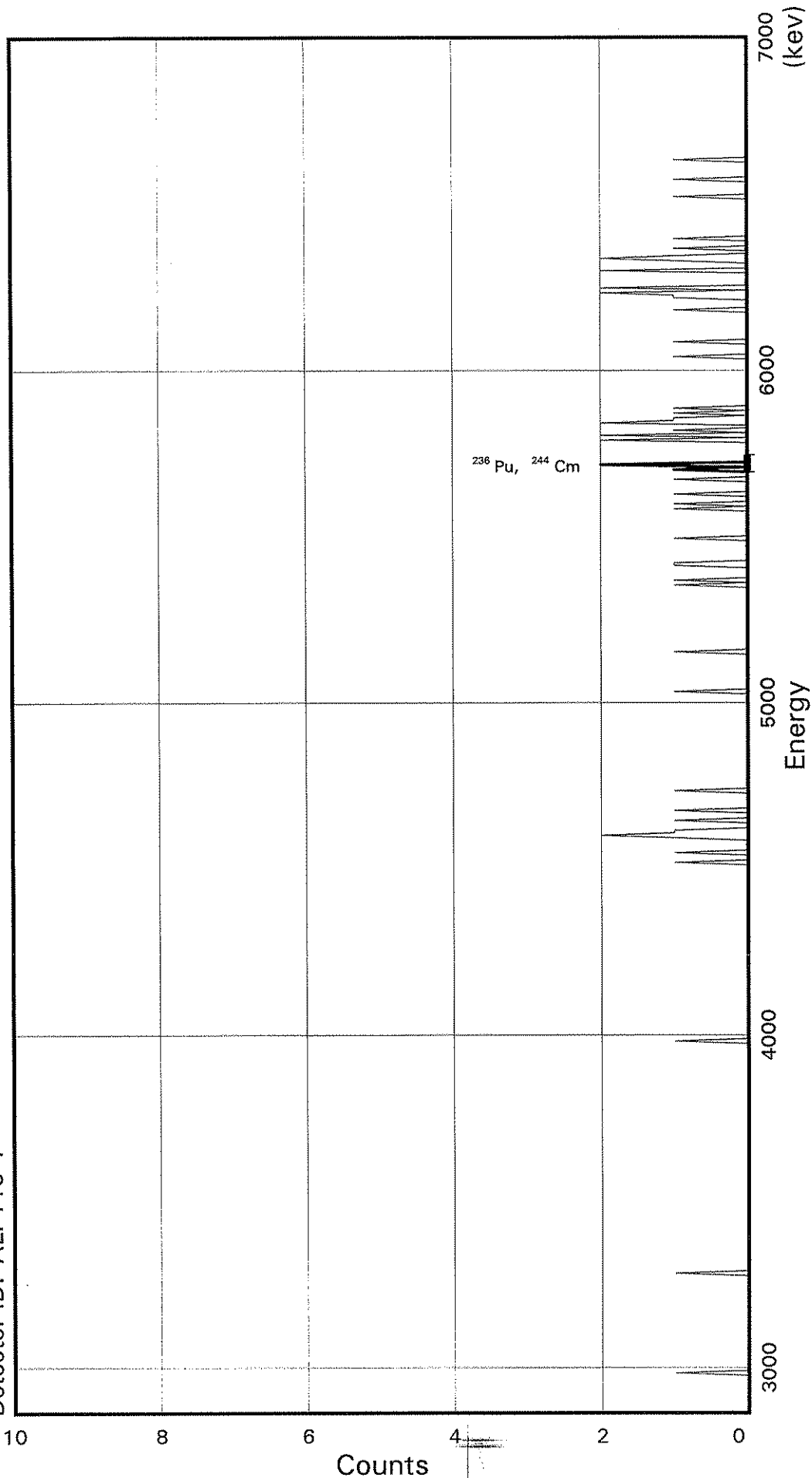
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	4	3	0.001	5423.2	148.4	331	351
TH-230	7	0	0.007	4687.7	149.0	232	252
TH-232	1	0	0.001	4013.0	149.6	141	161

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

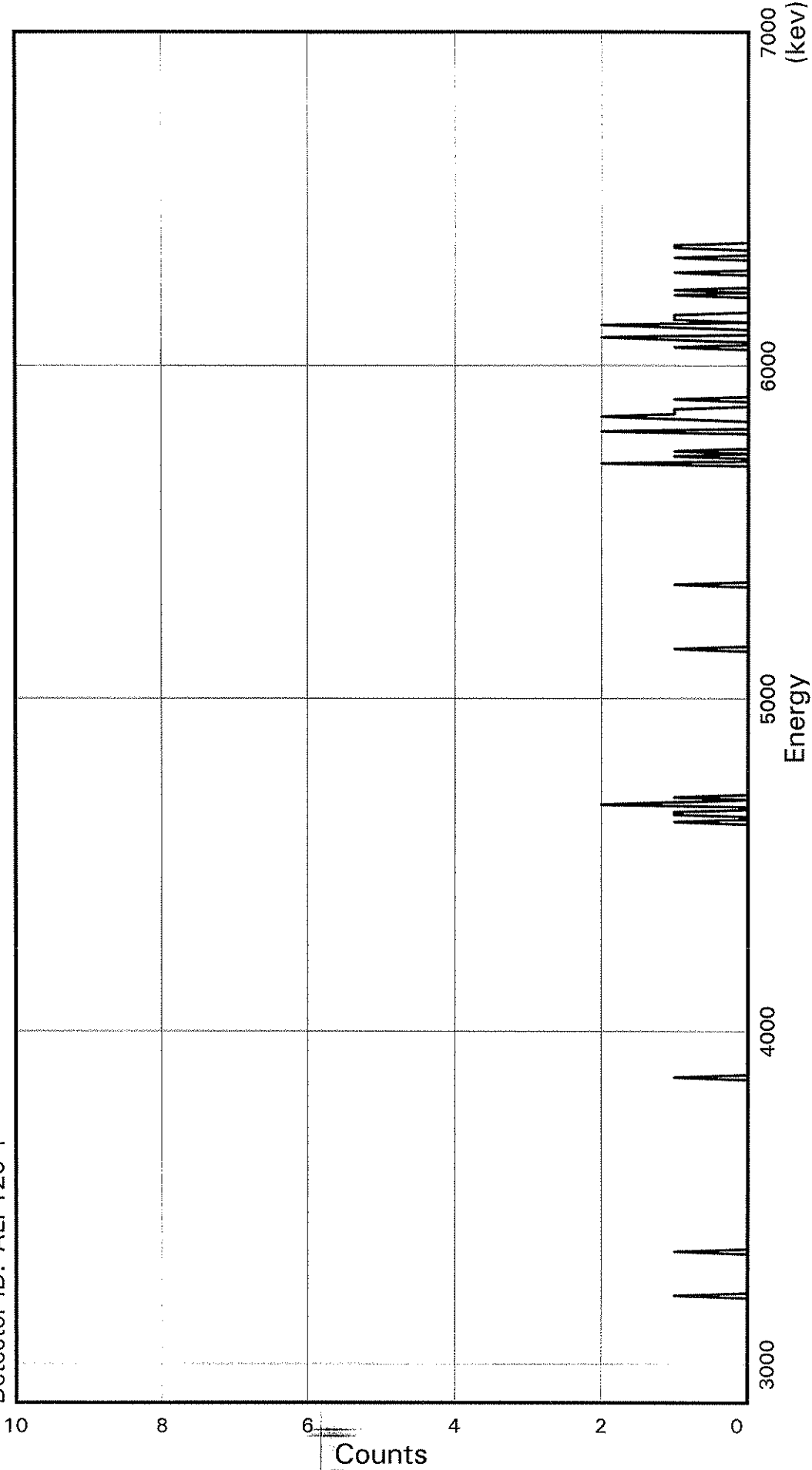
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	1	2	-0.001	5423.2	148.6	332	352
TH-230	7	1	0.006	4687.7	148.0	233	253
TH-232	0	0	0.000	4013.0	147.4	142	162

End of Alpha Region Report  
(Produced by ANAL Report)

STL Richland WA.  
TH STL

Batch ID: T070177

Sample ID: CAL6542  
Detector ID: ALP120 1



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/C<sup>2</sup> 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

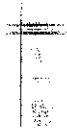
Intersect Region: @

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									
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		Min Bias	-8.22%
Min Bias		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

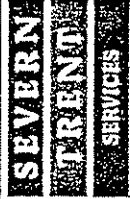
SAMPLE ID	total		Bkg. Cts.		beta Bkg.		total cts.		alpha		alpha Bkg.		Net beta		Net Alpha		1% net	
	cts.	Beta	beta	ct. time	beta	ct. time	beta	ct. time	alpha	ct. time	alpha	ct. time	CPM	CPM	CPM	CPM	beta	beta
RDQC9008	9995		20	20	630	500	4	50	19	500	498.49	0.042	4.98					
RDQC9009	10100		20	20	557	500	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: TN 234075300 #6265  
 Requested Count Time: 50MIN BATCH # TD70176  
 FORM NO.: RC-76, 8/00, Rev. 1

THORIUM BETA DATA FORM

		BATCH # T070176 TH234078300 # 6265			Requested by: TDA Lab Tech:		11/28/07 Counting Time		BETA Analysis: TH234	
Sample ID	Vial Code	TH-234 WT.	Date-time Counted	Set ID	Gross Counts	Bkg. Counts	Count Room Tech			
R08C9008		0.1128	11/28/07 075	26A			1/28/07 B			
R08C9009		0.1166		26B						
R08C9010		0.1161		26C						
R08C9011		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

Sample ID	Isotope	Geometry
RDQC9009	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	10100	20.00	557	500.00	26B

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
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)

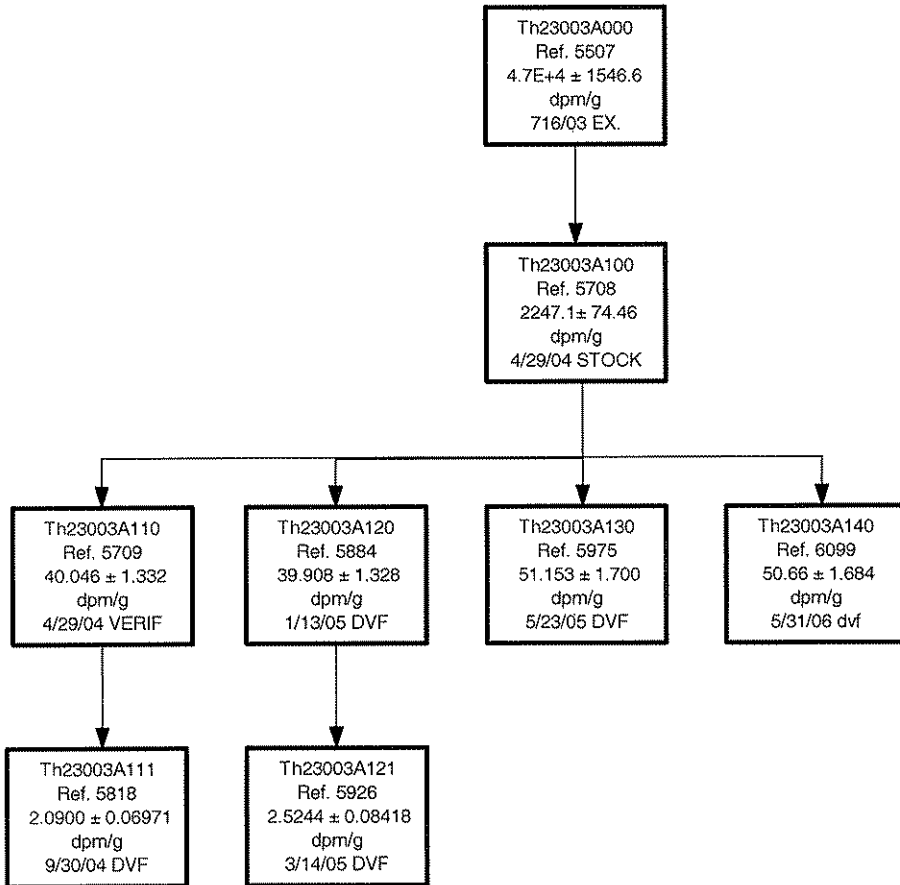
Vial Prep: 2/20/07 to 2/22/08, SMFractionIdentifier Between THSI1150 and THSI1150, Order by SMIdentifier, ConstituentCode, SMFractionIdentifier

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	
<b>THSI1150</b>	Th-230	<b>4.9689E+00 ± 1.649E-01</b> DPM	0.0981 g	2/6/2008 2/6/2008	Armstron	5.0651E+01 ± 1.679E+00 DPM/G

4.9689E+000 ± 4.969E+000 ( 1)

4.9689E+000 , 4.9689E+000

Th23003A





**ISOTOPE DILUTION RECORD**

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>5/31/2006</u>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A100</u></b>	<b><u>5708</u></b>	
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>		%
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>5.0667E+01</u></b>	<b>±</b>	<b><u>1.684E+00</u></b>
12) Total Uncertainty	<u>3.324</u>		%
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A140</u></b>	<b><u>6099</u></b>	
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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A100</u></b>	<b><u>5708</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>5.1153E+01</u></b>	±	<b><u>1.700E+00</u></b>
12) Total Uncertainty	<u>3.324</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A130</u></b>	<b><u>5975</u></b>	
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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A120</u></b>	<b><u>5884</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>2.5244E+00</u></b>	±	<b><u>8.418E-02</u></b>
12) Total Uncertainty	<u>3.335</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A121</u></b>	<b><u>5926</u></b>	
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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A100</u></b>	<b><u>5708</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>3.9908E+01</u></b>	<b>±</b>	<b><u>1.328E+00</u></b>
12) Total Uncertainty	<u>3.327</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A120</u></b>	<b><u>5884</u></b>	
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>

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**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>9/30/2004</u>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A110</u></b>	<b><u>5709</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>2.0900E+00</u></b>	±	<b><u>6.971E-02</u></b>
12) Total Uncertainty	<u>3.335</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A111</u></b>	<b><u>5818</u></b>	
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>

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**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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A100</u></b>	<b><u>5708</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>4.0046E+01</u></b>	<b>±</b>	<b><u>1.332E+00</u></b>
12) Total Uncertainty	<u>3.327</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A110</u></b>	<b><u>5709</u></b>	
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>

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**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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A000</u></b>	<b><u>5507</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>2.2471E+03</u></b>	<b>±</b>	<b><u>7.446E+01</u></b>
12) Total Uncertainty	<u>3.314</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A100</u></b>	<b><u>5708</u></b>	
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>

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**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

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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

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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:  $\gamma$ -impurities <0.1%,  $\alpha$ -impurities <0.23%

5.09407 grams 0.5M HNO<sub>3</sub> 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 11:42:27.24

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		

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		

## -- 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)

Page : 3

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
------------------	-----------	----------------	-------	-------------	-----

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
------------------	-----------	----------------	-------	-------------	-----

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
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		

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		0.0050		
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
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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
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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)

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		0.0020	
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
-----				

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
-----				

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
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		0.0050	
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 --

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
10-FEB-2008 10:09	chk		0.2466		
12-MAR-2008 06:19	chk		0.2450		

-- 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		8.5000		
12-MAR-2008 06:19	chk		9.3333		

-- Multi-Test Full Report --

Description : Centroid, Am-241

Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:09	chk		355.1470		
12-MAR-2008 06:19	chk		355.0778		

-- 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
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
10-FEB-2008 10:09	chk		7.4867		

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		7.2333		

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
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
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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
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 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
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10-FEB-2008 10:09	chk		0.3430		
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12-MAR-2008 06:19	chk		0.3452		
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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		7.6667		
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12-MAR-2008 06:19	chk		7.5000		
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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		350.4190		
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12-MAR-2008 06:19	chk		350.6029		
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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 : 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
------------------	-----------	----------------	-------	-------------	-----

```
-----
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
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10-FEB-2008 10:09	chk		0.3610		
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12-MAR-2008 06:19	chk		0.3556		
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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		8.0000		
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12-MAR-2008 06:19	chk		8.3333		
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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		353.8010		
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12-MAR-2008 06:19	chk		353.7530		
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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 : 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
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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
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10-FEB-2008 10:09	chk		7.4558		
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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		7.2866		
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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
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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 : 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
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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## Quality Assurance Multi-Test Full Report (continued)

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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 11:42:46.14

QA Filename : \$DISK1:[ALP171.QA]GROUP\_8\_CHK.QAF;1

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 17-DEC-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.301804 Std Deviation : 0.002894

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		0.3017		
8-FEB-2008 05:19	chk		0.2983		
4-MAR-2008 08:00	chk		0.3054		

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3-FEB-2008 11:02	chk		0.3017		
8-FEB-2008 05:19	chk		0.2983		
4-MAR-2008 08:00	chk		0.3054		

-- 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 : 17-DEC-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 6.583333 Std Deviation : 0.166666

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		6.3333		
8-FEB-2008 05:19	chk		6.6667		
4-MAR-2008 08:00	chk		6.6667		

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3-FEB-2008 11:02	chk		6.3333		
8-FEB-2008 05:19	chk		6.6667		
4-MAR-2008 08:00	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 : 17-DEC-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 333.977142      Std Deviation : 0.040062

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		334.0240		
8-FEB-2008 05:19	chk		333.9694		
4-MAR-2008 08:00	chk		333.9876		

-- 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 : 17-DEC-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.305983      Std Deviation : 0.001357

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		0.3052		
8-FEB-2008 05:19	chk		0.3046		
4-MAR-2008 08:00	chk		0.3066		

-- 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 : 17-DEC-2007 00:00 End Date : 30-MAY-2030 00:00  
Mean : 5.886219      Std Deviation : 0.003213

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		5.8814		
8-FEB-2008 05:19	chk		5.8873		
4-MAR-2008 08:00	chk		5.8879		

Quality Assurance Report.      Generated 26-MAR-2008 11:42:46.76

QA Filename : \$DISK1:[ALP171.QA]GROUP\_8\_BKG.QAF;1

## -- Multi-Test Full Report --

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

Investigate Level : 2.000000      Action Level : 3.000000

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

Start Date : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00  
Mean : 0.000167      Std Deviation : 0.000409

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 : 4196, U-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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4-FEB-2008 06:14 bkg	0.0000	
9-FEB-2008 06:41 bkg	0.0020	
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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000334      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			0.0000	
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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000834      Std Deviation : 0.000754

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 06:14 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	0.0020	
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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000334 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			0.0000	
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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000167 Std Deviation : 0.000409

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	In
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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000167 Std Deviation : 0.000409

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 06:14	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 : 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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000334 Std Deviation : 0.000517

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 06:14	bkg		0.0000		
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		0.0010		

## -- 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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000501 Std Deviation : 0.000548

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		0.0000	
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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000167 Std Deviation : 0.000409

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 06:14	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 : 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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000334 Std Deviation : 0.000517

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		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0010		

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000334 Std Deviation : 0.000517

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		
27-FEB-2008 10:00	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0010		

-- 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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000334 Std Deviation : 0.000517

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 06:14	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 : 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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000167 Std Deviation : 0.000409

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	In	
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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001168 Std Deviation : 0.000984

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		0.0020	
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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001168 Std Deviation : 0.000984

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	
27-FEB-2008 10:00	bkg		0.0020	
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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.002669 Std Deviation : 0.003886

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		0.0100	
27-FEB-2008 10:00	bkg		0.0010	
5-MAR-2008 07:46	bkg		0.0040	

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001668 Std Deviation : 0.001864

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		0.0050	
27-FEB-2008 10:00	bkg		0.0020	
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 : 14-DEC-2007 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001001 Std Deviation : 0.001266

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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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		0.0010	
23-FEB-2008 11:07	bkg		0.0030	
27-FEB-2008 10:00	bkg		0.0020	
5-MAR-2008 07:46	bkg		0.0000	



Quality Assurance Report.

Generated 26-MAR-2008 11:42:42.70

QA Filename : \$DISK1:[ALP171.QA]GROUP\_7\_CHK.QAF;1

-- Multi-Test Full Report --

Description : Efficiency, Pu-239

Parameter Units : % Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 8-AUG-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.267342 Std Deviation : 0.004154

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		0.2671		
8-FEB-2008 05:19	chk		0.2662		
4-MAR-2008 08:00	chk		0.2676		

-- Multi-Test Full Report --

Description : Constant FWHM

Parameter Units : channels Parameter Type : Generic

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 8-AUG-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 5.974886 Std Deviation : 0.409825

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		5.6667		
8-FEB-2008 05:19	chk		6.6667		
4-MAR-2008 08:00	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 : 8-AUG-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 337.635986      Std Deviation : 2.760271

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 11:02	chk		337.4637		
8-FEB-2008 05:19	chk		337.4242		
4-MAR-2008 08:00	chk		337.4474		

-- 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 : 0.268086      Std Deviation : 0.002913

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		0.2692		
8-FEB-2008 05:19	chk		0.2714		
4-MAR-2008 08:00	chk		0.2705		

-- 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 : 5.649118      Std Deviation : 0.022375

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
3-FEB-2008 11:02	chk		5.6376	
8-FEB-2008 05:19	chk		5.6552	
4-MAR-2008 08:00	chk		5.6575	

---

3-FEB-2008 11:02	chk		5.6376	
8-FEB-2008 05:19	chk		5.6552	
4-MAR-2008 08:00	chk		5.6575	

Quality Assurance Report.      Generated 26-MAR-2008 11:42:43.40

QA Filename : \$DISK1:[ALP171.QA]GROUP\_7\_BKG.QAF;1

## -- Multi-Test Full Report --

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

Parameter Units : cnts/min      Parameter Type : Nuclide

Investigate Level : 2.000000      Action Level : 3.000000

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

Start Date : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000288      Std Deviation : 0.000548

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	
28-FEB-2008 05:10	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	
28-FEB-2008 05:10	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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000230 Std Deviation : 0.000522

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	
28-FEB-2008 05:10	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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000219 Std Deviation : 0.000443

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) Page : 2

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		0.0010	
27-FEB-2008 10:00	bkg		0.0000	
28-FEB-2008 05:10	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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000334      Std Deviation : 0.000604

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		
28-FEB-2008 05:10	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0000		

---

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		
28-FEB-2008 05:10	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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000265      Std Deviation : 0.000539

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		0.0010		
28-FEB-2008 05:10	bkg		0.0000		
5-MAR-2008 07:46	bkg		0.0000		

---

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		0.0010		
28-FEB-2008 05:10	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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000219 Std Deviation : 0.000469

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 06:14	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	
28-FEB-2008 05:10	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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000230 Std Deviation : 0.000450

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		0.0020	Ac
28-FEB-2008 05:10	bkg		0.0010	
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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000253 Std Deviation : 0.000488

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		0.0020	Ac	
28-FEB-2008 05:10	bkg		0.0010		
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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000299 Std Deviation : 0.000531

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 06:14	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		0.0020	Ac	
28-FEB-2008 05:10	bkg		0.0010		
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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000518 Std Deviation : 0.000901

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		0.0000		
27-FEB-2008 10:00	bkg		0.0000		
28-FEB-2008 05:10	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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000276 Std Deviation : 0.000605

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		0.0000		
27-FEB-2008 10:00	bkg		0.0010		
28-FEB-2008 05:10	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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00



Mean : 0.000345 Std Deviation : 0.000697

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 06:14	bkg		0.0000		
9-FEB-2008 06:41	bkg		0.0020	In	
23-FEB-2008 11:07	bkg		0.0000		
27-FEB-2008 10:00	bkg		0.0010		
28-FEB-2008 05:10	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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000345 Std Deviation : 0.000745

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		0.0010		
23-FEB-2008 11:07	bkg		0.0000		
27-FEB-2008 10:00	bkg		0.0010		
28-FEB-2008 05:10	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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000311 Std Deviation : 0.000635

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		0.0010	
28-FEB-2008 05:10	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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000656 Std Deviation : 0.000888

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
4-FEB-2008 06:14	bkg		0.0010	
9-FEB-2008 06:41	bkg		0.0020	
23-FEB-2008 11:07	bkg		0.0020	
27-FEB-2008 10:00	bkg		0.0000	
28-FEB-2008 05:10	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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000667 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		0.0020		
23-FEB-2008 11:07	bkg		0.0030	In	
27-FEB-2008 10:00	bkg		0.0000		
28-FEB-2008 05:10	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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.004303 Std Deviation : 0.007407

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		0.0070		
27-FEB-2008 10:00	bkg		0.0020		
28-FEB-2008 05:10	bkg		0.0020		
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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.006087 Std Deviation : 0.011125

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
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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		0.0030	
27-FEB-2008 10:00	bkg		0.0000	
28-FEB-2008 05:10	bkg		0.0010	
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 : 5-MAY-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.001323      Std Deviation : 0.002597

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	
27-FEB-2008 10:00	bkg		0.0000	
28-FEB-2008 05:10	bkg		0.0030	
5-MAR-2008 07:46	bkg		0.0000	

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
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

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

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		

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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		

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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)

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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		0.0040	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	

-- 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	

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

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

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
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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		0.0030	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
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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
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Quality Assurance Multi-Test Full Report (continued)      Page : 7

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		0.0030		
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		



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

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	



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		

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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		

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-- 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		

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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		

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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		0.0010		
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
-----				
Quality Assurance Multi-Test Full Report (continued)				Page : 5
-----				
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		

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-- 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	

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	

## -- 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

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	

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	

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
4-FEB-2008 06:14 bkg			0.0000	
9-FEB-2008 06:41 bkg			0.0010	
23-FEB-2008 11:07 bkg			0.0010	

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



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
------------------	-----------	----------------	-------	-------------	-----

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
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		

Quality Assurance Multi-Test Full Report (continued)      Page : 7

-- 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		

URANIUM ISOTOPIC  
SAMPLE AND QC DATA

Lot No., Due Date: F8A260145; 02/25/2008  
Client, Site: 1418995; LANDWELL - Tronox Parcel H  
QC Batch No., Method Test: 8030213; RUIISO 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 *John Harte*

Date 2-25-08

## Data Review Checklist

### RADIOCHEMISTRY

#### Second Level Review

Batch Number: 7030213

Review Item	Yes (✓)	No (✓)	NA (✓)
<b>A. Sample Analysis</b>			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery 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?			✓
<b>C. Other</b>			
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: Erika Jrd Date: 2/25/18

2/20/2008 8:57:38 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  
**AnalyDueDate: 02/22/2008** 01 STANDARD TEST SET Sep1 DT/Tm Tech: Sep2 DT/Tm Tech: Prep Tech: .Barcotl

**Batch: 8030213** PM, Quote: JAE, 78254  
 All Tests: BUTE, 8030210 9NS1, 8030211 BUTE, 8030212 BUTF, 8030213 KWSR, 8030214  
 D2S1, 8030216 AXT9, 8042381 D9TE, 8042382 D9TF, 8042387 D9TE, 8042389 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, Int/Date	Comments:
1 KF6EM-1-AA		1.02g.in	UITC19442							
F8A260145-1-SAMP			01/24/08.pd							
01/25/2008 12:10			#Containers: 1							
2 KF6EP-1-AA		1.00g.in	UITC19443							
F8A260145-2-SAMP			01/24/08.pd							
01/25/2008 12:50			#Containers: 1							
3 KF6EQ-1-AA		1.02g.in	UITC19444							
F8A260145-3-SAMP			01/24/08.pd							
01/25/2008 13:00			#Containers: 1							
4 KF6ER-1-AA		1.01g.in	UITC19445							
F8A260145-4-SAMP			01/24/08.pd							
01/25/2008 07:25			#Containers: 1							
5 KF6ET-1-AA		1.02g.in	UITC19446							
F8A260145-5-SAMP			01/24/08.pd							
01/25/2008 07:25			#Containers: 1							
6 KF6EV-1-AA		1.02g.in	UITC19447							
F8A260145-6-SAMP			01/24/08.pd							
01/25/2008 07:45			#Containers: 1							
7 KF6EW-1-AA		1.00g.in	UITC19448							
F8A260145-7-SAMP			01/24/08.pd							
01/25/2008 08:05			#Containers: 1							



2/20/2008 8:58:19 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 #:

AnalysDueDate: 02/22/2008

Sep1 DT/Tm Tech:

Batch: 8030213

PM, Quote: JAE, 78254

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

pCi/L

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, Int/Date	Comments:
8 KF6E0-1-AA F8A260145-8-SAMP 01/25/2008 08:20	1.00g.in	1.00g.in	UITC19449 01:24:08.pd 06:15:01			200				Beta:
9 KF6E1-1-AA F8A260145-9-SAMP 01/25/2008 08:40	1.02g.in	1.02g.in	UITC19450 01:24:08.pd 06:15:01							Beta:
10 KF6E2-1-AA F8A260145-10-SAMP 01/25/2008 08:55	1.03g.in	1.03g.in	UITC19451 01:24:08.pd 06:15:01							Beta:
11 KF6E2-1-AE-X F8A260145-10-DUP 01/25/2008 08:55	1.03g.in	1.03g.in	UITC19452 01:24:08.pd 06:15:01							Beta:
12 KF6E5-1-AA F8A260145-11-SAMP 01/25/2008 09:45	1.01g.in	1.01g.in	UITC19453 01:24:08.pd 06:15:01							Beta:
13 KF6FA-1-AA F8A260145-12-SAMP 01/25/2008 10:00	1.00g.in	1.00g.in	UITC19454 01:24:08.pd 06:15:01							Beta:
14 KF6FD-1-AA F8A260145-13-SAMP 01/25/2008 10:30	1.03g.in	1.03g.in	UITC19455 01:24:08.pd 06:15:01							Beta:

2/20/2008 8:58:19 AM  
 1418995, Landwell Company  
 Landwell Company  
 KW Uiso PrpRC5013/5032/5086 SepRC5067(5039)  
 SR Uranium-234,235,238 by Alpha Spec  
 01 STANDARD TEST SET  
 AnalyDueDate: 02/22/2008  
 Batch: 8030213  
 SEO Batch, Test: None

Balance Id:1120373922  
 Pipet #: \_\_\_\_\_  
 Sep1 DT/Tm Tech: \_\_\_\_\_  
 Sep2 DT/Tm Tech: \_\_\_\_\_  
 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:
15 KF6FF-1-AA F8A260145-14-SAMP 01/25/2008 10:40		0.99g.in	UJTC19456 01/24/08.pd			200				Beta
16 KF6FJ-1-AA F8A260145-15-SAMP 01/25/2008 10:40		1.01g.in	UJTC19457 01/24/08.pd							Beta
17 KF6FK-1-AA F8A260145-16-SAMP 01/25/2008 11:30		1.01g.in	UJTC19458 01/24/08.pd							Beta
18 KF6FL-1-AA F8A260145-17-SAMP 01/25/2008 11:37		1.02g.in	UJTC19459 01/24/08.pd							Beta
19 KF6FM-1-AA F8A260145-18-SAMP 01/25/2008 11:50		1.01g.in	UJTC19460 01/24/08.pd							Beta
20 KF6FM-1-AE-X F8A260145-18-DUP 01/25/2008 11:50		1.02g.in	UJTC19461 01/24/08.pd							Beta
21 KGAFX-1-AA-B J8A300000-213-BLK 01/25/2008 12:10		1.01g.in	UJTC19462 01/24/08.pd							Beta

2/20/2008 8:58:20 AM

### Sample Preparation/Analysis

Balance Id:1120373922

KW Uiso PrpRC5013/5032/5086 SepRC5067(5039)  
SR Uranium-234,235,238 by Alpha Spec

Pipet #:

AnalyseDate: 02/22/2008

01 STANDARD TEST SET

Sep1 DT/Tm Tech:

Batch: 8030213 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:
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22 KGAFX-1-ACC

1.03g.in

UISG1602

J8A300000-213-LCS

01/24/08,pd



200

01/25/2008 12:10

Amt/Rec

#Containers: 1

Scr:

Alpha:

Beta:

### Comments:

All Clients for Batch:

1418995, Landwell Company

Landwell Company

JAE, 78254

### KF6EM1AA-SAMP Constituent List:

KGAFX1AA-BLK:

U-232 RDL: PCI/L LCL:20

U-235 RDL:1.00E+00 PCI/L LCL:

RDL: PCI/L

RDL:1.00E+00 RPD:35

UCL:115

UCL: RPD:

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

KF6EM1AA-SAMP Calc Info:

Uncert Level (#s): 4

Decay to SaDt: N

Blk Subt.: N

Sci.Not.: N

ODRs: B

KGAFX1AA-BLK:

U-232 RDL: PCI/L LCL:20

U-235 RDL:1.00E+00 PCI/L LCL:

RDL: PCI/L

RDL:1.00E+00 RPD:35

UCL:115

UCL: RPD:

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

UCL:115

UCL: RPD:35

Approved By

Date:

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 4

ISV - Insufficient Volume for Analysis

WO Cnt: 22

Prep...SamplePrep v4.8.32

# ICOC Fraction Transfer/Status Report

ByDate: 2/25/2007, 3/1/2008, Batch: '8030213', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
8030213				
AC	Rev1C	Barcotl	2/20/2008 8:55:25	
SC		wagarr	IsBatched	1/30/2008 12:05:38 PM
SC		Barcotl	InPrep	2/20/2008 8:55:25 AM
SC		Barcotl	Prep1C	2/20/2008 8:55:44 AM
SC		Barcotl	InPrep2	2/20/2008 8:56:03 AM
SC		Barcotl	Prep2C	2/20/2008 8:56:41 AM
SC		AshworthA	Sep1C	2/21/2008 1:42:53 PM
SC		AshworthA	Sep2C	2/22/2008 12:00:14 PM
SC		BlackCL	CalcC	2/25/2008 8:28:33 AM
SC		nortonj	Rev1C	2/25/2008 10:51:17 AM
AC		Barcotl	2/20/2008 8:55:44	ICOC_RADCALC v4.8.32
AC		Barcotl	2/20/2008 8:56:03	RICH-RC-5032 REVISION 3
AC		Barcotl	2/20/2008 8:56:41	RICH-RC-5032 REVISION 3
AC		AshworthA	2/21/2008 1:42:53 PM	RICH-RC-5086 REVISION 3
AC		AshworthA	2/22/2008 12:00:14	RICH-RC-5086 REVISION 3
AC		BlackCL	2/25/2008 8:28:33	RICH-RC-5067 REV8
AC		nortonj	2/25/2008 10:51:17	RICH-RC-5039 REV5
				RICH-RD-0008 REVISION 4
				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	Received Date	Sample Date	Expected Yield	Volumes
					Cnt Uncert	Tot uncert	mgg	Units	
<b>8030213</b>	<b>9KF6E010</b>		<b>F8A2601458</b>	TSB-HR-03-10'	SOLID	1/26/2008 10:15:00	1/25/2008 8:20:00 AM		
U-234	KWSR	0	2/22/2008 2:21:12 PM	3.3576E+00	1.395E-01	3.106E-01	2.778E-02	PCI/G	1.025
U-235	KWSR	0	2/22/2008 2:21:12 PM	6.9587E-02	2.012E-02	2.093E-02	2.778E-02	PCI/G	1.025
U-238	KWSR	0	2/22/2008 2:21:12 PM	2.6037E+00	1.229E-01	2.478E-01	2.778E-02	PCI/G	1.025
<b>8030213</b>	<b>9KF6E110</b>		<b>F8A2601459</b>	TSB-HJ-02-0'	SOLID	1/26/2008 10:15:00	1/25/2008 8:40:00 AM		
U-234	KWSR	0	2/22/2008 2:21:29 PM	9.8107E-01	7.856E-02	1.135E-01	3.012E-02	PCI/G	0.928
U-235	KWSR	0	2/22/2008 2:21:29 PM	3.7734E-02	1.546E-02	1.577E-02	3.012E-02	PCI/G	0.928
U-238	KWSR	0	2/22/2008 2:21:29 PM	1.1131E+00	8.368E-02	1.251E-01	3.012E-02	PCI/G	0.928
<b>8030213</b>	<b>9KF6E210</b>		<b>F8A26014510</b>	TSB-HJ-02-10'	SOLID	1/26/2008 10:15:00	1/25/2008 8:55:00 AM		
U-234	KWSR	0	2/22/2008 2:21:45 PM	2.1117E+00	1.133E-01	2.091E-01	2.908E-02	PCI/G	1.001
U-235	KWSR	0	2/22/2008 2:21:45 PM	6.0715E-02	1.924E-02	1.989E-02	2.908E-02	PCI/G	1.001
U-238	KWSR	0	2/22/2008 2:21:45 PM	1.5519E+00	9.716E-02	1.616E-01	3.431E-02	PCI/G	1.001
<b>8030213</b>	<b>9KF6E510</b>		<b>F8A26014511</b>	TSB-HR-02-0'	SOLID	1/26/2008 10:15:00	1/25/2008 9:45:00 AM		
U-234	KWSR	0	2/22/2008 2:22:10 PM	1.105E+00	8.215E-02	1.233E-01	2.924E-02	PCI/G	0.953
U-235	KWSR	0	2/22/2008 2:22:10 PM	4.2736E-02	1.62E-02	1.658E-02	2.924E-02	PCI/G	0.953
U-238	KWSR	0	2/22/2008 2:22:10 PM	1.1478E+00	8.372E-02	1.27E-01	2.924E-02	PCI/G	0.953
<b>8030213</b>	<b>9KF6EM10</b>		<b>F8A2601451</b>	TSB-HJ-01-10'	SOLID	1/26/2008 10:15:00	1/25/2008 12:10:00 PM		
U-234	KWSR	0	2/22/2008 2:19:11 PM	1.6921E+00	1.015E-01	1.736E-01	3.432E-02	PCI/G	0.953
U-235	KWSR	0	2/22/2008 2:19:11 PM	8.5031E-02	2.276E-02	2.383E-02	2.909E-02	PCI/G	0.953
U-238	KWSR	0	2/22/2008 2:19:11 PM	1.6144E+00	9.907E-02	1.669E-01	2.909E-02	PCI/G	0.953
<b>8030213</b>	<b>9KF6EP10</b>		<b>F8A2601452</b>	TSB-HJ-09-0'	SOLID	1/26/2008 10:15:00	1/25/2008 12:50:00 PM		
U-234	KWSR	0	2/22/2008 2:19:29 PM	1.014E+00	7.967E-02	1.162E-01	2.998E-02	PCI/G	1.008
U-235	KWSR	0	2/22/2008 2:19:29 PM	1.1266E-02	8.94E-03	8.989E-03	2.998E-02	PCI/G	1.008
U-238	KWSR	0	2/22/2008 2:19:29 PM	1.0515E+00	8.114E-02	1.194E-01	2.998E-02	PCI/G	1.008
<b>8030213</b>	<b>9KF6EQ10</b>		<b>F8A2601453</b>	TSB-HJ-09-10'	SOLID	1/26/2008 10:15:00	1/25/2008 1:00:00 PM		
U-234	KWSR	0	2/22/2008 2:19:42 PM	2.6374E+00	1.285E-01	2.55E-01	4.291E-02	PCI/G	0.94
U-235	KWSR	0	2/22/2008 2:19:42 PM	9.9949E-02	2.502E-02	2.637E-02	2.992E-02	PCI/G	0.94
U-238	KWSR	0	2/22/2008 2:19:42 PM	2.3663E+00	1.218E-01	2.321E-01	4.875E-02	PCI/G	0.94
<b>8030213</b>	<b>9KF6ER10</b>		<b>F8A2601454</b>	TSB-HJ-03-0'	SOLID	1/26/2008 10:15:00	1/25/2008 7:25:00 AM		
U-234	KWSR	0	2/22/2008 2:19:58 PM	1.1651E+00	8.547E-02	1.295E-01	4.586E-02	PCI/G	0.951
U-235	KWSR	0	2/22/2008 2:19:58 PM	2.9906E-02	1.399E-02	1.421E-02	2.984E-02	PCI/G	0.951
U-238	KWSR	0	2/22/2008 2:19:58 PM	9.7568E-01	7.809E-02	1.128E-01	3.521E-02	PCI/G	0.951
<b>8030213</b>	<b>9KF6ET10</b>		<b>F8A2601455</b>	TSB-HJ-03-0' FD	SOLID	1/26/2008 10:15:00	1/25/2008 7:25:00 AM		
U-234	KWSR	0	2/22/2008 2:20:15 PM	9.8954E-01	7.584E-02	1.117E-01	3.971E-02	PCI/G	0.924
U-235	KWSR	0	2/22/2008 2:20:15 PM	6.2424E-02	1.92E-02	1.989E-02	2.769E-02	PCI/G	0.924
U-238	KWSR	0	2/22/2008 2:20:15 PM	1.0635E+00	7.866E-02	1.181E-01	4.255E-02	PCI/G	0.924
<b>8030213</b>	<b>9KF6EV10</b>		<b>F8A2601456</b>	TSB-HJ-03-10'	SOLID	1/26/2008 10:15:00	1/25/2008 7:45:00 AM		
U-234	KWSR	0	2/22/2008 2:20:30 PM	1.5931E+00	1.002E-01	1.665E-01	3.016E-02	PCI/G	0.916
U-235	KWSR	0	2/22/2008 2:20:30 PM	3.0225E-02	1.414E-02	1.436E-02	3.016E-02	PCI/G	0.916
U-238	KWSR	0	2/22/2008 2:20:30 PM	1.3274E+00	9.148E-02	1.437E-01	3.016E-02	PCI/G	0.916
<b>8030213</b>	<b>9KF6EW10</b>		<b>F8A2601457</b>	TSB-HR-03-0'	SOLID	1/26/2008 10:15:00	1/25/2008 8:05:00 AM		
U-234	KWSR	0	2/22/2008 2:20:42 PM	1.0882E+00	8.213E-02	1.223E-01	2.965E-02	PCI/G	0.974
U-235	KWSR	0	2/22/2008 2:20:42 PM	4.2093E-02	1.642E-02	1.679E-02	2.965E-02	PCI/G	0.974
U-238	KWSR	0	2/22/2008 2:20:42 PM	9.5824E-01	7.708E-02	1.11E-01	2.965E-02	PCI/G	0.974
<b>8030213</b>	<b>9KF6FA10</b>		<b>F8A26014512</b>	TSB-HR-02-10'	SOLID	1/26/2008 10:15:00	1/25/2008 10:00:00 AM		
U-234	KWSR	0	2/22/2008 2:23:12 PM	3.5173E+00	1.469E-01	3.276E-01	3.058E-02	PCI/G	0.93
U-235	KWSR	0	2/22/2008 2:23:12 PM	1.589E-01	3.126E-02	3.395E-02	2.468E-02	PCI/G	0.93
U-238	KWSR	0	2/22/2008 2:23:12 PM	2.5666E+00	1.255E-01	2.478E-01	3.274E-02	PCI/G	0.93
<b>8030213</b>	<b>9KF6FD10</b>		<b>F8A26014513</b>	TSB-HJ-11-0'	SOLID	1/26/2008 10:15:00	1/25/2008 10:30:00 AM		
U-234	KWSR	0	2/22/2008 2:23:29 PM	1.2867E+00	9.001E-02	1.403E-01	3.358E-02	PCI/G	0.959
U-235	KWSR	0	2/22/2008 2:23:29 PM	5.6075E-02	1.887E-02	1.944E-02	2.531E-02	PCI/G	0.959
U-238	KWSR	0	2/22/2008 2:23:29 PM	1.1673E+00	8.574E-02	1.299E-01	3.358E-02	PCI/G	0.959

8030213, \*\*Samples Inserted | Updated | NotUpdated =&gt; 22 | 0 | 0,

\*\*Results Inserted | ReTestInserted | Updated | NotInserted =&gt; 65 | 0 | 0 | 0.

\*\*Diff RptDb | Qtimes =&gt; \*wo:KF6E01AA=&gt;, unt:PCI/G | pCi/L \*wo:KF6E01AA=&gt;, unt:PCI/G | pCi/L \*wo:KF6E11AA=&gt;, unt:PCI/G | pCi/L \*wo:KF6E11AA=&gt;, unt:PCI/G | pCi/L \*wo:KF6E21AA=&gt;, unt:PCI/G | pCi/L \*wo:KF6E21AA=&gt;, unt:PCI/G | pCi/L \*wo:KF6E21AA=&gt;, unt:PCI/G | pCi/L

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
8030213	9KF6FF10		F8A26014514	TSB-HJ-11-10'	SOLID	1/26/2008 10:15:00	1/25/2008 10:40:00 AM			
U-234	KWSR	0	2/22/2008 2:23:43 PM	2.6778E+00	1.356E-01	2.619E-01	2.765E-02	PCI/G	1.057	9.9E-1
U-235	KWSR	0	2/22/2008 2:23:43 PM	1.0988E-01	2.748E-02	2.897E-02	2.765E-02	PCI/G	1.057	9.9E-1
U-238	KWSR	0	2/22/2008 2:23:43 PM	1.7919E+00	1.11E-01	1.865E-01	2.765E-02	PCI/G	1.057	9.9E-1
8030213	9KF6FJ10		F8A26014515	TSB-HJ-11-10' FD	SOLID	1/26/2008 10:15:00	1/25/2008 10:40:00 AM			
U-234	KWSR	0	2/22/2008 2:23:57 PM	1.3584E+00	1.087E-01	1.601E-01	4.902E-02	PCI/G	1.014	1.01E+0
U-235	KWSR	0	2/22/2008 2:23:57 PM	1.6655E-02	1.229E-02	1.237E-02	3.492E-02	PCI/G	1.014	1.01E+0
U-238	KWSR	0	2/22/2008 2:23:57 PM	1.3005E+00	1.062E-01	1.548E-01	3.492E-02	PCI/G	1.014	1.01E+0
8030213	9KF6FK10		F8A26014516	TSB-HR-01-0'	SOLID	1/26/2008 10:15:00	1/25/2008 11:30:00 AM			
U-234	KWSR	0	2/22/2008 2:24:09 PM	9.8332E-01	8.003E-02	1.143E-01	3.119E-02	PCI/G	1.1	1.01E+0
U-235	KWSR	0	2/22/2008 2:24:09 PM	2.4746E-02	1.309E-02	1.325E-02	3.119E-02	PCI/G	1.1	1.01E+0
U-238	KWSR	0	2/22/2008 2:24:09 PM	8.3875E-01	7.397E-02	1.016E-01	3.119E-02	PCI/G	1.1	1.01E+0
8030213	9KF6FL10		F8A26014517	TSB-HR-01-10'	SOLID	1/26/2008 10:15:00	1/25/2008 11:37:00 AM			
U-234	KWSR	0	2/25/2008 6:17:05 AM	2.2548E+00	1.15E-01	2.196E-01	2.923E-02	PCI/G	0.954	1.02E+0
U-235	KWSR	0	2/25/2008 6:17:05 AM	5.7197E-02	1.855E-02	1.915E-02	2.923E-02	PCI/G	0.954	1.02E+0
U-238	KWSR	0	2/25/2008 6:17:05 AM	1.7855E+00	1.024E-01	1.801E-01	3.13E-02	PCI/G	0.954	1.02E+0
8030213	9KF6FM10		F8A26014518	TSB-HJ-01-0'	SOLID	1/26/2008 10:15:00	1/25/2008 11:50:00 AM			
U-234	KWSR	0	2/25/2008 6:17:14 AM	1.0488E+00	8.036E-02	1.185E-01	3.282E-02	PCI/G	1.04	1.01E+0
U-235	KWSR	0	2/25/2008 6:17:14 AM	2.4086E-02	1.23E-02	1.246E-02	2.474E-02	PCI/G	1.04	1.01E+0
U-238	KWSR	0	2/25/2008 6:17:14 AM	1.0918E+00	8.198E-02	1.222E-01	3.282E-02	PCI/G	1.04	1.01E+0
8030213	KF6E21ER		F8A26014510	TSB-HJ-02-10' DUP	SOLID	1/26/2008 10:15:00	1/25/2008 8:55:00 AM			
U-234	KWSR	0 R	2/22/2008 2:21:55 PM	2.1344E+00	1.119E-01	2.096E-01	2.808E-02	PCI/G	0.914	1.03E+0
U-235	KWSR	0 R	2/22/2008 2:21:55 PM	1.032E-01	2.493E-02	2.636E-02	3.313E-02	PCI/G	0.914	1.03E+0
U-238	KWSR	0 R	2/22/2008 2:21:55 PM	1.6465E+00	9.83E-02	1.684E-01	2.808E-02	PCI/G	0.914	1.03E+0
8030213	KF6FM1ER		F8A26014518	TSB-HJ-01-0' DUP	SOLID	1/26/2008 10:15:00	1/25/2008 11:50:00 AM			
U-234	KWSR	0 R	2/25/2008 6:17:27 AM	9.6779E-01	8.07E-02	1.146E-01	2.707E-02	PCI/G	0.991	1.02E+0
U-235	KWSR	0 R	2/25/2008 6:17:27 AM	4.0347E-02	1.648E-02	1.683E-02	2.707E-02	PCI/G	0.991	1.02E+0
U-238	KWSR	0 R	2/25/2008 6:17:27 AM	1.0687E+00	8.479E-02	1.236E-01	2.707E-02	PCI/G	0.991	1.02E+0
8030213	KGAFX1AB		J8A300000213	INTRA-LAB BLANK	SOLID	1/26/2008 10:15:00	1/25/2008 12:10:00 PM			
U-234	KWSR	0 B	2/25/2008 6:17:31 AM	1.3356E-02	1.255E-02	1.26E-02	5.213E-02	PCI/G	0.987	1.01E+0
U-235	KWSR	0 B	2/25/2008 6:17:31 AM	1.6873E-02	1.245E-02	1.253E-02	3.538E-02	PCI/G	0.987	1.01E+0
U-238	KWSR	0 B	2/25/2008 6:17:31 AM	2.4958E-02	1.525E-02	1.541E-02	4.017E-02	PCI/G	0.987	1.01E+0
8030213	KGAFX1CS		J8A300000213	INTRA-LAB CHECK	SOLID	1/26/2008 10:15:00	1/25/2008 12:10:00 PM			
U-234	KWSR	0 S	2/25/2008 6:17:39 AM	1.593E+00	1.454E-01	2.072E-01	6.359E-02	PCI/G	1.6756E+00	0.481
U-238	KWSR	0 S	2/25/2008 6:17:39 AM	1.8426E+00	1.565E-01	2.316E-01	6.359E-02	PCI/G	1.7548E+00	0.481

8030213, \*\*Samples Inserted | Updated | NotUpdated => 22 | 0 | 0,

\*\*Results Inserted | ReTestInserted | Updated | NotInserted => 65 | 0 | 0 | 0.

\*\*Diff RptDb | Qtimes => \*wo:KF6E01AA=>, unt:PCI/G | pCi/L \*wo:KF6E01AA=>, unt:PCI/G | pCi/L \*wo:KF6E11AA=>, unt:PCI/G | pCi/L

\*wo:KF6E11AA=>, unt:PCI/G | pCi/L \*wo:KF6E21AA=>, unt:PCI/G | pCi/L \*wo:KF6E21AA=>, unt:PCI/G | pCi/L \*wo:KF6E21AE=>, unt:PCI/G

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	KF6EM1AA	U-234	1.69E+00	(1.74E-01)		PCI/G	R	8.94E-03	3.43E-02					95%
Calc	SR	SOLID	KF6EM1AA	U-235	8.50E-02	(2.38E-02)		PCI/G	R	6.32E-03	2.91E-02					95%
Calc	SR	SOLID	KF6EM1AA	U-238	1.61E+00	(1.67E-01)		PCI/G	R	6.32E-03	2.91E-02					95%
Calc	SR	SOLID	KF6EP1AA	U-234	1.01E+00	(1.16E-01)		PCI/G	R	6.51E-03	3.00E-02					101%
Calc	SR	SOLID	KF6EP1AA	U-235	1.13E-02	(8.99E-03)	U4	PCI/G	R	6.51E-03	3.00E-02					101%
Calc	SR	SOLID	KF6EP1AA	U-238	1.05E+00	(1.19E-01)		PCI/G	R	6.51E-03	3.00E-02					101%
Calc	SR	SOLID	KF6EQ1AA	U-234	2.64E+00	(2.55E-01)		PCI/G	R	1.30E-02	4.29E-02					94%
Calc	SR	SOLID	KF6EQ1AA	U-235	9.99E-02	(2.64E-02)		PCI/G	R	6.50E-03	2.99E-02					94%
Calc	SR	SOLID	KF6EQ1AA	U-238	2.37E+00	(2.32E-01)		PCI/G	R	1.59E-02	4.88E-02					94%
Calc	SR	SOLID	KF6ER1AA	U-234	1.17E+00	(1.29E-01)		PCI/G	R	1.45E-02	4.59E-02					95%
Calc	SR	SOLID	KF6ER1AA	U-235	2.99E-02	(1.42E-02)		PCI/G	R	6.48E-03	2.98E-02					95%
Calc	SR	SOLID	KF6ER1AA	U-238	9.76E-01	(1.13E-01)		PCI/G	R	9.17E-03	3.52E-02					95%
Calc	SR	SOLID	KF6ET1AA	U-234	9.90E-01	(1.12E-01)		PCI/G	R	1.20E-02	3.97E-02					92%
Calc	SR	SOLID	KF6ET1AA	U-235	6.24E-02	(1.99E-02)		PCI/G	R	6.01E-03	2.77E-02					92%
Calc	SR	SOLID	KF6ET1AA	U-238	1.06E+00	(1.18E-01)		PCI/G	R	1.34E-02	4.25E-02					92%
Calc	SR	SOLID	KF6EV1AA	U-234	1.59E+00	(1.67E-01)		PCI/G	R	6.55E-03	3.02E-02					92%
Calc	SR	SOLID	KF6EV1AA	U-235	3.02E-02	(1.44E-02)		PCI/G	R	6.55E-03	3.02E-02					92%
Calc	SR	SOLID	KF6EV1AA	U-238	1.33E+00	(1.44E-01)		PCI/G	R	6.55E-03	3.02E-02					92%
Calc	SR	SOLID	KF6EW1AA	U-234	1.09E+00	(1.22E-01)		PCI/G	R	6.44E-03	2.96E-02					97%
Calc	SR	SOLID	KF6EW1AA	U-235	4.21E-02	(1.68E-02)		PCI/G	R	6.44E-03	2.96E-02					97%
Calc	SR	SOLID	KF6EW1AA	U-238	9.58E-01	(1.11E-01)		PCI/G	R	6.44E-03	2.96E-02					97%
Calc	SR	SOLID	KF6E01AA	U-234	3.36E+00	(3.11E-01)		PCI/G	R	6.03E-03	2.78E-02					103%
Calc	SR	SOLID	KF6E01AA	U-235	6.96E-02	(2.09E-02)		PCI/G	R	6.03E-03	2.78E-02					103%
Calc	SR	SOLID	KF6E01AA	U-238	2.60E+00	(2.48E-01)		PCI/G	R	6.03E-03	2.78E-02					103%
Calc	SR	SOLID	KF6E11AA	U-234	9.81E-01	(1.14E-01)		PCI/G	R	6.54E-03	3.01E-02					93%
Calc	SR	SOLID	KF6E11AA	U-235	3.77E-02	(1.58E-02)		PCI/G	R	6.54E-03	3.01E-02					93%
Calc	SR	SOLID	KF6E11AA	U-238	1.11E+00	(1.25E-01)		PCI/G	R	6.54E-03	3.01E-02					93%
Calc	SR	SOLID	KF6E21AA	U-234	2.11E+00	(2.09E-01)		PCI/G	R	6.32E-03	2.91E-02					100%
Calc	SR	SOLID	KF6E21AA	U-235	6.07E-02	(1.99E-02)		PCI/G	R	6.32E-03	2.91E-02					100%
Calc	SR	SOLID	KF6E21AA	U-238	1.55E+00	(1.62E-01)		PCI/G	R	8.93E-03	3.43E-02					100%
Calc	SR	SOLID	KF6E21AE	U-234	2.13E+00	(2.10E-01)		PCI/G	R	6.10E-03	2.81E-02					91%
Calc	SR	SOLID	KF6E21AE	U-235	1.03E-01	(2.64E-02)		PCI/G	R	8.63E-03	3.31E-02					91%
Calc	SR	SOLID	KF6E21AE	U-238	1.65E+00	(1.68E-01)		PCI/G	R	6.10E-03	2.81E-02					91%
Calc	SR	SOLID	KF6E51AA	U-234	1.11E+00	(1.23E-01)		PCI/G	R	6.35E-03	2.92E-02					95%
Calc	SR	SOLID	KF6E51AA	U-235	4.27E-02	(1.66E-02)		PCI/G	R	6.35E-03	2.92E-02					95%

( ) - (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	KF6E51AA	U-238	1.15E+00	(1.27E-01)		PCI/G	R	6.35E-03	2.92E-02	95%	
Calc	SR	SOLID	KF6FA1AA	U-234	3.52E+00	(3.28E-01)		PCI/G	R	6.99E-03	3.06E-02	93%	
Calc	SR	SOLID	KF6FA1AA	U-235	1.59E-01	(3.39E-02)		PCI/G	R	4.04E-03	2.47E-02	93%	
Calc	SR	SOLID	KF6FA1AA	U-238	2.57E+00	(2.48E-01)		PCI/G	R	8.07E-03	3.27E-02	93%	
Calc	SR	SOLID	KF6FD1AA	U-234	1.29E+00	(1.40E-01)		PCI/G	R	8.27E-03	3.36E-02	96%	
Calc	SR	SOLID	KF6FD1AA	U-235	5.61E-02	(1.94E-02)		PCI/G	R	4.14E-03	2.53E-02	96%	
Calc	SR	SOLID	KF6FD1AA	U-238	1.17E+00	(1.30E-01)		PCI/G	R	8.27E-03	3.36E-02	96%	
Calc	SR	SOLID	KF6FF1AA	U-234	2.68E+00	(2.62E-01)		PCI/G	R	4.52E-03	2.76E-02	106%	
Calc	SR	SOLID	KF6FF1AA	U-235	1.10E-01	(2.90E-02)		PCI/G	R	4.52E-03	2.76E-02	106%	
Calc	SR	SOLID	KF6FF1AA	U-238	1.79E+00	(1.86E-01)		PCI/G	R	4.52E-03	2.76E-02	106%	
Calc	SR	SOLID	KF6FJ1AA	U-234	1.36E+00	(1.60E-01)		PCI/G	R	1.28E-02	4.90E-02	101%	
Calc	SR	SOLID	KF6FJ1AA	U-235	1.67E-02	(1.24E-02)	U4	PCI/G	R	5.71E-03	3.49E-02	101%	
Calc	SR	SOLID	KF6FJ1AA	U-238	1.30E+00	(1.55E-01)		PCI/G	R	5.71E-03	3.49E-02	101%	
Calc	SR	SOLID	KF6FK1AA	U-234	9.83E-01	(1.14E-01)		PCI/G	R	6.78E-03	3.12E-02	110%	
Calc	SR	SOLID	KF6FK1AA	U-235	2.47E-02	(1.32E-02)		PCI/G	R	6.78E-03	3.12E-02	110%	
Calc	SR	SOLID	KF6FK1AA	U-238	8.39E-01	(1.02E-01)		PCI/G	R	6.78E-03	3.12E-02	110%	
Calc	SR	SOLID	KF6FL1AA	U-234	2.25E+00	(2.20E-01)		PCI/G	R	6.68E-03	2.92E-02	95%	
Calc	SR	SOLID	KF6FL1AA	U-235	5.72E-02	(1.91E-02)		PCI/G	R	6.68E-03	2.92E-02	95%	
Calc	SR	SOLID	KF6FL1AA	U-238	1.79E+00	(1.80E-01)		PCI/G	R	7.71E-03	3.13E-02	95%	
Calc	SR	SOLID	KF6FM1AA	U-234	1.05E+00	(1.18E-01)		PCI/G	R	8.09E-03	3.28E-02	104%	
Calc	SR	SOLID	KF6FM1AA	U-235	2.41E-02	(1.25E-02)		PCI/G	R	4.04E-03	2.47E-02	104%	
Calc	SR	SOLID	KF6FM1AA	U-238	1.09E+00	(1.22E-01)		PCI/G	R	8.09E-03	3.28E-02	104%	
Calc	SR	SOLID	KF6FM1AE	U-234	9.68E-01	(1.15E-01)		PCI/G	R	4.43E-03	2.71E-02	R	99%
Calc	SR	SOLID	KF6FM1AE	U-235	4.03E-02	(1.68E-02)		PCI/G	R	4.43E-03	2.71E-02	R	99%
Calc	SR	SOLID	KF6FM1AE	U-238	1.07E+00	(1.24E-01)		PCI/G	R	4.43E-03	2.71E-02	R	99%
Calc	SR	SOLID	KGAFX1AA	U-234	1.34E-02	(1.26E-02)	U4	PCI/G	R	1.42E-02	5.21E-02	B	99%
Calc	SR	SOLID	KGAFX1AA	U-235	1.69E-02	(1.25E-02)	U4	PCI/G	R	5.78E-03	3.54E-02	B	99%
Calc	SR	SOLID	KGAFX1AA	U-238	2.50E-02	(1.54E-02)	U4	PCI/G	R	8.18E-03	4.02E-02	B	99%
Calc	SR	SOLID	KGAFX1AC	U-234	1.59E+00	(2.07E-01)		PCI/G	R	1.38E-02	6.36E-02	S	48%
Calc	SR	SOLID	KGAFX1AC	U-235	1.04E-01	(3.88E-02)		PCI/G	R	1.38E-02	6.36E-02	S	48%
Calc	SR	SOLID	KGAFX1AC	U-238	1.84E+00	(2.32E-01)		PCI/G	R	1.38E-02	6.36E-02	S	48%

( ) - (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



Sq	Calc SR	SOLID	STLE	AlpIsoWoBS	KF6EP1AA	PCI/G	SOLID	FBA260145-1	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	02/22/08 12:39	U-232	734	12	ALP1	ED	Y	N	3.8124E-01	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	UITC:19442	Alq	1.02 g				
0	02/22/08 12:39	U-234	200.05	1000.1833	ALP1	ED	Y	N	(1.144E-02)	95%	N	(0.000E+00)	0.980392	1.0000E+00							
1	02/22/08 12:39	U-234	279	2	ALP1	ED	N	N	3.8124E-01	5%	N	(0.000E+00)	0.980392	1.0000E+00							
2	02/22/08 12:39	U-235	200.05	1000.1833	ALP1	ED	Y	N	(1.144E-02)	95%	N	(0.000E+00)	0.980392	1.0000E+00							
0	02/22/08 12:39	U-235	14	0	ALP1	ED	N	N	3.8124E-01	5%	N	(0.000E+00)	0.980392	1.0000E+00							
3	02/22/08 12:39	U-238	266	1	ALP1	ED	N	N	3.8124E-01	5%	N	(0.000E+00)	0.980392	1.0000E+00							
0	02/22/08 12:39	U-238	200.05	1000.1833	ALP1	ED	Y	N	(1.144E-02)	95%	N	(0.000E+00)	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	Trc Yld	EnFct	LCSYld,EFctU	IDC/ILcC	BIKlCc/MDC	StdDvMdc/LcC			
02/25/08	4.443E+00	U-232	R	4.236232			3.65708E+00	9.592534	9.592534	1.02 G	95%	(0.017321)	0.034322	0.008937							
02/25/08	4.443E+00	U-234	R	1.692117			1.39265E+00	3.831633	3.831633	1.02 G	95%	(0.017321)	0.02909	0.006319							
02/25/08	4.443E+00	U-235	R	0.085031			6.99825E-02	0.192544	0.192544	1.02 G	95%	(0.017321)	0.02909	0.006319							
02/25/08	4.443E+00	U-238	R	1.614374			1.32867E+00	3.655593	3.655593	1.02 G	95%	(0.017321)	0.02909	0.006319							

Alpha Spec, Uiso by ALP

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFcU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC
02/25/08	U-232		R	4.551549		3.63600E+00	10.104449	10.104449	1.00 G	101%				
	4.517E+00			(0.324455)		(1.3514E-01)	(0.482638)	(0.482638)	(0.017321)					
02/25/08	U-234		R	1.013959		8.10000E-01	2.25099	2.25099	1.00 G	101%				
	4.517E+00			(0.11616)		(6.3647E-02)	(0.228718)	(0.228718)	(0.017321)					
02/25/08	U-235		R	0.011266	U4	9.00012E-03	0.025011	0.025011	1.00 G	101%				
	4.517E+00			(0.008989)		(7.1414E-03)	(0.019911)	(0.019911)	(0.017321)					
02/25/08	U-238		R	1.051512		8.40000E-01	2.33436	2.33436	1.00 G	101%				
	4.517E+00			(0.119445)		(6.4815E-02)	(0.234641)	(0.234641)	(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	SR	SOLID	*STLE	AlpisoWoBS	KF6EQ1AA	PCI/G	SOLID	01/25/08	13:00	02/22/08	14:19	UITC19444	Alq	1.02 g	
0	02/22/08	12:39	U-232		711	9	ALP3	ED	Y	N	3.7580E-01	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
					200.0833333	1000.0666			Y		(1.127E-02)			(0.000E+00)	0.980392	
1	02/22/08	12:39	U-234		423	4	ALP3	ED	N	N	3.7580E-01	94%	N	1.0000E+00	4.5045E-01	1.0000E+00
					200.0833333	1000.0666			Y		(1.127E-02)			(0.000E+00)	0.980392	
2	02/22/08	12:39	U-235		16	0	ALP3	ED	N	N	3.7580E-01	94%	N	1.0000E+00	4.5045E-01	1.0000E+00
					200.0833333	1000.0666			Y		(1.127E-02)			(0.000E+00)	0.980392	
3	02/22/08	12:39	U-238		380	6	ALP3	ED	N	N	3.7580E-01	94%	N	1.0000E+00	4.5045E-01	1.0000E+00
					200.0833333	1000.0666			Y		(1.127E-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,EFcU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC
02/25/08	U-232		R	4.165323		3.54452E+00	9.431968	9.431968	1.02 G	94%				
	4.430E+00			(0.297542)		(1.3330E-01)	(0.453749)	(0.453749)	(0.017321)					
02/25/08	U-234		R	2.637397		2.11012E+00	5.972127	5.972127	1.02 G	94%				
	4.430E+00			(0.254954)		(1.0281E-01)	(0.483577)	(0.483577)	(0.017321)					
02/25/08	U-235		R	0.099949		7.99667E-02	0.226324	0.226324	1.02 G	94%				
	4.430E+00			(0.026373)		(2.0017E-02)	(0.058512)	(0.058512)	(0.017321)					
02/25/08	U-238		R	2.366285		1.89321E+00	5.35822	5.35822	1.02 G	94%				
	4.430E+00			(0.2321)		(9.7458E-02)	(0.442906)	(0.442906)	(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	SR	SOLID	*STLE	AlpisoWoBS	KF6ER1AA	PCI/G	SOLID	01/25/08	07:25	02/22/08	14:19	UITC19444	Alq	1.01 g	
0	02/22/08	12:39	U-232		717	7	ALP4	ED	Y	N	3.7608E-01	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
					200.1	1000.2333			Y		(1.128E-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, 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

Batch Nbr: 8030213

Alpha Spec, Also by ALP , Calculated Results

2/25/2008 8:28:25 AM

1	02/22/08 12:39	U-234	188	5	ALP4	ED	N	N	N	3.7608E-01	N	95%	N	1.0000E+00	4.5045E-01	1.0000E+00
	200.1	1000.2333					Y			(1.128E-02)		5%		(0.000E+00)	0.990099	
2	02/22/08 12:39	U-235	5	1	ALP4	ED	N	N	N	3.7608E-01	N	95%	N	1.0000E+00	4.5045E-01	1.0000E+00
	200.1	1000.2333					Y			(1.128E-02)		5%		(0.000E+00)	0.990099	
3	02/22/08 12:39	U-238	157	2	ALP4	ED	N	N	N	3.7608E-01	N	95%	N	1.0000E+00	4.5045E-01	1.0000E+00
	200.1	1000.2333					Y			(1.128E-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	TrcYld,EnFct	LCSYld,EFcT	IDC/ILcC	BIK/LcC	StdDvMdc/LcC
02/25/08	U-232	R	4.240983	3.57621E+00	9.509142	9.509142	9.509142	1.01 G	95%					
4.458E+00			(0.302712)	(1.3384E-01)	(0.456113)	(0.456113)		(0.017321)						
02/25/08	U-234	R	1.165085	9.34531E-01	2.612355	2.612355	2.612355	1.01 G	95%					
4.458E+00			(0.12945)	(6.8559E-02)	(0.255302)	(0.255302)		(0.017321)						
02/25/08	U-235	R	0.029906	2.39877E-02	0.067054	0.067054	0.067054	1.01 G	95%					
4.458E+00			(0.014208)	(1.1219E-02)	(0.03166)	(0.03166)		(0.017321)						
02/25/08	U-238	R	0.975681	7.82608E-01	2.187674	2.187674	2.187674	1.01 G	95%					
4.458E+00			(0.11281)	(6.2634E-02)	(0.224961)	(0.224961)		(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

Sq	Calc	SR	SOLID	*STLE	AlpIsoWoBS	KF6E11AA	PCI/G	SOLID	01/25/08 07:25	02/22/08 14:20	UIC:19446	Aliq	g		
1418995	TSB-HJ-03-0	FD			F8A260145-5								1.02 g		
0	02/22/08 12:40	U-232	765	6	ALP5	ED	Y	N	4.1305E-01	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00
	200.1166666	1000.2					Y		(1.239E-02)				(0.000E+00)	0.980392	
1	02/22/08 12:40	U-234	172	4	ALP5	ED	N	N	4.1305E-01	N	92%	N	1.0000E+00	4.5045E-01	1.0000E+00
	200.1166666	1000.2					Y		(1.239E-02)				(0.000E+00)	0.980392	
2	02/22/08 12:40	U-235	11	1	ALP5	ED	N	N	4.1305E-01	N	92%	N	1.0000E+00	4.5045E-01	1.0000E+00
	200.1166666	1000.2					Y		(1.239E-02)				(0.000E+00)	0.980392	
3	02/22/08 12:40	U-238	185	5	ALP5	ED	N	N	4.1305E-01	N	92%	N	1.0000E+00	4.5045E-01	1.0000E+00
	200.1166666	1000.2					Y		(1.239E-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,EFcT	IDC/ILcC	BIK/LcC	StdDvMdc/LcC
02/25/08	U-232	R	4.080725	3.81677E+00	9.240403	9.240403	9.240403	1.02 G	92%					
4.415E+00			(0.288553)	(1.3823E-01)	(0.434566)	(0.434566)		(0.017321)						
02/25/08	U-234	R	0.989536	8.55499E-01	2.240706	2.240706	2.240706	1.02 G	92%					
4.415E+00			(0.1117)	(6.5567E-02)	(0.223553)	(0.223553)		(0.017321)						
02/25/08	U-235	R	0.062424	5.39681E-02	0.141352	0.141352	0.141352	1.02 G	92%					
4.415E+00			(0.01989)	(1.6604E-02)	(0.044415)	(0.044415)		(0.017321)						
02/25/08	U-238	R	1.063519	9.19462E-01	2.408235	2.408235	2.408235	1.02 G	92%					
4.415E+00			(0.118135)	(6.8004E-02)	(0.235345)	(0.235345)		(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: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	SR	SOLID	*STLE	AlpisoWoBS	KF6EVI1AA	PCI/G		01/25/08 07:45	02/22/08 14:20			1			9	
							SOLID										1.02 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	02/22/08 12:40	U-232	708	3	ALP6	ED	Y	N	3.8270E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.1333333	1000.1833			Y		(1.148E-02)					(0.000E+00)	0.980392		
1	02/22/08 12:40	U-234	253	0	ALP6	ED	N	N	3.8270E-01		N	92%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.1333333	1000.1833			Y		(1.148E-02)					(0.000E+00)	0.980392		
2	02/22/08 12:40	U-235	5	1	ALP6	ED	N	N	3.8270E-01		N	92%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.1333333	1000.1833			Y		(1.148E-02)					(0.000E+00)	0.980392		
3	02/22/08 12:40	U-238	211	1	ALP6	ED	N	N	3.8270E-01		N	92%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.1333333	1000.1833			Y		(1.148E-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	BIKLC/MDC	StdDvMdc/LcC			
	02/25/08	U-232	R	4.078789		3.53464E+00	9.23602	9.23602	1.02 G	92%							
	4.455E+00			(0.291381)		(1.3296E-01)	(0.444392)	(0.444392)	(0.017321)								
	02/25/08	U-234	R	1.59315		1.26416E+00	3.607531	3.607531	1.02 G	92%							
	4.455E+00			(0.166519)		(7.9483E-02)	(0.325408)	(0.325408)	(0.017321)								
	02/25/08	U-235	R	0.030225		2.39835E-02	0.068442	0.068442	1.02 G	92%							
	4.455E+00			(0.01436)		(1.1218E-02)	(0.032316)	(0.032316)	(0.017321)								
	02/25/08	U-238	R	1.327414		1.05330E+00	3.005799	3.005799	1.02 G	92%							
	4.455E+00			(0.14371)		(7.2588E-02)	(0.284084)	(0.284084)	(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	
7	Calc	SR	SOLID	*STLE	AlpisoWoBS	KF6EVI1AA	PCI/G		01/25/08 08:05	02/22/08 14:20			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	02/22/08 12:40	U-232	732	10	ALP7	ED	Y	N	3.7341E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200	1000.1			Y		(1.120E-02)					(0.000E+00)	1.00		
1	02/22/08 12:40	U-234	176	1	ALP7	ED	N	N	3.7341E-01		N	97%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200	1000.1			Y		(1.120E-02)					(0.000E+00)	1.00		
2	02/22/08 12:40	U-235	7	1	ALP7	ED	N	N	3.7341E-01		N	97%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200	1000.1			Y		(1.120E-02)					(0.000E+00)	1.00		
3	02/22/08 12:40	U-238	155	1	ALP7	ED	N	N	3.7341E-01		N	97%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200	1000.1			Y		(1.120E-02)					(0.000E+00)	1.00		

# Alpha Spec, Uiso by ALP, Calculated Results

Batch Nbr: 8030213

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFcU	IDC/ILcC	BIKlC/MDC	StdDvMdc/LcC
02/25/08	4.519E+00	U-232	R	4.403015 (0.313647)		3.65000E+00 (1.3531E-01)	9.774703 (0.466159)	9.774703 (0.466159)	1.00 G (0.017321)	97%				
02/25/08	4.519E+00	U-234	R	1.088233 (0.122341)		8.79000E-01 (6.6340E-02)	2.41588 (0.239631)	2.41588 (0.239631)	1.00 G (0.017321)	97%		0.029647 0.00644		
02/25/08	4.519E+00	U-235	R	0.042093 (0.016795)		3.40001E-02 (1.3266E-02)	0.093447 (0.036955)	0.093447 (0.036955)	1.00 G (0.017321)	97%		0.029647 0.00644		
02/25/08	4.519E+00	U-238	R	0.958239 (0.110976)		7.74000E-01 (6.2258E-02)	2.127294 (0.219148)	2.127294 (0.219148)	1.00 G (0.017321)	97%		0.029647 0.00644		

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
8	Calc SR	SOLID	*STLE	AlpIsoWoBS	KF6E01AA	PC1/G		01/25/08 08:20	02/22/08 14:21						
							F8A260145-8								
							SOLID								
0	02/22/08 12:41	U-232	800	14	ALP8	ED	Y	N	3.8820E-01	100%	N	1.0000E+00 (0.000E+00)	4.5045E-01 1.00	1.0000E+00	
1	02/22/08 12:41	U-234	579	0	ALP8	ED	N	N	3.8820E-01	103%	N	1.0000E+00 (0.000E+00)	4.5045E-01 1.00	1.0000E+00	
2	02/22/08 12:41	U-235	12	0	ALP8	ED	N	N	3.8820E-01	6%	N	1.0000E+00 (0.000E+00)	4.5045E-01 1.00	1.0000E+00	
3	02/22/08 12:41	U-238	449	0	ALP8	ED	N	N	3.8820E-01	103%	N	1.0000E+00 (0.000E+00)	4.5045E-01 1.00	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,EFcU	IDC/ILcC	BIKlC/MDC	StdDvMdc/LcC
02/25/08	4.510E+00	U-232	R	4.622873 (0.325566)		3.98400E+00 (1.4140E-01)	10.262788 (0.476936)	10.262788 (0.476936)	1.00 G (0.017321)	103%				
02/25/08	4.510E+00	U-234	R	3.357562 (0.310555)		2.89355E+00 (1.2026E-01)	7.453793 (0.565466)	7.453793 (0.565466)	1.00 G (0.017321)	103%		0.027777 0.006035		
02/25/08	4.510E+00	U-235	R	0.069587 (0.020927)		5.99700E-02 (1.7341E-02)	0.154483 (0.045733)	0.154483 (0.045733)	1.00 G (0.017321)	103%		0.027777 0.006035		
02/25/08	4.510E+00	U-238	R	2.603705 (0.247767)		2.24388E+00 (1.0590E-01)	5.78023 (0.457161)	5.78023 (0.457161)	1.00 G (0.017321)	103%		0.027777 0.006035		

Sq	Status Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
9	Calc SR	SOLID	*STLE	AlpIsoWoBS	KF6E11AA	PC1/G		01/25/08 08:40	02/22/08 14:21						
							F8A260145-9								
							SOLID								
0	02/22/08 12:41	U-232	706	6	ALP9	ED	Y	N	3.7821E-01	100%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00	

(1 - (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, Also by ALP , Calculated Results

Batch Nbr: 8030213

2/25/2008 8:28:25 AM

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
1	02/22/08 12:41	U-234	156	0	ALP9	ED	N N	3.7821E-01 (1.135E-02)	N	93%	N	1.000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00 1.0000E+00
2	02/22/08 12:41	U-235	6	0	ALP9	ED	N N	3.7821E-01 (1.135E-02)	N	93%	N	1.000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00 1.0000E+00
3	02/22/08 12:41	U-238	177	0	ALP9	ED	N N	3.7821E-01 (1.135E-02)	N	93%	N	1.000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00 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	BikLcC/MDC	StdDvMdc/LcC
10	02/25/08	U-232	R	4.11441		3.52371E+00 (1.3286E-01)	9.316679 (0.448919)	9.316679 (0.448919)	1.02 G (0.017321)	93%				
	4.432E+00	U-234	R	0.981073		7.79935E-01 (6.2453E-02)	2.221542 (0.228742)	2.221542 (0.228742)	1.02 G (0.017321)	93%				
	4.432E+00	U-235	R	0.037734		2.9975E-02 (1.2287E-02)	0.085444 (0.035433)	0.085444 (0.035433)	1.02 G (0.017321)	93%				
	4.432E+00	U-238	R	1.11314		8.84926E-01 (6.6523E-02)	2.520596 (0.250047)	2.520596 (0.250047)	1.02 G (0.017321)	93%				

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
0	02/22/08 12:41	U-232	728	0	ALP10	ED	Y N	3.5997E-01 (1.080E-02)	N	100%	N	1.000E+00 (0.000E+00)	4.5045E-01 0.970874	1.0000E+00 1.0000E+00
1	02/22/08 12:41	U-234	348	1	ALP10	ED	N N	3.5997E-01 (1.080E-02)	N	100%	N	1.000E+00 (0.000E+00)	4.5045E-01 0.970874	1.0000E+00 1.0000E+00
2	02/22/08 12:41	U-235	10	0	ALP10	ED	N N	3.5997E-01 (1.080E-02)	N	100%	N	1.000E+00 (0.000E+00)	4.5045E-01 0.970874	1.0000E+00 1.0000E+00
3	02/22/08 12:41	U-238	256	2	ALP10	ED	N N	3.5997E-01 (1.080E-02)	N	100%	N	1.000E+00 (0.000E+00)	4.5045E-01 0.970874	1.0000E+00 1.0000E+00

UITS:19451,Alq 1.03 g  
 \*STLE AlpiSoWoBS KF6E21AA PCI/G SOLID  
 ,F8A260145-10  
 AnalysisDate/PptWt 02/22/08 14:21  
 QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol  
 1 1.03 g  
 RecCnt:11 RADCALC v4.8.29  
 TA Richland

( ) - (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	Status	Method	Matrix	Protocol	Equation	Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol	
11	Calc	SR	SOLID	*STLE	AlpIsoWoBS	KF6E21AE	PCI/G	R	01/25/08	08:55	02/22/08	14:21	UITC19452	Alq	1	1.03 g		
								SOLID										
1418995	TSB-HJ-02-10'	DUP																
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	02/22/08 12:41	U-232	748	12	ALP11	ED	Y	N	4.0783E-01		N	100%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200	1000.1166			Y		(1.223E-02)					(0.000E+00)	0.970874			
1	02/22/08 12:41	U-234	364	0	ALP11	ED	N	N	4.0783E-01		N	91%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200	1000.1166			Y		(1.223E-02)			5%		(0.000E+00)	0.970874			
2	02/22/08 12:41	U-235	18	2	ALP11	ED	N	N	4.0783E-01		N	91%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200	1000.1166			Y		(1.223E-02)			5%		(0.000E+00)	0.970874			
3	02/22/08 12:41	U-238	281	1	ALP11	ED	N	N	4.0783E-01		N	91%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200	1000.1166			Y		(1.223E-02)			5%		(0.000E+00)	0.970874			
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rtt	Dpm Wo Blk	Dpm-Blk	Vol Used	Trc Yld,EntFct	LCSYld,EFctU	IDC/ILcC	BIKlC/MDC	StdDvMdc/LcC				
	02/25/08	U-232	R	3.99766		3.72800E+00	9.141059	9.141059	1.03 G	91%								
	4.372E+00		(0.2835)			(1.3679E-01)	(0.43325)	(0.43325)	(0.017321)									
	02/25/08	U-234	R	2.134352		1.82000E+00	4.880413	4.880413	1.03 G	91%								
	4.372E+00		(0.209612)			(9.5399E-02)	(0.404285)	(0.404285)	(0.017321)									
	02/25/08	U-235	R	0.1032		8.80002E-02	0.235977	0.235977	1.03 G	91%								
	4.372E+00		(0.026364)			(2.1260E-02)	(0.058986)	(0.058986)	(0.017321)									
	02/25/08	U-238	R	1.6465		1.40400E+00	3.764891	3.764891	1.03 G	91%								
	4.372E+00		(0.168408)			(8.3821E-02)	(0.329915)	(0.329915)	(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	
12	Calc	SR	SOLID	*STLE	AlpIsoWoBS	KF6E51AA	PCI/G	R	01/25/08	09:45	02/22/08	14:22	UITC19453	Alq	1	1.01 g		
								SOLID										
1418995	TSB-HR-02-0'																	
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/Vol/Adj	Decay	Abn
0	02/22/08 12:42	U-232	736	3	ALP12	ED	Y	N	3.8329E-01		N	100%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200.05	1000.1333			Y		(1.150E-02)					(0.000E+00)	0.990099			
1	02/22/08 12:42	U-234	181	0	ALP12	ED	N	N	3.8329E-01		N	95%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200.05	1000.1333			Y		(1.150E-02)			5%		(0.000E+00)	0.990099			
2	02/22/08 12:42	U-235	7	0	ALP12	ED	N	N	3.8329E-01		N	95%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200.05	1000.1333			Y		(1.150E-02)			5%		(0.000E+00)	0.990099			
3	02/22/08 12:42	U-238	188	0	ALP12	ED	N	N	3.8329E-01		N	95%	N	1.0000E+00	1.0000E+00	4.5045E-01	1.0000E+00	
			200.05	1000.1333			Y		(1.150E-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	LCSYld,EFctU	IDC/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
02/25/08	U-232	U-232	R	4.277444		3.67608E+00	9.590894	9.590894	1.01 G	95%				
4.490E+00				(0.304127)		(1.3562E-01)	(0.45606)	(0.45606)	(0.017321)					
02/25/08	U-234	U-234	R	1.105026		9.04774E-01	2.477692	2.477692	1.01 G	95%				
4.490E+00				(0.123296)		(6.7259E-02)	(0.243463)	(0.243463)	(0.017321)					
02/25/08	U-235	U-235	R	0.042736		3.49913E-02	0.095822	0.095822	1.01 G	95%				
4.490E+00				(0.016584)		(1.3263E-02)	(0.036839)	(0.036839)	(0.017321)					
02/25/08	U-238	U-238	R	1.147762		9.39765E-01	2.573514	2.573514	1.01 G	95%				
4.490E+00				(0.127002)		(6.8547E-02)	(0.25017)	(0.25017)	(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
13	Calc	SR	SOLID	*STLE	AlpIsoWoBS	KF6FA1AA	PCI/G	01/25/08 10:00	02/22/08 14:23						
1418995,TSB-HR-02-10						.F8A260145-12	SOLID								

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Trc Yld Fct	Ent	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/22/08 12:43	U-232	738	20	ALP69	ED	Y	N	3.9463E-01		100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.15	2500.0833			Y		(1.184E-02)				(0.000E+00)	1.00		
1	02/22/08 12:43	U-234	574	3	ALP69	ED	N	N	3.9463E-01		93%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.15	2500.0833			Y		(1.184E-02)		5%		(0.000E+00)	1.00		
2	02/22/08 12:43	U-235	26	1	ALP69	ED	N	N	3.9463E-01		93%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.15	2500.0833			Y		(1.184E-02)		5%		(0.000E+00)	1.00		
3	02/22/08 12:43	U-238	419	4	ALP69	ED	N	N	3.9463E-01		93%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.15	2500.0833			Y		(1.184E-02)		5%		(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/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
02/25/08	U-232	U-232	R	4.199627		3.67923E+00	9.323181	9.323181	1.00 G	93%				
4.514E+00				(0.298769)		(1.3574E-01)	(0.443332)	(0.443332)	(0.017321)					
02/25/08	U-234	U-234	R	3.517304		2.86665E+00	7.808421	7.808421	1.00 G	93%				
4.514E+00				(0.327564)		(1.1970E-01)	(0.598406)	(0.598406)	(0.017321)					
02/25/08	U-235	U-235	R	0.158896		1.29503E-01	0.35275	0.35275	1.00 G	93%				
4.514E+00				(0.033945)		(2.5479E-02)	(0.07301)	(0.07301)	(0.017321)					
02/25/08	U-238	U-238	R	2.56662		2.09183E+00	5.697903	5.697903	1.00 G	93%				
4.514E+00				(0.24778)		(1.0227E-01)	(0.46008)	(0.46008)	(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
14	Calc	SR	SOLID	*STLE	AlpIsoWoBS	KF6FD1AA	PCI/G	01/25/08 10:30	02/22/08 14:23						
1418995,TSB-HJ-11-0'						.F8A260145-13	SOLID								

Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Trc Yld Fct	Ent	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/22/08 12:43	U-232	699	27	ALP71	ED	Y	N	3.6258E-01		100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			200.1	2500.05			Y		(1.088E-02)				(0.000E+00)	0.970874		



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	BIKLCc/MDC	StdDvMdc/LcC
1	02/22/08 12:43	U-234	205 200.1	4 2500.05		3.48245E+00 (1.3214E-01)	9.604607 (0.464595)	9.604607 (0.464595)	1.03 G (0.017321)	96%	1.0000E+00 (0.0000E+00)	4.5045E-01 0.970874	1.0000E+00 (0.0000E+00)	1.0000E+00 1.0000E+00
2	02/22/08 12:43	U-235	9 200.1	1 2500.05		1.02289E+00 (7.1558E-02)	2.942199 (0.280699)	2.942199 (0.280699)	1.03 G (0.017321)	96%	1.0000E+00 (0.0000E+00)	4.5045E-01 0.970874	1.0000E+00 (0.0000E+00)	1.0000E+00 1.0000E+00
3	02/22/08 12:43	U-238	186 200.1	4 2500.05		4.45775E-02 (1.4998E-02)	0.128221 (0.043934)	0.128221 (0.043934)	1.03 G (0.017321)	96%	1.0000E+00 (0.0000E+00)	4.5045E-01 0.970874	1.0000E+00 (0.0000E+00)	1.0000E+00 1.0000E+00
	02/25/08	U-232	R	4.200384		3.48245E+00 (1.3214E-01)	9.604607 (0.464595)	9.604607 (0.464595)	1.03 G (0.017321)	96%				
	02/25/08	U-234	R	1.286713		1.02289E+00 (7.1558E-02)	2.942199 (0.280699)	2.942199 (0.280699)	1.03 G (0.017321)	96%				
	02/25/08	U-235	R	0.056075		4.45775E-02 (1.4998E-02)	0.128221 (0.043934)	0.128221 (0.043934)	1.03 G (0.017321)	96%				
	02/25/08	U-238	R	1.167269		9.27935E-01 (6.8162E-02)	2.669081 (0.261566)	2.669081 (0.261566)	1.03 G (0.017321)	96%				

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	SOLID	*STLE	AlpIsoWoBS	KF6FF1AA	PCI/G	SOLID	UITS	19456	Alq	g
15	1418995	TSB-HJ-11-10'			FBA260145-14				01/25/08 10:40	02/22/08 14:23		0.99 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	02/22/08 12:43	U-232	704	9	ALP84	ED	Y	N	3.3113E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
1	02/22/08 12:43	U-234	390	1	ALP84	ED	Y	N	3.3113E-01		N	106%	N	1.0000E+00	4.5045E-01	1.0000E+00	
2	02/22/08 12:43	U-235	16	0	ALP84	ED	Y	N	3.3113E-01		N	106%	N	1.0000E+00	4.5045E-01	1.0000E+00	
3	02/22/08 12:43	U-238	261	1	ALP84	ED	Y	N	3.3113E-01		N	106%	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

Sq	Calc	SR	SOLID	STLE	AlpIsoWoBS	KF6FJ1AA	PC/G	Units/Matrix	QC/BB	Sa/On Date	01/25/08 10:40	02/22/08 14:23	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol
16	1418995,TSB-HJ-11-10'	FD					SOLID											
Sq	Calc	SR	SOLID	STLE	AlpIsoWoBS	KF6FJ1AA	PC/G	Units/Matrix	QC/BB	Sa/On Date	01/25/08 10:40	02/22/08 14:23	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol
0	02/22/08 12:43	U-232	525	200.05	43	ALP85	ED	Y	N	2.5700E-01	(7.710E-03)	N	100%	N	1.0000E+00	(0.000E+00)	4.5045E-01	1.0000E+00
1	02/22/08 12:43	U-234	157	200.05	5	ALP85	ED	N	N	2.5700E-01	(7.710E-03)	N	101%	N	1.0000E+00	(0.000E+00)	4.5045E-01	1.0000E+00
2	02/22/08 12:43	U-235	2	200.05	1	ALP85	ED	N	N	2.5700E-01	(7.710E-03)	N	101%	N	1.0000E+00	(0.000E+00)	4.5045E-01	1.0000E+00
3	02/22/08 12:43	U-238	150	200.05	1	ALP85	ED	N	N	2.5700E-01	(7.710E-03)	N	101%	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	Trc Yld,EntFct	LCSYld,EFctU	IDC/ILcC	BKLC/MDC	StdDvMdc/LcC				
	02/25/08	U-232	R	4.524302		2.60714E+00	10.1444	10.1444	1.01 G	101%								
						(1.1457E-01)	(0.539753)	(0.539753)	(0.017321)									
	02/25/08	U-234	R	1.358437		7.82804E-01	3.04589	3.04589	1.01 G	101%								
						(6.2641E-02)	(0.320941)	(0.320941)	(0.017321)									
	02/25/08	U-235	R	0.016655	U4	9.59752E-03	0.037344	0.037344	1.01 G	101%								
						(7.0806E-03)	(0.027669)	(0.027669)	(0.017321)									
	02/25/08	U-238	R	1.300491		7.49413E-01	2.915964	2.915964	1.01 G	101%								
						(6.1223E-02)	(0.310975)	(0.310975)	(0.017321)									
Sq	Calc	SR	SOLID	STLE	AlpIsoWoBS	KF6FK1AA	PC/G	Units/Matrix	QC/BB	Sa/On Date	01/25/08 11:30	02/22/08 14:24	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol
17	1418995,TSB-HR-01-0'						SOLID											
Sq	Calc	SR	SOLID	STLE	AlpIsoWoBS	KF6FK1AA	PC/G	Units/Matrix	QC/BB	Sa/On Date	01/25/08 11:30	02/22/08 14:24	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol
0	02/22/08 12:44	U-232	753	200.05	1	ALP88	ED	Y	N	3.4235E-01	(1.027E-02)	N	100%	N	1.0000E+00	(0.000E+00)	4.5045E-01	1.0000E+00
1	02/22/08 12:44	U-234	151	200.05	0	ALP88	ED	N	N	3.4235E-01	(1.027E-02)	N	110%	N	1.0000E+00	(0.000E+00)	4.5045E-01	1.0000E+00
2	02/22/08 12:44	U-235	4	200.05	1	ALP88	ED	N	N	3.4235E-01	(1.027E-02)	N	110%	N	1.0000E+00	(0.000E+00)	4.5045E-01	1.0000E+00
3	02/22/08 12:44	U-238	129	200.05	1	ALP88	ED	N	N	3.4235E-01	(1.027E-02)	N	110%	N	1.0000E+00	(0.000E+00)	4.5045E-01	1.0000E+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	LCSYld,EFcU	IDC/LcC	BIK/LcC	StdDvMdc/LcC
02/25/08	4.458E+00	U-232	R	4.902277		3.76306E+00	10.991895	10.991895	1.01 G	110%				
				(0.347436)		(1.3717E-01)	(0.518929)	(0.518929)	(0.017321)					
02/25/08	4.458E+00	U-234	R	0.983321		7.54811E-01	2.204804	2.204804	1.01 G	110%				
				(0.114317)		(6.1434E-02)	(0.228294)	(0.228294)	(0.017321)					
02/25/08	4.458E+00	U-235	R	0.024746		1.89950E-02	0.055484	0.055484	1.01 G	110%				
				(0.013249)		(1.0047E-02)	(0.029563)	(0.029563)	(0.017321)					
02/25/08	4.458E+00	U-238	R	0.838753		6.43839E-01	1.880653	1.880653	1.01 G	110%				
				(0.101588)		(5.6784E-02)	(0.204944)	(0.204944)	(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

Sq	Calc	SR	SOLID	*STLE	AlpIsoWoBS	KF6FL1AA	PCI/G	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/Vol/Adj	Decay	Abn
18	1418995	TSB-HR-01-10'					SOLID		Y	N	3.9463E-01			100%	N	1.0000E+00		4.5045E-01	1.0000E+00	
									Y	N	(1.184E-02)					(0.000E+00)		0.980392		
1	02/25/08	04:37	U-234	385	3	ALP69	ED	N	N	N	3.9463E-01			95%	N	1.0000E+00		4.5045E-01	1.0000E+00	
									Y	N	(1.184E-02)			5%		(0.000E+00)		0.980392		
2	02/25/08	04:37	U-235	10	3	ALP69	ED	N	N	N	3.9463E-01			95%	N	1.0000E+00		4.5045E-01	1.0000E+00	
									Y	N	(1.184E-02)			5%		(0.000E+00)		0.980392		
3	02/25/08	04:37	U-238	305	4	ALP69	ED	N	N	N	3.9463E-01			95%	N	1.0000E+00		4.5045E-01	1.0000E+00	
									Y	N	(1.184E-02)			5%		(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	Trc Yld,EnFct	LCSYld,EFcU	IDC/LcC	BIK/LcC	StdDvMdc/LcC
02/25/08	4.421E+00	U-232	R	4.219682		3.77074E+00	9.555057	9.555057	1.02 G	95%				
				(0.298882)		(1.3744E-01)	(0.451075)	(0.451075)	(0.017321)					
02/25/08	4.421E+00	U-234	R	2.25484		1.92316E+00	5.105863	5.105863	1.02 G	95%				
				(0.219612)		(9.8077E-02)	(0.417858)	(0.417858)	(0.017321)					
02/25/08	4.421E+00	U-235	R	0.057197		4.87834E-02	0.129517	0.129517	1.02 G	95%				
				(0.019147)		(1.5821E-02)	(0.042815)	(0.042815)	(0.017321)					
02/25/08	4.421E+00	U-238	R	1.78554		1.52289E+00	4.04318	4.04318	1.02 G	95%				
				(0.180075)		(8.7296E-02)	(0.347401)	(0.347401)	(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

Sq	Calc	SR	SOLID	*STLE	AlpIsoWoBS	KF6FM1AA	PCI/G	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/Vol/Adj	Decay	Abn
19	1418995	TSB-HJ-01-0'					SOLID		Y	N	3.6258E-01			100%	N	1.0000E+00		4.5045E-01	1.0000E+00	
									Y	N	(1.088E-02)					(0.000E+00)		0.990099		

(1) - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 \* TPU  
 IDC - Instrument Detection Level in Conc Units, MLCc - Method Decision Level in Conc Units, MDC - Minimum Detectable Concentration  
 Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time  
 RecCnt: 19 RADCALC v4.8.29  
 TA Richland

Alpha Spec, Also by ALP, Calculated Results

2/25/2008 8:28:26 AM

Batch Nbr: 8030213

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rtt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFet	LCSYld,EFctU	IDC/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
1	02/25/08 04:37	U-234	171	4	ALP71	ED	N N	3.6258E-01 (1.088E-02)	N	104%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.990099	1.0000E+00 1.0000E+00
2	02/25/08 04:37	U-235	200.1833333	2500.05	ALP71	ED	N N	3.6258E-01 (1.088E-02)	N	104%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.990099	1.0000E+00 1.0000E+00
3	02/25/08 04:37	U-238	178	4	ALP71	ED	N N	3.6258E-01 (1.088E-02)	N	104%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.990099	1.0000E+00 1.0000E+00

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rtt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFet	LCSYld,EFctU	IDC/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
0	02/25/08 04:37	U-232	659	7	ALP84	ED	Y N	3.3113E-01 (9.934E-03)	N	100%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00 1.0000E+00
1	02/25/08 04:37	U-234	144	1	ALP84	ED	N N	3.3113E-01 (9.934E-03)	N	99%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00 1.0000E+00
2	02/25/08 04:37	U-235	200.2	2500.0166	ALP84	ED	Y N	3.3113E-01 (9.934E-03)	N	99%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00 1.0000E+00
3	02/25/08 04:37	U-238	159	1	ALP84	ED	N N	3.3113E-01 (9.934E-03)	N	99%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00 1.0000E+00

Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rtt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnFet	LCSYld,EFctU	IDC/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
0	02/25/08 04:37	U-232	200.2	2500.0166	ALP84	ED	Y N	3.3113E-01 (9.934E-03)	N	100%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00 1.0000E+00
1	02/25/08 04:37	U-234	144	1	ALP84	ED	N N	3.3113E-01 (9.934E-03)	N	99%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00 1.0000E+00
2	02/25/08 04:37	U-235	200.2	2500.0166	ALP84	ED	Y N	3.3113E-01 (9.934E-03)	N	99%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00 1.0000E+00
3	02/25/08 04:37	U-238	159	1	ALP84	ED	N N	3.3113E-01 (9.934E-03)	N	99%	N	1.0000E+00 (0.000E+00)	4.5045E-01 0.980392	1.0000E+00 1.0000E+00

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

20 Calc SR SOLID \*STLE AlplsoWoBS KFGFMAIE PCI/G R 01/25/08 11:50 02/25/08 06:17 1 UJC:19461 Alq 1.02 g

1418995,TSB-HJ-01-01 DUP ,F8A260145-18 SOLID

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 hh:mm, 24hr Time

RecCnt:21 RADCALC v4.8.29  
 TA Richland

Sq	Calc	SR	Matrix	Method	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					
21	Calc	SR	SOLID	U-232	*STLE	AlpIsoWoBS	KGAFX1A	PCI/G	B	01/25/08 12:10	02/25/08 06:17		UITC19462	Alq	1	1.01 g	g					
0			INTRA-LAB BLANK																			
0	02/25/08	04:37	U-232	512	43	ALP85	Instr	Geom	ED	Y	N	2.5700E-01	Efficiency1	N	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	Abn	
				200.0833333	2500.1				(7.710E-03)									(0.000E+00)	0.990099			
1	02/25/08	04:37	U-234	2	6	ALP85	Instr	Geom	ED	N	N	2.5700E-01	Efficiency1	N	N	99%	N	1.0000E+00	4.5045E-01	1.0000E+00	Abn	
				200.0833333	2500.1				(7.710E-03)									(0.000E+00)	0.990099			
2	02/25/08	04:37	U-235	2	1	ALP85	Instr	Geom	ED	N	N	2.5700E-01	Efficiency1	N	N	99%	N	1.0000E+00	4.5045E-01	1.0000E+00	Abn	
				200.0833333	2500.1				(7.710E-03)									(0.000E+00)	0.990099			
3	02/25/08	04:37	U-238	3	2	ALP85	Instr	Geom	ED	N	N	2.5700E-01	Efficiency1	N	N	99%	N	1.0000E+00	4.5045E-01	1.0000E+00	Abn	
				200.0833333	2500.1				(7.710E-03)									(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	BlkC/MDC	StdDvMdc/LcC								
02/25/08	4.469E+00	U-232	R	4.410792		2.54173E+00	9.889889	9.889889	1.01 G	99%												
				(0.332271)		(1.1312E-01)	(0.530813)	(0.530813)	(0.017321)													
02/25/08	4.469E+00	U-234	R	0.013356	U4	7.59593E-03	0.029948	0.029948	1.01 G	99%												
				(0.012601)		(7.1357E-03)	(0.028209)	(0.028209)	(0.017321)													
02/25/08	4.469E+00	U-235	R	0.016873	U4	9.59585E-03	0.037833	0.037833	1.01 G	99%												
				(0.012534)		(7.0794E-03)	(0.028033)	(0.028033)	(0.017321)													
02/25/08	4.469E+00	U-238	R	0.024958	U4	1.41938E-02	0.055961	0.055961	1.01 G	99%												
				(0.015407)		(8.6751E-03)	(0.034419)	(0.034419)	(0.017321)													
Sq	Status 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							
22	Calc	SR	SOLID	U-232	*STLE	AlpIsoWoBS	KGAFX1AC	PCI/G	S	01/25/08 12:10	02/25/08 06:17		UISG1602	Alq	1	1.03 g	g					
0			INTRA-LAB CHECK																			
0	02/25/08	04:37	U-232	330	1	ALP88	Instr	Geom	ED	Y	N	3.4235E-01	Efficiency1	N	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	Abn	
				200.1333333	1000.0333				(1.027E-02)									(0.000E+00)	0.970874			
1	02/25/08	04:37	U-234	120	0	ALP88	Instr	Geom	ED	N	N	3.4235E-01	Efficiency1	N	N	48%	N	1.0000E+00	4.5045E-01	1.0000E+00	Abn	
				200.1333333	1000.0333				(1.027E-02)									(0.000E+00)	0.970874			
2	02/25/08	04:37	U-235	8	1	ALP88	Instr	Geom	ED	N	N	3.4235E-01	Efficiency1	N	N	48%	N	1.0000E+00	4.5045E-01	1.0000E+00	Abn	
				200.1333333	1000.0333				(1.027E-02)									(0.000E+00)	0.970874			
3	02/25/08	04:37	U-238	139	1	ALP88	Instr	Geom	ED	N	N	3.4235E-01	Efficiency1	N	N	48%	N	1.0000E+00	4.5045E-01	1.0000E+00	Abn	
				200.1333333	1000.0333				(1.027E-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	BIKLCc/MDC	StdDvMdc/LcC
02/25/08	U-232	R	2.105096			1.64790E+00	4.813518	4.813518	1.03 G	48%				
4.378E+00			(0.17253)			(9.0775E-02)	(0.301925)	(0.301925)	(0.017321)					
02/25/08	U-234	R	1.593019			5.99600E-01	3.6426	3.6426	1.03 G	48%	95%	0.063591		
4.378E+00			(0.207224)			(5.4745E-02)	(0.433128)	(0.433128)	(0.017321)			0.013816		
02/25/08	U-235	R	0.103545			3.89734E-02	0.236765	0.236765	1.03 G	48%	135%	0.063591		
4.378E+00			(0.038845)			(1.4168E-02)	(0.087941)	(0.087941)	(0.017321)			0.013816		
02/25/08	U-238	R	1.84259			6.93537E-01	4.21327	4.21327	1.03 G	48%	105%	0.063591		
4.378E+00			(0.231628)			(5.8918E-02)	(0.48075)	(0.48075)	(0.017321)			0.013816		

# URANIUM ISOTOPIC COUNTING REQUEST

2/22/01 1604

C.R. Technician PL

Counting Time 200 Minutes

SOP's Operating: RICHRD008  
Review: RICHRD0016

Date Counted 2/22/01

Background See Alpha Regions Report

BRCO 01/25/01 8030213

WorkOrder #	U-232 (5320 KeV) Tracer	TOTAL COUNTS			Det #	Comments/Edits
		U-238 (4196 KeV)	U-235 (4396 KeV)	U-234 (4776 KeV)		
<u>KF6EM1AA</u>	See Counting Room Printout for ROI information				<u>1</u>	
<u>KF6EP1AA</u>	See Counting Room Printout for ROI information				<u>2</u>	
<u>KF6ER1AA</u>	See Counting Room Printout for ROI information				<u>3</u>	
<u>KF6ET1AA</u>	See Counting Room Printout for ROI information				<u>4</u>	
<u>KF6EV1AA</u>	See Counting Room Printout for ROI information				<u>5</u>	
<u>KF6EW1AA</u>	See Counting Room Printout for ROI information				<u>6</u>	
<u>KF6EO1AA</u>	See Counting Room Printout for ROI information				<u>7</u>	
<u>KF6E01AA</u>	See Counting Room Printout for ROI information				<u>8</u>	
Comments:						

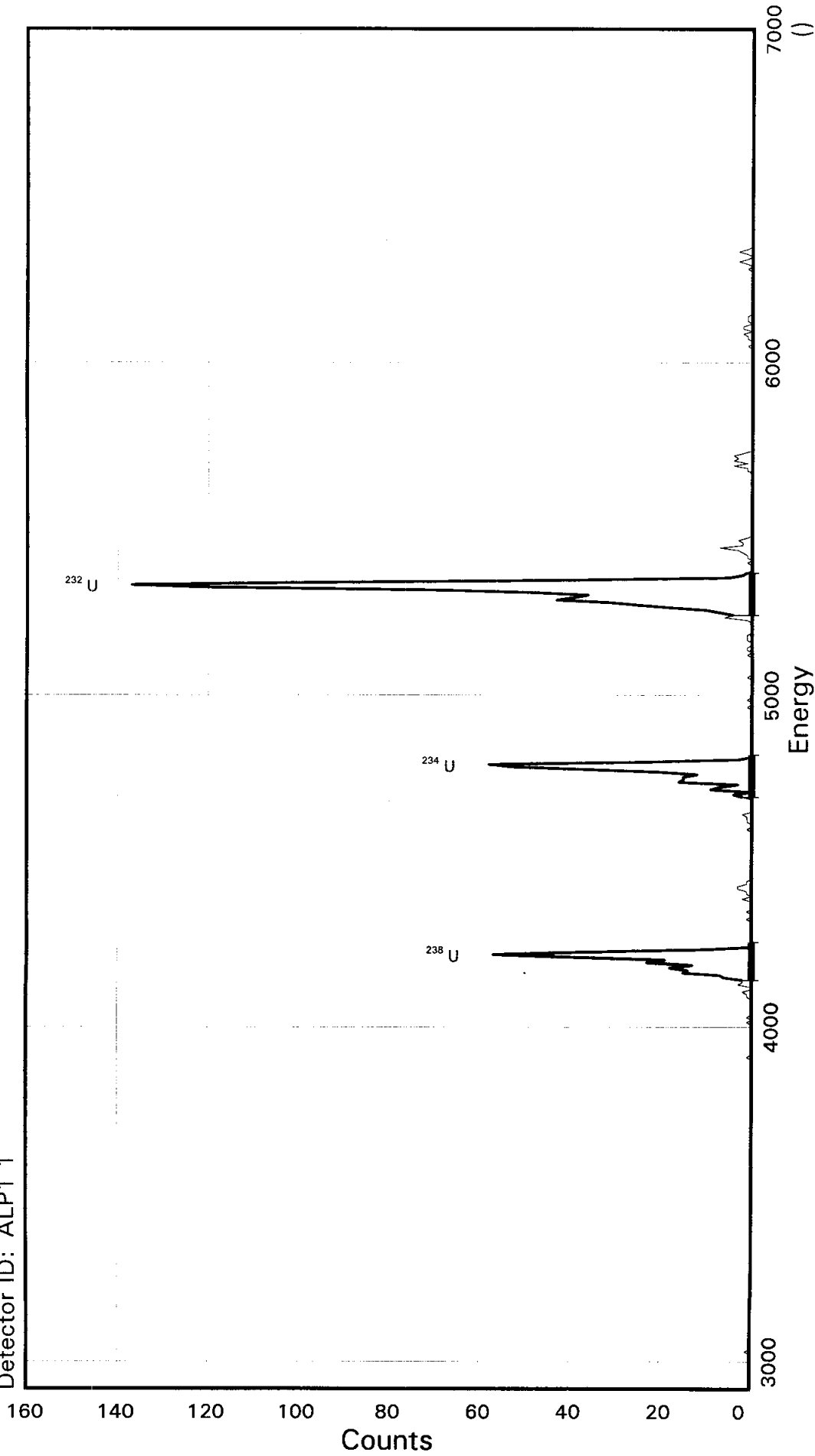
TAL Richland WA.

U BRCO

Batch ID: 8030213

Sample ID: KF6EM1AA

Detector ID: ALP1 1



Acquisition Start: 22-FEB-2008 12:39:09.72

Preset Live Time: 0 03:20:00.00

Elapsed Live Time: 0 03:20:03.00

Energy Coefficients:

Offset: 2.89653E + 03

Slope: 7.45256E + 00

Quadrature: 4.73726E-05



SAMPLE IDENTIITY: KF6EM1AA

TITLE : U BRCO

DETECTOR : ALP1 1  
CONFIGURATION NAME : \$DISK1:[ALP1.SAMPLE] KF6EM1AA\_220281239.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:30

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 12:39:09 CALIB DATE : 04-FEB-2008 03:38:52

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

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: KF6EM1AA

Flags Key

Detector: ALP1 1	P: Peak Identified
Report Date: 22-Feb-08 03:59 PM	I: Peak Intersect
Acquire Date: 22-FEB-2008 12:39:09.72	S: Single Non-peak Intersect
Tracer Nuclide: U-232	M: Multiple Non-peak Intersect
High Counts Limit: 36	H: High Non-peak Sample Count
Sample Live Time: 200 minutes	A: Altered via ALP-RGN-EDIT
Bkgnd Live Time: 1000 minutes	

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	734	12	0	3.657	5327.7	127.2	314	331	0.00	0.00	P
U-234	279	2	0	1.393	4782.1	127.1	241	258	0.00	0.00	P
U-235	14	0	0	0.070	4405.3	127.0	191	208	0.00	0.00	
U-238	266	1	0	1.329	4205.5	112.0	167	182	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 15:59:30

```

Configuration      : $DISK1:[ALP1.SAMPLE]KF6EM1AA_220281239.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : U BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:39:09
Sample ID        : KF6EM1AA Sample quantity : 0.00000E+00 LITER
Sample type      : disk Sample geometry :
Detector name    : ALP1 Detector geometry:
Elapsed live time: 0 03:20:03.00 Elapsed real time: 0 03:20:03.00 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	4213.95	266	0	29.81	176.58	167	15	2.22E-02	6.1	
2	0	4788.01	279	0	29.81	253.40	241	17	2.32E-02	6.0	
3	0	5327.68	734	0	29.81	325.54	314	17	6.12E-02	3.7	

Alpha Spectrum Listing

(Version: 1 Apr 07)

Sample Identity: KFGEM1AA

Flags Key

Detector: ALP1 1

Report Date: 22 Feb 08 03:59 PM

Intersect Region: #

Acquire Date: 22 FEB-2008 12:39:09.72

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	20+		251	1		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	1		152	1+		202	36+		252	0		302	0		352	0		402	0		452	0		502
C		3	0		53	0		103	0		153	1+		203	52+		253	0		303	0		353	0		403	1		453	0		503
C		4	0		54	0		104	0		154	3+		204	58+		254	1		304	0		354	0		404	0		454	0		504
C		5	0		55	0		105	0		155	3+		205	24+		255	1		305	0		355	0		405	1		455	0		505
0		6	0		56	0		106	0		156	1+		206	3+		256	1		306	0		356	0		406	3		456	0		506
0		7	0		57	0		107	0		157	1+		207	0+		257	0		307	0		357	0		407	1		457	0		507
C		8	0		58	0		108	0		158	0+		208	0		258	0		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	1		459	0		509
C		10	0		60	0		110	1		160	0		210	0		260	0		310	0		360	0		410	3		460	0		510
C		11	0		61	0		111	1		161	0		211	0		261	0		311	0		361	0		411	1		461	0		511
0		12	0		62	0		112	2		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	6		313	0		363	0		413	0		463			
C		14	0		64	0		114	0		164	0		214	0		264	4+		314	0		364	0		414	0		464			
C		15	0		65	0		115	3		165	0		215	0		265	7+		315	0		365	0		415	0		465			
C		16	0		66	0		116	2		166	0		216	0		266	10+		316	0		366	0		416	0		466			
C		17	0		67	0		117	2+		167	0		217	0		267	18+		317	0		367	0		417	0		467			
1		18	0		68	0		118	6+		168	0		218	0		268	25+		318	0		368	0		418	0		468			
0		19	0		69	0		119	7+		169	0		219	0		269	31+		319	0		369	0		419	0		469			
0		20	0		70	0		120	15+		170	0		220	0		270	43+		320	0		370	0		420	0		470			
0		21	0		71	0		121	14+		171	0		221	0		271	39+		321	0		371	0		421	0		471			
0		22	0		72	0		122	18+		172	0		222	0		272	36+		322	1		372	1		422	0		472			
0		23	0		73	0		123	13+		173	0		223	0		273	48+		323	1		373	0		423	0		473			
0		24	0		74	0		124	23+		174	0		224	0		274	69+		324	4		374	0		424	0		474			
0		25	0		75	0		125	19+		175	0		225	0		275	119+		325	1		375	1		425	0		475			
0		26	0		76	0		126	39+		176	0		226	0		276	137+		326	4		376	1		426	0		476			
0		27	0		77	0		127	57+		177	0		227	1		277	95+		327	3		377	2		427	0		477			
0		28	0		78	0		128	37+		178	1		228	0		278	39+		328	4		378	0		428	0		478			
0		29	0		79	0		129	11+		179	0		229	0		279	5+		329	2		379	2		429	0		479			
0		30	0		80	0		130	0+		180	0		230	1		280	2+		330	0		380	2		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	1		232	0		282	0		332	0		382	1		432	0		482			
0		33	0		83	0		133	0		183	1		233	0		283	0		333	0		383	1		433	0		483			
0		34	0		84	0		134	0		184	2		234	0		284	0		334	0		384	1		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	1		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	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	0		89	0		139	0		189	0		239	1		289	2		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	0		240	0		290	3		340	0		390	0		440	0		490			
0		41	0		91	0		141	0+		191	2+		241	0		291	7		341	0		391	0		441	0		491			
0		42	0		92	0		142	1+		192	4+		242	0		292	2		342	0		392	0		442	0		492			
0		43	0		93	0		143	0+		193	0+		243	0		293	2		343	0		393	0		443	0		493			
0		44	0		94	0		144	0+		194	9+		244	0		294	3		344	0		394	0		444	0		494			
0		45	0		95	0		145	1+		195	7+		245	0		295	1		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	0		147	0+		197	16+		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0+		198	15+		248	1		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	0+		199	15+		249	0		299	0		349	0		399	0		449	0		499			
0		50	0		100	1		150	2+		200	12+		250	1		300	0		350	0		400	0		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP1.SAMPLE]KF6EM1AA\_220281239.CNF;1

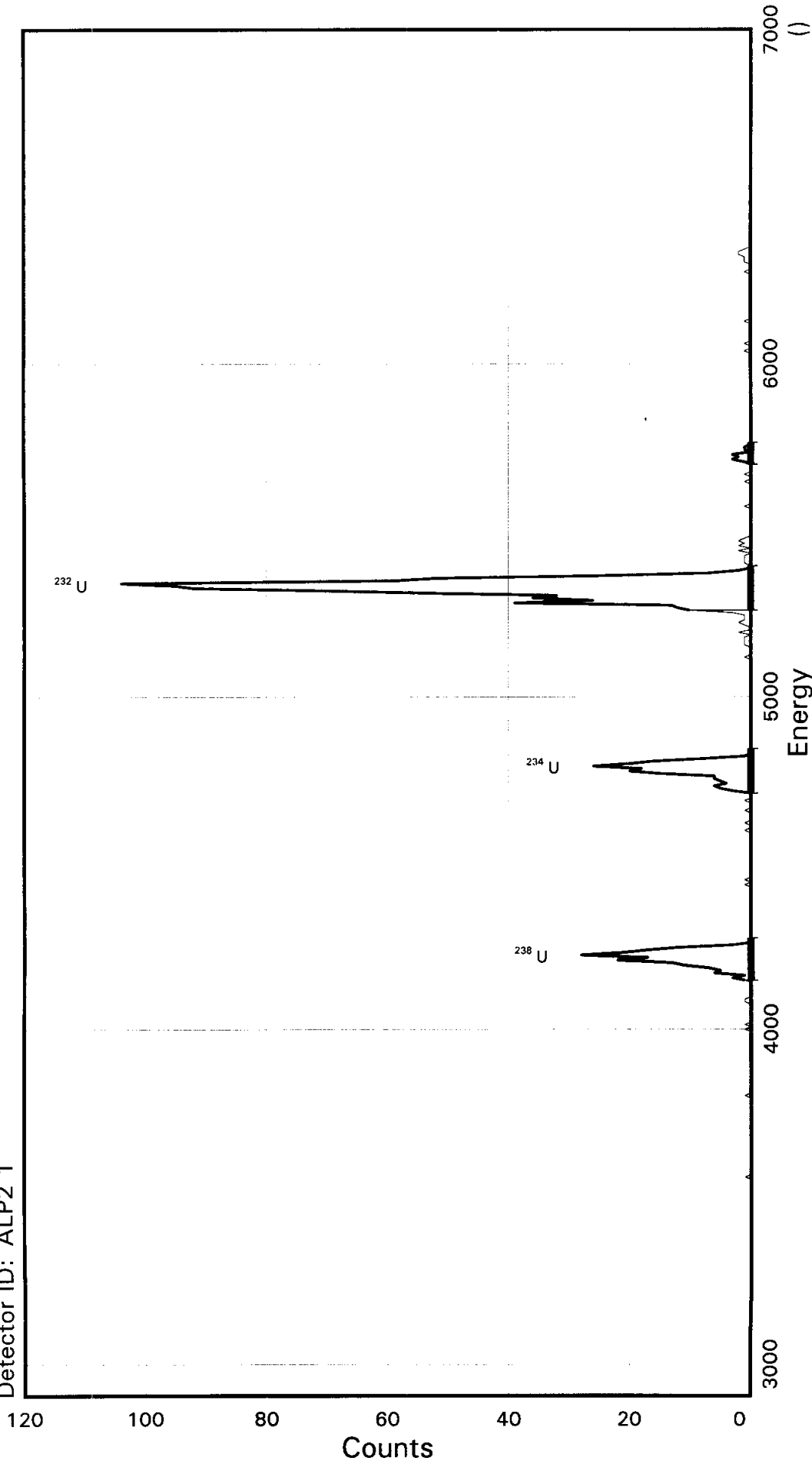
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4213.95	167	182	266	261	0.31		
4788.00	241	258	279	276	0.18		
5327.67	314	331	734	728	0.22		

End of Report

TAL Richland WA.  
U BRCO

Sample ID: KF6EP1AA  
Detector ID: ALP2 1

Batch ID: 8030213



Acquisition Start: 22-FEB-2008 12:39:28.70  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:00.00

Energy Coefficients:  
Offset: 2.88374E + 03  
Slope: 7.38355E + 00  
Quadrature: 4.94405E-05

SAMPLE IDENTIITY: KF6EP1AA

TITLE : U BRCO

DETECTOR : ALP2 1  
CONFIGURATION NAME : \$DISK1:[ALP2.SAMPLE]KF6EP1AA\_220281239.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:36

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 12:39:28 CALIB DATE : 04-FEB-2008 03:39:03

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

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: KF6EP1AA

Flags Key

Detector: ALP2 1  
 Report Date: 22-Feb-08 04:12 PM P: Peak Identified  
 Acquire Date: 22-FEB-2008 12:39:28.70 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	730	14	0	3.636	5332.8	133.5	321	339	0.00	0.00	P
U-234	162	0	0	0.810	4787.3	133.4	247	265	0.00	0.00	P
U-235	2	1	0	0.009	4410.5	133.3	197	215	0.00	0.00	
U-238	168	0	0	0.840	4210.7	125.8	171	188	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:12:47

Configuration : \$DISK1:[ALP2.SAMPLE]KF6EP1AA\_220281239.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:39:28  
 Sample ID : KF6EP1AA Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP2 Detector geometry:  
 Elapsed live time: 0 03:20:00.00 Elapsed real time: 0 03:20:00.00 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	4218.46	168	0	44.30	180.55	171	17	1.40E-02	7.7	
2	0	4788.42	162	0	44.30	257.52	247	18	1.35E-02	7.9	
3	0	5332.82	730	0	51.68	330.96	321	18	6.08E-02	3.7	
4	0	5720.54	10	0	36.92	383.22	380	9	8.33E-04	31.6	

Alpha Spectrum Listing

(Version: 1-Apr-07)

Sample Identity: KF6EP1AA

Flags Key

Detector: ALP2 1

Report Date: 22 Feb 08 04:12 PM

Intersect Region: @

Acquire Date: 22-FEB-2008 12:39:28.70

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	1	151	0+	201	4+	251	0	301	0	351	0	401	0	451	0	501		
		2	0	52	0	102	0	152	0+	202	5+	252	1	302	0	352	0	402	0	452	0	502		
C		3	0	53	0	103	1	153	0+	203	6+	253	0	303	0	353	0	403	0	453	0	503		
C		4	0	54	0	104	0	154	0+	204	6+	254	0	304	0	354	0	404	0	454	0	504		
C		5	0	55	0	105	0	155	0+	205	15+	255	0	305	0	355	0	405	0	455	0	505		
C		6	0	56	0	106	0	156	0+	206	20+	256	0	306	0	356	0	406	0	456	0	506		
0		7	0	57	0	107	0	157	0+	207	18+	257	1	307	0	357	0	407	0	457	0	507		
C		8	0	58	0	108	0	158	0+	208	26+	258	1	308	0	358	0	408	1	458	0	508		
C		9	0	59	0	109	0	159	0+	209	20+	259	1	309	0	359	0	409	0	459	0	509		
C		10	0	60	0	110	0	160	1+	210	16+	260	1	310	0	360	0	410	0	460	0	510		
C		11	0	61	0	111	0	161	0+	211	8+	261	0	311	0	361	0	411	0	461	0	511		
C		12	0	62	0	112	1	162	1+	212	1+	262	2	312	0	362	0	412	1	462	0	512		
0		13	0	63	0	113	1	163	0+	213	0+	263	0	313	1	363	0	413	1	463				
0		14	0	64	0	114	0	164	0+	214	0+	264	0	314	0	364	0	414	1	464				
C		15	0	65	0	115	0	165	0+	215	0	265	1	315	0	365	0	415	2	465				
C		16	0	66	0	116	0	166	0	216	0	266	2	316	0	366	0	416	2	466				
C		17	0	67	0	117	0	167	0	217	0	267	1	317	0	367	0	417	1	467				
C		18	0	68	0	118	0	168	0	218	0	268	1	318	0	368	0	418	0	468				
C		19	0	69	0	119	0	169	0	219	0	269	1	319	0	369	0	419	0	469				
C		20	0	70	0	120	0	170	0	220	0	270	3	320	0	370	0	420	0	470				
C		21	0	71	0	121	1+	171	0	221	0	271	10+	321	0	371	0	421	0	471				
C		22	0	72	0	122	3+	172	0	222	0	272	12+	322	0	372	0	422	0	472				
C		23	0	73	0	123	1+	173	0	223	0	273	13+	323	1	373	0	423	0	473				
0		24	0	74	1	124	6+	174	0	224	0	274	39+	324	0	374	0	424	0	474				
0		25	0	75	0	125	5+	175	0	225	0	275	26+	325	0	375	0	425	0	475				
0		26	0	76	0	126	7+	176	0	226	0	276	36+	326	1	376	1	426	0	476				
0		27	0	77	0	127	11+	177	0	227	0	277	32+	327	0	377	0	427	0	477				
0		28	0	78	0	128	13+	178	0	228	0	278	53+	328	0	378	0	428	0	478				
C		29	0	79	0	129	22+	179	0	229	0	279	71+	329	0	379	1	429	0	479				
C		30	0	80	0	130	17+	180	0	230	0	280	92+	330	0	380	0	430	0	480				
0		31	0	81	0	131	28+	181	0	231	0	281	95+	331	1	381	0	431	0	481				
0		32	0	82	0	132	21+	182	1	232	0	282	104+	332	3	382	0	432	0	482				
0		33	0	83	0	133	17+	183	0	233	0	283	59+	333	2	383	0	433	0	483				
0		34	0	84	0	134	12+	184	0	234	0	284	52+	334	3	384	0	434	0	484				
0		35	0	85	0	135	3+	185	1	235	0	285	24+	335	0	385	0	435	0	485				
0		36	0	86	0	136	0+	186	0	236	0	286	7+	336	1	386	0	436	0	486				
0		37	0	87	0	137	0+	187	0	237	0	287	2+	337	1	387	0	437	0	487				
0		38	0	88	0	138	0	188	0	238	0	288	0+	338	0	388	1	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	1	340	0	390	0	440	0	490				
0		41	1	91	0	141	0	191	0	241	0	291	1	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	1	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	2	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	2	347	0	397	0	447	0	497				
0		48	0	98	0	148	0+	198	3+	248	0	298	1	348	0	398	0	448	0	498				
0		49	0	99	0	149	0+	199	5+	249	0	299	2	349	0	399	0	449	0	499				
0		50	0	100	0	150	0+	200	6+	250	0	300	1	350	0	400	0	450	0	500				



ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP2.SAMPLE]KF6EP1AA\_220281239.CNF;1

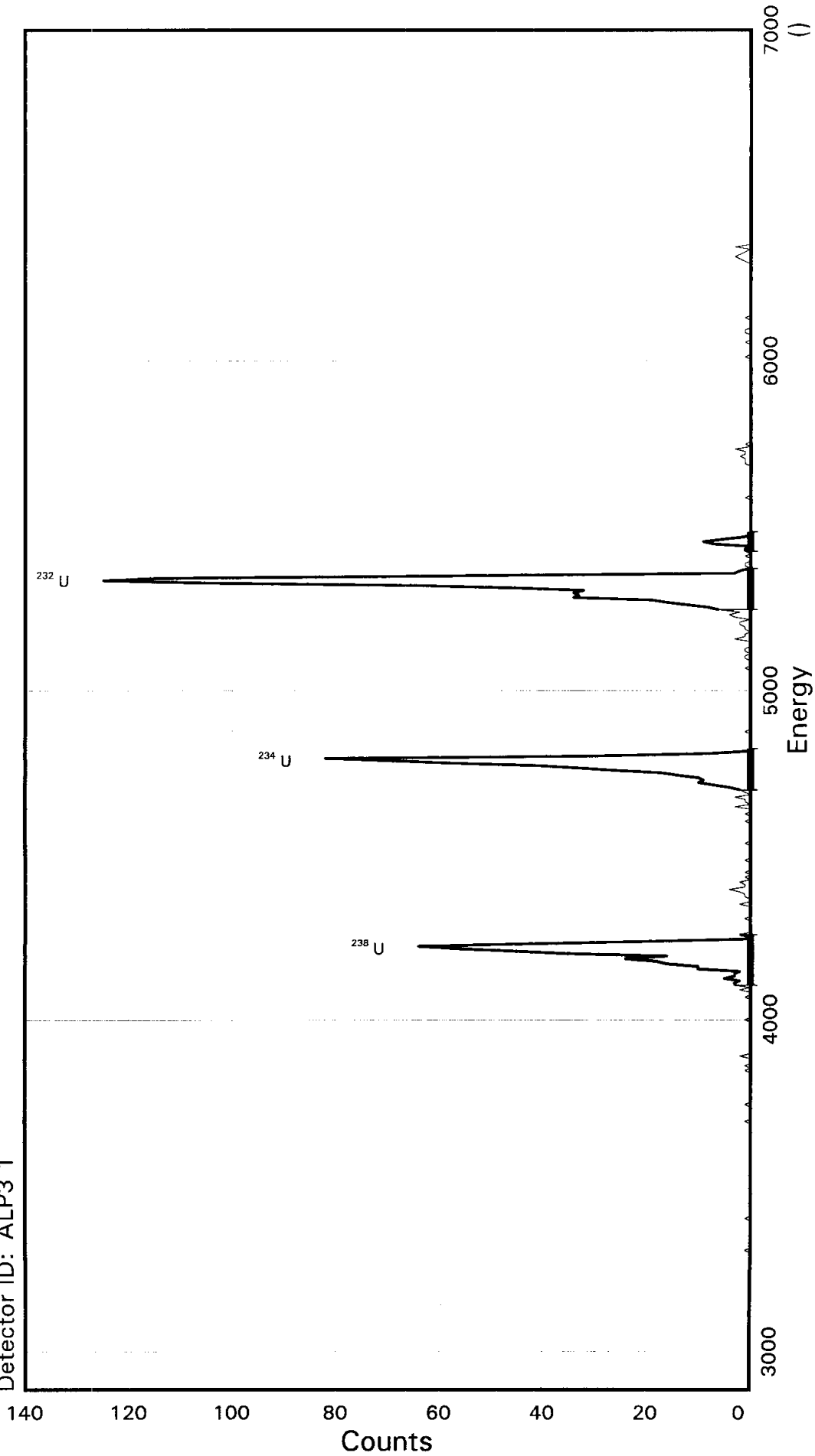
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4218.46	171	188	168	167	0.08		
4788.41	247	265	162	159	0.24		
5332.82	321	339	730	727	0.11		
5720.54	380	389	10	11	-0.32		

End of Report

TAL Richland WA.  
U BRCO

Batch ID: 8030213

Sample ID: KF6EQ1AA  
Detector ID: ALP3 1



Acquisition Start: 22-FEB-2008 12:39:39.86  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:05.00

Energy Coefficients:  
Offset: 2.86333E + 03  
Slope: 7.32666E + 00  
Quadrature: 7.05255E - 05

SAMPLE IDENTIITY: KF6EQ1AA

TITLE : U BRCO

DETECTOR : ALP3 1  
CONFIGURATION NAME : \$DISK1:[ALP3.SAMPLE]KF6EQ1AA\_220281239.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:39

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 12:39:39 CALIB DATE : 04-FEB-2008 03:39:11

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

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: KF6EQ1AA

Flags Key

Detector: ALP3 1 Report Date: 22-Feb-08 04:00 PM Acquire Date: 22-FEB-2008 12:39:39.86 Tracer Nuclide: U-232 High Counts Limit: 36 Sample Live Time: 200 minutes Bkgnd 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	Rght Wdth	Flags
					Energy keV	Width keV					
U-232	711	9	0	3.545	5332.6	125.4	324	341	0.00	0.00	P
U-234	423	4	0	2.110	4787.0	125.2	250	267	0.00	0.00	P
U-235	16	0	0	0.080	4410.2	125.1	199	216	0.00	0.00	
U-238	380	6	0	1.893	4210.4	154.4	169	190	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:00:02

```

Configuration      : $DISK1:[ALP3.SAMPLE]KF6EQ1AA_220281239.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : U BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:39:39
Sample ID         : KF6EQ1AA Sample quantity : 0.00000E+00 LITER
Sample type       : disk Sample geometry :
Detector name     : ALP3 Detector geometry:
Elapsed live time: 0 03:20:05.00 Elapsed real time: 0 03:20:06.00 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	4214.67	380	0	36.63	184.12	169	21	3.17E-02	5.1	
2	0	4787.52	423	0	36.63	261.97	250	17	3.52E-02	4.9	
3	0	5332.56	711	0	36.63	335.93	324	17	5.92E-02	3.8	
4	0	5448.95	24	0	29.31	351.71	348	8	2.00E-03	20.4	

Alpha Spectrum Listing

(Version: 1 Apr-07)

Sample Identity: KF6EQ1AA

Flags Key

Detector: ALP3 1

Report Date: 22-Feb-08 04:00 PM

Intersect Region: @

Acquire Date: 22-FEB-2008 12:39:59.86

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	4+		251	0		301	7		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0+		202	7+		252	0		302	9		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	2+		203	10+		253	0		303	5		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	0+		204	9+		254	1		304	1		354	0		404	0		454	0		504
0		5	0		55	0		105	1		155	0+		205	10+		255	1		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	1+		206	14+		256	0		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	1+		207	17+		257	1		307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	0		158	2+		208	26+		258	1		308	0		358	0		408	0		458	0		508
0		9	0		59	0		109	0		159	4+		209	33+		259	0		309	0		359	0		409	0		459	0		509
0		10	1		60	0		110	0		160	1+		210	41+		260	0		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	1+		211	57+		261	0		311	0		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	2+		212	69+		262	3		312	0		362	0		412	0		462	0		512
0		13	0		63	1		113	0		163	0+		213	82+		263	1		313	0		363	0		413	0		463			
0		14	0		64	0		114	1		164	1+		214	30+		264	1		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	0		465			
0		16	0		66	0		116	0		166	1+		216	0+		266	1		316	0		366	0		416	0		466			
0		17	0		67	0		117	2		167	0		217	0		267	1		317	0		367	0		417	1		467			
0		18	0		68	0		118	0		168	0		218	0		268	2		318	0		368	0		418	2		468			
0		19	0		69	0		119	3+		169	0		219	0		269	2		319	0		369	0		419	3		469			
0		20	0		70	1		120	3+		170	0		220	0		270	0		320	1		370	0		420	2		470			
0		21	0		71	0		121	2+		171	1		221	0		271	3		321	0		371	0		421	1		471			
0		22	0		72	0		122	5+		172	0		222	0		272	4		322	0		372	0		422	0		472			
0		23	1		73	0		123	3+		173	0		223	0		273	2		323	0		373	0		423	3		473			
0		24	0		74	0		124	3+		174	0		224	1		274	6+		324	0		374	0		424	0		474			
0		25	0		75	0		125	2+		175	0		225	0		275	8+		325	0		375	0		425	0		475			
0		26	0		76	0		126	10+		176	0		226	0		276	12+		326	0		376	0		426	0		476			
0		27	0		77	0		127	10+		177	0		227	0		277	16+		327	0		377	0		427	0		477			
0		28	0		78	0		128	16+		178	1		228	0		278	19+		328	0		378	1		428	0		478			
0		29	0		79	0		129	18+		179	0		229	0		279	34+		329	0		379	0		429	0		479			
0		30	0		80	0		130	24+		180	0		230	0		280	33+		330	0		380	0		430	0		480			
0		31	0		81	0		131	16+		181	0		231	0		281	34+		331	0		381	0		431	0		481			
0		32	0		82	0		132	35+		182	0		232	0		282	32+		332	0		382	0		432	0		482			
0		33	0		83	0		133	45+		183	0		233	0		283	46+		333	0		383	0		433	0		483			
0		34	0		84	1		134	56+		184	0		234	0		284	64+		334	1		384	1		434	0		484			
0		35	0		85	0		135	64+		185	0		235	0		285	104+		335	1		385	0		435	0		485			
0		36	0		86	1		136	43+		186	0		236	0		286	125+		336	1		386	0		436	0		486			
0		37	0		87	0		137	20+		187	1		237	0		287	114+		337	2		387	0		437	0		487			
0		38	0		88	0		138	1+		188	0		238	0		288	56+		338	1		388	1		438	0		488			
0		39	0		89	0		139	0+		189	0		239	0		289	3+		339	1		389	1		439	0		489			
0		40	0		90	2		140	2		190	1		240	0		290	2+		340	3		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	1		342	1		392	0		442	0		492			
0		43	0		93	0		143	0		193	3		243	0		293	1		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	1		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	1		197	3		247	0		297	0		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	1		249	0		299	1		349	0		399	0		449	0		499			
0		50	0		100	0		150	0+		200	2+		250	1		300	0		350	0		400	0		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP3.SAMPLE]KF6EQ1AA\_220281239.CNF;1

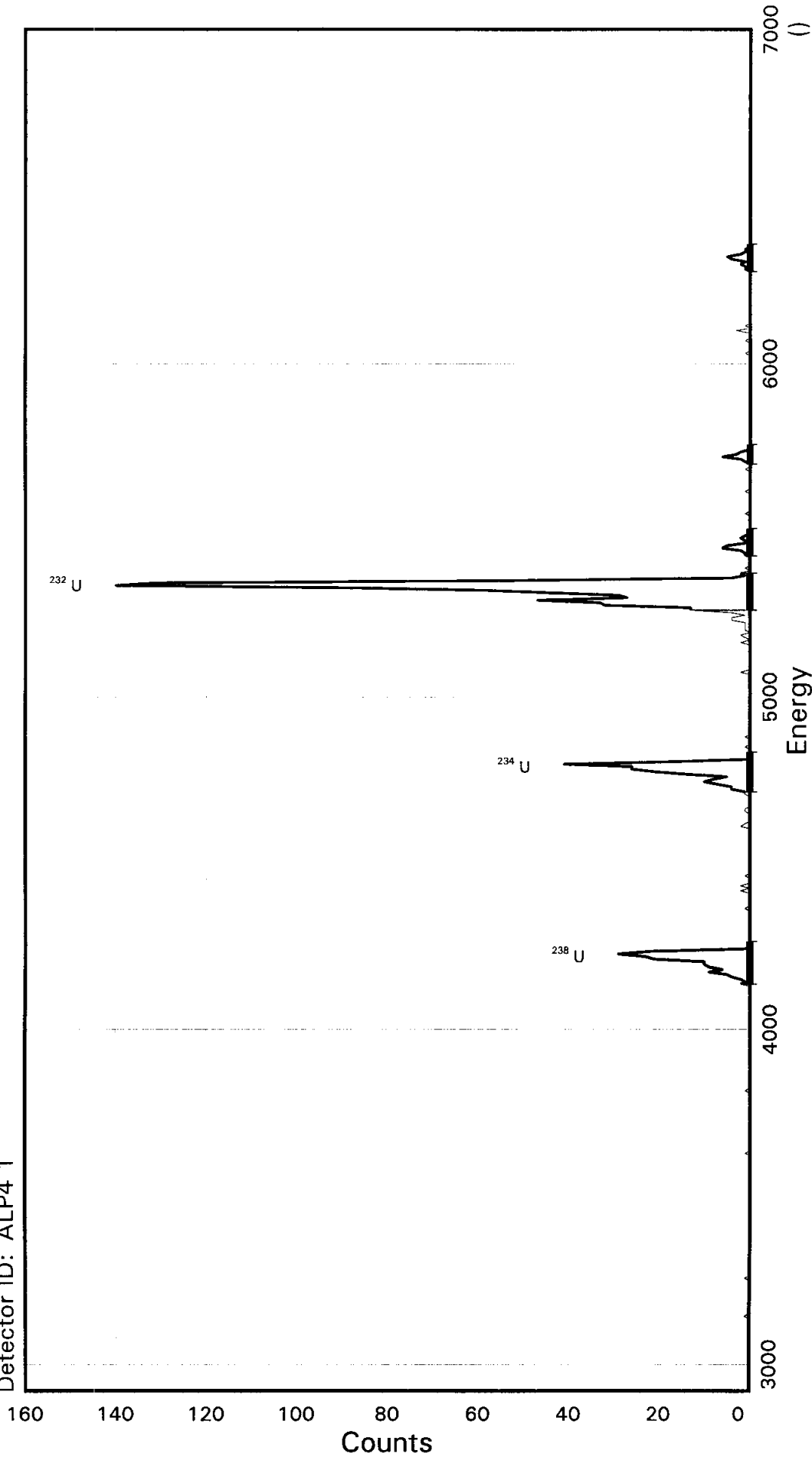
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4214.67	169	190	380	381	-0.05		
4787.51	250	267	423	419	0.19		
5332.56	324	341	711	708	0.11		
5448.94	348	356	24	24	0.00		

End of Report

TAL Richland WA.  
U BRCO

Sample ID: KF6ER1AA  
Detector ID: ALP4 1

Batch ID: 8030213



Acquisition Start: 22-FEB-2008 12:39:55.08  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:06.00

Energy Coefficients:  
Offset: 2.89851E+03  
Slope: 7.46541E+00  
Quadrature: -5.32157E-05

SAMPLE IDENTIITY: KF6ER1AA

TITLE : U BRCO

DETECTOR : ALP4 1  
CONFIGURATION NAME : \$DISK1:[ALP4.SAMPLE]KF6ER1AA\_220281239.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:43

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 12:39:55 CALIB DATE : 04-FEB-2008 03:39:19

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

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: KF6ER1AA

Flags Key

Detector: ALP4 1  
 Report Date: 22-Feb-08 04:00 PM P: Peak Identified  
 Acquire Date: 22-FEB-2008 12:39:55.08 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	Intrsct Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth	Right Wdth	Flags
U-232	717	7	0	3.576	5334.1	111.5	317	332	0.00	0.00	P
U-234	188	5	0	0.935	4788.5	119.0	244	260	0.00	0.00	P
U-235	5	1	0	0.024	4411.7	111.7	193	208	0.00	0.00	
U-238	157	2	0	0.783	4211.9	126.6	166	183	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:00:17

Configuration : \$DISK1:[ALP4.SAMPLE]KF6ER1AA\_220281239.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:39:55  
 Sample ID : KF6ER1AA Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP4 Detector geometry:  
 Elapsed live time: 0 03:20:06.00 Elapsed real time: 0 03:20:06.00 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	4219.28	157	0	37.33	177.14	166	17	1.31E-02	8.0	
2	0	4791.41	188	0	37.33	254.02	244	16	1.57E-02	7.3	
3	0	5334.06	717	0	37.33	327.01	317	15	5.97E-02	3.7	
4	0	5446.85	19	0	37.33	342.19	339	11	1.58E-03	22.9	
5	0	5720.26	13	0	22.40	379.00	376	8	1.08E-03	27.7	
6	0	6320.28	17	0	37.33	459.86	454	11	1.42E-03	24.3	

Alpha Spectrum Listing

(Version: 1 Apr-07)

Sample Identity: KF6ER1AA

Flags Key

Detector: ALP4 L

Report Date: 22 Feb 08 04:00 PM

Intersect Region: \*

Acquire Date: 22 FEB-2008 12:39:55.08

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	14+		251	0		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0+		202	21+		252	0		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	0		153	0+		203	26+		253	0		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	2+		204	26+		254	2		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0+		205	41+		255	0		305	0		355	0		405	1		455	0		505
0		6	0		56	0		106	0		156	2+		206	17+		256	1		306	1		356	0		406	1		456	0		506
0		7	0		57	0		107	0		157	0+		207	0+		257	2		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	0		408	1		458	0		508
0		9	0		59	0		109	0		159	0		209	0+		259	1		309	0		359	0		409	4		459	0		509
0		10	0		60	0		110	0		160	1		210	0		260	1		310	0		360	0		410	5		460	0		510
0		11	0		61	0		111	0		161	0		211	0		261	1		311	0		361	0		411	2		461	0		511
0		12	0		62	0		112	0		162	0		212	1		262	1		312	0		362	0		412	1		462	0		512
0		13	0		63	0		113	0		163	0		213	0		263	4		313	0		363	0		413	1		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	1		315	1		365	0		415	0		465			
0		16	0		66	0		116	2+		166	0		216	1		266	4		316	0		366	0		416	0		466			
0		17	0		67	0		117	1+		167	0		217	0		267	13+		317	0		367	0		417	0		467			
0		18	0		68	0		118	2+		168	0		218	0		268	13+		318	0		368	0		418	0		468			
0		19	0		69	0		119	4+		169	0		219	0		269	32+		319	0		369	0		419	0		469			
0		20	0		70	0		120	5+		170	0		220	0		270	33+		320	0		370	0		420	0		470			
0		21	0		71	0		121	9+		171	0		221	0		271	47+		321	0		371	1		421	0		471			
0		22	0		72	0		122	6+		172	0		222	0		272	27+		322	0		372	0		422	0		472			
0		23	0		73	1		123	9+		173	0		223	0		273	29+		323	0		373	0		423	0		473			
0		24	0		74	0		124	10+		174	0		224	0		274	44+		324	1		374	0		424	0		474			
0		25	0		75	0		125	10+		175	0		225	0		275	59+		325	0		375	0		425	0		475			
0		26	0		76	0		126	21+		176	0		226	0		276	88+		326	0		376	1		426	0		476			
0		27	0		77	0		127	23+		177	0		227	0		277	140+		327	1		377	0		427	0		477			
0		28	0		78	0		128	29+		178	0		228	0		278	131+		328	2		378	0		428	0		478			
0		29	0		79	0		129	22+		179	0		229	0		279	50+		329	5		379	0		429	0		479			
0		30	0		80	0		130	1+		180	2		230	0		280	4+		330	3		380	3		430	0		480			
0		31	0		81	0		131	0+		181	1		231	0		281	1+		331	2		381	0		431	0		481			
0		32	0		82	0		132	0+		182	0		232	0		282	2		332	0		382	1		432	0		482			
1		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	1		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	1		236	0		286	0		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	0		338	0		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	1		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	0		241	0		291	2		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	0		242	2		292	6		342	0		392	0		442	0		492			
0		43	0		93	0		143	0+		193	1		243	0		293	5		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	4+		245	0		295	1		345	0		395	0		445	0		495			
0		46	0		96	0		146	0+		196	4+		246	0		296	2		346	0		396	0		446	0		496			
0		47	0		97	0		147	1+		197	7+		247	0		297	1		347	0		397	0		447	0		497			
1		48	1		98	0		148	0+		198	10+		248	0		298	0		348	0		398	0		448	0		498			
0		49	0		99	0		149	0+		199	8+		249	0		299	0		349	0		399	0		449	0		499			
0		50	0		100	0		150	0+		200	5+		250	0		300	0		350	0		400	0		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP4.SAMPLE]KF6ER1AA\_220281239.CNF;1

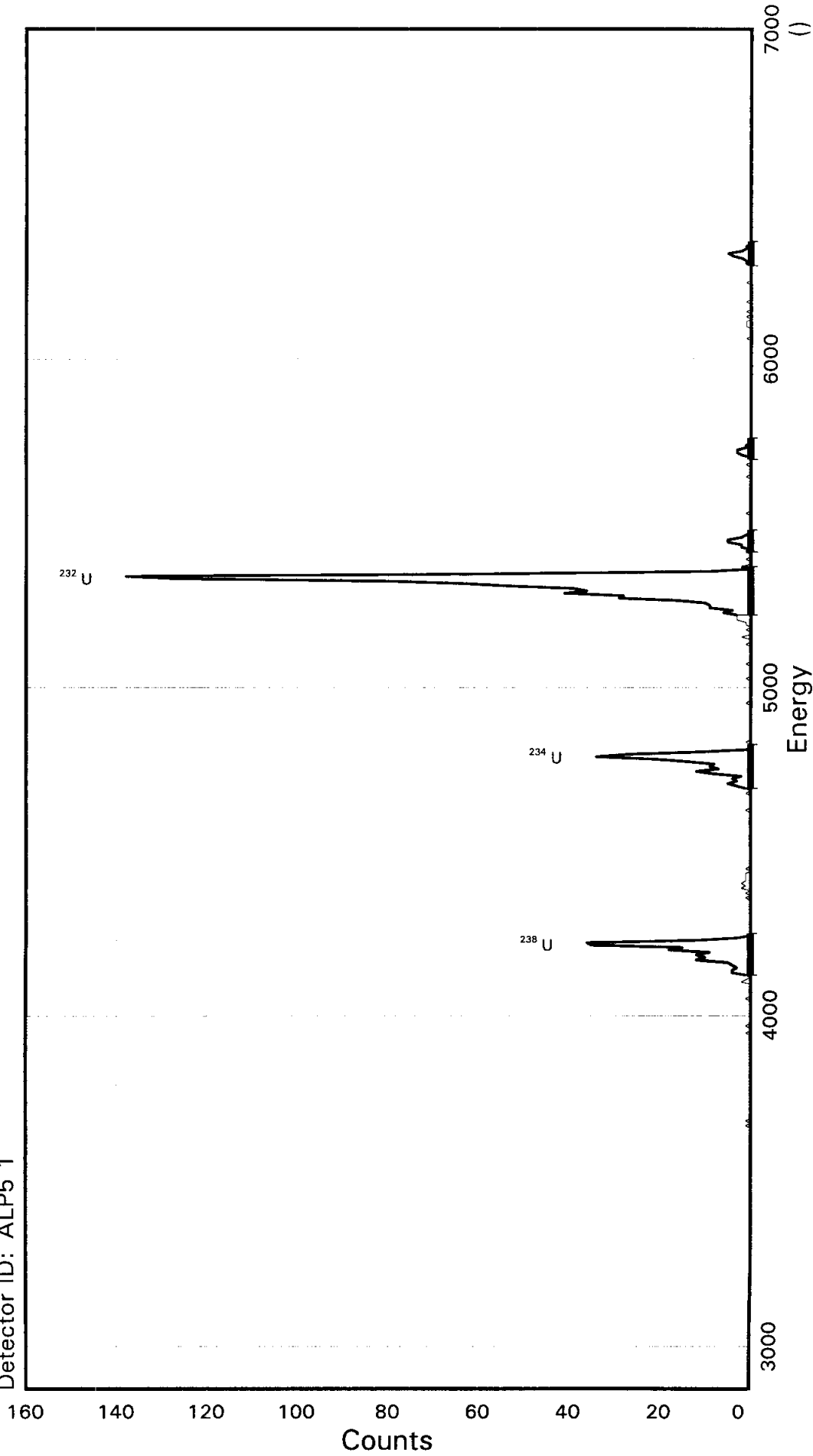
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4219.27	166	183	157	154	0.24		
4791.41	244	260	188	184	0.29		
5334.06	317	332	717	713	0.15		
5446.85	339	350	19	20	-0.23		
5720.26	376	384	13	14	-0.28		
6320.28	454	465	17	18	-0.24		

End of Report

TAL Richland WA.  
U BRCO

Sample ID: KF6ET1AA  
Detector ID: ALP5 1

Batch ID: 8030213



Acquisition Start: 22-FEB-2008 12:40:11.20  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:07.00

Energy Coefficients:  
Offset: 2.84934E + 03  
Slope: 7.42018E + 00  
Quadrature: -4.35080E-05

SAMPLE IDENTIITY: KF6ET1AA

TITLE : U BRCO

DETECTOR : ALP5 1

CONFIGURATION NAME : \$DISK1:[ALP5.SAMPLE]KF6ET1AA\_220281240.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:45

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 22-FEB-2008 12:40:11 CALIB DATE : 04-FEB-2008 03:39:25

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

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: KF6ET1AA

Flags Key

Detector: ALP5 1  
 Report Date: 22-Feb-08 04:00 PM P: Peak Identified  
 Acquire Date: 22-FEB-2008 12:40:11.20 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	765	6	0	3.817	5330.5	147.8	320	340	0.00	0.00	P
U-234	172	4	0	0.855	4785.0	133.2	249	267	0.00	0.00	P
U-235	11	1	0	0.054	4408.2	148.0	195	215	0.00	0.00	
U-238	185	5	0	0.919	4208.4	125.9	172	189	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:00:33

Configuration : \$DISK1:[ALP5.SAMPLE]KF6ET1AA\_220281240.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:40:11  
 Sample ID : KF6ET1AA Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP5 Detector geometry:  
 Elapsed live time: 0 03:20:07.00 Elapsed real time: 0 03:20:07.00 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	4213.84	185	0	37.10	184.09	172	17	1.54E-02	7.4	
2	0	4787.87	172	0	29.68	261.65	249	18	1.43E-02	7.6	
3	0	5330.53	765	0	37.10	335.04	320	20	6.37E-02	3.6	
4	0	5442.46	18	0	37.10	350.19	346	9	1.50E-03	23.6	
5	0	5718.54	11	0	29.68	387.56	384	9	9.16E-04	30.2	
6	0	6316.15	18	0	29.68	468.50	464	10	1.50E-03	23.6	

Alpha Spectrum Listing

(Version: 1 Apr 07)

Sample Identity: KP6ETAA

Flags Key

Detector: ALP5 L

Report Date: 22 Feb 08 04:00 PM

Intersect Region: \*

Acquire Date: 22 FEB 2008 12:40:11.20

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	1		151	0+		201	5+		251	0		301	5		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0+		202	3+		252	0		302	2		352	0		402	0		452	0		502
C		3	0		53	0		103	0		153	0+		203	4+		253	0		303	1		353	0		403	0		453	0		503
C		4	0		54	0		104	0		154	1+		204	2+		254	0		304	0		354	0		404	0		454	0		504
C		5	0		55	0		105	0		155	0+		205	8+		255	0		305	0		355	0		405	0		455	0		505
C		6	0		56	0		106	0		156	1+		206	12+		256	0		306	0		356	0		406	0		456	0		506
C		7	0		57	0		107	0		157	0+		207	7+		257	0		307	0		357	0		407	1		457	0		507
C		8	0		58	0		108	0		158	2+		208	9+		258	1		308	0		358	0		408	0		458	0		508
C		9	0		59	0		109	0		159	1+		209	8+		259	0		309	0		359	0		409	0		459	0		509
C		10	0		60	1		110	0		160	2+		210	14+		260	0		310	0		360	0		410	0		460	0		510
C		11	0		61	0		111	0		161	1+		211	21+		261	2		311	0		361	0		411	0		461	0		511
C		12	0		62	1		112	1		162	1+		212	34+		262	0		312	1		362	0		412	0		462	0		512
C		13	0		63	0		113	0		163	1+		213	27+		263	0		313	0		363	0		413	0		463			
C		14	0		64	0		114	0		164	1+		214	11+		264	1		314	0		364	0		414	0		464			
C		15	0		65	0		115	0		165	0+		215	0+		265	0		315	0		365	0		415	1		465			
C		16	0		66	0		116	0		166	1		216	0+		266	1		316	0		366	0		416	1		466			
C		17	0		67	0		117	0		167	0		217	0		267	1		317	0		367	0		417	2		467			
C		18	0		68	0		118	0		168	0		218	1		268	3		318	0		368	0		418	4		468			
C		19	0		69	0		119	2		169	0		219	0		269	3		319	0		369	0		419	5		469			
C		20	0		70	0		120	1		170	0		220	0		270	3+		320	0		370	0		420	2		470			
C		21	0		71	0		121	0		171	0		221	0		271	6+		321	0		371	0		421	1		471			
C		22	0		72	0		122	1+		172	0		222	0		272	4+		322	0		372	0		422	1		472			
C		23	0		73	0		123	4+		173	0		223	0		273	9+		323	0		373	0		423	0		473			
C		24	0		74	0		124	4+		174	0		224	0		274	9+		324	0		374	0		424	0		474			
C		25	0		75	0		125	3+		175	0		225	0		275	10+		325	0		375	0		425	0		475			
C		26	0		76	0		126	4+		176	0		226	0		276	16+		326	0		376	0		426	0		476			
C		27	0		77	0		127	5+		177	0		227	0		277	29+		327	1		377	0		427	0		477			
C		28	0		78	0		128	12+		178	0		228	0		278	28+		328	0		378	0		428	0		478			
C		29	0		79	0		129	10+		179	0		229	0		279	41+		329	0		379	0		429	0		479			
C		30	0		80	0		130	12+		180	0		230	0		280	36+		330	0		380	0		430	0		480			
C		31	0		81	0		131	9+		181	0		231	0		281	39+		331	0		381	0		431	0		481			
C		32	0		82	0		132	18+		182	0		232	0		282	53+		332	1		382	0		432	0		482			
C		33	0		83	0		133	15+		183	0		233	0		283	63+		333	0		383	0		433	0		483			
C		34	0		84	0		134	35+		184	0		234	1		284	79+		334	0		384	1		434	0		484			
C		35	0		85	0		135	36+		185	0		235	0		285	126+		335	0		385	0		435	0		485			
C		36	0		86	0		136	12+		186	0		236	0		286	138+		336	2		386	0		436	0		486			
C		37	0		87	0		137	3+		187	0		237	0		287	59+		337	3		387	0		437	0		487			
C		38	0		88	0		138	0+		188	0		238	0		288	9+		338	3		388	0		438	0		488			
C		39	0		89	0		139	0		189	0		239	0		289	0+		339	1		389	1		439	0		489			
C		40	0		90	0		140	0		190	1		240	0		290	2		340	1		390	1		440	0		490			
C		41	0		91	0		141	0		191	0		241	0		291	0		341	0		391	1		441	0		491			
C		42	0		92	0		142	0		192	0		242	0		292	0		342	0		392	0		442	0		492			
C		43	0		93	0		143	0		193	0		243	0		293	1		343	0		393	1		443	0		493			
C		44	0		94	0		144	0		194	0		244	1		294	0		344	0		394	0		444	0		494			
C		45	0		95	0		145	0+		195	0		245	0		295	0		345	0		395	1		445	0		495			
C		46	0		96	0		146	0+		196	0		246	0		296	1		346	0		396	0		446	0		496			
C		47	0		97	0		147	0+		197	1		247	0		297	0		347	0		397	0		447	0		497			
C		48	0		98	1		148	0+		198	0		248	0		298	2		348	C		398	0		448	0		498			
C		49	0		99	0		149	0+		199	1+		249	0		299	2		349	C		399	1		449	0		499			
C		50	0		100	0		150	0+		200	3+		250	1		300	5		350	C		400	0		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP5.SAMPLE]KF6ET1AA\_220281240.CNF;1

Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4213.83	172	189	185	183	0.15		
4787.86	249	267	172	169	0.23		
5330.52	320	340	765	759	0.22		
5442.46	346	355	18	18	0.00		
5718.53	384	393	11	10	0.30		
6316.14	464	474	18	17	0.24		

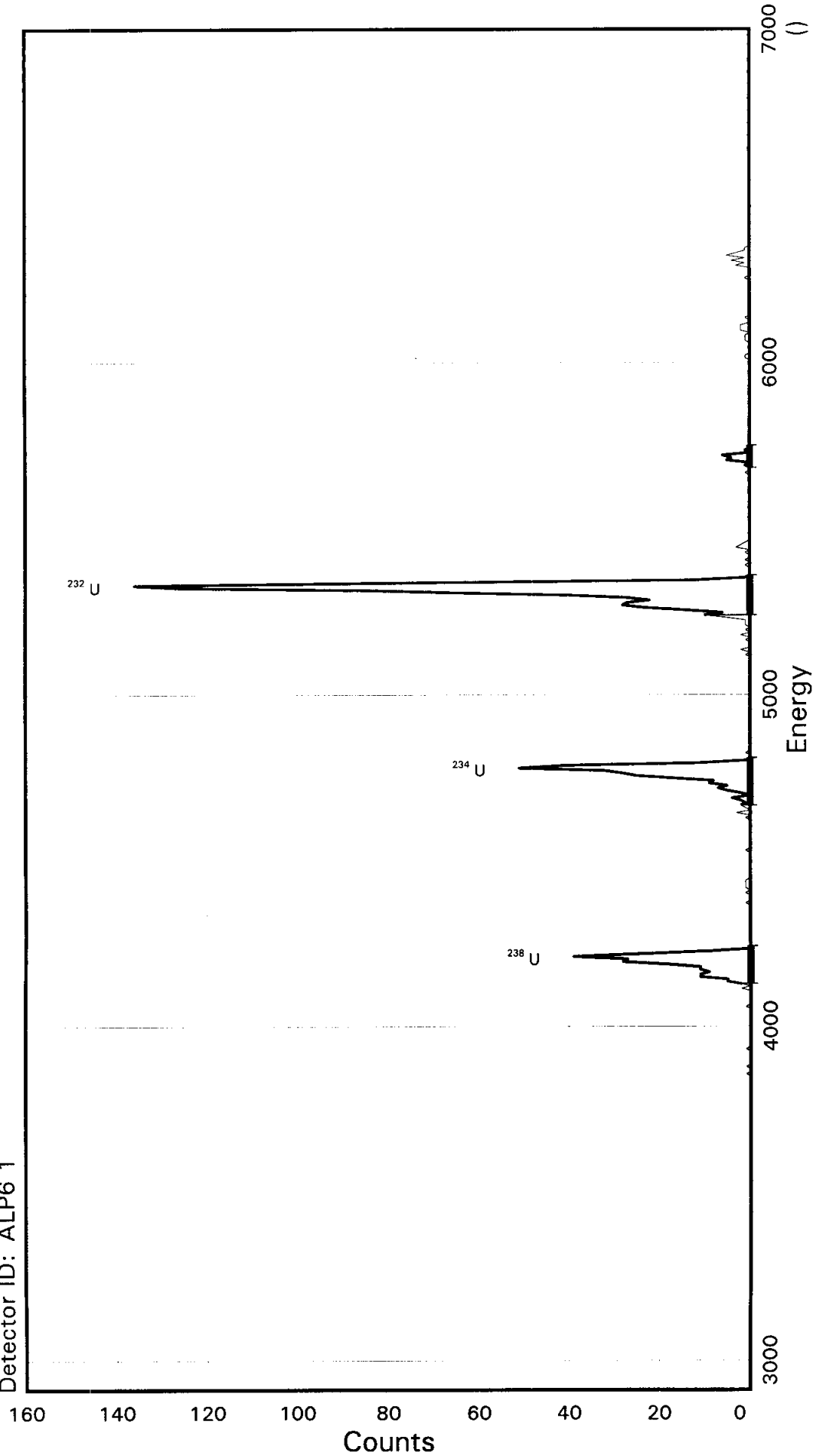
End of Report



TAL Richland WA.  
U BRCO

Sample ID: KF6EV1AA  
Detector ID: ALP6 1

Batch ID: 8030213



Acquisition Start: 22-FEB-2008 12:40:25.84  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:08.00

Energy Coefficients:  
Offset: 2.88921E+03  
Slope: 7.49841E+00  
Quadrature: 3.05801E-05

SAMPLE IDENTIITY: KF6EV1AA

TITLE : U BRCO

DETECTOR : ALP6 1  
CONFIGURATION NAME : \$DISK1: [ALP6.SAMPLE] KF6EV1AA\_220281240.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:48

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 12:40:25 CALIB DATE : 04-FEB-2008 03:39:34

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:08

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: KF6EV1AA

Flags Key

Detector: ALP6 1	P: Peak Identified
Report Date: 22-Feb-08 04:00 PM	I: Peak Intersect
Acquire Date: 22-FEB-2008 12:40:25.84	S: Single Non-peak Intersect
Tracer Nuclide: U-232	M: Multiple Non-peak Intersect
High Counts Limit: 36	H: High Non-peak Sample Count
Sample Live Time: 200 minutes	A: Altered via ALP-RGN-EDIT
Bkgrnd Live Time: 1000 minutes	

Nuclide Name	Smpl Count	Bkg Count	Intrsrct Count	Count Rate C/Min	Centrd Region			Left Right		Flags
					Energy keV	Width keV	Left Chnl	Right Chnl	Wdth Mult	
U-232	708	3	0	3.535	5322.6	120.3	313	329	0.00 0.00	P
U-234	253	0	0	1.264	4777.1	142.8	237	256	0.00 0.00	P
U-235	5	1	0	0.024	4400.3	120.2	190	206	0.00 0.00	
U-238	211	1	0	1.053	4200.5	112.6	165	180	0.00 0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:00:49

```

Configuration      : $DISK1:[ALP6.SAMPLE]KF6EV1AA_220281240.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : U BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:40:25
Sample ID         : KF6EV1AA Sample quantity : 0.00000E+00 LITER
Sample type       : disk Sample geometry :
Detector name     : ALP6 Detector geometry:
Elapsed live time: 0 03:20:08.00 Elapsed real time: 0 03:20:08.00 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	4203.23	211	0	37.49	175.12	165	15	1.76E-02	6.9	
2	0	4774.77	253	0	37.49	251.20	237	19	2.11E-02	6.3	
3	0	5322.65	708	0	37.49	324.10	313	16	5.90E-02	3.8	
4	0	5710.78	18	0	29.99	375.71	372	9	1.50E-03	23.6	



ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP6.SAMPLE]KF6EV1AA\_220281240.CNF;1

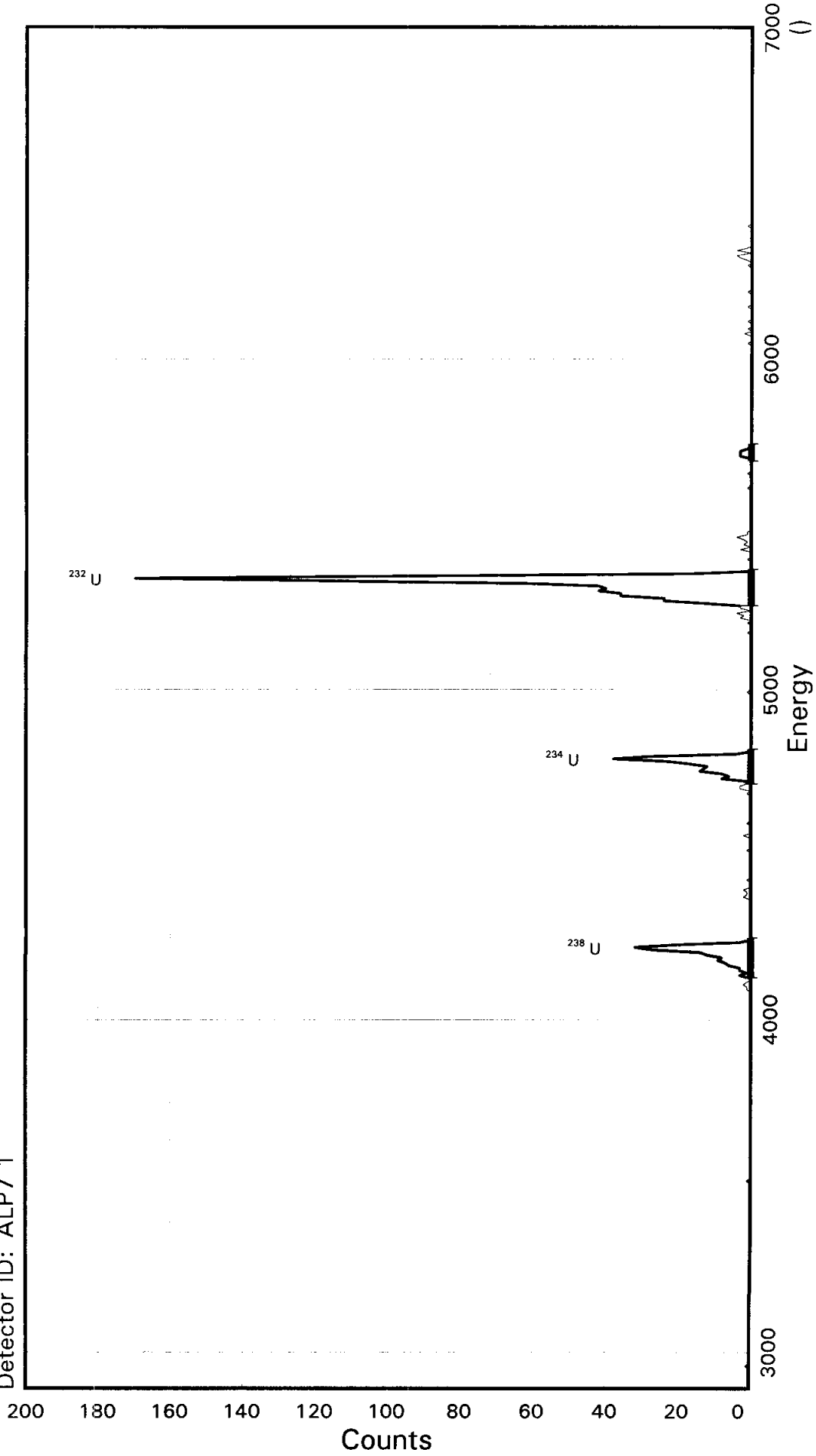
Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4203.23	165	180	211	210	0.07		
4774.77	237	256	253	251	0.13		
5322.64	313	329	708	703	0.19		
5710.78	372	381	18	17	0.24		

End of Report

TAL Richland WA.  
U BRCO

Sample ID: KF6EW1AA  
Detector ID: ALP7 1

Batch ID: 8030213



Acquisition Start: 22-FEB-2008 12:40:41.71  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:00.00

Energy Coefficients:  
Offset: 2.86835E + 03  
Slope: 7.51668E + 00  
Quadrature: -1.30370E-04

SAMPLE IDENTIITY:                   KF6EW1AA

TITLE                   : U BRCO

DETECTOR                   : ALP7 1

CONFIGURATION NAME       : \$DISK1:[ALP7.SAMPLE]KF6EW1AA\_220281240.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:52

REPORT DATE : 22-Feb-08                   SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 22-FEB-2008 12:40:41    CALIB DATE : 04-FEB-2008 03:39:40

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

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: KF6EW1AA

Flags Key

Detector: ALP7 1  
 Report Date: 22-Feb-08 04:01 PM  
 Acquire Date: 22-FEB-2008 12:40:41.71  
 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 Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth	Right Wdth	Flags
U-232	732	10	0	3.650	5331.4	111.5	319	334	0.00	0.00	P
U-234	176	1	0	0.879	4785.8	104.3	247	261	0.00	0.00	P
U-235	7	1	0	0.034	4409.0	112.0	195	210	0.00	0.00	
U-238	155	1	0	0.774	4209.2	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 22-FEB-2008 16:00:59

Configuration : \$DISK1:[ALP7.SAMPLE]KF6EW1AA\_220281240.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:40:41  
 Sample ID : KF6EW1AA Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP7 Detector geometry:  
 Elapsed live time: 0 03:20:00.00 Elapsed real time: 0 03:20:00.00 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	4213.52	155	0	30.07	179.52	168	16	1.29E-02	8.0	
2	0	4788.34	176	0	30.07	256.57	247	14	1.47E-02	7.5	
3	0	5331.39	732	0	30.07	329.56	319	15	6.10E-02	3.7	
4	0	5714.21	10	0	22.55	381.12	378	7	8.33E-04	31.6	



Alpha Spectrum Listing

(Version: 1 Apr 07)

Sample Identity: KP6EW1AA

Flags Key

Detector: ALP7 1

Report Date: 22 Feb 08 04:01 PM

Intersect Region: 0

Acquire Date: 22 FEB 2008 12:40:41.71

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	2+	201	8+	251	0	301	0	351	0	401	0	451	0	501		
		2	0	52	0	102	0	152	1+	202	14+	252	0	302	0	352	0	402	0	452	0	502		
C		3	0	53	0	103	0	153	1+	203	13+	253	0	303	0	353	0	403	0	453	0	503		
C		4	0	54	0	104	0	154	2+	204	12+	254	0	304	0	354	0	404	0	454	0	504		
C		5	0	55	0	105	0	155	0+	205	17+	255	0	305	0	355	0	405	0	455	0	505		
C		6	0	56	0	106	0	156	0+	206	23+	256	0	306	0	356	0	406	0	456	0	506		
C		7	0	57	0	107	0	157	0+	207	38+	257	0	307	0	357	0	407	0	457	0	507		
C		8	0	58	0	108	0	158	1+	208	28+	258	1	308	0	358	0	408	1	458	0	508		
0		9	0	59	0	109	0	159	0+	209	4+	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		
C		11	0	61	0	111	0	161	0	211	0	261	0	311	0	361	0	411	3	461	0	511		
1		12	0	62	0	112	0	162	0	212	0	262	1	312	0	362	0	412	4	462	0	512		
C		13	0	63	0	113	1	163	0	213	0	263	0	313	0	363	0	413	0	463				
C		14	0	64	0	114	1	164	0	214	0	264	3	314	0	364	0	414	4	464				
C		15	0	65	0	115	2	165	0	215	0	265	2	315	0	365	0	415	1	465				
C		16	0	66	0	116	1	166	0	216	0	266	4	316	0	366	0	416	0	466				
C		17	0	67	0	117	0	167	0	217	0	267	0	317	1	367	0	417	0	467				
C		18	0	68	0	118	1+	168	0	218	0	268	3	318	0	368	0	418	0	468				
0		19	0	69	0	119	3+	169	0	219	0	269	3+	319	0	369	0	419	0	469				
0		20	0	70	0	120	1+	170	1	220	0	270	13+	320	0	370	0	420	0	470				
0		21	0	71	0	121	3+	171	0	221	0	271	24+	321	0	371	0	421	0	471				
0		22	0	72	0	122	3+	172	0	222	0	272	24+	322	0	372	0	422	0	472				
0		23	0	73	0	123	6+	173	0	223	0	273	36+	323	1	373	0	423	0	473				
0		24	0	74	0	124	7+	174	0	224	0	274	36+	324	0	374	0	424	1	474				
0		25	0	75	0	125	9+	175	0	225	0	275	42+	325	0	375	0	425	0	475				
0		26	0	76	0	126	8+	176	2	226	0	276	40+	326	0	376	1	426	0	476				
0		27	0	77	0	127	12+	177	0	227	0	277	42+	327	0	377	0	427	0	477				
0		28	0	78	0	128	14+	178	0	228	0	278	61+	328	0	378	0	428	0	478				
0		29	0	79	0	129	27+	179	0	229	0	279	116+	329	0	379	0	429	0	479				
0		30	0	80	0	130	32+	180	0	230	0	280	170+	330	3	380	2	430	0	480				
0		31	0	81	0	131	21+	181	1	231	0	281	98+	331	3	381	0	431	0	481				
0		32	0	82	0	132	3+	182	0	232	0	282	17+	332	3	382	1	432	0	482				
0		33	0	83	0	133	0+	183	0	233	0	283	1+	333	1	383	0	433	0	483				
0		34	0	84	0	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	1	435	0	485				
0		36	1	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	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	0	241	0	291	0	341	0	391	1	441	0	491				
0		42	0	92	0	142	0	192	0	242	0	292	3	342	0	392	0	442	0	492				
0		43	0	93	0	143	0	193	1	243	0	293	0	343	0	393	0	443	0	493				
0		44	0	94	0	144	0	194	0	244	0	294	2	344	0	394	0	444	0	494				
0		45	0	95	0	145	0+	195	3	245	0	295	1	345	0	395	0	445	0	495				
0		46	0	96	0	146	0+	196	3	246	0	296	2	346	0	396	0	446	0	496				
0		47	0	97	0	147	0+	197	1+	247	0	297	4	347	0	397	1	447	0	497				
0		48	0	98	0	148	0+	198	1+	248	0	298	1	348	0	398	0	448	0	498				
0		49	0	99	0	149	0+	199	8+	249	0	299	1	349	0	399	0	449	0	499				
0		50	0	100	0	150	0+	200	6+	250	0	300	0	350	0	400	0	450	0	500				

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP7.SAMPLE]KF6EW1AA\_220281240.CNF;1

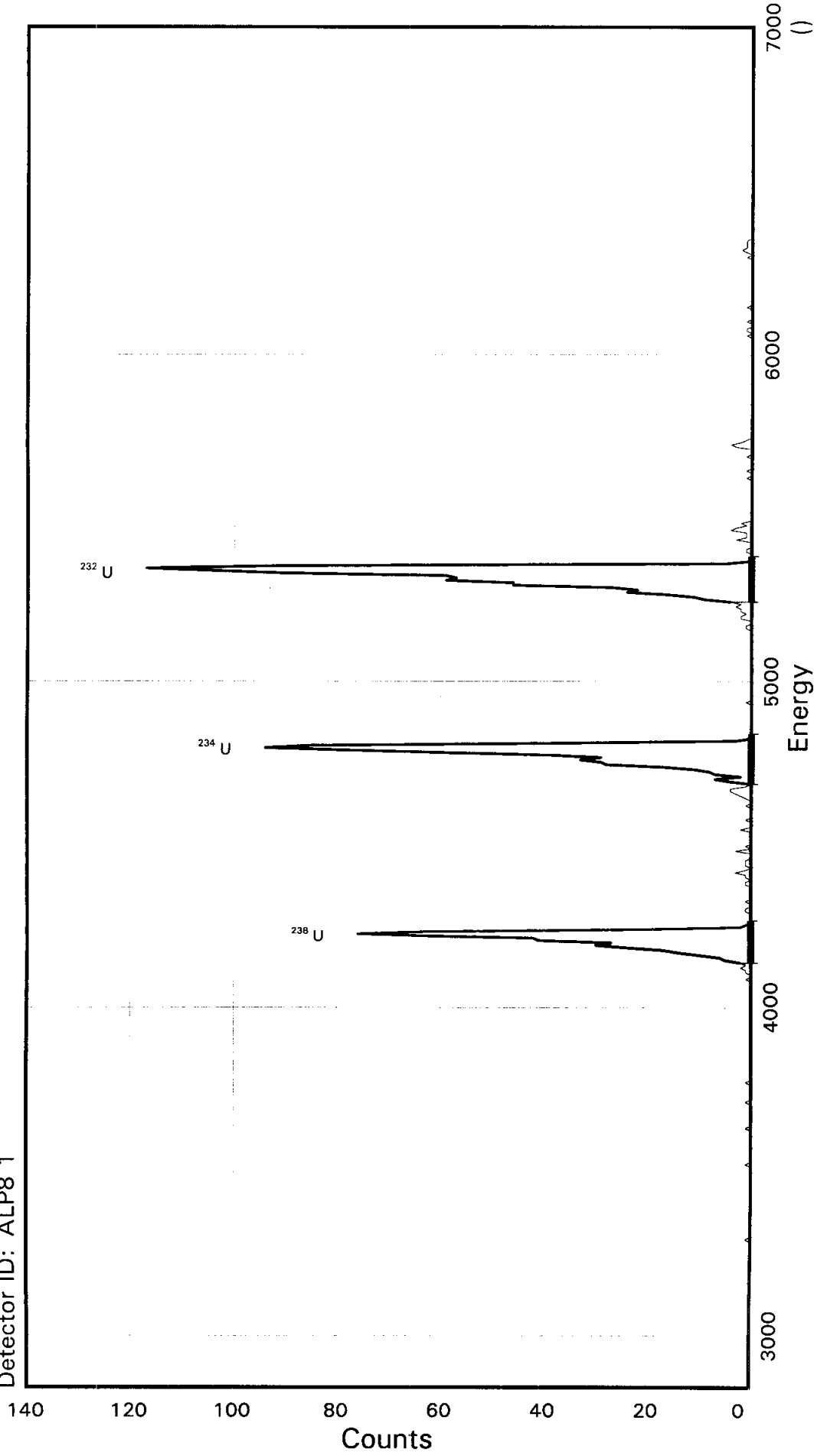
Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4213.52	168	184	155	150	0.40		
4788.33	247	261	176	173	0.23		
5331.39	319	334	732	723	0.33		
5714.20	378	385	10	10	0.00		

End of Report

TAL Richland WA.  
U BRCO

Sample ID: KF6E01AA  
Detector ID: ALP8 1

Batch ID: 8030213



Acquisition Start: 22-FEB-2008 12:41:08.98  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:06.00

Energy Coefficients:  
Offset: 2.81988E + 03  
Slope: 7.38161E + 00  
Quadrature: -1.21988E-04

SAMPLE IDENTIITY: KF6E01AA

TITLE : U BRCO

DETECTOR : ALP8 1  
CONFIGURATION NAME : \$DISK1:[ALP8.SAMPLE]KF6E01AA\_220281241.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:56

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 12:41:08 CALIB DATE : 04-FEB-2008 03:39:47

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

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: KF6E01AA

Flags Key

Detector: ALP8 1  
 Report Date: 22-Feb-08 04:01 PM P: Peak Identified  
 Acquire Date: 22-FEB-2008 12:41:08.98 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	800	14	0	3.984	5331.9	138.7	330	349	0.00	0.00	P
U-234	579	0	0	2.894	4786.3	153.7	254	275	0.00	0.00	P
U-235	12	0	0	0.060	4409.5	139.3	204	223	0.00	0.00	
U-238	449	0	0	2.244	4209.7	132.0	179	197	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:01:32

Configuration : \$DISK1:[ALP8.SAMPLE]KF6E01AA\_220281241.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:41:08  
 Sample ID : KF6E01AA Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP8 Detector geometry:  
 Elapsed live time: 0 03:20:06.00 Elapsed real time: 0 03:20:06.00 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	4218.65	449	0	51.67	190.09	179	18	3.74E-02	4.7	
2	0	4793.12	579	0	44.29	268.51	254	21	4.82E-02	4.2	
3	0	5331.88	800	0	51.67	342.24	330	19	6.66E-02	3.5	



ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP8.SAMPLE]KF6E01AA\_220281241.CNF;1

Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4218.65	179	197	449	444	0.24		
4793.11	254	275	579	571	0.33		
5331.87	330	349	800	787	0.46		

End of Report

# URANIUM ISOTOPIIC COUNTING REQUEST

C.R. Technician PC

Counting Time 200 Minutes  
Sample \_\_\_\_\_

SOP's RICHRD008  
Operating: RICHRD0016  
Review: RICHRD0016

Date Counted 2/22/08

Background See Alpha Regions Report

BRCO 01/25/08 8030213

WorkOrder #	U-232 (5320 KeV) Tracer	TOTAL COUNTS			Det #	Comments/Edits
		U-238 (4196 KeV)	U-235 (4396 KeV)	U-234 (4776 KeV)		
KF6E11AA	See Counting Room Printout for ROI information				9	
KF6E21AA	See Counting Room Printout for ROI information				10	
KF6E21AE	See Counting Room Printout for ROI information				11	
KF6E51AA	See Counting Room Printout for ROI information				12	
KF6FA1AA	See Counting Room Printout for ROI information				69	
KF6FD1AA	See Counting Room Printout for ROI information				71	
KF6FF1AA	See Counting Room Printout for ROI information				84	<i>col</i>
KF6FJ1AA	See Counting Room Printout for ROI information				85	
	See Counting Room Printout for ROI information					

Comments:

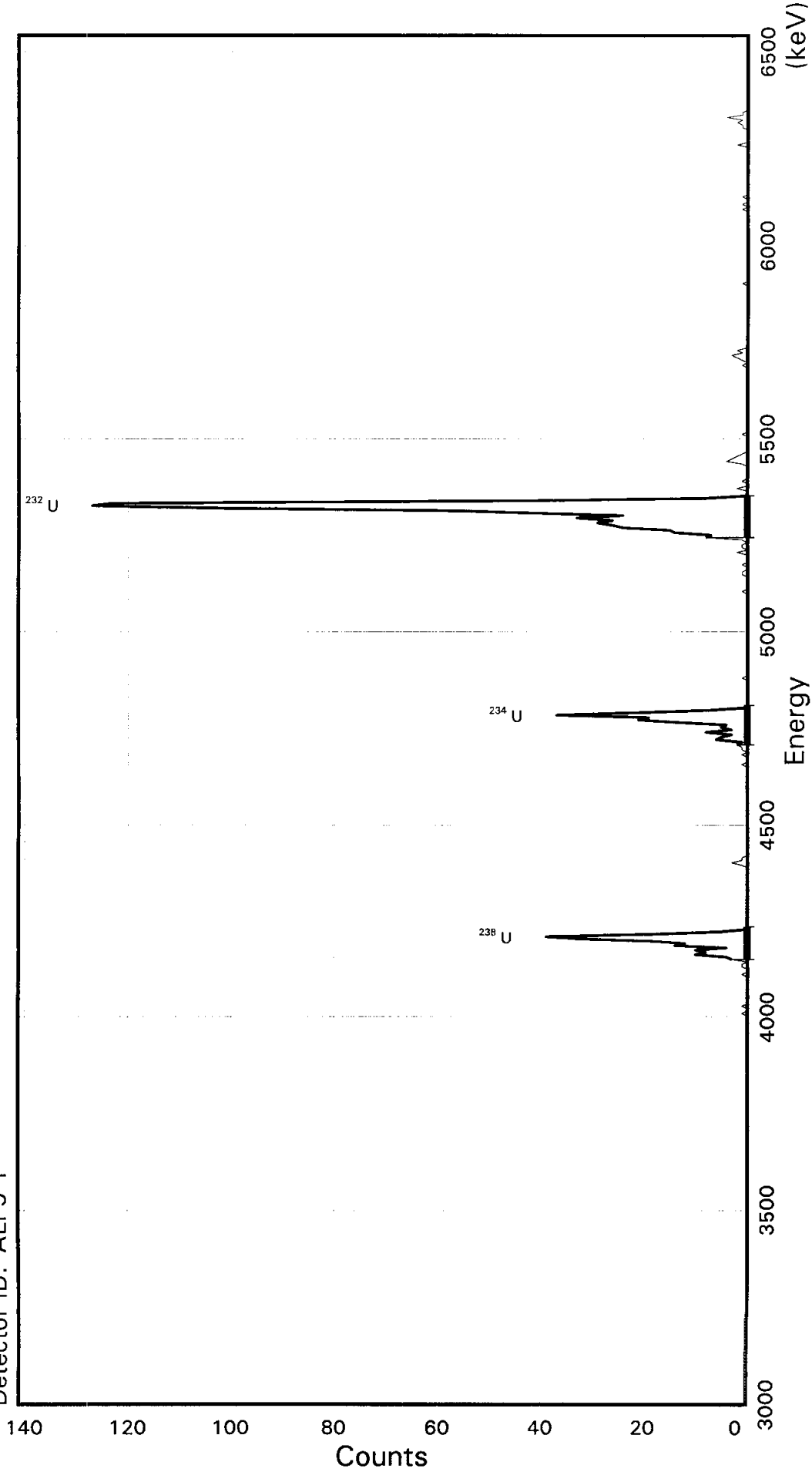
2/22/08 1604



TAL Richland WA.  
U BRCO

Sample ID: KF6E11AA  
Detector ID: ALP9 1

Batch ID: 8030213



Acquisition Start: 22-FEB-2008 12:41:28.44  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:01.00

Energy Coefficients:  
Offset: 3.27772E + 03  
Slope: 6.34407E + 00  
Quadrature: 6.17500E-05

SAMPLE IDENTIITY: KF6E11AA

TITLE : U BRCO

DETECTOR : ALP9 1

CONFIGURATION NAME : \$DISK1: [ALP9.SAMPLE]KF6E11AA\_220281241.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:07:00

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 22-FEB-2008 12:41:28 CALIB DATE : 04-FEB-2008 03:39:54

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:01

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: KF6E11AA

Flags Key

Detector: ALP9 1  
 Report Date: 22-Feb-08 04:01 PM P: Peak Identified  
 Acquire Date: 22-FEB-2008 12:41:28.44 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	Smpl	Bkg	Intrsc	Count	Centrd	Region	Left	Right	Left	Right	Flags
Name	Count	Count	Count	Rate	Energy	Width	Chnl	Chnl	Wdth	Wdth	
U-232	706	6	0	3.524	5327.1	108.5	309	326	0.00	0.00	P
U-234	156	0	0	0.780	4781.6	102.0	225	241	0.00	0.00	P
U-235	6	0	0	0.030	4404.8	108.2	164	181	0.00	0.00	
U-238	177	0	0	0.885	4205.0	89.1	137	151	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:01:48

Configuration : \$DISK1:[ALP9.SAMPLE]KF6E11AA\_220281241.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:41:28  
 Sample ID : KF6E11AA Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP9 Detector geometry:  
 Elapsed live time: 0 03:20:01.00 Elapsed real time: 0 03:20:01.00 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	4208.66	177	0	25.38	146.53	137	14	1.47E-02	7.5	
2	0	4782.24	156	0	25.38	236.61	225	16	1.30E-02	8.0	
3	0	5327.13	706	0	19.03	322.03	309	17	5.88E-02	3.8	



ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP9.SAMPLE]KF6E11AA\_220281241.CNF;1

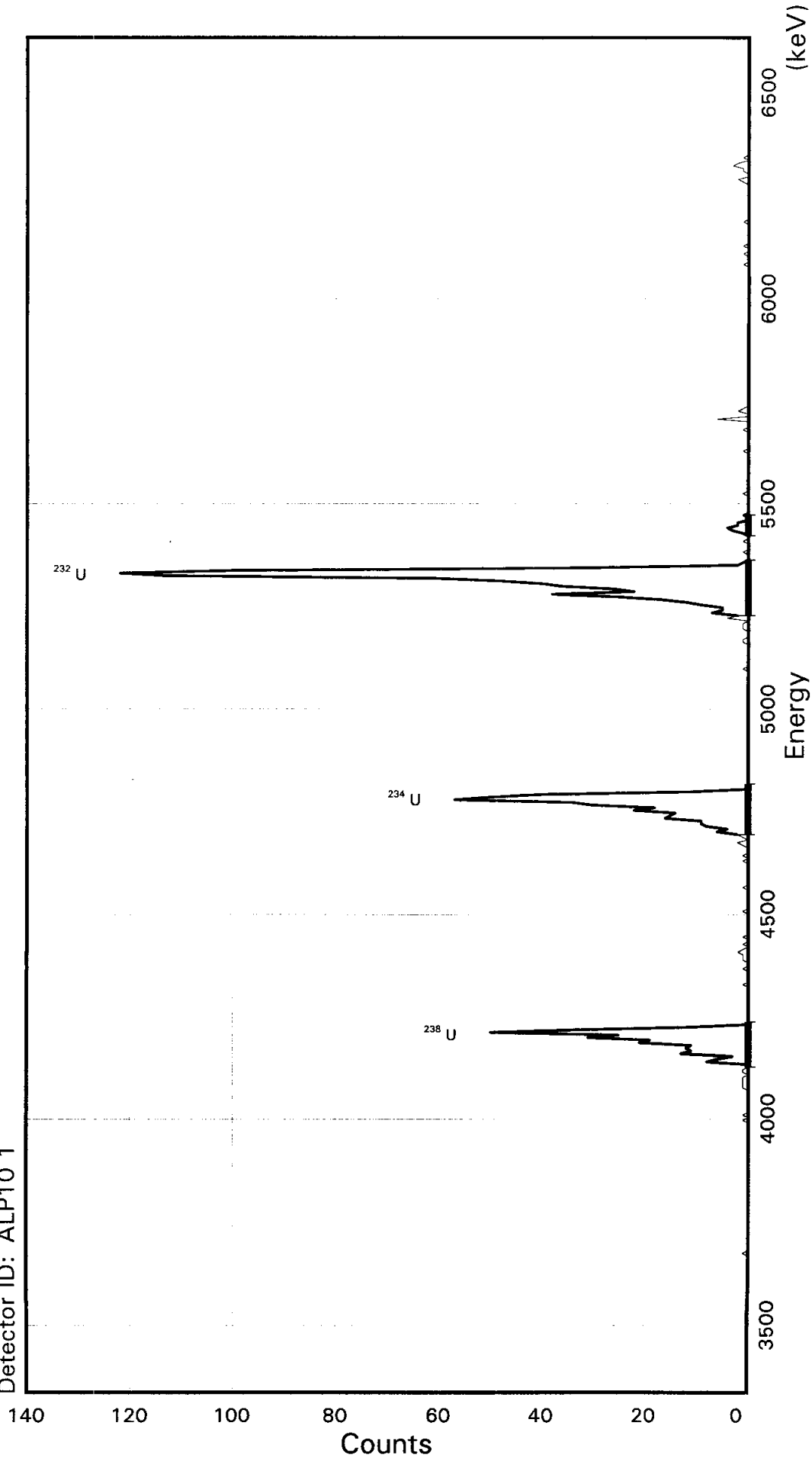
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4208.66	137	151	177	177	0.00		
4782.24	225	241	156	155	0.08		
5327.12	309	326	706	706	0.00		

End of Report

TAL Richland WA.  
U BRCO

Sample ID: KF6E21AA  
Detector ID: ALP10 1

Batch ID: 8030213



Acquisition Start: 22-FEB-2008 12:41:41.77  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:06.00

Energy Coefficients:  
Offset: 3.31729E + 03  
Slope: 6.46731E + 00  
Quadrature: 1.89948E-05

SAMPLE IDENTIITY: KF6E21AA

TITLE : U BRCO

DETECTOR : ALP10 1

CONFIGURATION NAME : \$DISK1:[ALP10.SAMPLE]KF6E21AA\_220281241.CNF;  
1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:07:03

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 22-FEB-2008 12:41:41 CALIB DATE : 04-FEB-2008 03:39:59

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

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: KF6E21AA

Flags Key

Detector: ALP10 1  
 Report Date: 22-Feb-08 04:02 PM P: Peak Identified  
 Acquire Date: 22-FEB-2008 12:41:41.77 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	728	0	0	3.638	5327.5	136.1	295	316	0.00	0.00	P
U-234	348	1	0	1.738	4782.0	123.0	213	232	0.00	0.00	P
U-235	10	0	0	0.050	4405.2	135.9	153	174	0.00	0.00	
U-238	256	2	0	1.277	4205.4	110.0	125	142	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:02:06

Configuration : \$DISK1:[ALP10.SAMPLE]KF6E21AA\_220281241.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:41:41  
 Sample ID : KF6E21AA Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP10 Detector geometry:  
 Elapsed live time: 0 03:20:06.00 Elapsed real time: 0 03:20:06.00 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	4204.78	256	0	32.34	137.17	125	17	2.13E-02	6.3	
2	0	4780.51	348	0	32.34	226.10	213	19	2.90E-02	5.4	
3	0	5327.55	728	0	25.87	310.55	295	21	6.06E-02	3.7	
4	0	5440.61	12	0	19.40	328.00	325	8	1.00E-03	28.9	



Alpha Spectrum Listing

(Version: 1-Apr-07)

Sample Identity: KF6E21AA

Flags Key

Detector: ALP10 1

Report Date: 22-Feb-08 04:02 PM

Intersect Region: S

Acquire Date: 22 FEB 2008 12:41:41.77

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	17+		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0		202	0		252	25+		302	0		352	0		402	0		452	0		502
C		3	0		53	0		103	0+		153	1		203	0		253	38+		303	0		353	0		403	0		453	0		503
C		4	0		54	0		104	0+		154	0		204	0		254	22+		304	0		354	0		404	0		454	0		504
C		5	1		55	1		105	0+		155	1		205	0		255	26+		305	0		355	0		405	0		455	0		505
C		6	0		56	0		106	1+		156	0		206	0		256	36+		306	0		356	0		406	0		456	0		506
C		7	0		57	1		107	0+		157	0		207	0		257	40+		307	1		357	0		407	0		457	0		507
0		8	0		58	0		108	0+		158	0		208	0		258	48+		308	0		358	0		408	1		458	0		508
0		9	0		59	0		109	0+		159	1		209	0		259	60+		309	0		359	0		409	2		459	0		509
0		10	0		60	0		110	0+		160	2		210	0		260	113+		310	0		360	0		410	0		460	0		510
C		11	0		61	0		111	0+		161	0		211	0		261	122+		311	0		361	0		411	0		461	0		511
C		12	0		62	0		112	1+		162	1		212	0		262	99+		312	0		362	0		412	1		462	0		512
C		13	0		63	0		113	0+		163	2+		213	0		263	31+		313	0		363	0		413	1		463			
C		14	0		64	0		114	0+		164	6+		214	0		264	2+		314	0		364	0		414	3		464			
C		15	0		65	0		115	1+		165	4+		215	0		265	1+		315	1		365	0		415	2		465			
0		16	0		66	0		116	1+		166	8+		216	0		266	0		316	0		366	0		416	0		466			
0		17	0		67	1		117	1+		167	9+		217	0		267	0		317	0		367	0		417	1		467			
0		18	0		68	1		118	2+		168	9+		218	0		268	0		318	0		368	0		418	0		468			
0		19	0		69	1		119	1+		169	16+		219	0		269	1		319	6		369	0		419	0		469			
0		20	0		70	1		120	0+		170	15+		220	0		270	0		320	0		370	0		420	0		470			
0		21	0		71	1		121	1+		171	14+		221	0		271	0		321	0		371	0		421	0		471			
0		22	0		72	0		122	0+		172	22+		222	0		272	0		322	2		372	0		422	0		472			
0		23	0		73	1		123	0+		173	18+		223	0		273	1		323	1		373	0		423	0		473			
0		24	0		74	1		124	1+		174	30+		224	0		274	0		324	0		374	0		424	0		474			
0		25	0		75	0+		125	0		175	34+		225	1		275	0		325	0		375	0		425	0		475			
0		26	0		76	0+		126	0		176	57+		226	0		276	1		326	0		376	0		426	0		476			
0		27	0		77	8+		127	0		177	50+		227	0		277	3		327	0		377	1		427	0		477			
0		28	0		78	6+		128	0		178	40+		228	0		278	4		328	0		378	0		428	0		478			
0		29	0		79	3+		129	0		179	11+		229	0		279	2		329	0		379	0		429	0		479			
0		30	0		80	13+		130	0		180	0+		230	0		280	2		330	0		380	0		430	0		480			
0		31	0		81	11+		131	0		181	0+		231	0		281	0		331	0		381	1		431	0		481			
0		32	0		82	12+		132	0		182	0		232	0		282	0		332	0		382	0		432	0		482			
0		33	0		83	11+		133	0		183	0		233	0		283	1		333	0		383	0		433	0		483			
0		34	0		84	21+		134	1		184	0		234	0		284	0		334	0		384	1		434	0		484			
0		35	0		85	19+		135	0		185	0		235	1		285	0		335	0		385	0		435	0		485			
0		36	0		86	31+		136	0		186	0		236	1		286	0		336	0		386	0		436	0		486			
0		37	0		87	25+		137	0		187	0		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	50+		138	0		188	0		238	0		288	0		338	0		388	0		438	0		488			
0		39	0		89	33+		139	0		189	0		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	11+		140	0		190	0		240	1		290	0		340	0		390	0		440	0		490			
0		41	0		91	0+		141	0		191	0		241	1		291	1		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	0		242	1		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	1		443	0		493			
0		44	0		94	0		144	0		194	0		244	4		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	0		195	0		245	2+		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	0		196	0		246	7+		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	0		197	0		247	5+		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0		198	0		248	5+		298	0		348	C		398	0		448	0		498			
0		49	0		99	0		149	0		199	0		249	9+		299	0		349	C		399	0		449	0		499			
0		50	0		100	0		150	0		200	0		250	12+		300	0		350	C		400	0		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP10.SAMPLE]KF6E21AA\_220281241.CNF;1

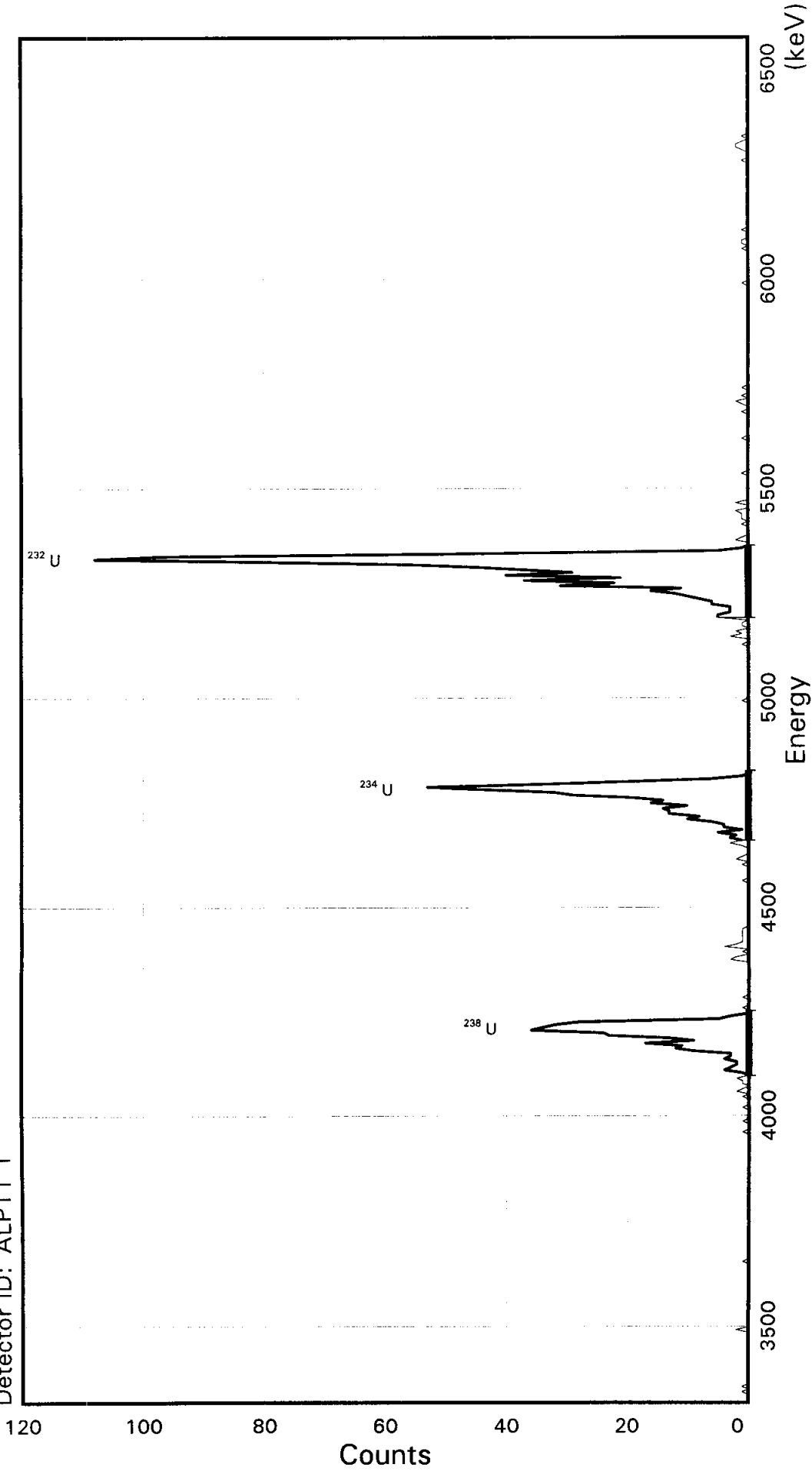
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4204.78	125	142	256	254	0.13		
4780.50	213	232	348	345	0.16		
5327.54	295	316	728	720	0.30		
5440.61	325	333	12	13	-0.29		

End of Report

TAL Richland WA.  
U BRCO

Sample ID: KF6E21AE  
Detector ID: ALP11 1

Batch ID: 8030213



Acquisition Start: 22-FEB-2008 12:41:54.67  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:00.00

Energy Coefficients:  
Offset: 3.29908E+03  
Slope: 6.43439E+00  
Quadrature: -7.02757E-05

SAMPLE IDENTIITY: KF6E21AE

TITLE : U BRCO

DETECTOR : ALP11 1

CONFIGURATION NAME : \$DISK1:[ALP11.SAMPLE]KF6E21AE\_220281241.CNF;  
1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:07:08

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 22-FEB-2008 12:41:54 CALIB DATE : 04-FEB-2008 03:40:05

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

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 <sup>2</sup>	SUM SENSITIVITY:	1.00000 %

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

Sample Identity: KF6E21AE

Flags Key

Detector: ALP11 1  
 Report Date: 22-Feb-08 04:02 PM P: Peak Identified  
 Acquire Date: 22-FEB-2008 12:41:54.67 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	748	12	0	3.728	5331.3	172.6	295	322	0.00	0.00	P
U-234	364	0	0	1.820	4785.8	166.5	212	238	0.00	0.00	P
U-235	18	2	0	0.088	4409.0	173.1	151	178	0.00	0.00	
U-238	281	1	0	1.404	4209.2	154.0	124	148	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:02:15

Configuration : \$DISK1:[ALP11.SAMPLE]KF6E21AE\_220281241.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:41:54  
 Sample ID : KF6E21AE Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP11 Detector geometry:  
 Elapsed live time: 0 03:20:00.00 Elapsed real time: 0 03:20:00.00 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	4208.61	281	0	38.61	141.57	124	24	2.34E-02	6.0	
2	0	4782.60	364	0	32.17	231.14	212	26	3.03E-02	5.2	
3	0	5331.33	748	0	32.17	316.94	295	27	6.23E-02	3.7	

Alpha Spectrum Listing

(Version: 1-Apr-07)

Sample Identity: KF6E21AE

Flags Key

Detector: ALP11 1

Report Date: 22-Feb-08 04:02 PM

Intersect Region: \*

Acquire Date: 22-FEB-2008 12:41:54.67

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	6+		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0+		152	0		202	0		252	8+		302	0		352	0		402	0		452	0		502
C		3	0		53	1		103	1+		153	1		203	0		253	10+		303	0		353	0		403	0		453	0		503
C		4	0		54	0		104	0+		154	0		204	0		254	12+		304	0		354	0		404	0		454	0		504
0		5	1		55	0		105	0+		155	2		205	0		255	16+		305	0		355	0		405	0		455	0		505
C		6	0		56	0		106	0+		156	1		206	0		256	11+		306	0		356	0		406	0		456	0		506
1		7	0		57	1		107	0+		157	0		207	0		257	31+		307	0		357	0		407	0		457	0		507
C		8	0		58	0		108	0+		158	0		208	0		258	22+		308	0		358	0		408	0		458	0		508
1		9	0		59	0		109	0+		159	0		209	0		259	37+		309	0		359	0		409	0		459	0		509
0		10	0		60	0		110	0+		160	1		210	0		260	21+		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0+		161	3		211	0		261	40+		311	0		361	0		411	0		461	0		511
0		12	0		62	1		112	0+		162	1+		212	0		262	29+		312	1		362	0		412	0		462	0		512
0		13	0		63	0		113	0+		163	3+		213	0		263	37+		313	0		363	0		413	0		463			
0		14	0		64	0		114	0+		164	2+		214	1		264	45+		314	0		364	0		414	0		464			
0		15	0		65	0		115	0+		165	5+		215	0		265	56+		315	0		365	0		415	0		465			
0		16	0		66	1		116	0+		166	1+		216	0		266	80+		316	0		366	0		416	1		466			
0		17	0		67	0		117	3+		167	4+		217	0		267	108+		317	0		367	0		417	0		467			
0		18	0		68	2		118	2+		168	4+		218	0		268	97+		318	0		368	0		418	0		468			
0		19	0		69	1		119	0+		169	6+		219	0		269	47+		319	0		369	0		419	0		469			
0		20	0		70	0		120	1+		170	10+		220	0		270	5+		320	0		370	1		420	1		470			
0		21	0		71	1		121	0+		171	8+		221	0		271	1+		321	0		371	0		421	2		471			
0		22	0		72	1		122	4+		172	13+		222	0		272	0		322	1		372	0		422	2		472			
0		23	0		73	2		123	2+		173	13+		223	0		273	0		323	0		373	0		423	1		473			
0		24	0		74	0+		124	1+		174	14+		224	0		274	2		324	0		374	0		424	0		474			
0		25	0		75	1+		125	1+		175	10+		225	0		275	1		325	1		375	0		425	1		475			
0		26	0		76	4+		126	1+		176	16+		226	0		276	0		326	2		376	0		426	0		476			
0		27	0		77	3+		127	1+		177	14+		227	0		277	0		327	0		377	0		427	0		477			
0		28	0		78	2+		128	1+		178	19+		228	0		278	0		328	1		378	0		428	0		478			
0		29	0		79	2+		129	1		179	29+		229	0		279	0		329	0		379	0		429	0		479			
2		30	0		80	4+		130	0		180	32+		230	0		280	1		330	0		380	0		430	0		480			
0		31	0		81	3+		131	0		181	43+		231	0		281	0		331	1		381	0		431	0		481			
0		32	0		82	3+		132	0		182	53+		232	0		282	1		332	0		382	0		432	0		482			
0		33	0		83	9+		133	0		183	35+		233	0		283	1		333	0		383	1		433	0		483			
C		34	0		84	12+		134	0		184	20+		234	0		284	1		334	0		384	0		434	0		484			
C		35	0		85	11+		135	0		185	6+		235	1		285	2		335	0		385	1		435	0		485			
C		36	0		86	17+		136	0		186	1+		236	0		286	0		336	0		386	1		436	0		486			
C		37	0		87	9+		137	0		187	0+		237	0		287	0		337	0		387	0		437	0		487			
C		38	0		88	13+		138	0		188	0		238	3		288	2		338	0		388	0		438	0		488			
C		39	0		89	23+		139	0		189	0		239	1		289	0		339	0		389	0		439	0		489			
0		40	0		90	24+		140	0		190	0		240	2		290	0		340	0		390	1		440	0		490			
0		41	0		91	36+		141	0		191	0		241	0		291	0		341	0		391	0		441	0		491			
0		42	0		92	34+		142	0		192	0		242	1		292	0		342	0		392	0		442	0		492			
0		43	0		93	32+		143	0		193	0		243	1		293	0		343	0		393	0		443	0		493			
0		44	0		94	28+		144	0		194	0		244	0		294	0		344	0		394	0		444	0		494			
0		45	0		95	5+		145	0		195	0		245	5+		295	0		345	0		395	0		445	0		495			
0		46	0		96	3+		146	0		196	0		246	5+		296	0		346	0		396	0		446	0		496			
C		47	0		97	0+		147	1		197	0		247	3+		297	0		347	0		397	0		447	0		497			
C		48	0		98	0		148	0		198	0		248	3+		298	0		348	0		398	0		448	0		498			
C		49	0		99	1		149	0		199	0		249	3+		299	1		349	0		399	0		449	0		499			
C		50	0		100	0		150	0		200	0		250	6+		300	0		350	0		400	0		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP11.SAMPLE]KF6E21AE\_220281241.CNF;1

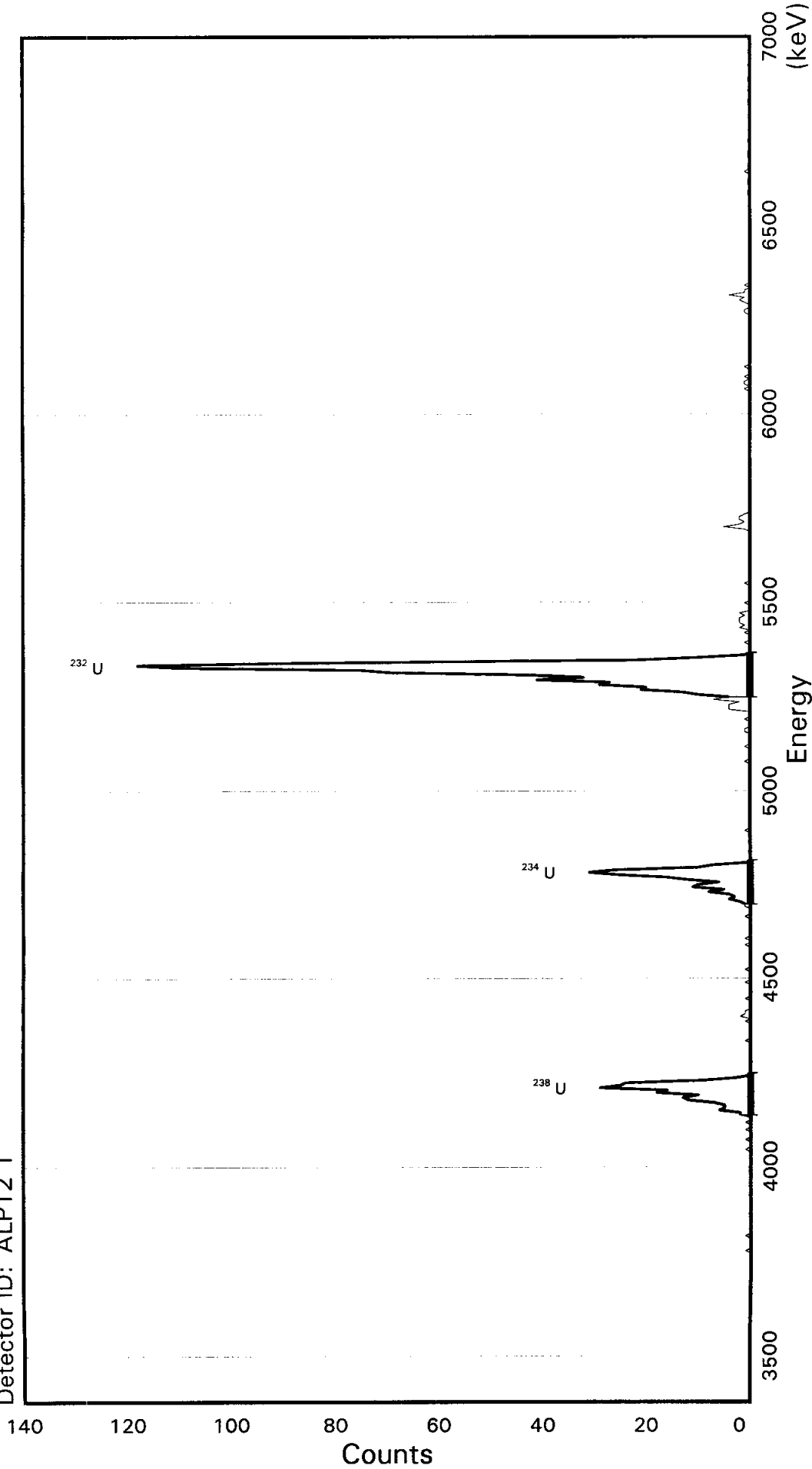
Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4208.60	124	148	281	278	0.18		
4782.59	212	238	364	362	0.10		
5331.33	295	322	748	744	0.15		

End of Report

TAL Richland WA.  
U BRCO

Sample ID: KF6E51AA  
Detector ID: ALP12 1

Batch ID: 8030213



Energy Coefficients:  
Offset: 3.35913E + 03  
Slope: 6.52757E + 00  
Quadrature: 2.98539E-05

Acquisition Start: 22-FEB-2008 12:42:08.58  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:03.00



SAMPLE IDENTIITY: KF6E51AA

TITLE : U BRCO

DETECTOR : ALP12 1

CONFIGURATION NAME : \$DISK1:[ALP12.SAMPLE]KF6E51AA\_220281242.CNF;

1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:07:15

REPORT DATE : 22-Feb-08

SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 22-FEB-2008 12:42:08

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: KF6E51AA

Flags Key

Detector: ALP12 1	
Report Date: 22-Feb-08 04:02 PM	P: Peak Identified
Acquire Date: 22-FEB-2008 12:42:08.58	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	736	3	0	3.676	5327.4	117.8	289	307	0.00	0.00	P
U-234	181	0	0	0.905	4781.8	117.7	205	223	0.00	0.00	P
U-235	7	0	0	0.035	4405.0	117.7	148	166	0.00	0.00	
U-238	188	0	0	0.940	4205.2	111.1	119	136	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:02:30

Configuration : \$DISK1:[ALP12.SAMPLE]KF6E51AA\_220281242.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:42:08  
 Sample ID : KF6E51AA Sample quantity : 0.00000E+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	4206.93	188	0	39.17	129.80	119	17	1.57E-02	7.3	
2	0	4783.02	181	0	32.64	217.92	205	18	1.51E-02	7.4	
3	0	5327.35	736	0	32.64	301.11	289	18	6.13E-02	3.7	

Alpha Spectrum Listing

(Version: 1-Apr-07)

Sample Identity: KF6E51AA

Flags Key

Detector: ALP12 1

Report Date: 22 Feb 08 04:02 PM

Intersect Region: #

Acquire Date: 22 FEB 2008 12:42:08.58

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	110+		301	0		351	0		401	1		451	0		501
		2	0		52	0		102	0+		152	0		202	0		252	118+		302	0		352	0		402	4		452	1		502
0		3	0		53	0		103	0+		153	0		203	0		253	86+		303	0		353	0		403	1		453	0		503
0		4	0		54	0		104	0+		154	1		204	0		254	22+		304	0		354	0		404	1		454	0		504
0		5	0		55	1		105	0+		155	1+		205	0		255	10+		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	0+		156	2+		206	0		256	1+		306	0		356	0		406	1		456	0		506
0		7	0		57	0		107	1+		157	4+		207	0		257	0		307	1		357	0		407	0		457	0		507
0		8	0		58	0		108	0+		158	3+		208	0		258	0		308	5		358	0		408	0		458	0		508
0		9	0		59	1		109	2+		159	4+		209	0		259	0		309	2		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	1+		161	5+		211	0		261	1		311	2		361	0		411	0		461	0		511
0		12	0		62	0		112	0+		162	11+		212	0		262	0		312	2		362	0		412	0		462	0		512
0		13	0		63	1		113	0+		163	10+		213	1		263	0		313	1		363	0		413	0		463			
0		14	1		64	0		114	0+		164	6+		214	0		264	0		314	0		364	1		414	0		464			
0		15	0		65	0		115	0+		165	12+		215	0		265	1		315	0		365	0		415	0		465			
0		16	0		66	1		116	1+		166	16+		216	0		266	0		316	0		366	1		416	0		466			
0		17	0		67	0		117	0		167	25+		217	0		267	2		317	0		367	1		417	0		467			
0		18	0		68	0		118	0		168	31+		218	0		268	1		318	0		368	0		418	0		468			
0		19	0		69	2+		119	0		169	26+		219	1		269	2		319	0		369	1		419	0		469			
0		20	1		70	2+		120	0		170	10+		220	0		270	2		320	0		370	0		420	0		470			
0		21	0		71	6+		121	0		171	7+		221	0		271	2		321	0		371	0		421	0		471			
0		22	0		72	5+		122	0		172	0+		222	0		272	1		322	0		372	0		422	0		472			
0		23	0		73	5+		123	1		173	0		223	0		273	2		323	0		373	1		423	0		473			
0		24	0		74	7+		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	1		275	0		325	0		375	0		425	0		475			
0		26	0		76	13+		126	0		176	0		226	1		276	0		326	0		376	0		426	0		476			
0		27	0		77	10+		127	0		177	0		227	0		277	1		327	0		377	0		427	0		477			
0		28	0		78	18+		128	1		178	0		228	0		278	0		328	0		378	0		428	0		478			
0		29	0		79	16+		129	0		179	0		229	0		279	0		329	0		379	0		429	0		479			
0		30	0		80	29+		130	0		180	0		230	1		280	0		330	0		380	0		430	0		480			
0		31	0		81	25+		131	0		181	0		231	0		281	0		331	0		381	0		431	0		481			
0		32	0		82	24+		132	0		182	0		232	0		282	0		332	0		382	0		432	0		482			
0		33	0		83	9+		133	0		183	0		233	0		283	0		333	0		383	0		433	0		483			
0		34	0		84	3+		134	0		184	0		234	4		284	0		334	0		384	0		434	0		484			
0		35	0		85	0+		135	0		185	1		235	4		285	1		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	0		236	4		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	1		188	0		238	7		288	0		338	0		388	0		438	0		488			
0		39	0		89	0		139	0		189	0		239	4+		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	0		240	10+		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	1		191	0		241	13+		291	0		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	0		242	21+		292	0		342	0		392	0		442	0		492			
0		43	0		93	0		143	0		193	0		243	20+		293	0		343	0		393	0		443	0		493			
0		44	0		94	0		144	0		194	0		244	29+		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	1		445	0		495			
0		46	0		96	0		146	0		196	0		246	41+		296	0		346	0		396	1		446	0		496			
0		47	0		97	0		147	0		197	0		247	32+		297	0		347	0		397	0		447	0		497			
0		48	0		98	0+		148	0		198	0		248	43+		298	0		348	0		398	0		448	0		498			
0		49	0		99	1+		149	0		199	0		249	69+		299	0		349	0		399	1		449	0		499			
0		50	0		100	0+		150	1		200	0		250	75+		300	0		350	0		400	2		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP12.SAMPLE]KF6E51AA\_220281242.CNF;1

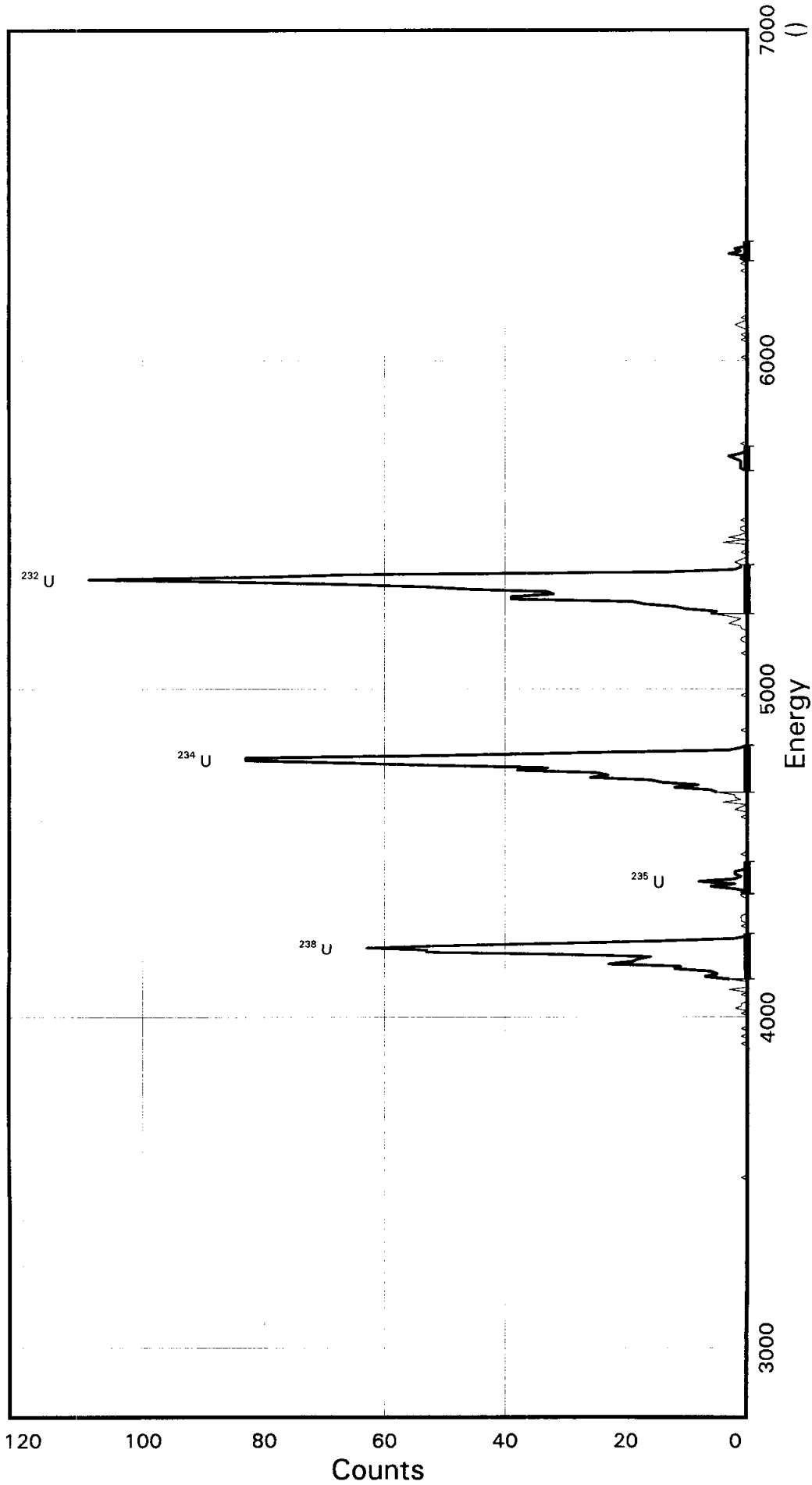
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4206.92	119	136	188	186	0.15		
4783.02	205	223	181	181	0.00		
5327.35	289	307	736	731	0.18		

End of Report

TAL Richland WA.  
U BRCO

Batch ID: 8030213

Sample ID: KF6FA1AA  
Detector ID: ALP69 1



Acquisition Start: 22-FEB-2008 12:43:07.90  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:09.00

Energy Coefficients:  
Offset: 2.76787E + 03  
Slope: 7.54068E + 00  
Quadrature: -4.80836E - 05

SAMPLE IDENTIITY: KF6FA1AA

TITLE : U BRCO

DETECTOR : ALP69 1  
CONFIGURATION NAME : RDND06\$DKA100: [ALP69.SAMPLE] KF6FA1AA\_2202812  
43.CNF;1  
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:46

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 12:43:07 CALIB DATE : 11-FEB-2008 02:51:30

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:09

OFFSET : 2767.87 keV CONSTANT FWHM : 7.66667 Channels  
SLOPE : 7.54068 keV/C SENSITIVITY : 3.00000 Std Dev's  
QUAD COEFF : -.480836E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

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

Sample Identity: KF6FA1AA

Flags Key

Detector: ALP69 1  
 Report Date: 22-Feb-08 04:03 PM P: Peak Identified  
 Acquire Date: 22-FEB-2008 12:43:07.90 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: 2500 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	738	20	0	3.679	5330.3	150.2	327	347	0.00	0.00	P
U-234	574	3	0	2.867	4784.8	142.8	255	274	0.00	0.00	P
U-235	26	1	0	0.130	4408.0	97.8	214	227	0.00	0.00	P
U-238	419	4	0	2.092	4208.2	142.9	179	198	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:03:33

Configuration : RDND06\$DKA100: [ALP69.SAMPLE] KF6FA1AA\_220281243.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:43:07  
 Sample ID : KF6FA1AA Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP69 Detector geometry:  
 Elapsed live time: 0 03:20:09.00 Elapsed real time: 0 03:20:09.00 0.0%  
 Start energy : 2790.49 End energy : 6616.09  
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4210.18	419	0	45.24	191.51	179	19	3.49E-02	4.9	
2	0	4415.39	26	0	37.70	218.79	214	13	2.17E-03	19.6	
3	0	4785.47	574	0	37.70	268.02	255	19	4.78E-02	4.2	
4	0	5330.33	738	0	45.24	340.56	327	20	6.15E-02	3.7	
5	0	5693.91	10	0	45.24	389.00	385	10	8.33E-04	31.6	
6	0	6322.60	7	0	30.16	472.83	470	8	5.83E-04	37.8	

Alpha Spectrum Listing

(Version: 1 Apr-07)

Sample Identity: KF6FA1AA

Flags Key

Detector: ALP69 1

Report Date: 22 Feb 08 04:03 PM

Intersect Region: 3

Acquire Date: 22-FEB-2008 12:43:07.90

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	0		51	0		101	0		151	1		201	4		251	0		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0		202	1		252	0		302	1		352	0		402	0		452	0		502
0		3	0		53	0		103	1		153	1		203	2		253	0		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	1		204	2		254	0		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	1		205	5+		255	0		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	1		156	0		206	6+		256	0		306	4		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	0		207	12+		257	0		307	0		357	0		407	0		457	0		507
0		8	0		58	0		108	0		158	0		208	8+		258	0		308	3		358	0		408	0		458	0		508
0		9	0		59	0		109	1		159	0		209	14+		259	0		309	1		359	0		409	0		459	0		509
0		10	0		60	0		110	0		160	0		210	16+		260	0		310	0		360	0		410	0		460	0		510
0		11	0		61	0		111	0		161	0		211	26+		261	1		311	1		361	0		411	0		461	0		511
0		12	0		62	0		112	0		162	0		212	23+		262	0		312	1		362	0		412	0		462	0		512
0		13	0		63	0		113	0		163	1		213	25+		263	0		313	0		363	0		413	0		463			
0		14	0		64	0		114	0		164	1+		214	38+		264	0		314	0		364	0		414	0		464			
0		15	0		65	0		115	1		165	0+		215	33+		265	0		315	1		365	0		415	0		465			
0		16	0		66	0		116	0		166	2+		216	51+		266	1		316	0		366	0		416	1		466			
0		17	0		67	0		117	2		167	6+		217	67+		267	1		317	0		367	0		417	0		467			
0		18	0		68	0		118	1		168	2+		218	83+		268	0		318	0		368	0		418	0		468			
0		19	0		69	0		119	1		169	8+		219	83+		269	0		319	0		369	0		419	1		469			
0		20	0		70	0		120	0		170	2+		220	50+		270	0		320	0		370	0		420	0		470			
0		21	0		71	0		121	0		171	1+		221	28+		271	1		321	0		371	0		421	1		471			
0		22	0		72	0		122	0		172	2+		222	3+		272	1		322	0		372	0		422	0		472			
0		23	0		73	0		123	1		173	2+		223	1+		273	3		323	0		373	0		423	3		473			
0		24	0		74	0		124	0		174	0+		224	0		274	2		324	0		374	0		424	1		474			
0		25	0		75	0		125	3		175	0+		225	0		275	1		325	0		375	0		425	2		475			
0		26	0		76	0		126	0		176	0+		226	0		276	3		326	0		376	0		426	0		476			
0		27	0		77	0		127	0		177	0		227	0		277	6+		327	0		377	0		427	0		477			
0		28	0		78	0		128	0		178	0		228	0		278	5+		328	0		378	0		428	0		478			
0		29	0		79	0		129	3+		179	0		229	0		279	10+		329	0		379	0		429	0		479			
0		30	0		80	0		130	7+		180	1		230	1		280	12+		330	0		380	0		430	0		480			
0		31	0		81	0		131	5+		181	0		231	0		281	17+		331	0		381	1		431	0		481			
0		32	0		82	0		132	6+		182	0		232	0		282	19+		332	0		382	0		432	0		482			
0		33	0		83	0		133	12+		183	0		233	0		283	39+		333	0		383	0		433	0		483			
0		34	0		84	0		134	11+		184	0		234	0		284	39+		334	0		384	0		434	0		484			
0		35	0		85	0		135	23+		185	0		235	0		285	32+		335	0		385	0		435	0		485			
0		36	0		86	0		136	19+		186	0		236	0		286	33+		336	1		386	0		436	0		486			
0		37	0		87	0		137	18+		187	0		237	0		287	46+		337	1		387	0		437	0		487			
0		38	0		88	0		138	16+		188	0		238	0		288	53+		338	1		388	1		438	0		488			
0		39	0		89	0		139	32+		189	0		239	0		289	67+		339	1		389	0		439	0		489			
0		40	0		90	0		140	53+		190	0		240	0		290	86+		340	2		390	1		440	0		490			
0		41	0		91	0		141	53+		191	0		241	0		291	109+		341	3		391	0		441	0		491			
0		42	0		92	0		142	63+		192	0		242	0		292	80+		342	1		392	0		442	0		492			
0		43	0		93	0		143	51+		193	0		243	0		293	66+		343	0		393	1		443	0		493			
0		44	0		94	0		144	32+		194	0		244	1		294	13+		344	0		394	2		444	0		494			
0		45	0		95	0		145	14+		195	1		245	0		295	2+		345	0		395	1		445	0		495			
0		46	0		96	0		146	2+		196	0		246	0		296	1+		346	1		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	2		248	0		298	2		348	0		398	0		448	0		498			
0		49	1		99	0		149	0		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: RDND06\$DKA100:[ALP69.SAMPLE]KF6FA1AA\_220281243.CNF;1

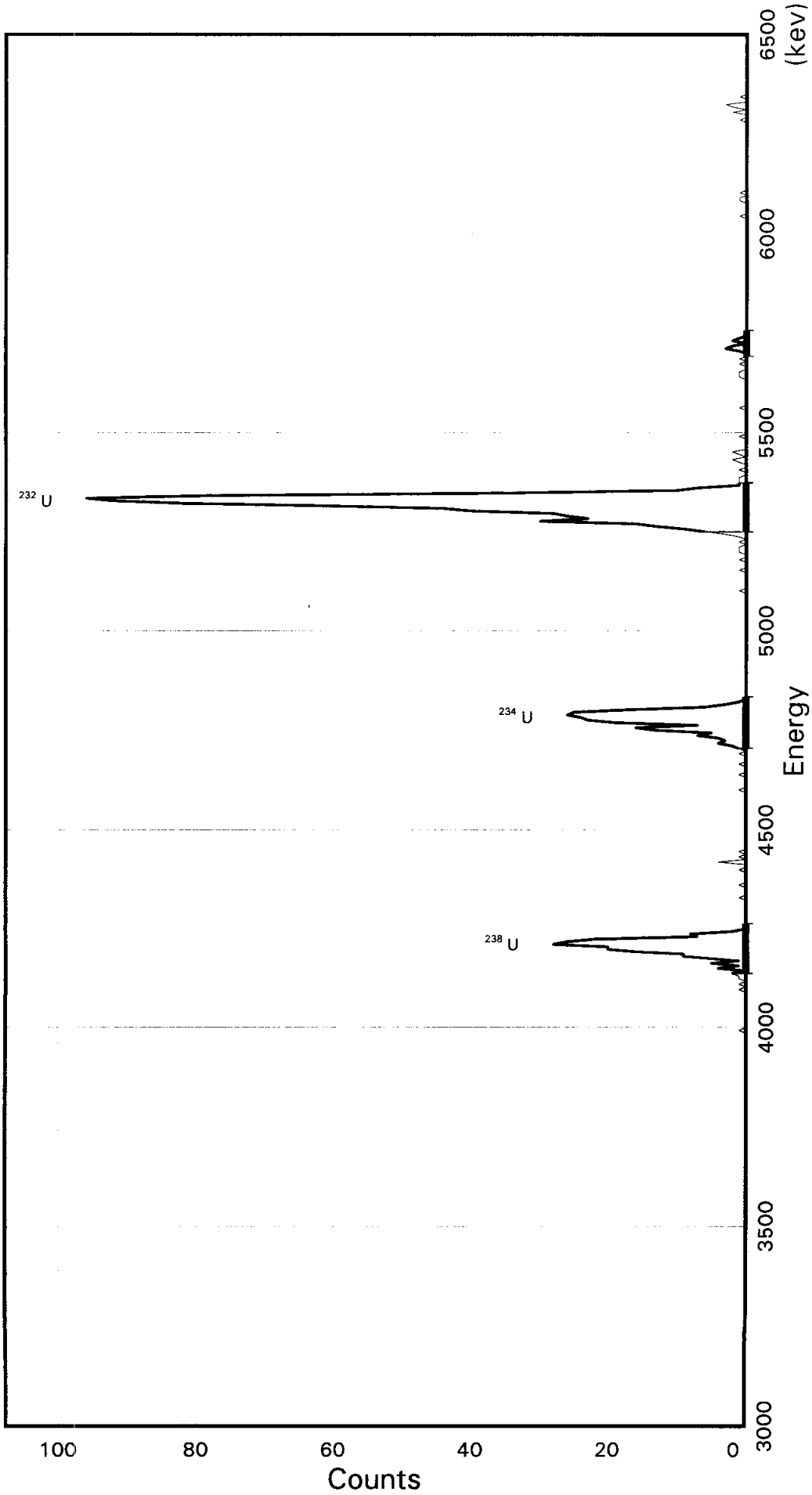
Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4210.18	179	198	419	420	-0.05		
4415.38	214	227	26	26	0.00		
4785.47	255	274	574	572	0.08		
5330.32	327	347	738	736	0.07		
5693.91	385	395	10	10	0.00		
6322.60	470	478	7	7	0.00		

End of Report

TAL Richland WA.  
U BRCO

Batch ID: 8030213

Sample ID: KF6FD1AA  
Detector ID: ALP71 1



Acquisition Start: 22-FEB-2008 12:43:25.73  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:06.00

Energy Coefficients:  
Offset: 3.15399E + 03  
Slope: 6.43853E + 00  
Quadrature: 9.36697E-05

SAMPLE IDENTIITY: KF6FD1AA

TITLE : U BRCO

DETECTOR : ALP71 1  
CONFIGURATION NAME : RDND06\$DKA100: [ALP71.SAMPLE] KF6FD1AA\_2202812  
43.CNF;1  
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:49

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 12:43:25 CALIB DATE : 11-FEB-2008 02:51:25

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

OFFSET : 3153.99 keV CONSTANT FWHM : 9.00000 Channels  
SLOPE : 6.43853 keV/C SENSITIVITY : 3.00000 Std Dev's  
QUAD COEFF : 9.366970E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

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

Sample Identity: KF6FD1AA

Flags Key

Detector: ALP71 1	
Report Date: 22-Feb-08 04:03 PM	P: Peak Identified
Acquire Date: 22-FEB-2008 12:43:25.73	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: 2500 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	Rght Wdth	Flags
					Energy keV	Width keV					
U-232	699	27	0	3.482	5327.8	123.5	324	343	0.00	0.00	P
U-234	205	4	0	1.023	4782.2	129.7	240	260	0.00	0.00	P
U-235	9	1	0	0.045	4405.4	123.0	182	201	0.00	0.00	
U-238	186	4	0	0.928	4205.6	129.4	152	172	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:03:48

Configuration : RDND06\$DKA100: [ALP71.SAMPLE] KF6FD1AA\_220281243.CNF;1  
Analyses by : ALPHA V1.8  
Sample title : U BRCO  
Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:43:25  
Sample ID : KF6FD1AA Sample quantity : 0.000000E+00 LITER  
Sample type : disk Sample geometry :  
Detector name : ALP71 Detector geometry:  
Elapsed live time: 0 03:20:06.00 Elapsed real time: 0 03:20:06.00 0.0%  
Start energy : 3173.30 kev End energy : 6475.07 kev  
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4212.10	186	0	45.07	163.95	152	20	1.55E-02	7.3	
2	0	4783.05	205	0	45.07	252.09	240	20	1.71E-02	7.0	
3	0	5327.79	699	0	45.07	335.98	324	19	5.82E-02	3.8	
4	0	5714.61	9	0	32.19	395.43	392	10	7.50E-04	33.3	

Alpha Spectrum Listing

(Version: 1 Apr-07)

Sample Identity: KF6FD1AA

Flags Key

Detector: ALP/V1 1

Report Date: 22-Feb-08 04:03 PM

Intersect Region: @

Acquire Date: 22 FEB 2008 12:43:25.73

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										
		1	0		51	0		101	1		151	0+		201	23+		251	1		301	1		351	0		401	0		451	0		501	
		2	0		52	0		102	2+		152	0		202	24+		252	0		302	2		352	0		402	1		452	0		502	
0		3	0		53	0		103	0+		153	0		203	26+		253	0		303	0		353	0		403	1		453	0		503	
0		4	0		54	0		104	4+		154	0		204	25+		254	0		304	1		354	0		404	0		454	0		504	
0		5	0		55	0		105	1+		155	0		205	17+		255	0		305	2		355	0		405	1		455	0		505	
0		6	0		56	0		106	5+		156	0		206	6+		256	0		306	0		356	0		406	0		456	0		506	
0		7	0		57	0		107	1+		157	0		207	3+		257	0		307	0		357	0		407	0		457	0		507	
0		8	0		58	0		108	5+		158	0		208	1+		258	0		308	0		358	0		408	0		458	0		508	
0		9	0		59	0		109	9+		159	0		209	0+		259	1		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	16+		161	0		211	0		261	0		311	1		361	0		411	0		461	0		511	
0		12	0		62	0		112	20+		162	0		212	0		262	0		312	0		362	0		412	0		462	0		512	
0		13	0		63	0		113	20+		163	0		213	0		263	1		313	0		363	0		413	0		463				
0		14	0		64	0		114	28+		164	0		214	0		264	0		314	0		364	0		414	0		464				
0		15	0		65	0		115	26+		165	0		215	0		265	0		315	0		365	0		415	0		465				
0		16	0		66	0		116	22+		166	0		216	0		266	1		316	0		366	0		416	0		466				
0		17	0		67	0		117	7+		167	0		217	0		267	1		317	0		367	0		417	0		467				
0		18	0		68	0		118	8+		168	0		218	0		268	1		318	0		368	0		418	0		468				
0		19	0		69	0		119	2+		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	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	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	3		323	0		373	0		423	0		473				
0		24	0		74	0		124	0		174	1		224	0		274	6+		324	0		374	0		424	0		474				
0		25	0		75	0		125	0		175	0		225	0		275	9+		325	0		375	0		425	0		475				
0		26	0		76	0		126	0		176	0		226	0		276	13+		326	0		376	0		426	0		476				
0		27	0		77	0		127	0		177	0		227	0		277	16+		327	0		377	0		427	0		477				
0		28	0		78	0		128	0		178	0		228	0		278	30+		328	0		378	0		428	0		478				
0		29	0		79	0		129	0		179	0		229	0		279	23+		329	0		379	0		429	0		479				
0		30	0		80	1		130	0		180	1		230	0		280	26+		330	0		380	0		430	0		480				
0		31	0		81	0		131	0		181	0		231	0		281	28+		331	0		381	0		431	0		481				
0		32	0		82	0		132	1+		182	0		232	0		282	40+		332	0		382	0		432	0		482				
0		33	0		83	0		133	0+		183	0		233	0		283	44+		333	0		383	0		433	1		483				
0		34	0		84	0		134	0+		184	1		234	0		284	61+		334	1		384	0		434	0		484				
0		35	0		85	0		135	0+		185	0		235	0		285	82+		335	1		385	0		435	0		485				
0		36	0		86	0		136	0+		186	0		236	0		286	92+		336	1		386	0		436	2		486				
0		37	0		87	0		137	1+		187	0		237	0		287	96+		337	0		387	0		437	0		487				
0		38	0		88	0		138	0+		188	1		238	0		288	78+		338	0		388	0		438	2		488				
0		39	0		89	0		139	0+		189	0		239	0		289	34+		339	1		389	0		439	3		489				
0		40	0		90	0		140	0+		190	1+		240	0		290	10+		340	0		390	0		440	0		490				
0		41	0		91	0		141	0+		191	2+		241	0		291	7+		341	1		391	0		441	0		491				
0		42	0		92	0		142	0+		192	4+		242	0		292	1+		342	0		392	0		442	1		492				
0		43	0		93	0		143	1+		193	3+		243	0		293	1		343	0		393	0		443	0		493				
0		44	0		94	0		144	0+		194	4+		244	0		294	1		344	1		394	0		444	0		494				
0		45	0		95	0		145	0+		195	7+		245	0		295	1		345	3		395	0		445	0		495				
0		46	0		96	1		146	4+		196	5+		246	0		296	0		346	2		396	1		446	0		496				
0		47	0		97	0		147	0+		197	13+		247	0		297	0		347	C		397	0		447	0		497				
0		48	0		98	1		148	1+		198	16+		248	0		298	1		348	2		398	0		448	0		498				
0		49	0		99	0		149	0+		199	7+		249	0		299	0		349	1		399	0		449	0		499				
0		50	0		100	1		150	1+		200	19+		250	0		300	0		350	C		400	0		450	0		500				



ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: RDND06\$DKA100:[ALP71.SAMPLE]KF6FD1AA\_220281243.CNF;1

Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4212.09	152	172	186	185	0.07		
4783.04	240	260	205	206	-0.07		
5327.78	324	343	699	697	0.08		
5714.61	392	402	9	9	0.00		

End of Report



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

Sample Identity: KF6FF1AA

Detector: ALP84 1

Report Date: 25-Feb-08 04:39 AM

Acquire Date: 22-FEB-2008 12:43:41.00

Tracer Nuclide: U-232

Sample Live Time: 200 minutes

Bkgrnd Live Time: 2500 minutes

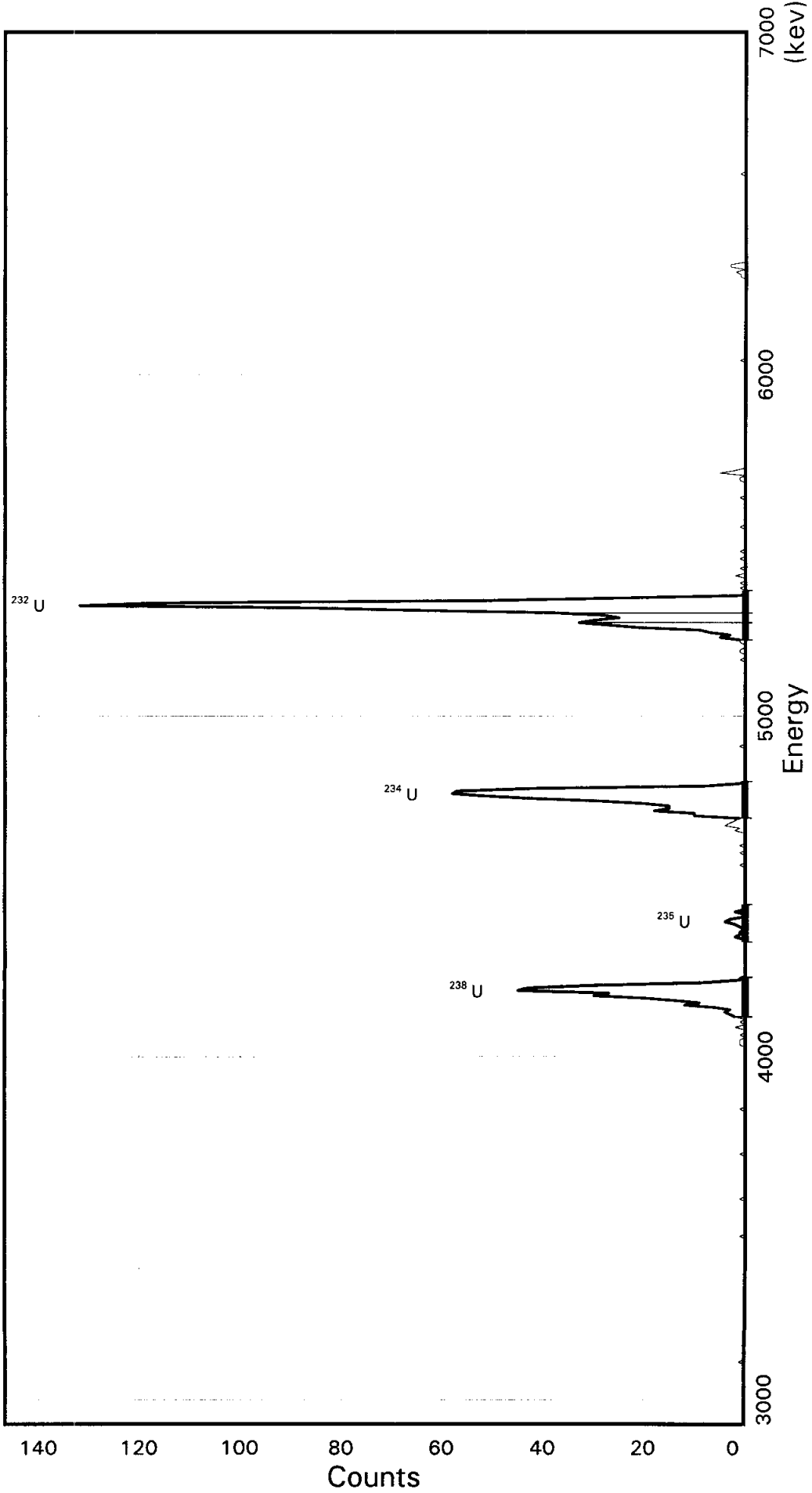
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
U-232	704	9	3.515	5320.2	144.1	318	338
U-234	390	1	1.949	4774.6	144.6	242	262
U-235	16	0	0.080	4397.8	144.9	190	210
U-238	261	1	1.304	4198.0	145.1	162	182

End of Alpha Region Report  
(Produced by ANAL Report)

TAL Richland WA.  
U BRCO

Batch ID: 8030213

Sample ID: KF6FF1AA  
Detector ID: ALP84 1



Acquisition Start: 22-FEB-2008 12:43:41.00  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:05.00

Energy Coefficients:  
Offset: 2.90644E + 03  
Slope: 7.30399E + 00  
Quadrature: -1.47278E-04

SAMPLE IDENTIITY: KF6FF1AA

TITLE : U BRCO

DETECTOR : ALP84 1

CONFIGURATION NAME : RDND06\$DKA100: [ALP84.SAMPLE] KF6FF1AA\_2202812  
43.CNF;1

ACQUIRE DATE of BACKGROUND: 02-FEB-2008 06:19:45

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 22-FEB-2008 12:43:41 CALIB DATE : 02-FEB-2008 03:12:14

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

OFFSET : 2906.44 keV CONSTANT FWHM : 4.50000 Channels  
SLOPE : 7.30399 keV/C SENSITIVITY : 3.00000 Std Dev's  
QUAD COEFF : -.147278E-03 keV/C^2 SUM SENSITIVITY: 1.00000 %

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

Sample Identity: KF6FF1AA

Flags Key

Detector: ALP84 1  
 Report Date: 22-Feb-08 04:03 PM  
 Acquire Date: 22-FEB-2008 12:43:41.00  
 Tracer Nuclide: U-232  
 High Counts Limit: 36  
 Sample Live Time: 200 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	Smpl	Bkg	Intrsc	Count	Centrd	Region	Left	Right	Left	Right	Flags
Name	Count	Count	Count	Rate	Energy	Width	Chnl	Chnl	Wdth	Wdth	
U-232	553	9	0	2.760	5322.6	93.7	326	339	0.00	0.00	P
U-234	379	1	0	1.894	4777.1	108.4	247	262	0.00	0.00	P
U-235	18	0	0	0.090	4400.3	108.7	197	212	0.00	0.00	P
U-238	259	1	0	1.294	4200.5	116.0	166	182	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:03:51

Configuration : RDND06\$DKA100:[ALP84.SAMPLE]KF6FF1AA\_220281243.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:43:41  
 Sample ID : KF6FF1AA Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP84 Detector geometry:  
 Elapsed live time: 0 03:20:05.00 Elapsed real time: 0 03:20:05.00 0.0%  
 Start energy : 2928.35 kev End energy : 6607.48 kev  
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4192.73	259	0	43.82	176.74	166	16	2.16E-02	6.2	
2	0	4398.38	18	0	21.91	205.11	197	15	1.50E-03	23.6	
3	0	4771.46	379	0	43.82	256.67	247	15	3.16E-02	5.1	
4	0	5268.25	151	0	29.22	325.49	319	11	1.26E-02	8.1	
5	0	5322.63	553	0	21.91	333.04	326	13	4.61E-02	4.3	

Alpha Spectrum Listing

(Version: 1 Apr 07)

Sample Identity: KF6FF1AA

Flags Key

Detector: ALP84 1

Report Date: 22 Feb 08 04:03 PM

Intersect Region: @

Acquire Date: 22-FEB 2008 12:43:41.00

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	15+	251	0	301	0	351	0	401	0	451	0	501		
		2	0	52	0	102	0	152	0+	202	15+	252	0	302	1	352	0	402	0	452	0	502		
0		3	0	53	0	103	0	153	1+	203	20+	253	0	303	0	353	0	403	0	453	0	503		
0		4	0	54	0	104	0	154	2+	204	29+	254	0	304	0	354	0	404	0	454	0	504		
0		5	0	55	0	105	1	155	4+	205	42+	255	0	305	1	355	0	405	0	455	0	505		
0		6	0	56	0	106	1	156	3+	206	51+	256	0	306	0	356	0	406	0	456	0	506		
0		7	0	57	0	107	1	157	0+	207	58+	257	0	307	0	357	0	407	0	457	0	507		
0		8	0	58	0	108	0	158	0+	208	57+	258	0	308	0	358	0	408	0	458	0	508		
0		9	0	59	0	109	1	159	2+	209	43+	259	0	309	0	359	0	409	0	459	1	509		
0		10	0	60	0	110	0	160	0+	210	8+	260	0	310	0	360	0	410	0	460	0	510		
C		11	0	61	1	111	0	161	0+	211	1+	261	1	311	0	361	0	411	0	461	0	511		
0		12	0	62	0	112	2	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	1	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	1	365	0	415	0	465				
0		16	0	66	0	116	2+	166	0	216	0	266	0	316	0	366	0	416	0	466				
0		17	0	67	0	117	3+	167	0	217	0	267	0	317	0	367	0	417	1	467				
0		18	0	68	0	118	4+	168	0	218	0	268	1	318	0	368	0	418	1	468				
0		19	0	69	0	119	3+	169	0	219	0	269	1	319	0	369	0	419	2	469				
0		20	0	70	0	120	6+	170	0	220	0	270	5	320	0	370	0	420	0	470				
0		21	0	71	0	121	12+	171	0	221	0	271	3	321	0	371	0	421	3	471				
0		22	0	72	0	122	9+	172	0	222	0	272	7	322	0	372	0	422	3	472				
0		23	0	73	0	123	14+	173	0	223	0	273	9	323	0	373	0	423	0	473				
0		24	0	74	0	124	20+	174	0	224	0	274	21	324	0	374	0	424	0	474				
0		25	0	75	0	125	30+	175	0	225	0	275	27	325	0	375	0	425	0	475				
0		26	0	76	0	126	27+	176	0	226	1	276	33+	326	0	376	0	426	0	476				
0		27	0	77	0	127	45+	177	0	227	0	277	30+	327	1	377	0	427	0	477				
L		28	1	78	0	128	43+	178	1	228	0	278	25+	328	0	378	0	428	0	478				
0		29	0	79	1	129	30+	179	0	229	0	279	28+	329	0	379	0	429	0	479				
0		30	0	80	0	130	8+	180	0	230	0	280	38+	330	0	380	0	430	0	480				
0		31	0	81	0	131	1+	181	0	231	0	281	64+	331	0	381	0	431	0	481				
0		32	0	82	0	132	1	182	0	232	0	282	87+	332	0	382	0	432	0	482				
0		33	0	83	0	133	0	183	1	233	0	283	132+	333	0	383	1	433	0	483				
0		34	0	84	0	134	0	184	0	234	0	284	116+	334	1	384	0	434	0	484				
0		35	0	85	0	135	0	185	0	235	0	285	51+	335	1	385	0	435	0	485				
0		36	0	86	0	136	0	186	1	236	0	286	25+	336	0	386	0	436	0	486				
0		37	0	87	0	137	0	187	0	237	0	287	1+	337	5	387	0	437	0	487				
0		38	0	88	0	138	0	188	0	238	0	288	0+	338	2	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	1	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	2	242	0	292	1	342	0	392	0	442	0	492				
0		43	1	93	0	143	0	193	1	243	0	293	0	343	0	393	0	443	0	493				
0		44	0	94	0	144	0	194	4	244	0	294	0	344	0	394	0	444	0	494				
0		45	0	95	0	145	0	195	3	245	0	295	2	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	0	147	0+	197	1+	247	0	297	0	347	0	397	0	447	0	497				
0		48	0	98	0	148	0+	198	10+	248	0	298	1	348	0	398	0	448	0	498				
0		49	0	99	0	149	2+	199	10+	249	0	299	0	349	0	399	0	449	0	499				
0		50	0	100	0	150	1+	200	18+	250	0	300	0	350	0	400	0	450	0	500				



ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: RDND06\$DKA100:[ALP84.SAMPLE]KF6FF1AA\_220281243.CNF;1

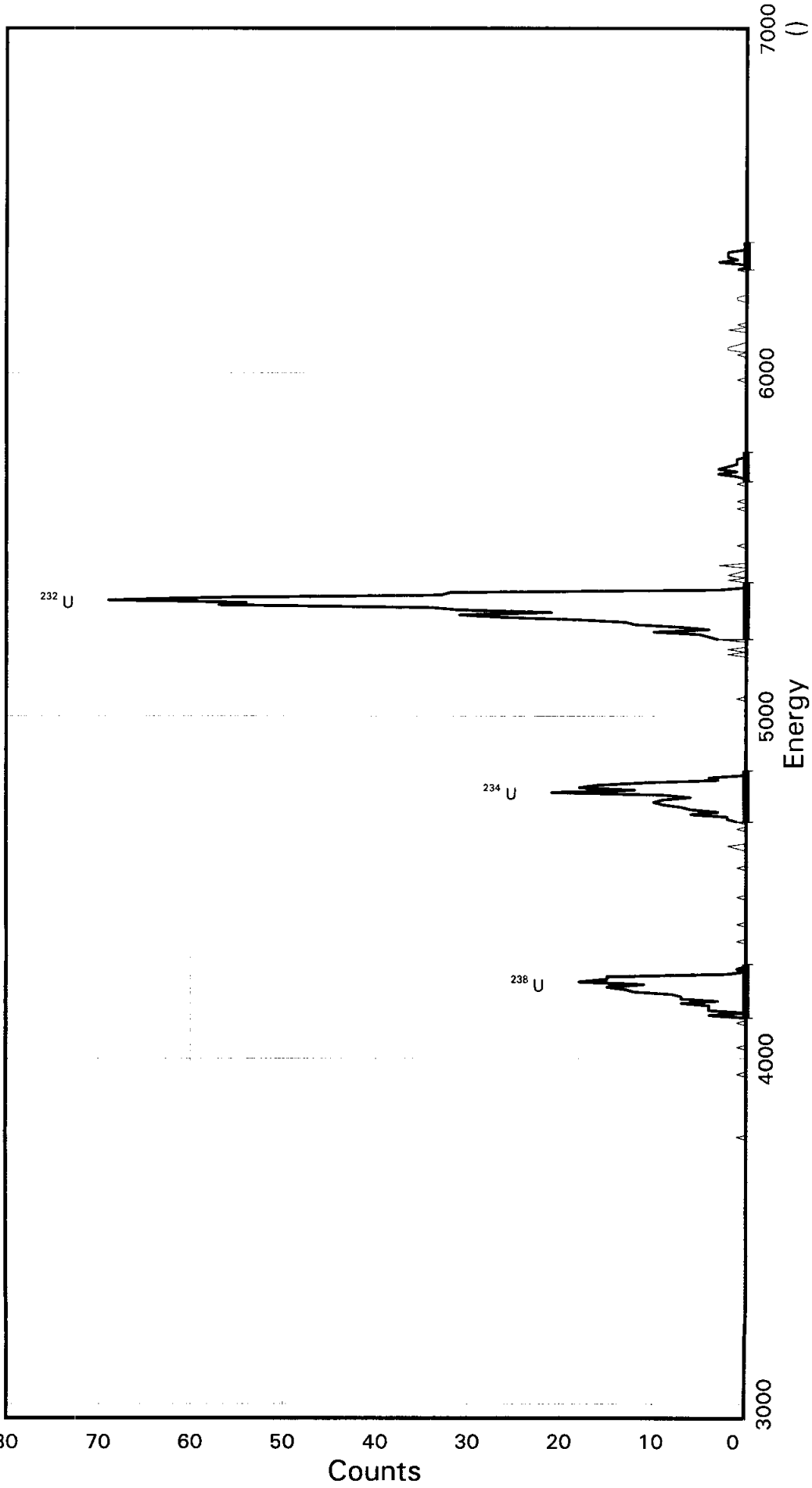
Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4192.72	166	182	259	258	0.06		
4398.37	197	212	18	16	0.47		
4771.45	247	262	379	378	0.05		
5268.24	319	330	151	227	-6.18		
5322.62	326	339	553	630	-3.27	154	0.04

End of Report

TAL Richland WA.  
U BRCO

Batch ID: 8030213

Sample ID: KF6FJ1AA  
Detector ID: ALP85 1



Acquisition Start: 22-FEB-2008 12:43:55.15  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:03.00

Energy Coefficients:  
Offset: 2.93848E + 03  
Slope: 6.96123E + 00  
Quadrature: 3.38872E-04



SAMPLE IDENTIITY: KF6FJ1AA

TITLE : U BRCO

DETECTOR : ALP85 1  
CONFIGURATION NAME : RDND06\$DKA100: [ALP85.SAMPLE] KF6FJ1AA\_2202812  
43.CNF;1  
ACQUIRE DATE of BACKGROUND: 02-FEB-2008 06:19:47

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 22-FEB-2008 12:43:55 CALIB DATE : 02-FEB-2008 03:12:20

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

OFFSET : 2938.48 keV CONSTANT FWHM : 10.50000 Channels  
SLOPE : 6.96123 keV/C SENSITIVITY : 3.00000 Std Dev's  
QUAD COEFF : 3.388720E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

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

Sample Identity: KF6FJ1AA

Flags Key

Detector: ALP85 1  
 Report Date: 22-Feb-08 04:04 PM P: Peak Identified  
 Acquire Date: 22-FEB-2008 12:43:55.15 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: 2500 minutes A: Altered via ALP-RGN-EDIT

Nuclide	Smpl	Bkg	Intrsc	Count	Centrd	Region	Left	Rght	Left	Rght	Flags
Name	Count	Count	Count	Rate	Energy	Width	Chnl	Chnl	Wdth	Wdth	
U-232	525	43	0	2.607	5331.2	165.3	323	346	0.00	0.00	P
U-234	157	5	0	0.783	4785.7	149.9	249	270	0.00	0.00	P
U-235	2	1	0	0.010	4408.9	163.3	194	217	0.00	0.00	
U-238	150	1	0	0.749	4209.1	155.8	168	190	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:04:00

Configuration : RDND06\$DKA100: [ALP85.SAMPLE]KF6FJ1AA\_220281243.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:43:55  
 Sample ID : KF6FJ1AA Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP85 Detector geometry:  
 Elapsed live time: 0 03:20:03.00 Elapsed real time: 0 03:20:03.00 0.0%  
 Start energy : 2959.36 End energy : 6591.46  
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4214.19	150	0	55.69	181.65	168	22	1.25E-02	8.2	
2	0	4775.64	157	0	76.57	260.61	249	21	1.31E-02	8.0	
3	0	5331.23	525	0	48.73	338.16	323	23	4.37E-02	4.4	
4	0	5711.40	13	0	41.77	390.90	387	12	1.08E-03	27.7	
5	0	6328.80	11	0	41.77	476.00	472	11	9.16E-04	30.2	

Alpha Spectrum Listing

(Version: 1 Apr 07)

Sample Identity: KF6FJ1AA

Flags Key

Detector: ALP85 1

Report Date: 22-Feb-08 04:04 PM

Intersect Region: 0

Acquire Date: 22-FEB-2008 12:43:55.15

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	2+	251	0	301	0	351	0	401	0	451	0	501
		2	0	52	0	102	0	152	0+	202	6+	252	0	302	0	352	0	402	0	452	0	502
0		3	0	53	0	103	0	153	0+	203	3+	253	0	303	3	353	0	403	0	453	0	503
0		4	0	54	0	104	0	154	0+	204	6+	254	0	304	0	354	0	404	0	454	0	504
0		5	0	55	0	105	0	155	0+	205	7+	255	0	305	0	355	0	405	0	455	0	505
0		6	0	56	0	106	1	156	0+	206	9+	256	0	306	0	356	0	406	0	456	0	506
0		7	0	57	0	107	0	157	1+	207	10+	257	0	307	0	357	0	407	0	457	0	507
0		8	0	58	0	108	0	158	0+	208	9+	258	0	308	0	358	0	408	0	458	0	508
0		9	0	59	0	109	0	159	0+	209	6+	259	0	309	0	359	0	409	0	459	0	509
0		10	0	60	0	110	0	160	0+	210	9+	260	0	310	0	360	0	410	1	460	0	510
0		11	0	61	0	111	0	161	0+	211	21+	261	0	311	1	361	0	411	1	461	0	511
0		12	0	62	0	112	0	162	0+	212	12+	262	0	312	0	362	0	412	0	462	0	512
0		13	0	63	0	113	0	163	0+	213	18+	263	0	313	0	363	0	413	0	463		
0		14	0	64	0	114	0	164	0+	214	16+	264	0	314	0	364	0	414	0	464		
0		15	0	65	0	115	0	165	0+	215	11+	265	0	315	0	365	0	415	0	465		
0		16	0	66	0	116	1	166	0+	216	3+	266	0	316	0	366	0	416	0	466		
0		17	0	67	0	117	0	167	0+	217	4+	267	2	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	1	119	4+	169	0	219	0+	269	2	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	4+	171	0	221	0	271	0	321	0	371	0	421	0	471		
0		22	0	72	0	122	4+	172	0	222	0	272	0	322	0	372	0	422	1	472		
0		23	0	73	0	123	4+	173	0	223	0	273	3+	323	0	373	0	423	0	473		
0		24	0	74	0	124	7+	174	0	224	0	274	4+	324	0	374	0	424	0	474		
0		25	0	75	0	125	3+	175	0	225	0	275	5+	325	0	375	0	425	3	475		
0		26	0	76	0	126	7+	176	0	226	0	276	10+	326	1	376	0	426	1	476		
0		27	0	77	0	127	7+	177	0	227	0	277	4+	327	0	377	0	427	2	477		
0		28	0	78	0	128	8+	178	0	228	0	278	7+	328	0	378	1	428	2	478		
0		29	0	79	0	129	12+	179	0	229	0	279	12+	329	1	379	0	429	2	479		
0		30	0	80	0	130	13+	180	1	230	0	280	13+	330	0	380	0	430	0	480		
0		31	0	81	0	131	15+	181	0	231	0	281	18+	331	0	381	0	431	0	481		
0		32	0	82	0	132	11+	182	0	232	0	282	26+	332	0	382	0	432	0	482		
0		33	0	83	0	133	18+	183	0	233	0	283	31+	333	0	383	0	433	0	483		
0		34	0	84	0	134	15+	184	0	234	0	284	21+	334	0	384	0	434	0	484		
0		35	0	85	0	135	15+	185	0	235	0	285	31+	335	0	385	0	435	0	485		
0		36	0	86	0	136	2+	186	0	236	0	286	34+	336	1	386	0	436	0	486		
0		37	0	87	0	137	0+	187	0	237	0	287	57+	337	0	387	0	437	0	487		
0		38	0	88	0	138	1+	188	1	238	0	288	54+	338	0	388	1	438	0	488		
0		39	0	89	0	139	0+	189	2	239	0	289	69+	339	1	389	0	439	0	489		
0		40	0	90	0	140	0	190	0	240	0	290	57+	340	3	390	2	440	0	490		
0		41	0	91	0	141	0	191	0	241	0	291	33+	341	1	391	2	441	0	491		
0		42	0	92	0	142	0	192	0	242	0	292	32+	342	3	392	1	442	0	492		
0		43	0	93	0	143	0	193	0	243	0	293	3+	343	2	393	0	443	0	493		
0		44	0	94	0	144	0+	194	0	244	0	294	0+	344	1	394	0	444	0	494		
0		45	0	95	1	145	0+	195	0	245	0	295	0+	345	1	395	0	445	0	495		
0		46	0	96	0	146	0+	196	1	246	0	296	0	346	1	396	0	446	0	496		
0		47	0	97	0	147	0+	197	0	247	0	297	2	347	0	397	0	447	0	497		
0		48	0	98	0	148	0+	198	0	248	0	298	0	348	0	398	2	448	0	498		
0		49	0	99	0	149	0+	199	1+	249	1	299	2	349	0	399	0	449	0	499		
0		50	0	100	0	150	1+	200	2+	250	0	300	1	350	0	400	1	450	0	500		



ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: RDND06\$DKA100:[ALP85.SAMPLE]KF6FJ1AA\_220281243.CNF;1

Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4214.18	168	190	150	150	0.00		
4775.64	249	270	157	155	0.16		
5331.22	323	346	525	524	0.04		
5711.39	387	399	13	13	0.00		
6328.79	472	483	11	11	0.00		

End of Report

# URANIUM ISOTOPIC COUNTING REQUEST

2/22/08 1604

C.R. Technician RL

Counting Time 200 Minutes

SOP's Operating: RICHRD008  
Review: RICHRD0016

Date Counted 2/22/08

Background See Alpha Regions Report

BRCO 01/25/08 8030213

WorkOrder #	U-232 (5320 KeV) Tracer	TOTAL COUNTS			Det #	Comments/Edits
		U-238 (4196 KeV)	U-235 (4396 KeV)	U-234 (4776 KeV)		
KFLFK1AA	See Counting Room Printout for ROI information				88	
	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					
	See Counting Room Printout for ROI information					
	See Counting Room Printout for ROI information					
	See Counting Room Printout for ROI information					

Comments:

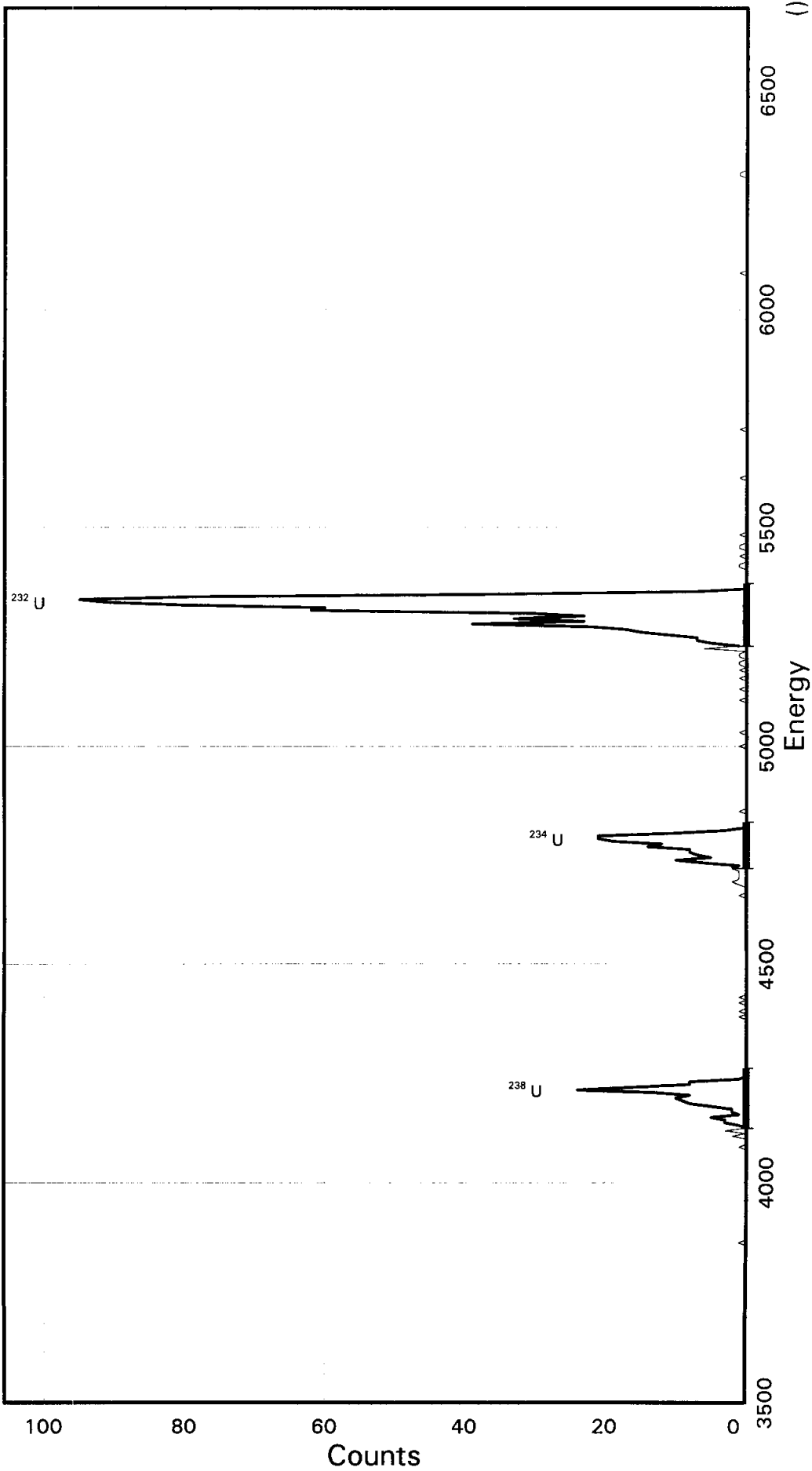
Approved by: S

Date: 2/25/08

TAL Richland WA.  
U BRCO

Batch ID: 8030213

Sample ID: KF6FK1AA  
Detector ID: ALP88 1



Acquisition Start: 22-FEB-2008 12:44:07.59  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:03.00

Energy Coefficients:  
Offset: 3.51427E + 03  
Slope: 6.23467E + 00  
Quadrature: -6.75282E-05

SAMPLE IDENTIITY: KF6FK1AA

TITLE : U BRCO

DETECTOR : ALP88 1

CONFIGURATION NAME : RDND06\$DKA100: [ALP88.SAMPLE]KF6FK1AA\_2202812  
44.CNF;1

ACQUIRE DATE of BACKGROUND: 02-FEB-2008 06:19:49

REPORT DATE : 22-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 22-FEB-2008 12:44:07 CALIB DATE : 02-FEB-2008 03:12:26

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

OFFSET : 3514.27 keV CONSTANT FWHM : 9.16667 Channels  
SLOPE : 6.23467 keV/C SENSITIVITY : 4.00000 Std Dev's  
QUAD COEFF : -.675282E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %



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

Sample Identity: KF6FK1AA

Flags Key

Detector: ALP88 1  
 Report Date: 22-Feb-08 04:04 PM  
 Acquire Date: 22-FEB-2008 12:44:07.59  
 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 Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth	Right Wdth	Flags
U-232	753	1	0	3.763	5326.9	142.5	276	299	0.00	0.00	P
U-234	151	0	0	0.755	4781.3	105.5	194	211	0.00	0.00	P
U-235	4	1	0	0.019	4404.5	143.0	127	150	0.00	0.00	
U-238	129	1	0	0.644	4204.7	136.8	98	120	0.00	0.00	P

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 22-FEB-2008 16:04:13

Configuration : RDND06\$DKA100: [ALP88.SAMPLE] KF6FK1AA\_220281244.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 22-FEB-2008 12:44:07  
 Sample ID : KF6FK1AA Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP88 Detector geometry:  
 Elapsed live time: 0 03:20:03.00 Elapsed real time: 0 03:20:03.00 0.0%  
 Start energy : 3532.97 End energy : 6688.72  
 Sensitivity : 4.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4209.25	129	0	37.41	111.60	98	22	1.07E-02	8.8	
2	0	4786.43	151	0	37.41	204.50	194	17	1.26E-02	8.1	
3	0	5326.88	753	0	37.41	291.65	276	23	6.27E-02	3.6	

Alpha Spectrum Listing

(Version: 1 Apr 07)

Sample Identity: KF6FK1AA

Flags Key

Detector: ALP88 1

Report Date: 22 Feb 08 04:04 PM

Intersect Region: \*

Acquire Date: 22 FEB 2008 12:44:07.59

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	3+	101	0	151	8+	201	0	251	0	301	0	351	0	401	1	451	0	501		
		2	0	52	5+	102	0	152	14+	202	0	252	0	302	0	352	0	402	0	452	0	502		
C		3	0	53	1+	103	0	153	12+	203	0	253	0	303	0	353	0	403	0	453	0	503		
C		4	0	54	2+	104	0	154	19+	204	0	254	0	304	0	354	0	404	0	454	0	504		
C		5	0	55	2+	105	0	155	21+	205	0	255	1	305	0	355	0	405	0	455	0	505		
0		6	1	56	5+	106	0	156	21+	206	1	256	1	306	1	356	0	406	0	456	0	506		
0		7	0	57	8+	107	0	157	10+	207	0	257	0	307	0	357	0	407	0	457	0	507		
C		8	0	58	9+	108	0	158	3+	208	0	258	0	308	0	358	0	408	0	458	0	508		
0		9	0	59	10+	109	0	159	0+	209	0	259	1	309	0	359	0	409	0	459	0	509		
0		10	0	60	8+	110	0	160	0+	210	1	260	0	310	0	360	0	410	0	460	0	510		
0		11	0	61	13+	111	0	161	0	211	0	261	0	311	0	361	0	411	0	461	0	511		
0		12	0	62	24+	112	0	162	0	212	0	262	1	312	0	362	0	412	0	462	0	512		
0		13	0	63	16+	113	0	163	0	213	0	263	1	313	0	363	0	413	0	463				
0		14	0	64	8+	114	0	164	0	214	1	264	0	314	0	364	1	414	0	464				
0		15	0	65	8+	115	0	165	1	215	0	265	0	315	0	365	0	415	0	465				
0		16	0	66	1+	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	1	267	1	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	1	269	0	319	0	369	0	419	0	469				
0		20	0	70	0	120	0	170	0	220	1	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	1	272	0	322	0	372	0	422	0	472				
0		23	0	73	0	123	0	173	0	223	1	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	6	275	0	325	0	375	0	425	0	475				
0		26	0	76	0	126	0	176	0	226	1+	276	0	326	0	376	0	426	0	476				
0		27	0	77	0+	127	0	177	0	227	5+	277	0	327	0	377	0	427	0	477				
0		28	0	78	0+	128	0	178	0	228	7+	278	0	328	0	378	0	428	0	478				
0		29	0	79	0+	129	0	179	0	229	7+	279	0	329	0	379	0	429	0	479				
0		30	0	80	0+	130	0	180	0	230	11+	280	0	330	0	380	0	430	0	480				
0		31	0	81	0+	131	0	181	0	231	15+	281	0	331	0	381	0	431	0	481				
0		32	0	82	0+	132	0	182	0	232	17+	282	0	332	0	382	0	432	0	482				
0		33	0	83	0+	133	0	183	0	233	22+	283	0	333	0	383	0	433	0	483				
0		34	0	84	0+	134	1	184	0	234	39+	284	0	334	0	384	0	434	0	484				
0		35	0	85	0+	135	0	185	0	235	23+	285	0	335	0	385	0	435	0	485				
0		36	0	86	0+	136	0	186	0	236	33+	286	0	336	0	386	0	436	0	486				
0		37	0	87	0+	137	0	187	0	237	23+	287	0	337	0	387	0	437	0	487				
0		38	0	88	0+	138	1	188	0	238	31+	288	1	338	0	388	0	438	0	488				
0		39	0	89	1+	139	2	189	1	239	62+	289	0	339	0	389	0	439	0	489				
0		40	0	90	0+	140	1	190	0	240	60+	290	0	340	0	390	0	440	0	490				
0		41	1	91	1+	141	1	191	0	241	80+	291	0	341	0	391	0	441	0	491				
0		42	0	92	0+	142	1	192	0	242	91+	292	0	342	0	392	0	442	0	492				
0		43	0	93	0+	143	1	193	0	243	95+	293	0	343	0	393	0	443	0	493				
0		44	0	94	1+	144	2+	194	1	244	79+	294	0	344	0	394	0	444	0	494				
0		45	2	95	0+	145	1+	195	0	245	35+	295	0	345	0	395	0	445	0	495				
0		46	0	96	1+	146	6+	196	0	246	7+	296	0	346	0	396	0	446	0	496				
0		47	3	97	0+	147	10+	197	0	247	0+	297	0	347	0	397	0	447	0	497				
0		48	0+	98	0+	148	5+	198	0	248	0+	298	0	348	C	398	0	448	0	498				
0		49	1+	99	0+	149	7+	199	0	249	0	299	0	349	C	399	0	449	0	499				
0		50	3+	100	0+	150	8+	200	0	250	0	300	0	350	C	400	1	450	0	500				



ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: RDND06\$DKA100:[ALP88.SAMPLE]KF6FK1AA\_220281244.CNF;1

Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4209.24	98	120	129	127	0.18		
4786.43	194	211	151	147	0.33		
5326.87	276	299	753	743	0.36		

End of Report

# URANIUM ISOTOPIIC COUNTING REQUEST

857

C.R. Technician 6  
Date Counted 9/25/11

Counting Time 20 Minutes  
Sample 20  
Background See Alpha Regions Report

SOP's  
Operating: RICHRD008  
Review: RICHRD0016

1/2  
803023

WorkOrder #	U-232 (5320 KeV) Tracer	TOTAL COUNTS			Det #	Comments/Edits
		U-238 (4196 KeV)	U-235 (4396 KeV)	U-234 (4776 KeV)		
<u>KFL6FLUAA</u>	See Counting Room Printout for ROI information				<u>69</u>	
<u>KFL6FM1AA</u>	See Counting Room Printout for ROI information				<u>71</u>	
<u>KFL6FM1AE</u>	See Counting Room Printout for ROI information				<u>84</u>	
<u>KGAFX1A</u>	See Counting Room Printout for ROI information				<u>85</u>	
<u>KGAFX1AC</u>	See Counting Room Printout for ROI information				<u>88</u>	
	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					
	See Counting Room Printout for ROI information					

Comments:

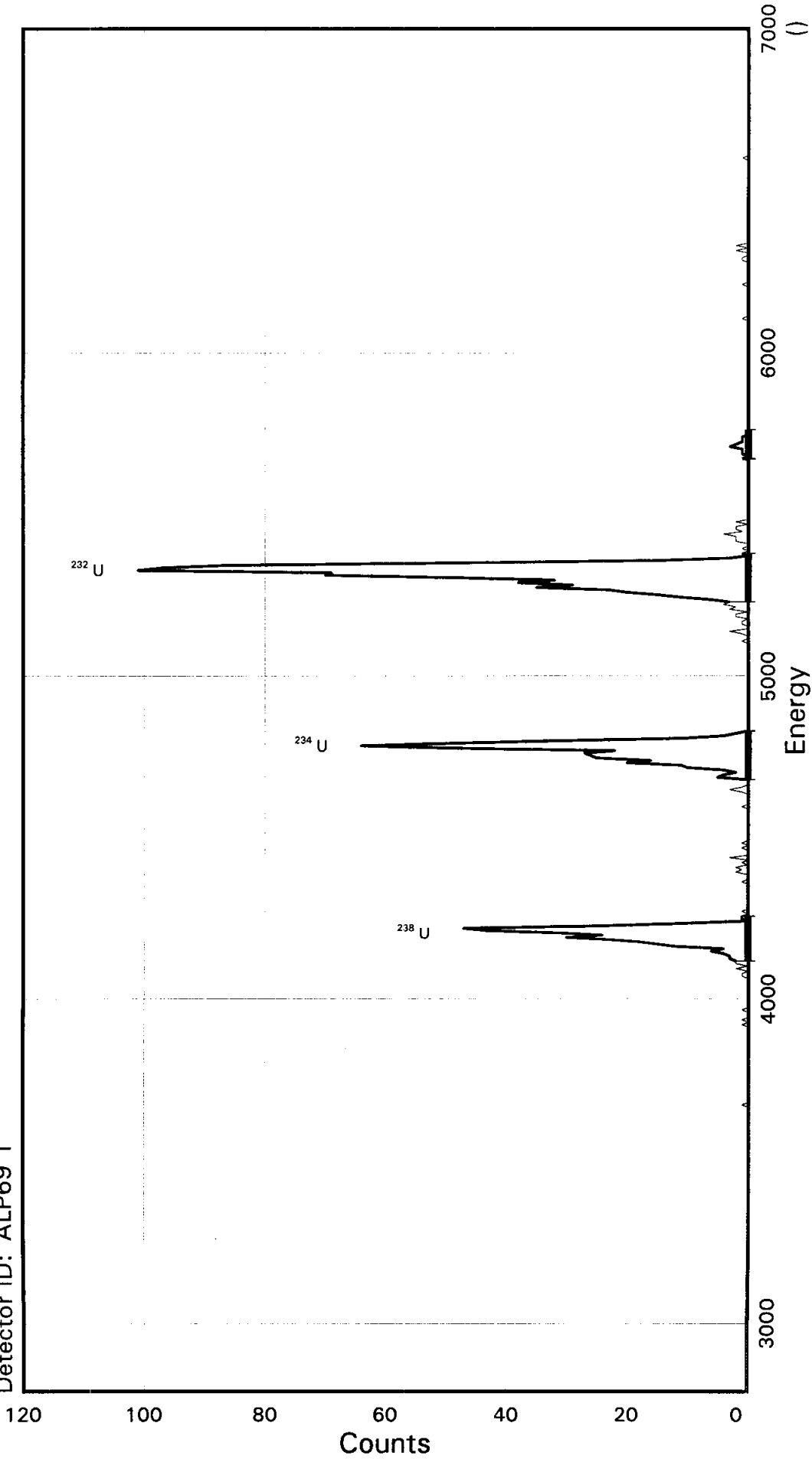
5

Date: 9/25/11

TAL Richland WA.  
U BRCO

Batch ID: 8030213

Sample ID: KF6FL1AA  
Detector ID: ALP69 1



Acquisition Start: 25-FEB-2008 04:37:02.53  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:04.00

Energy Coefficients:  
Offset: 2.76787E + 03  
Slope: 7.54068E + 00  
Quadrature: -4.80836E - 05

SAMPLE IDENTIITY: KF6FL1AA

TITLE : U BRCO

DETECTOR : ALP69 1  
CONFIGURATION NAME : RDND06\$DKA100: [ALP69.SAMPLE]KF6FL1AA\_2502804  
37.CNF;1  
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:46

REPORT DATE : 25-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 25-FEB-2008 04:37:02 CALIB DATE : 11-FEB-2008 02:51:30

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

OFFSET : 2767.87 keV CONSTANT FWHM : 7.66667 Channels  
SLOPE : 7.54068 keV/C SENSITIVITY : 3.00000 Std Dev's  
QUAD COEFF : -.480836E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

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

Sample Identity: KF6FL1AA

Flags Key

Detector: ALP69 1 Report Date: 25-Feb-08 07:57 AM Acquire Date: 25-FEB-2008 04:37:02.53 Tracer Nuclide: U-232 High Counts Limit: 36 Sample Live Time: 200 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	Intrscnt Count	Count Rate C/Min	Centrd Region		Left Chnl	Rght Chnl	Left Wdth	Rght Wdth	Flags
					Energy keV	Width keV					
U-232	756	20	0	3.771	5327.0	150.2	327	347	0.00	0.00	P
U-234	385	3	0	1.923	4781.4	150.3	254	274	0.00	0.00	P
U-235	10	3	0	0.049	4404.6	150.4	204	224	0.00	0.00	
U-238	305	4	0	1.523	4204.8	142.9	179	198	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 07:57:21

```

Configuration      : RDND06$DKA100: [ALP69.SAMPLE] KF6FL1AA_250280437.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : U BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 04:37:02
Sample ID         : KF6FL1AA Sample quantity : 0.00000E+00 LITER
Sample type       : disk Sample geometry :
Detector name     : ALP69 Detector geometry:
Elapsed live time : 0 03:20:04.00 Elapsed real time: 0 03:20:04.00 0.0%
Start energy      : 2790.49 End energy : 6616.09
Sensitivity       : 3.00 Sum Sensitivity : 1.00
  
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4205.57	305	0	60.33	190.89	179	19	2.54E-02	5.7	
2	0	4785.31	385	0	37.70	268.00	254	20	3.21E-02	5.1	
3	0	5327.00	756	0	52.78	340.12	327	20	6.30E-02	3.6	
4	0	5705.51	13	0	52.78	390.55	386	12	1.08E-03	27.7	



Alpha Spectrum Listing

(Version: 1-Apr-07)

Sample Identity: KP6FL1AA

Flags Key

Detector: ALP69 1

Report Date: 25 Feb 08 07:57 AM

Intersect Region: @

Acquire Date: 25 FEB-2008 04:37:02.53

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	1		251	0		301	0		351	0		401	0		451	0		501	
		2	0		52	0		102	0		152	0		202	0		252	0		302	2		352	0		402	0		452	0		502	
0		3	0		53	0		103	1		153	0		203	0		253	0		303	2		353	0		403	0		453	0		503	
0		4	0		54	0		104	0		154	0+		204	0+		254	0		304	2		354	0		404	0		454	0		504	
0		5	0		55	0		105	1		155	0+		205	5+		255	0		305	4		355	0		405	0		455	0		505	
0		6	0		56	0		106	0		156	0+		206	4+		256	0		306	1		356	0		406	0		456	0		506	
0		7	0		57	0		107	0		157	0+		207	2+		257	0		307	2		357	0		407	0		457	0		507	
0		8	0		58	0		108	0		158	0+		208	4+		258	0		308	2		358	0		408	1		458	0		508	
0		9	0		59	0		109	1		159	0+		209	10+		259	0		309	0		359	0		409	0		459	0		509	
0		10	0		60	0		110	0		160	0+		210	11+		260	0		310	2		360	0		410	0		460	1		510	
0		11	0		61	0		111	0		161	0+		211	20+		261	1		311	0		361	0		411	0		461	0		511	
0		12	0		62	0		112	0		162	1+		212	16+		262	0		312	0		362	0		412	0		462	0		512	
0		13	0		63	0		113	0		163	0+		213	25+		263	0		313	0		363	0		413	0		463				
0		14	0		64	0		114	0		164	0+		214	26+		264	1		314	0		364	0		414	0		464				
0		15	0		65	0		115	0		165	0+		215	27+		265	3		315	0		365	0		415	0		465				
0		16	0		66	0		116	0		166	2+		216	22+		266	0		316	0		366	0		416	0		466				
0		17	0		67	0		117	0		167	1+		217	48+		267	0		317	0		367	0		417	0		467				
0		18	0		68	0		118	0		168	2+		218	64+		268	1		318	0		368	0		418	1		468				
0		19	0		69	0		119	0		169	0+		219	49+		269	1		319	0		369	0		419	1		469				
0		20	0		70	1		120	0		170	1+		220	32+		270	0		320	0		370	0		420	0		470				
0		21	0		71	0		121	0		171	0+		221	11+		271	2		321	0		371	0		421	0		471				
0		22	0		72	0		122	0		172	3+		222	4+		272	2		322	0		372	0		422	2		472				
0		23	0		73	0		123	1		173	0+		223	2+		273	0		323	0		373	0		423	0		473				
0		24	0		74	0		124	1		174	0+		224	0		274	3		324	0		374	0		424	2		474				
0		25	0		75	0		125	0		175	0		225	0		275	2		325	0		375	0		425	0		475				
0		26	0		76	0		126	2		176	1		226	0		276	4		326	0		376	0		426	0		476				
C		27	0		77	0		127	0		177	0		227	0		277	3+		327	0		377	0		427	0		477				
C		28	0		78	0		128	2		178	1		228	0		278	6+		328	0		378	0		428	0		478				
C		29	0		79	0		129	2+		179	0		229	0		279	11+		329	0		379	0		429	0		479				
0		30	0		80	0		130	3+		180	0		230	0		280	15+		330	0		380	0		430	0		480				
C		31	0		81	0		131	3+		181	0		231	0		281	20+		331	0		381	0		431	0		481				
0		32	0		82	0		132	4+		182	0		232	0		282	23+		332	0		382	0		432	0		482				
0		33	0		83	0		133	6+		183	0		233	0		283	35+		333	0		383	0		433	0		483				
0		34	0		84	0		134	4+		184	0		234	0		284	29+		334	0		384	0		434	0		484				
0		35	0		85	0		135	12+		185	0		235	0		285	38+		335	0		385	0		435	0		485				
0		36	0		86	0		136	15+		186	0		236	0		286	32+		336	1		386	0		436	0		486				
0		37	0		87	0		137	18+		187	0		237	0		287	48+		337	0		387	0		437	0		487				
0		38	0		88	0		138	23+		188	0		238	0		288	70+		338	1		388	0		438	0		488				
0		39	0		89	0		139	30+		189	0		239	0		289	69+		339	1		389	0		439	0		489				
0		40	0		90	0		140	24+		190	0		240	0		290	101+		340	1		390	0		440	0		490				
0		41	0		91	0		141	31+		191	0		241	0		291	97+		341	3		391	0		441	0		491				
0		42	0		92	0		142	43+		192	0		242	0		292	87+		342	2		392	0		442	0		492				
0		43	0		93	0		143	47+		193	1		243	0		293	51+		343	1		393	0		443	0		493				
0		44	0		94	0		144	24+		194	0		244	0		294	15+		344	1		394	1		444	0		494				
0		45	0		95	0		145	11+		195	0		245	0		295	3+		345	1		395	0		445	0		495				
C		46	0		96	0		146	0+		196	0		246	0		296	0+		346	0		396	0		446	0		496				
C		47	0		97	0		147	1+		197	0		247	0		297	1		347	0		397	0		447	0		497				
C		48	0		98	0		148	1		198	0		248	0		298	0		348	0		398	0		448	0		498				
C		49	0		99	0		149	0		199	1		249	0		299	1		349	0		399	0		449	0		499				
C		50	0		100	0		150	1		200	3		250	0		300	0		350	0		400	0		450	0		500				



ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: RDND06\$DKA100:[ALP69.SAMPLE]KF6FL1AA\_250280437.CNF;1

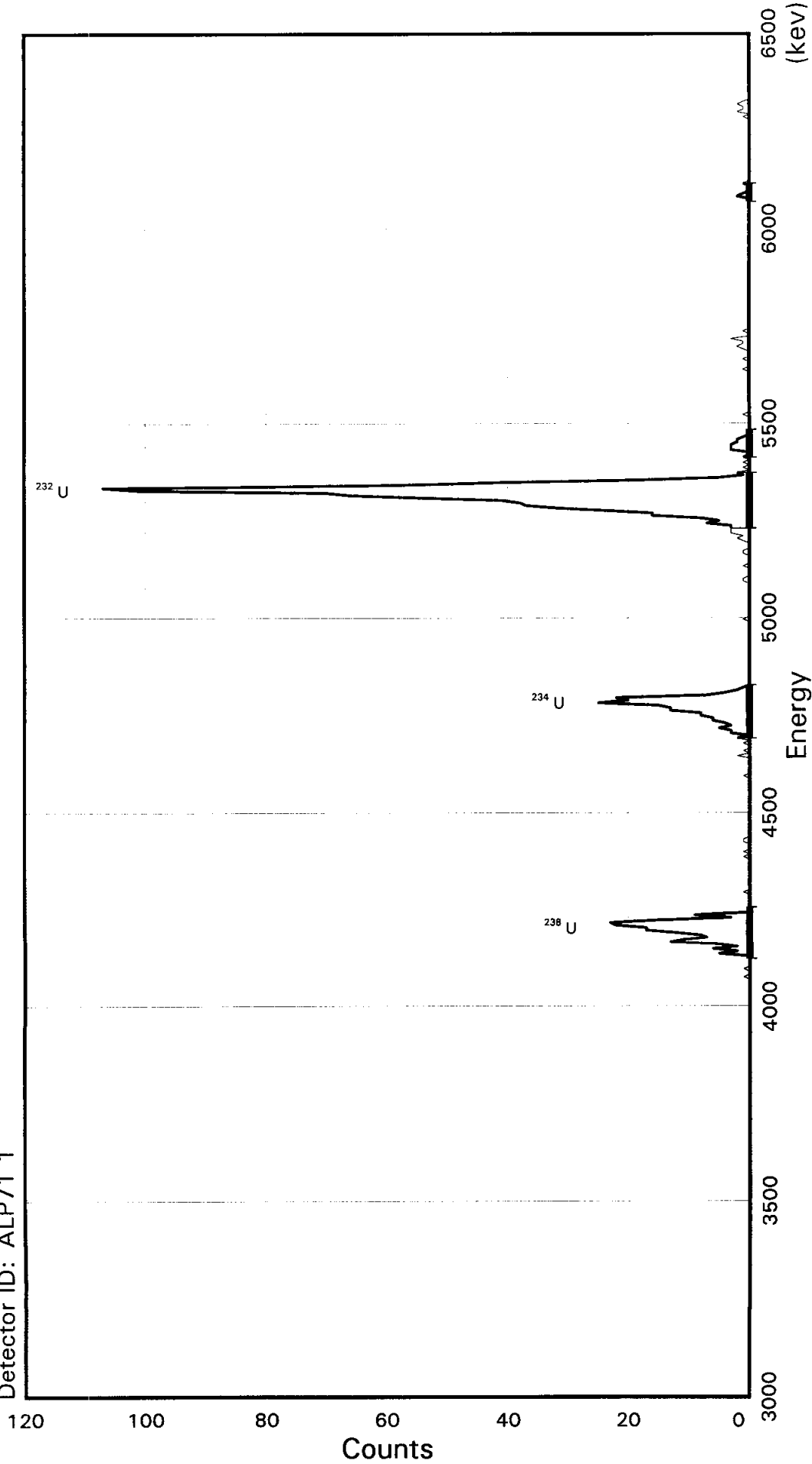
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4205.56	179	198	305	302	0.17		
4785.31	254	274	385	382	0.15		
5327.00	327	347	756	754	0.07		
5705.50	386	398	13	12	0.28		

End of Report

TAL Richland WA.  
U BRCO

Batch ID: 8030213

Sample ID: KF6FM1AA  
Detector ID: ALP71 1



Acquisition Start: 25-FEB-2008 04:37:08.12  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:11.00

Energy Coefficients:  
Offset: 3.15399E+03  
Slope: 6.43853E+00  
Quadrature: 9.36697E-05

SAMPLE IDENTIITY: KF6FM1AA

TITLE : U BRCO

DETECTOR : ALP71 1  
CONFIGURATION NAME : RDND06\$DKA100:[ALP71.SAMPLE]KF6FM1AA\_2502804  
37.CNF;1  
ACQUIRE DATE of BACKGROUND: 11-FEB-2008 06:14:49

REPORT DATE : 25-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 25-FEB-2008 04:37:08 CALIB DATE : 11-FEB-2008 02:51:25

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:11

OFFSET : 3153.99 keV CONSTANT FWHM : 9.00000 Channels  
SLOPE : 6.43853 keV/C SENSITIVITY : 3.00000 Std Dev's  
QUAD COEFF : 9.366970E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

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

Sample Identity: KF6FM1AA

Flags Key

Detector: ALP71 1  
 Report Date: 25-Feb-08 07:57 AM P: Peak Identified  
 Acquire Date: 25-FEB-2008 04:37:08.12 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: 2500 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	757	28	0	3.770	5327.6	143.0	321	343	0.00	0.00	P
U-234	171	4	0	0.853	4782.0	136.2	238	259	0.00	0.00	P
U-235	4	1	0	0.020	4405.2	142.4	179	201	0.00	0.00	
U-238	178	4	0	0.888	4205.4	135.8	150	171	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 07:57:33

Configuration : RDND06\$DKA100:[ALP71.SAMPLE]KF6FM1AA\_250280437.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 04:37:08  
 Sample ID : KF6FM1AA Sample quantity : 0.000000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP71 Detector geometry:  
 Elapsed live time: 0 03:20:11.00 Elapsed real time: 0 03:20:11.00 0.0%  
 Start energy : 3173.30 kev End energy : 6475.07 kev  
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4205.32	178	0	51.51	162.90	150	21	1.48E-02	7.5	
2	0	4782.67	171	0	45.07	252.03	238	21	1.42E-02	7.6	
3	0	5327.62	757	0	45.07	335.96	321	22	6.30E-02	3.6	
4	0	5445.51	15	0	32.19	354.08	349	11	1.25E-03	25.8	
5	0	6086.60	4	0	25.75	452.50	450	7	3.33E-04	50.0	

Alpha Spectrum Listing

(Version: 1-Apr-07)

Sample Identity: KF6FMLAA

Flags Key

Detector: ALP71 1

Report Date: 25-Feb-08 07:57 AM

Intersect Region: ⌘

Acquire Date: 25 FEB 2008 04:37:08.12

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	15+	251	1	301	0	351	0	401	0	451	0	501	
		2	0	52	0	102	5+	152	0	202	25+	252	0	302	3	352	0	402	2	452	0	502	
0		3	0	53	0	103	2+	153	0	203	20+	253	0	303	3	353	0	403	1	453	0	503	
0		4	0	54	0	104	6+	154	0	204	22+	254	0	304	3	354	0	404	0	454	0	504	
0		5	0	55	0	105	2+	155	0	205	7+	255	0	305	2	355	0	405	0	455	0	505	
0		6	0	56	0	106	5+	156	0	206	4+	256	1	306	2	356	0	406	0	456	0	506	
0		7	0	57	0	107	13+	157	0	207	2+	257	0	307	1	357	0	407	1	457	0	507	
0		8	0	58	0	108	11+	158	0	208	1+	258	0	308	0	358	0	408	0	458	0	508	
0		9	0	59	0	109	7+	159	0	209	0	259	0	309	0	359	0	409	0	459	0	509	
0		10	0	60	0	110	8+	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	1	311	0	361	0	411	0	461	0	511	
0		12	0	62	0	112	17+	162	0	212	0	262	1	312	0	362	0	412	0	462	0	512	
0		13	0	63	0	113	17+	163	0	213	0	263	0	313	0	363	0	413	0	463			
0		14	0	64	0	114	22+	164	0	214	0	264	0	314	0	364	0	414	0	464			
0		15	0	65	0	115	23+	165	0	215	0	265	0	315	0	365	0	415	0	465			
0		16	0	66	0	116	15+	166	0	216	0	266	1	316	1	366	0	416	0	466			
0		17	0	67	0	117	3+	167	0	217	0	267	2	317	0	367	0	417	0	467			
0		18	0	68	0	118	9+	168	0	218	0	268	1	318	0	368	0	418	0	468			
0		19	0	69	0	119	0+	169	0	219	0	269	3	319	0	369	0	419	0	469			
0		20	0	70	0	120	0+	170	0	220	0	270	3	320	0	370	0	420	0	470			
0		21	0	71	0	121	0	171	0	221	0	271	3+	321	0	371	0	421	0	471			
0		22	0	72	0	122	0	172	0	222	0	272	3+	322	0	372	0	422	0	472			
0		23	0	73	0	123	0	173	1	223	0	273	7+	323	0	373	0	423	0	473			
0		24	0	74	0	124	0	174	0	224	0	274	5+	324	0	374	0	424	0	474			
0		25	0	75	0	125	0	175	0	225	0	275	8+	325	0	375	0	425	0	475			
0		26	0	76	0	126	0	176	0	226	0	276	16+	326	0	376	0	426	0	476			
0		27	0	77	0	127	1	177	0	227	0	277	16+	327	0	377	0	427	0	477			
0		28	0	78	0	128	0	178	0	228	0	278	24+	328	0	378	0	428	0	478			
0		29	0	79	0	129	0+	179	0	229	0	279	32+	329	0	379	0	429	0	479			
0		30	0	80	0	130	0+	180	0	230	0	280	37+	330	0	380	0	430	0	480			
0		31	0	81	0	131	0+	181	2	231	0	281	38+	331	0	381	0	431	0	481			
0		32	0	82	0	132	0+	182	0	232	0	282	41+	332	0	382	0	432	0	482			
0		33	0	83	0	133	0+	183	1	233	0	283	54+	333	0	383	0	433	1	483			
0		34	0	84	0	134	0+	184	0	234	0	284	66+	334	1	384	0	434	0	484			
0		35	0	85	0	135	0+	185	0	235	1	285	70+	335	0	385	0	435	2	485			
0		36	0	86	0	136	0+	186	1	236	0	286	101+	336	0	386	0	436	1	486			
0		37	0	87	0	137	0+	187	0	237	0	287	107+	337	0	387	0	437	1	487			
0		38	0	88	0	138	0+	188	2+	238	0	288	59+	338	1	388	0	438	2	488			
0		39	0	89	0	139	0+	189	0+	239	0	289	42+	339	0	389	0	439	1	489			
0		40	0	90	0	140	0+	190	3+	240	0	290	18+	340	0	390	0	440	0	490			
0		41	0	91	0	141	1+	191	3+	241	0	291	5+	341	0	391	0	441	0	491			
0		42	0	92	0	142	0+	192	5+	242	0	292	1+	342	1	392	0	442	0	492			
0		43	0	93	1	143	1+	193	3+	243	0	293	2	343	2	393	0	443	0	493			
0		44	0	94	0	144	0+	194	4+	244	0	294	0	344	1	394	0	444	0	494			
0		45	0	95	0	145	0+	195	6+	245	0	295	1	345	1	395	0	445	0	495			
0		46	0	96	1	146	0+	196	6+	246	0	296	0	346	3	396	0	446	0	496			
0		47	0	97	0	147	1+	197	8+	247	0	297	1	347	0	397	0	447	0	497			
0		48	0	98	0	148	1+	198	8+	248	0	298	0	348	0	398	0	448	0	498			
0		49	0	99	0	149	0+	199	13+	249	0	299	1	349	1	399	0	449	0	499			
0		50	0	100	0+	150	0+	200	13+	250	1	300	0	350	0	400	0	450	0	500			





ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: RDND06\$DKA100:[ALP71.SAMPLE]KF6FM1AA\_250280437.CNF;1

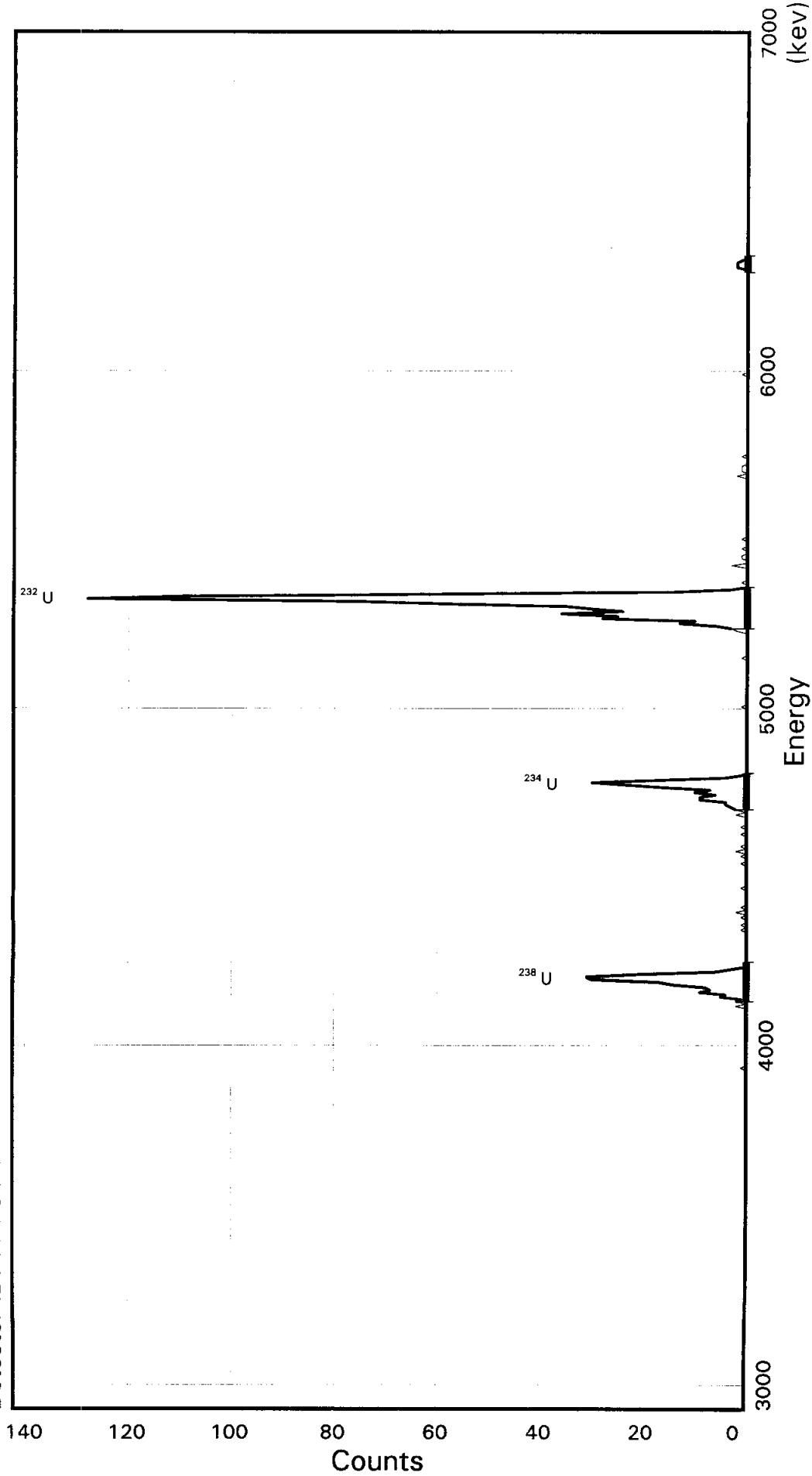
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4205.31	150	171	178	177	0.07		
4782.67	238	259	171	170	0.08		
5327.61	321	343	757	755	0.07		
5445.50	349	360	15	15	0.00		
6086.60	450	457	4	4	0.00		

End of Report

TAL Richland WA.  
U BRCO

Batch ID: 8030213

Sample ID: KF6FM1AE  
Detector ID: ALP84 1



Acquisition Start: 25-FEB-2008 04:37:21.33  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:12.00

Energy Coefficients:  
Offset: 2.90644E + 03  
Slope: 7.30399E + 00  
Quadrature: -1.47278E-04

SAMPLE IDENTIITY: KF6FM1AE

TITLE : U BRCO

DETECTOR : ALP84 1

CONFIGURATION NAME : RDND06\$DKA100: [ALP84.SAMPLE] KF6FM1AE\_2502804  
37.CNF;1

ACQUIRE DATE of BACKGROUND: 02-FEB-2008 06:19:45

REPORT DATE : 25-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 04:37:21 CALIB DATE : 02-FEB-2008 03:12:14

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:12

OFFSET : 2906.44 keV CONSTANT FWHM : 4.50000 Channels

SLOPE : 7.30399 keV/C SENSITIVITY : 3.00000 Std Dev's

QUAD COEFF : -.147278E-03 keV/C^2 SUM SENSITIVITY: 1.00000 %

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

Sample Identity: KF6FM1AE

Flags Key

Detector: ALP84 1  
 Report Date: 25-Feb-08 07:57 AM P: Peak Identified  
 Acquire Date: 25-FEB-2008 04:37:21.33 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: 2500 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	659	7	0	3.289	5325.2	122.5	321	338	0.00	0.00	P
U-234	144	1	0	0.719	4779.6	108.4	247	262	0.00	0.00	P
U-235	6	0	0	0.030	4402.8	123.2	193	210	0.00	0.00	
U-238	159	1	0	0.794	4203.0	116.0	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 07:57:38

Configuration : RDND06\$DKA100: [ALP84.SAMPLE] KF6FM1AE\_250280437.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 04:37:21  
 Sample ID : KF6FM1AE Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP84 Detector geometry:  
 Elapsed live time: 0 03:20:12.00 Elapsed real time: 0 03:20:12.00 0.0%  
 Start energy : 2928.35 kev End energy : 6607.48 kev  
 Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4198.37	159	0	29.22	177.52	168	16	1.32E-02	7.9	
2	0	4777.92	144	0	29.22	257.56	247	15	1.20E-02	8.3	
3	0	5325.16	659	0	29.22	333.39	321	17	5.49E-02	3.9	
4	0	6312.76	7	0	29.22	470.83	468	7	5.83E-04	37.8	

## Alpha Spectrum Listing

(Version: 1 Apr-07)

Sample Identity: KFGPM:AE

## Flags Key

Detector: ALP84 1

Report Date: 25-Feb-08 07:57 AM

Intersect Region: \*

Acquire Date: 25 FEB 2008 04:37:21.33

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	0+		201	9+		251	0		301	1		351	0		401	0		451	0		501	
		2	0		52	0		102	0		152	0+		202	9+		252	0		302	0		352	0		402	0		452	0		502	
	0		3	0		53	0		103	0		153	1+		203	6+		253	0		303	0		353	0		403	0		453	0		503
	0		4	0		54	0		104	0		154	0+		204	10+		254	0		304	1		354	0		404	0		454	0		504
	0		5	0		55	0		105	0		155	2+		205	7+		255	0		305	0		355	0		405	0		455	0		505
	0		6	0		56	0		106	0		156	0+		206	16+		256	0		306	0		356	0		406	0		456	0		506
	0		7	0		57	0		107	0		157	1+		207	23+		257	0		307	0		357	0		407	0		457	0		507
	0		8	0		58	0		108	0		158	0+		208	30+		258	0		308	1		358	0		408	0		458	0		508
	0		9	0		59	0		109	0		159	0+		209	17+		259	1		309	0		359	0		409	0		459	0		509
	0		10	0		60	0		110	0		160	0+		210	4+		260	0		310	0		360	0		410	0		460	0		510
	0		11	0		61	0		111	0		161	0		211	1+		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	1		215	0		265	0		315	0		365	0		415	0		465			
	0		16	0		66	0		116	2		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	2+		168	0		218	0		268	0		318	0		368	0		418	0		468			
	0		19	0		69	0		119	1+		169	0		219	0		269	0		319	0		369	0		419	0		469			
	0		20	0		70	0		120	5+		170	0		220	0		270	2		320	0		370	0		420	2		470			
	0		21	0		71	0		121	4+		171	0		221	0		271	3+		321	0		371	0		421	2		471			
	0		22	0		72	0		122	9+		172	0		222	0		272	6+		322	0		372	0		422	2		472			
	0		23	0		73	0		123	7+		173	0		223	0		273	13+		323	0		373	0		423	1		473			
	0		24	0		74	0		124	8+		174	0		224	0		274	10+		324	0		374	0		424	0		474			
	0		25	0		75	0		125	14+		175	1		225	0		275	28+		325	0		375	0		425	0		475			
	0		26	0		76	0		126	17+		176	0		226	0		276	25+		326	0		376	1		426	0		476			
	0		27	0		77	0		127	30+		177	0		227	0		277	36+		327	0		377	0		427	0		477			
	0		28	0		78	0		128	31+		178	1		228	0		278	24+		328	0		378	0		428	0		478			
	0		29	0		79	0		129	21+		179	0		229	0		279	30+		329	0		379	0		429	0		479			
	0		30	0		80	0		130	6+		180	2		230	0		280	35+		330	0		380	0		430	0		480			
	0		31	0		81	0		131	3+		181	0		231	0		281	57+		331	0		381	0		431	0		481			
	C		32	0		82	0		132	0+		182	1		232	0		282	75+		332	0		382	0		432	0		482			
	C		33	0		83	0		133	0+		183	0		233	0		283	128+		333	0		383	0		433	0		483			
	C		34	0		84	0		134	0		184	0		234	0		284	109+		334	2		384	0		434	0		484			
	0		35	0		85	0		135	0		185	0		235	0		285	63+		335	0		385	0		435	0		485			
	0		36	0		86	0		136	0		186	0		236	0		286	14+		336	1		386	0		436	0		486			
	0		37	0		87	0		137	0		187	1		237	0		287	3+		337	1		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	1		289	0		339	0		389	0		439	0		489			
	0		40	0		90	0		140	0		190	1		240	0		290	1		340	0		390	0		440	0		490			
	0		41	0		91	1		141	0		191	0		241	0		291	0		341	0		391	0		441	0		491			
	C		42	0		92	0		142	0		192	0		242	0		292	0		342	1		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	2		245	0		295	0		345	0		395	0		445	0		495			
	C		46	0		96	0		146	0+		196	0		246	0		296	0		346	0		396	0		446	0		496			
	C		47	0		97	0		147	0+		197	2+		247	0		297	3		347	0		397	0		447	0		497			
	0		48	0		98	0		148	1+		198	3+		248	0		298	0		348	0		398	0		448	0		498			
	0		49	0		99	0		149	0+		199	4+		249	0		299	0		349	0		399	0		449	0		499			
	0		50	0		100	0		150	1+		200	4+		250	0		300	1		350	0		400	0		450	0		500			



ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: RDND06\$DKA100:[ALP84.SAMPLE]KF6FM1AE\_250280437.CNF;1

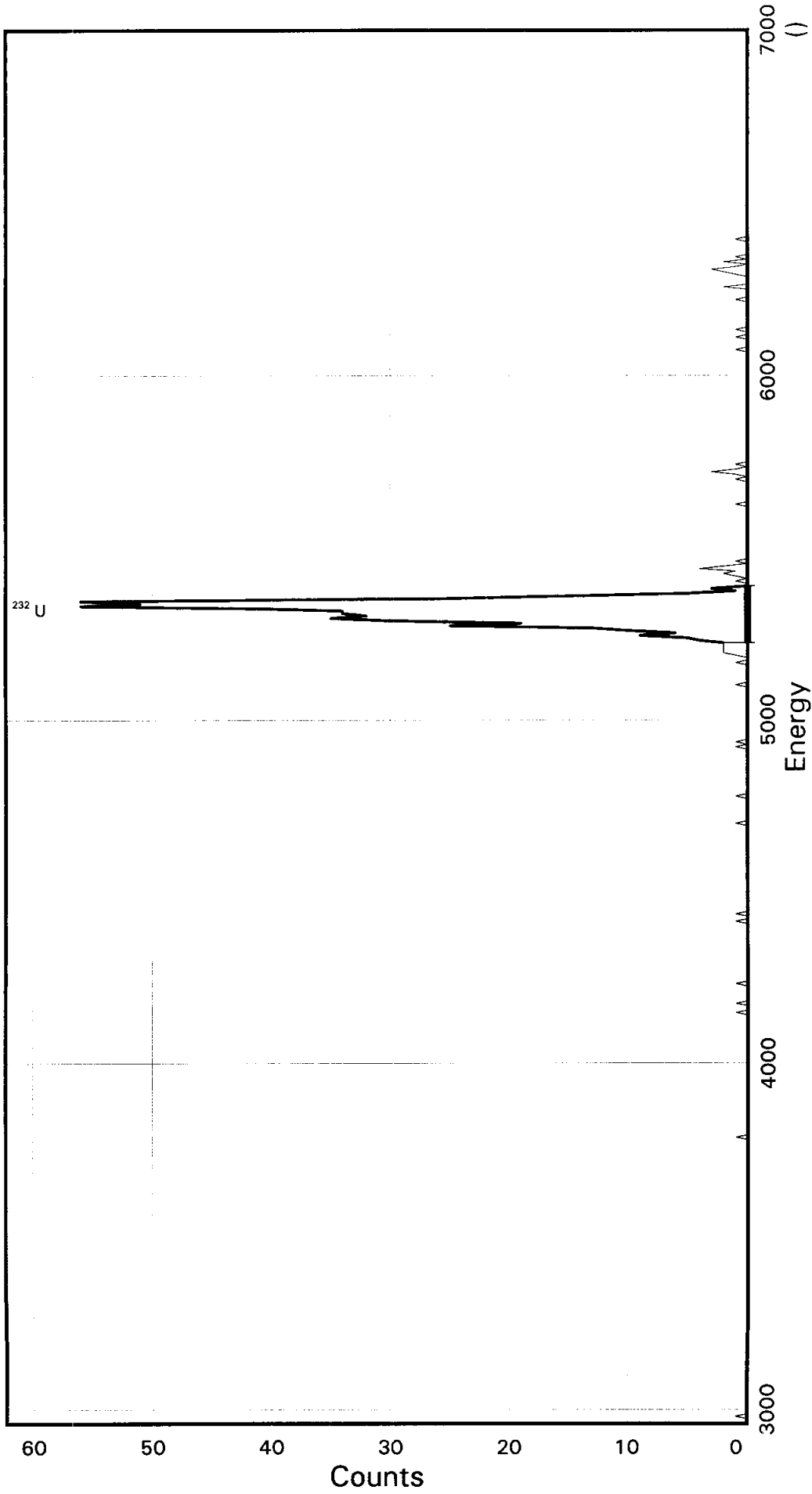
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4198.37	168	184	159	158	0.08		
4777.92	247	262	144	145	-0.08		
5325.15	321	338	659	659	0.00		
6312.75	468	475	7	7	0.00		

End of Report

TAL Richland WA.  
U BRCO

Batch ID: 8030213

Sample ID: KGAFX1AA  
Detector ID: ALP85 1



Acquisition Start: 25-FEB-2008 04:37:28.66  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:05.00

Energy Coefficients:  
Offset: 2.93848E + 03  
Slope: 6.96123E + 00  
Quadrature: 3.38872E-04



SAMPLE IDENTIITY: KGAFX1AA

TITLE : U BRCO

DETECTOR : ALP85 1

CONFIGURATION NAME : RDND06\$DKA100:[ALP85.SAMPLE]KGAFX1AA\_2502804  
37.CNF;1

ACQUIRE DATE of BACKGROUND: 02-FEB-2008 06:19:47

REPORT DATE : 25-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 25-FEB-2008 04:37:28 CALIB DATE : 02-FEB-2008 03:12:20

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

OFFSET : 2938.48 keV CONSTANT FWHM : 10.50000 Channels

SLOPE : 6.96123 keV/C SENSITIVITY : 3.00000 Std Dev's

QUAD COEFF : 3.388720E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

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

Sample Identity: KGAFX1AA

Flags Key

Detector: ALP85 1	
Report Date: 25-Feb-08 07:57 AM	P: Peak Identified
Acquire Date: 25-FEB-2008 04:37:28.66	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: 2500 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	Rght Wdth	Flags
					Energy keV	Width keV					
U-232	512	43	0	2.542	5319.2	165.3	323	346	0.00	0.00	P
U-234	2	6	0	0.008	4773.6	164.1	247	270	0.00	0.00	
U-235	2	1	0	0.010	4396.8	163.3	194	217	0.00	0.00	
U-238	3	2	0	0.014	4197.0	162.9	166	189	0.00	0.00	

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 25-FEB-2008 07:57:42

Configuration : RDND06\$DKA100:[ALP85.SAMPLE]KGAFX1AA\_250280437.CNF;1  
Analyses by : ALPHA V1.8  
Sample title : U BRCO  
Sample date : 25-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 04:37:28  
Sample ID : KGAFX1AA Sample quantity : 0.00000E+00 LITER  
Sample type : disk Sample geometry :  
Detector name : ALP85 Detector geometry:  
Elapsed live time: 0 03:20:05.00 Elapsed real time: 0 03:20:05.00 0.0%  
Start energy : 2959.36 End energy : 6591.46  
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	5319.19	512	0	76.57	336.49	323	23	4.26E-02	4.4	

Alpha Spectrum Listing

(Version: 1 Apr-07)

Sample Identity: KGAFX1AA

Detector: ALP85 i

Report Date: 25-Feb-08 07:57 AM

Acquire Date: 25-FEB-2008 04:37:28.66

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	
		1	0	51	0	101	0	151	0+	201	0+	251	0	301	2	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	4	353	0	403	0	453	0	503		
0		4	0	54	0	104	0	154	0+	204	0+	254	0	304	2	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		
1		6	0	56	0	106	0	156	0+	206	0+	256	1	306	1	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	1+	261	0	311	0	361	0	411	1	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	1+	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	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	0	317	0	367	0	417	0	467				
0		18	0	68	0	118	0+	168	0	218	0+	268	1	318	0	368	0	418	0	468				
0		19	0	69	0	119	0+	169	0	219	0+	269	2	319	0	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	1	121	0+	171	0	221	0	271	2	321	0	371	0	421	1	471				
0		22	0	72	0	122	1+	172	0	222	0	272	2	322	0	372	0	422	2	472				
0		23	0	73	0	123	0+	173	0	223	0	273	2+	323	0	373	0	423	3	473				
0		24	0	74	0	124	0+	174	0	224	0	274	4+	324	0	374	0	424	1	474				
0		25	0	75	0	125	0+	175	0	225	0	275	5+	325	0	375	0	425	0	475				
0		26	0	76	0	126	1+	176	0	226	0	276	9+	326	0	376	0	426	2	476				
0		27	0	77	0	127	0+	177	0	227	0	277	6+	327	0	377	0	427	0	477				
0		28	0	78	0	128	0+	178	0	228	0	278	10+	328	0	378	0	428	1	478				
0		29	0	79	0	129	0+	179	0	229	0	279	13+	329	1	379	0	429	0	479				
0		30	0	80	0	130	0+	180	0	230	0	280	25+	330	0	380	0	430	0	480				
C		31	0	81	0	131	0+	181	0	231	1	281	19+	331	0	381	0	431	0	481				
C		32	0	82	0	132	0+	182	0	232	0	282	30+	332	0	382	0	432	0	482				
0		33	0	83	0	133	0+	183	0	233	1	283	35+	333	0	383	0	433	0	483				
0		34	0	84	0	134	1+	184	0	234	0	284	32+	334	0	384	0	434	0	484				
0		35	0	85	0	135	0+	185	0	235	0	285	34+	335	0	385	0	435	1	485				
0		36	0	86	0	136	0+	186	0	236	0	286	34+	336	0	386	0	436	0	486				
0		37	0	87	0	137	0+	187	0	237	0	287	41+	337	0	387	0	437	0	487				
0		38	0	88	0	138	0+	188	0	238	0	288	56+	338	0	388	0	438	0	488				
0		39	0	89	0	139	0+	189	0	239	0	289	51+	339	1	389	0	439	0	489				
0		40	0	90	0	140	0	190	0	240	0	290	56+	340	0	390	0	440	0	490				
0		41	0	91	0	141	0	191	0	241	0	291	26+	341	1	391	1	441	0	491				
0		42	0	92	0	142	0	192	0	242	0	292	15+	342	3	392	0	442	0	492				
0		43	0	93	0	143	0	193	0	243	0	293	5+	343	1	393	0	443	0	493				
C		44	0	94	0	144	0+	194	0	244	0	294	1+	344	0	394	0	444	0	494				
C		45	0	95	0	145	0+	195	0	245	0	295	3+	345	1	395	0	445	0	495				
0		46	0	96	0	146	0+	196	0	246	0	296	0	346	0	396	1	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	1	348	0	398	0	448	0	498				
0		49	0	99	0	149	0+	199	0+	249	0	299	0	349	0	399	1	449	0	499				
0		50	0	100	0	150	0+	200	1+	250	0	300	1	350	0	400	0	450	0	500				



ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: RDND06\$DKA100:[ALP85.SAMPLE]KGAFX1AA\_250280437.CNF;1

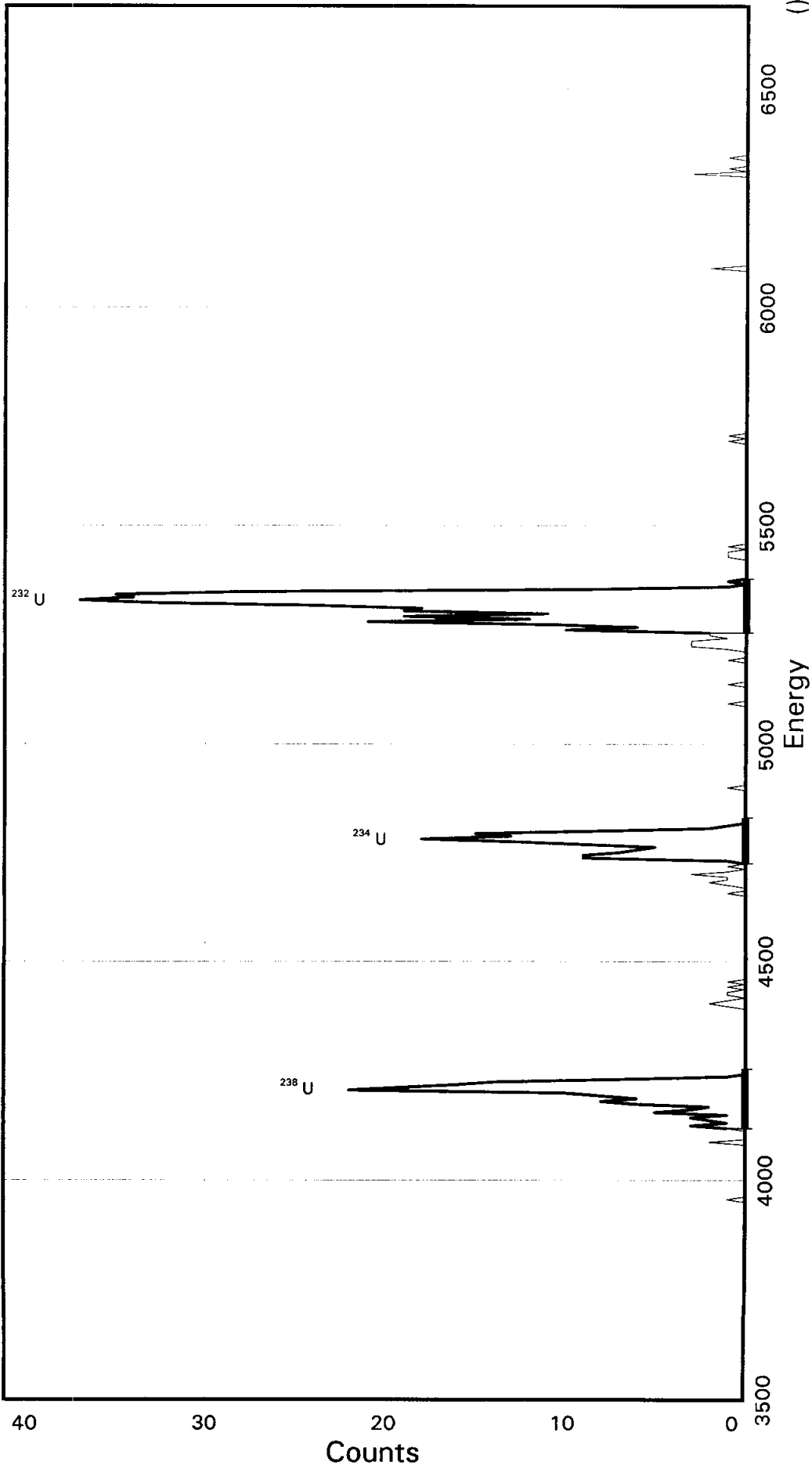
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
5319.19	323	346	512	512	0.00		

End of Report

TAL Richland WA.  
U BRCO

Batch ID: 8030213

Sample ID: KGAFX1AC  
Detector ID: ALP88 1



Acquisition Start: 25-FEB-2008 04:37:34.83  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:08.00

Energy Coefficients:  
Offset: 3.51427E+03  
Slope: 6.23467E+00  
Quadrature: -6.75282E-05

SAMPLE IDENTIITY: KGAFX1AC

TITLE : U BRCO

DETECTOR : ALP88 1  
CONFIGURATION NAME : RDND06\$DKA100: [ALP88.SAMPLE] KGAFX1AC\_2502804  
37.CNF;1  
ACQUIRE DATE of BACKGROUND: 02-FEB-2008 06:19:49

REPORT DATE : 25-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 25-FEB-2008 04:37:34 CALIB DATE : 02-FEB-2008 03:12:26

PRESET LIVE TIME: 0 03:20:00 ELAPSED LIVE TIME: 0 03:20:08

OFFSET : 3514.27 keV CONSTANT FWHM : 9.16667 Channels  
SLOPE : 6.23467 keV/C SENSITIVITY : 4.00000 Std Dev's  
QUAD COEFF : -.675282E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

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

Sample Identity: KGAFX1AC

Flags Key

Detector: ALP88 1 Report Date: 25-Feb-08 07:57 AM Acquire Date: 25-FEB-2008 04:37:34.83 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		Right		Flags
					Energy keV	Width keV	Chnl	Chnl	Wdth Mult	Wdth Mult		
U-232	330	1	0	1.648	5329.7	123.9	280	300	0.00	0.00	P	
U-234	120	0	0	0.600	4784.1	105.5	195	212	0.00	0.00	P	
U-235	8	1	0	0.039	4407.3	124.3	131	151	0.00	0.00		
U-238	139	1	0	0.694	4207.5	136.8	97	119	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 07:57:46

```

Configuration      : RDND06$DKA100:[ALP88.SAMPLE]KGAFX1AC_250280437.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : U BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 25-FEB-2008 04:37:34
Sample ID         : KGAFX1AC Sample quantity : 0.00000E+00 LITER
Sample type       : disk Sample geometry :
Detector name     : ALP88 Detector geometry:
Elapsed live time: 0 03:20:08.00 Elapsed real time: 0 03:20:08.00 0.0%
Start energy      : 3532.97 End energy : 6688.72
Sensitivity       : 4.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4209.44	139	0	37.41	111.64	97	22	1.16E-02	8.5	
2	0	4783.79	120	0	43.64	204.07	195	17	9.99E-03	9.1	
3	0	5329.65	330	0	43.64	292.10	280	20	2.75E-02	5.5	



Alpha Spectrum Listing

(Version: 1-Apr-07)

Sample Identity: KGAFXIAC

Flags Key

Detector: ALP88 1

Report Date: 25-Feb-08 07:57 AM

Intersect Region: %

Acquire Date: 25 FEB-2008 04:37:34.83

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	3+	101	1+	151	5+	201	0	251	0	301	1	351	0	401	0	451	0	501		
		2	0	52	1+	102	0	152	9+	202	0	252	0	302	0	352	0	402	1	452	0	502		
0		3	0	53	5+	103	0	153	13+	203	0	253	0	303	1	353	0	403	0	453	0	503		
0		4	0	54	3+	104	0	154	18+	204	1	254	0	304	0	354	0	404	0	454	0	504		
0		5	0	55	2+	105	0	155	13+	205	0	255	0	305	0	355	0	405	0	455	0	505		
0		6	0	56	6+	106	0	156	15+	206	0	256	0	306	0	356	0	406	1	456	0	506		
0		7	0	57	8+	107	0	157	8+	207	0	257	0	307	0	357	0	407	0	457	0	507		
0		8	0	58	6+	108	0	158	2+	208	0	258	1	308	0	358	0	408	0	458	0	508		
0		9	0	59	8+	109	0	159	1+	209	0	259	1	309	0	359	0	409	0	459	0	509		
0		10	0	60	10+	110	0	160	0+	210	0	260	1	310	0	360	0	410	0	460	0	510		
0		11	0	61	22+	111	0	161	0+	211	1	261	0	311	0	361	0	411	0	461	0	511		
0		12	0	62	19+	112	0	162	0	212	0	262	1	312	0	362	0	412	0	462	0	512		
0		13	0	63	16+	113	0	163	0	213	0	263	0	313	0	363	0	413	0	463				
0		14	0	64	14+	114	0	164	0	214	0	264	0	314	0	364	0	414	0	464				
0		15	0	65	7+	115	0	165	0	215	0	265	0	315	0	365	2	415	0	465				
0		16	0	66	1+	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	0	469				
0		20	0	70	0	120	0	170	0	220	1	270	0	320	0	370	0	420	0	470				
0		21	1	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	1	223	0	273	0	323	0	373	0	423	0	473				
0		24	0	74	0	124	0	174	0	224	1	274	0	324	0	374	0	424	0	474				
0		25	0	75	0	125	0	175	0	225	3	275	0	325	0	375	0	425	0	475				
0		26	0	76	0	126	0	176	0	226	3	276	0	326	0	376	0	426	0	476				
0		27	0	77	0	127	0	177	0	227	3	277	0	327	0	377	0	427	0	477				
0		28	0	78	0	128	0	178	0	228	1	278	0	328	0	378	0	428	0	478				
0		29	0	79	0	129	0	179	0	229	2	279	0	329	0	379	0	429	0	479				
C		30	0	80	0	130	0	180	0	230	2+	280	0	330	0	380	0	430	0	480				
C		31	0	81	0+	131	0	181	0	231	10+	281	0	331	0	381	0	431	0	481				
0		32	0	82	0+	132	0	182	0	232	6+	282	0	332	0	382	0	432	0	482				
0		33	0	83	0+	133	0	183	0	233	11+	283	0	333	0	383	0	433	0	483				
0		34	0	84	0+	134	1	184	0	234	21+	284	0	334	0	384	0	434	0	484				
0		35	0	85	0+	135	0	185	0	235	12+	285	0	335	0	385	0	435	0	485				
0		36	0	86	0+	136	0	186	0	236	19+	286	0	336	0	386	0	436	0	486				
0		37	0	87	0+	137	1	187	0	237	11+	287	0	337	0	387	0	437	0	487				
0		38	0	88	0+	138	2	188	0	238	19+	288	0	338	0	388	0	438	0	488				
0		39	0	89	0+	139	1	189	0	239	18+	289	0	339	0	389	0	439	0	489				
0		40	0	90	0+	140	1	190	0	240	24+	290	0	340	0	390	0	440	0	490				
0		41	0	91	0+	141	3	191	0	241	33+	291	0	341	0	391	0	441	0	491				
0		42	2	92	1+	142	1	192	0	242	37+	292	0	342	0	392	0	442	0	492				
0		43	0	93	2+	143	0	193	0	243	34+	293	0	343	0	393	0	443	0	493				
0		44	0	94	1+	144	1	194	0	244	35+	294	0	344	0	394	0	444	0	494				
0		45	0	95	0+	145	0+	195	0	245	28+	295	0	345	0	395	0	445	0	495				
0		46	0	96	1+	146	1+	196	0	246	9+	296	0	346	0	396	0	446	0	496				
0		47	1+	97	1+	147	9+	197	0	247	1+	297	0	347	0	397	0	447	0	497				
0		48	3+	98	0+	148	9+	198	0	248	0+	298	0	348	0	398	0	448	0	498				
0		49	1+	99	1+	149	7+	199	0	249	1+	299	0	349	0	399	0	449	0	499				
0		50	2+	100	0+	150	6+	200	0	250	0	300	0	350	0	400	3	450	0	500				



ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: RDND06\$DKA100:[ALP88.SAMPLE]KGAFX1AC\_250280437.CNF;1

Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4209.44	97	119	139	138	0.08		
4783.79	195	212	120	116	0.37		
5329.65	280	300	330	331	-0.06		

End of Report

URANIUM ISOTOPIC  
STANDARDS AND TRACEABILITY

## Standard Material Fractions (Vials)

Vial Prep: 3/26/07 to 3/27/08, SMFractionIdentifier Between UITC19442 and UITC19462, 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	
UITC19442	U-232	1.0070E+01 ± 3.133E-01 DPM	0.2012 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19443	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
UITC19444	U-232	1.0040E+01 ± 3.124E-01 DPM	0.2006 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19445	U-232	1.0005E+01 ± 3.113E-01 DPM	0.1999 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19446	U-232	1.0005E+01 ± 3.113E-01 DPM	0.1999 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19447	U-232	1.0095E+01 ± 3.141E-01 DPM	0.2017 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19448	U-232	1.0040E+01 ± 3.124E-01 DPM	0.2006 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19449	U-232	1.0020E+01 ± 3.118E-01 DPM	0.2002 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19450	U-232	1.0045E+01 ± 3.126E-01 DPM	0.2007 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19451	U-232	1.0105E+01 ± 3.144E-01 DPM	0.2019 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19452	U-232	1.0005E+01 ± 3.113E-01 DPM	0.1999 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19453	U-232	1.0075E+01 ± 3.135E-01 DPM	0.2013 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19454	U-232	1.0030E+01 ± 3.121E-01 DPM	0.2004 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19455	U-232	1.0025E+01 ± 3.119E-01 DPM	0.2003 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19456	U-232	1.0050E+01 ± 3.127E-01 DPM	0.2008 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19457	U-232	1.0010E+01 ± 3.115E-01 DPM	0.2 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19458	U-232	1.0005E+01 ± 3.113E-01 DPM	0.1999 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19459	U-232	1.0020E+01 ± 3.118E-01 DPM	0.2002 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19460	U-232	1.0010E+01 ± 3.115E-01 DPM	0.2 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
UITC19461	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
UITC19462	U-232	1.0030E+01 ± 3.121E-01 DPM	0.2004 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G

1.0036E+001 ± 2.930E-002 ( 21) 0.292% 1.0005E+001 , 1.0105E+001

3/26/2008 2:04:46 PM

# Standard Material Fractions (Vials)

Vial Prep: 3/26/07 to 3/27/08, SMFractionIdentifier Like: UISG1602%, 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	
UISG1602	U-232	1.0020E+01 ± 3.118E-01 DPM	0.2002 g	1/24/2008 1/24/2008	Armstron	5.0049E+01 ± 1.557E+00 DPM/G
		1.0020E+001 ± 1.002E+001 ( 1)	1.0020E+001 , 1.0020E+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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U23201A130</u></b>	<b><u>6281</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>5.3490E+01</u></b>	<b>±</b>	<b><u>1.664E+00</u></b>
12) Total Uncertainty	<u>3.110</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>U23201A131</u></b>	<b><u>6282</u></b>	
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>

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**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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U23201A100</u></b>	<b><u>4920</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>1.3382E+04</u></b>	<b>±</b>	<b><u>4.162E+02</u></b>
12) Total Uncertainty	<u>3.110</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>U23201A130</u></b>	<b><u>6281</u></b>	
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>

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**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>W.G</u>	2) Date Prepared	<u>6/15/2001</u>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U23201A000</u></b>	<b><u>4911</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>1.8963E+06</u></b>	<b>±</b>	<b><u>5.897E+04</u></b>
12) Total Uncertainty	<u>3.110</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>U23201A100</u></b>	<b><u>4920</u></b>	
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	<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 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		
UISG1602	U	5.2138E+00 ± 1.608E-01 UG	0.4586 g	1/24/2008 1/24/2008	Armstron	1.1369E+01 ± 3.506E-01 UG/G

5.2138E+000 ± 5.214E+000 ( 1)

5.2138E+000 , 5.2138E+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	
UISG1602	Uiso	8.0189E+00 ± 2.472E-01 DPM	0.4586 g	1/24/2008 1/24/2008	Armstron	1.7485E+01 ± 5.390E-01 DPM/G

8.0189E+000 ± 8.019E+000 ( 1)

8.0189E+000 , 8.0189E+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 \_\_\_\_\_

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**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 18:43:16.07

QA Filename : RDND06::RDND06\$DKA100:[ALP85.QA]GROUP\_1\_CHK.QAF;2

-- Multi-Test Full Report --

Description : Centroid, U-238

Parameter Units : channel Parameter Type : Peak

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00

Mean : 178.987595 Std Deviation : 0.554493

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
1-FEB-2008 10:32	chk		179.4652		
4-MAR-2008 08:01	chk		179.7725		
5-MAR-2008 07:45	chk		179.7853		

-- 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 : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00

Mean : 10.002033 Std Deviation : 0.411983

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
1-FEB-2008 10:32	chk		10.5000		
4-MAR-2008 08:01	chk		10.6667		
5-MAR-2008 07:45	chk		10.5000		

-- 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 : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.259756              Std Deviation : 0.020648

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
1-FEB-2008 10:32	chk		0.2574	
4-MAR-2008 08:01	chk		0.2561	
5-MAR-2008 07:45	chk		0.2557	

-- 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 : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.248831              Std Deviation : 0.020014

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
1-FEB-2008 10:32	chk		0.2465	
4-MAR-2008 08:01	chk		0.2485	
5-MAR-2008 07:45	chk		0.2483	

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 : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 7.156329 Std Deviation : 0.084460

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
1-FEB-2008 10:32	chk		6.9612	In
4-MAR-2008 08:01	chk		6.8716	Ac
5-MAR-2008 07:45	chk		6.9269	In

Quality Assurance Report. Generated 25-MAR-2008 18:43:20.80

QA Filename : RDND06::RDND06\$DKA100:[ALP85.QA]GROUP\_1\_BKG.QAF;2

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001909 Std Deviation : 0.001043

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
2-FEB-2008 06:19	bkg		0.0016	
6-MAR-2008 05:52	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 : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.004704 Std Deviation : 0.002121

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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2-FEB-2008 06:19 bkg 0.0048 | | |  
 6-MAR-2008 05:52 bkg 0.0024 | | |

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.010453 Std Deviation : 0.004196

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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2-FEB-2008 06:19 bkg			0.0104	
6-MAR-2008 05:52 bkg			0.0072	

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.054230 Std Deviation : 0.019659

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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2-FEB-2008 06:19 bkg			0.0500	
6-MAR-2008 05:52 bkg			0.0464	

-- Multi-Test Full Report --

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

Investigate Level : 2.000000      Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.050381      Std Deviation : 0.018250

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
2-FEB-2008 06:19	bkg		0.0496		
6-MAR-2008 05:52	bkg		0.0432		

-- Multi-Test Full Report --

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

Investigate Level : 2.000000      Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.043959      Std Deviation : 0.016428

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
2-FEB-2008 06:19	bkg		0.0404		
6-MAR-2008 05:52	bkg		0.0388		

-- Multi-Test Full Report --

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

Investigate Level : 2.000000      Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.032458      Std Deviation : 0.012600

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
2-FEB-2008 06:19	bkg		0.0304		
6-MAR-2008 05:52	bkg		0.0272		

## -- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.016708 Std Deviation : 0.006728

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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2-FEB-2008 06:19	bkg		0.0112		
6-MAR-2008 05:52	bkg		0.0132		

## -- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000613 Std Deviation : 0.000671

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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2-FEB-2008 06:19	bkg		0.0004		
6-MAR-2008 05:52	bkg		0.0004		

## -- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001278 Std Deviation : 0.001092

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
2-FEB-2008 06:19	bkg		0.0016	
6-MAR-2008 05:52	bkg		0.0008	

## -- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001736 Std Deviation : 0.001085

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
2-FEB-2008 06:19	bkg		0.0020	
6-MAR-2008 05:52	bkg		0.0016	

## -- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.059025 Std Deviation : 0.021147

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



2-FEB-2008 06:19 bkg 0.0524 | | |  
 6-MAR-2008 05:52 bkg 0.0484 | | |

## -- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000787 Std Deviation : 0.000849

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
2-FEB-2008 06:19	bkg		0.0008	
6-MAR-2008 05:52	bkg		0.0000	

## -- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000773 Std Deviation : 0.000733

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
2-FEB-2008 06:19	bkg		0.0004	
6-MAR-2008 05:52	bkg		0.0008	

## -- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001478 Std Deviation : 0.000904

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
2-FEB-2008 06:19	bkg		0.0020		
6-MAR-2008 05:52	bkg		0.0020		

-----  
 2-FEB-2008 06:19 bkg 0.0020 | | |  
 6-MAR-2008 05:52 bkg 0.0020 | | |

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.016593 Std Deviation : 0.006347

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
Quality Assurance Multi-Test Full Report (continued) Page : 5					
2-FEB-2008 06:19	bkg		0.0144		
6-MAR-2008 05:52	bkg		0.0140		

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
Quality Assurance Multi-Test Full Report (continued) Page : 5					
2-FEB-2008 06:19	bkg		0.0144		
6-MAR-2008 05:52	bkg		0.0140		

-----  
 2-FEB-2008 06:19 bkg 0.0144 | | |  
 6-MAR-2008 05:52 bkg 0.0140 | | |

-- Multi-Test Full Report --

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

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001565 Std Deviation : 0.000986

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
Quality Assurance Multi-Test Full Report (continued) Page : 5					
2-FEB-2008 06:19	bkg		0.0020		
6-MAR-2008 05:52	bkg		0.0016		

-----  
 2-FEB-2008 06:19 bkg 0.0020 | | |  
 6-MAR-2008 05:52 bkg 0.0016 | | |

## -- Multi-Test Full Report --

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

Investigate Level : 2.000000              Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001871              Std Deviation : 0.001031

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
2-FEB-2008 06:19	bkg		0.0012		
6-MAR-2008 05:52	bkg		0.0020		

## -- Multi-Test Full Report --

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

Investigate Level : 2.000000              Action Level : 3.000000

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

Start Date : 5-APR-1996 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.013716              Std Deviation : 0.005278

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
2-FEB-2008 06:19	bkg		0.0112		
6-MAR-2008 05:52	bkg		0.0112		

## Quality Assurance Report.

Generated 25-MAR-2008 18:41:45.81

QA Filename : RDND06::RDND06\$DKA100:[ALP84.QA]GROUP\_1\_CHK.QAF;2

## -- Multi-Test Full Report --

Description : Centroid, U-238

Parameter Units : channel Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
1-FEB-2008 10:32	chk		177.2343		
4-MAR-2008 08:01	chk		177.1821		

## -- Multi-Test Full Report --

Description : Constant FWHM

Parameter Units : channels Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
1-FEB-2008 10:32	chk		4.5000		
4-MAR-2008 08:01	chk		4.5000		

## -- Multi-Test Full Report --

Description : Average Efficiency

Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
1-FEB-2008 10:32	chk		0.3019		
4-MAR-2008 08:01	chk		0.3057		

## -- Multi-Test Full Report --

Description : Efficiency, Po-210

Parameter Units : % Parameter Type :

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

1-FEB-2008 10:32 chk 0.3281 | | |  
 4-MAR-2008 08:01 chk 0.3347 | | |

## -- 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
1-FEB-2008 10:32	chk		7.3040	
4-MAR-2008 08:01	chk		7.2901	

Quality Assurance Report. Generated 25-MAR-2008 18:41:46.93

QA Filename : RDND06::RDND06\$DKA100:[ALP84.QA]GROUP\_1\_BKG.QAF;2

## -- 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
2-FEB-2008 06:19	bkg		0.0012	
5-MAR-2008 07:45	bkg		0.0008	

## -- 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
2-FEB-2008 06:19	bkg		0.0004	
5-MAR-2008 07:45	bkg		0.0004	

## -- Multi-Test Full Report --

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
2-FEB-2008 06:19	bkg		0.0324	
5-MAR-2008 07:45	bkg		0.0348	

-- 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
2-FEB-2008 06:19	bkg		0.0304	
5-MAR-2008 07:45	bkg		0.0256	

-- 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
2-FEB-2008 06:19	bkg		0.0012	
5-MAR-2008 07:45	bkg		0.0012	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
2-FEB-2008 06:19	bkg		0.0004	
5-MAR-2008 07:45	bkg		0.0016	

-- 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
2-FEB-2008 06:19	bkg		0.0012	
5-MAR-2008 07:45	bkg		0.0008	

-- Multi-Test Full Report --

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
2-FEB-2008 06:19	bkg		0.0400	
5-MAR-2008 07:45	bkg		0.0432	

-- Multi-Test Full Report --

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
2-FEB-2008 06:19	bkg		0.0004	
5-MAR-2008 07:45	bkg		0.0008	

-- Multi-Test Full Report --

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
2-FEB-2008 06:19	bkg		0.0000	
5-MAR-2008 07:45	bkg		0.0004	

-- Multi-Test Full Report --

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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2-FEB-2008 06:19 bkg	0.0004	
5-MAR-2008 07:45 bkg	0.0008	

## -- Multi-Test Full Report --

Description : 5320, U-232 bkg (cnts/min)  
 Parameter Units : cpm                      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
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2-FEB-2008 06:19 bkg	0.0036	
5-MAR-2008 07:45 bkg	0.0088	

## -- Multi-Test Full Report --

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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2-FEB-2008 06:19 bkg	0.0004	
5-MAR-2008 07:45 bkg	0.0008	

## -- Multi-Test Full Report --

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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2-FEB-2008 06:19 bkg	0.0012	
5-MAR-2008 07:45 bkg	0.0012	

## -- Multi-Test Full Report --

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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-----  
2-FEB-2008 06:19 bkg

0.0024 | | |

5-MAR-2008 07:45 bkg

0.0060 | | |

Quality Assurance Report.

Generated 25-MAR-2008 18:39:58.35

QA Filename : RDND06::RDND06\$DKA100:[ALP71.QA]GROUP\_1\_CHK.QAF;2

-- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.367835 Std Deviation : 0.042305

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:10	chk		0.3692		
12-MAR-2008 06:18	chk		0.3660		

-- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00

Mean : 8.643366 Std Deviation : 0.481167

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:10	chk		9.0000		
12-MAR-2008 06:18	chk		9.5000		

-- Multi-Test Full Report --

Description : Centroid, Pu-239

Parameter Units : channels Parameter Type : Peak

Investigate Level : 2.000000      Action Level : 3.000000

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

Start Date : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
Mean : 309.565918      Std Deviation : 0.444359

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:10	chk		309.1642		
12-MAR-2008 06:18	chk		309.1970		

10-FEB-2008 10:10	chk		309.1642		
12-MAR-2008 06:18	chk		309.1970		

## -- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
Mean : 0.350297      Std Deviation : 0.039993

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:10	chk		0.3525		
12-MAR-2008 06:18	chk		0.3532		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:10	chk		0.3525		
12-MAR-2008 06:18	chk		0.3532		

10-FEB-2008 10:10	chk		0.3525		
12-MAR-2008 06:18	chk		0.3532		

## -- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00

Mean : 6.503654 Std Deviation : 0.036767

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
10-FEB-2008 10:10	chk		6.4385	
12-MAR-2008 06:18	chk		6.4935	

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Quality Assurance Report. Generated 25-MAR-2008 18:40:01.65

QA Filename : RDND06::RDND06\$DKA100:[ALP71.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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001237 Std Deviation : 0.004562

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0008	
13-MAR-2008 08:35	bkg		0.0024	

-----

-- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001755 Std Deviation : 0.004494

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0008	
13-MAR-2008 08:35	bkg		0.0012	

-----

## -- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000631      Std Deviation : 0.001187

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:14	bkg		0.0004		
13-MAR-2008 08:35	bkg		0.0004		

---

## -- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001173      Std Deviation : 0.001900

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:14	bkg		0.0004		
13-MAR-2008 08:35	bkg		0.0000		

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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		0.0004		
13-MAR-2008 08:35	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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001546 Std Deviation : 0.001743

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		0.0008	

## -- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001515 Std Deviation : 0.001627

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0016	
13-MAR-2008 08:35	bkg		0.0012	

## -- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001133 Std Deviation : 0.000987

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0016	
13-MAR-2008 08:35	bkg		0.0012	

## -- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000945 Std Deviation : 0.000862

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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11-FEB-2008 06:14	bkg		0.0012		
13-MAR-2008 08:35	bkg		0.0012		

-- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000860 Std Deviation : 0.000850

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 06:14	bkg		0.0008		
13-MAR-2008 08:35	bkg		0.0008		

-- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001521 Std Deviation : 0.000781

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0032	In
13-MAR-2008 08:35	bkg		0.0008	

-- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.002475 Std Deviation : 0.001494

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0032	
13-MAR-2008 08:35	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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.003365 Std Deviation : 0.001981

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		0.0048	
13-MAR-2008 08:35	bkg		0.0056	



## -- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.004239 Std Deviation : 0.002493

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 06:14	bkg		0.0088		
13-MAR-2008 08:35	bkg		0.0080		

## -- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.032858 Std Deviation : 0.016149

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 06:14	bkg		0.0528		
13-MAR-2008 08:35	bkg		0.0588		

## -- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.033497 Std Deviation : 0.016117

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0512	
13-MAR-2008 08:35	bkg		0.0544	

-- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.032111 Std Deviation : 0.015416

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
Quality Assurance Multi-Test Full Report (continued)				Page : 5

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0496	
13-MAR-2008 08:35	bkg		0.0512	

-- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.029023 Std Deviation : 0.013599

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0460	
13-MAR-2008 08:35	bkg		0.0416	

-- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.019285 Std Deviation : 0.009057

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:14	bkg		0.0340		
13-MAR-2008 08:35	bkg		0.0252		

-- 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 : 27-NOV-2000 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.009300 Std Deviation : 0.004580

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:14	bkg		0.0188	In	
13-MAR-2008 08:35	bkg		0.0156		

Quality Assurance Report.

Generated 25-MAR-2008 18:38:06.27

QA Filename : RDND06::RDND06\$DKA100:[ALP69.QA]GROUP\_1\_CHK.QAF;2

-- 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 : 1-JAN-2002 00:00 End Date : -----

Mean : 0.391610 Std Deviation : 0.022520

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:10	chk		0.3901		
12-MAR-2008 06:18	chk		0.3895		

-- 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 : 1-JAN-2002 00:00 End Date : -----

Mean : 7.763566 Std Deviation : 0.263790

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:10	chk		7.6667		
12-MAR-2008 06:18	chk		8.0000		

-- Multi-Test Full Report --

Description : Centroid, Pu-239

Parameter Units : channels Parameter Type : Peak

Investigate Level : 2.000000      Action Level : 3.000000

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

Start Date : 1-JAN-2002 00:00 End Date : -----  
Mean : 317.150146      Std Deviation : 0.463583

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:10	chk		317.1638		
12-MAR-2008 06:18	chk		317.2012		

## -- 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 : 1-JAN-2002 00:00 End Date : -----  
Mean : 0.374667      Std Deviation : 0.021630

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:10	chk		0.3749		
12-MAR-2008 06:18	chk		0.3776		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 10:10	chk		0.3749		
12-MAR-2008 06:18	chk		0.3776		

## -- 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 : 1-JAN-2002 00:00 End Date : -----

Mean : 7.538376 Std Deviation : 0.051642

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
10-FEB-2008 10:10	chk		7.5407	
12-MAR-2008 06:18	chk		7.4750	

Quality Assurance Report. Generated 25-MAR-2008 18:38:09.08

QA Filename : RDND06::RDND06\$DKA100:[ALP69.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 : 0.001788 Std Deviation : 0.004217

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0012	
13-MAR-2008 08:35	bkg		0.0016	

-- 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 : 0.002689 Std Deviation : 0.005224

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0024	
13-MAR-2008 08:35	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 : 0.000957 Std Deviation : 0.001160

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:14	bkg		0.0012		
13-MAR-2008 08:35	bkg		0.0012		

## -- 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 : 0.002518 Std Deviation : 0.003736

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
Quality Assurance Multi-Test Full Report (continued)					
					Page : 2
11-FEB-2008 06:14	bkg		0.0008		
13-MAR-2008 08:35	bkg		0.0008		

## -- 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 : 0.002862 Std Deviation : 0.003345

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0012	
13-MAR-2008 08:35	bkg		0.0016	

## -- 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 : 0.002665 Std Deviation : 0.003095

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0012	
13-MAR-2008 08:35	bkg		0.0016	

## -- 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 : 0.001797 Std Deviation : 0.001363

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		0.0020	

## -- 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 : 1-JAN-2002 00:00 End Date : -----  
 Mean : 0.001285 Std Deviation : 0.000846

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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11-FEB-2008 06:14	bkg		0.0020		
13-MAR-2008 08:35	bkg		0.0016		

-- 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 : 0.001051 Std Deviation : 0.000725

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 06:14	bkg		0.0016		
13-MAR-2008 08:35	bkg		0.0016		

-- 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 : 0.001633 Std Deviation : 0.000935

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0016	
13-MAR-2008 08:35	bkg		0.0032	

-- 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 : 0.002955 Std Deviation : 0.001650

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 06:14	bkg		0.0060	
13-MAR-2008 08:35	bkg		0.0028	

-- 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 : 0.003857 Std Deviation : 0.002291

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		0.0060	
13-MAR-2008 08:35	bkg		0.0028	

## -- 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 : 0.004896 Std Deviation : 0.002838

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:14	bkg		0.0072		
13-MAR-2008 08:35	bkg		0.0048		

## -- 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 : 0.035748 Std Deviation : 0.017656

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:14	bkg		0.0560		
13-MAR-2008 08:35	bkg		0.0540		

## -- 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 : 0.035919 Std Deviation : 0.017706

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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11-FEB-2008 06:14	bkg		0.0592	
13-MAR-2008 08:35	bkg		0.0540	

-- 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 : 0.033871      Std Deviation : 0.016911

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-FEB-2008 06:14	bkg		0.0556	
13-MAR-2008 08:35	bkg		0.0512	

-- 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 : 0.030173      Std Deviation : 0.015136

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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11-FEB-2008 06:14	bkg		0.0584	
13-MAR-2008 08:35	bkg		0.0452	

-- 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 : 0.026733 Std Deviation : 0.013366

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:14	bkg		0.0516		
13-MAR-2008 08:35	bkg		0.0416		

-- 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 : 0.009674 Std Deviation : 0.004662

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:14	bkg		0.0164		
13-MAR-2008 08:35	bkg		0.0144		

Quality Assurance Report.

Generated 25-MAR-2008 18:34:49.56

QA Filename : \$DISK1:[ALP12.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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.472897 Std Deviation : 0.026710

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.4765		
1-MAR-2008 05:27	chk		0.4797		

-- 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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 6.415493 Std Deviation : 0.757436

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		6.5000		
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 : 8-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
Mean : 325.843781      Std Deviation : 2.487901

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		326.1103		
1-MAR-2008 05:27	chk		326.5788		

3-FEB-2008 10:58	chk		326.1103		
1-MAR-2008 05:27	chk		326.5788		

## -- 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 : 8-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
Mean : 0.365750      Std Deviation : 0.021007

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
3-FEB-2008 10:58	chk		0.3700		
1-MAR-2008 05:27	chk		0.3761		

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		0.3700		
1-MAR-2008 05:27	chk		0.3761		

3-FEB-2008 10:58	chk		0.3700		
1-MAR-2008 05:27	chk		0.3761		

## -- 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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
Mean : 6.563601      Std Deviation : 0.046939

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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3-FEB-2008 10:58	chk	6.5276	
1-MAR-2008 05:27	chk	6.5515	

Quality Assurance Report.                      Generated 25-MAR-2008 18:34:50.24

QA Filename     : \$DISK1:[ALP12.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-MAY-2003 00:00 End Date     : 30-MAY-2030 00:00  
Mean           : 0.000474            Std Deviation : 0.000697

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     : 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-MAY-2003 00:00 End Date     : 30-MAY-2030 00:00  
Mean           : 0.000628            Std Deviation : 0.000807

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 : 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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000359 Std Deviation : 0.000558

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0000		
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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 : 8-MAY-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000602 Std Deviation : 0.000795

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		0.0020		
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2-MAR-2008 06:38	bkg		0.0000		
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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 : 8-MAY-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000769 Std Deviation : 0.001018

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 : 8-MAY-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000756 Std Deviation : 0.001047

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 : 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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00

Mean : 0.000641 Std Deviation : 0.000867

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 : 8-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000474      Std Deviation : 0.000678

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		0.0010		

-- 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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.000500      Std Deviation : 0.000734

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		0.0010		

-- 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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.001128      Std Deviation : 0.001097

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
4-FEB-2008 06:07	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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.002538 Std Deviation : 0.002160

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		0.0030	

-- 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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.003333 Std Deviation : 0.002399

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		0.0030	
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 : 8-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.004487 Std Deviation : 0.003238

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0030		
2-MAR-2008 06:38	bkg		0.0100		

-- 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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.038316 Std Deviation : 0.025075

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07	bkg		0.0880		
2-MAR-2008 06:38	bkg		0.0720		

-- 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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.037431 Std Deviation : 0.024601

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07 bkg 0.0900 |In| |  
 2-MAR-2008 06:38 bkg 0.0640 | | |

-- 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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.035816 Std Deviation : 0.023511

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			0.0850	In	
2-MAR-2008 06:38 bkg			0.0630		

-- 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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.031483 Std Deviation : 0.020756

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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4-FEB-2008 06:07 bkg			0.0450		
2-MAR-2008 06:38 bkg			0.0490		

-- 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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.020280      Std Deviation : 0.014349

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0350		
2-MAR-2008 06:38	bkg		0.0350		

-- 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-MAY-2003 00:00 End Date : 30-MAY-2030 00:00  
 Mean : 0.009319      Std Deviation : 0.006282

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
4-FEB-2008 06:07	bkg		0.0150		
2-MAR-2008 06:38	bkg		0.0170		

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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 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
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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
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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		0.0020		
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
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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 : 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
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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 : 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
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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 : 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		
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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
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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	

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		

-- 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		

-- 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		

## -- 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		

## -- 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
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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
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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
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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		

## -- 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		

## -- 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
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```
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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
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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 : 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
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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 : 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  | | |

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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
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```

-----
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	

## -- 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
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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		

## -- 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  | | |

```

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
------------------	-----------	----------------	-------	-------------	-----

```

-----
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
------------------	-----------	----------------	-------	-------------	-----

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		
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2-MAR-2008 06:38	bkg		0.0140	In	
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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 : 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
------------------	-----------	----------------	-------	-------------	-----

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    | | |

## -- 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

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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

-----  
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
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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
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		

## -- 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		

## -- 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		
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
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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		0.0070		

-- 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
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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	

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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
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 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
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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
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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		0.0080		

## -- 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		

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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		

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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	

## -- 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	

## -- 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  | | |
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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
-----				
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
-----				
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		
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2-MAR-2008 06:38	bkg		0.0020		
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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 : 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		
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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 : 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	

-- 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	

-- 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	

```

-----
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	

```

-----
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	

```
-----
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	

```
-----
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	

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-- 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
-----					
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		

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

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 4-FEB-2008 06:06 bkg      0.0000    | | |  
 2-MAR-2008 06:38 bkg      0.0020    | | |  
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## -- 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
-----					
4-FEB-2008 06:06	bkg		0.0000		
2-MAR-2008 06:38	bkg		0.0010		

-----  
 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 18:45:13.46

QA Filename : RDND06::RDND06\$DKA100:[ALP88.QA]GROUP\_1\_CHK.QAF;2

## -- Multi-Test Full Report --

Description : Centroid, U-238

Parameter Units : channel Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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1-FEB-2008 10:32	chk		109.7808		
4-MAR-2008 08:01	chk		109.7521		

## -- 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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1-FEB-2008 10:32	chk		9.1667		
4-MAR-2008 08:01	chk		9.0000		

## -- 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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1-FEB-2008 10:32	chk		0.3526		
4-MAR-2008 08:01	chk		0.3519		

## -- Multi-Test Full Report --

Description : Efficiency, U-234

Parameter Units : % Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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1-FEB-2008 10:32	chk	0.3474	
4-MAR-2008 08:01	chk	0.3563	

## -- 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
1-FEB-2008 10:32	chk		6.2347	
4-MAR-2008 08:01	chk		6.2635	

Quality Assurance Report.      Generated 25-MAR-2008 18:45:14.37

QA Filename : RDND06::RDND06\$DKA100:[ALP88.QA]GROUP\_1\_BKG.QAF;3

## -- 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
2-FEB-2008 06:19	bkg		0.0010	
5-MAR-2008 07:45	bkg		0.0010	

## -- 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
2-FEB-2008 06:19	bkg		0.0000	
5-MAR-2008 07:45	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
2-FEB-2008 06:19	bkg		0.0010	
5-MAR-2008 07:45	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
2-FEB-2008 06:19	bkg		0.0000	
5-MAR-2008 07:45	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
2-FEB-2008 06:19	bkg		0.0000	
5-MAR-2008 07:45	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
2-FEB-2008 06:19	bkg		0.0000	
5-MAR-2008 07:45	bkg		0.0000	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
2-FEB-2008 06:19	bkg		0.0000	
5-MAR-2008 07:45	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
2-FEB-2008 06:19	bkg		0.0000	
5-MAR-2008 07:45	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
2-FEB-2008 06:19	bkg		0.0000	
5-MAR-2008 07:45	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
2-FEB-2008 06:19	bkg		0.0000	
5-MAR-2008 07:45	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
2-FEB-2008 06:19	bkg		0.0010	
5-MAR-2008 07:45	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
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2-FEB-2008 06:19 bkg	0.0000	
5-MAR-2008 07:45 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
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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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2-FEB-2008 06:19 bkg	0.0000	
5-MAR-2008 07:45 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
------------------	-----------	----------------	-------	-----------------

2-FEB-2008 06:19 bkg	0.0000	
5-MAR-2008 07:45 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
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2-FEB-2008 06:19 bkg	0.0170	
5-MAR-2008 07:45 bkg	0.0140	

## -- 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
------------------	-----------	----------------	-------	-----------------

```
-----
2-FEB-2008 06:19 bkg          0.0230  | | |
5-MAR-2008 07:45 bkg          0.0170  | | |
```

## -- 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
```

```
-----
2-FEB-2008 06:19 bkg          0.0210  | | |
5-MAR-2008 07:45 bkg          0.0180  | | |
```

## -- 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
```

```
-----
2-FEB-2008 06:19 bkg          0.0150  | | |
5-MAR-2008 07:45 bkg          0.0080  | | |
```

## -- 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
```

```
-----
2-FEB-2008 06:19 bkg          0.0110  | | |
5-MAR-2008 07:45 bkg          0.0050  | | |
```

## -- 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
2-FEB-2008 06:19	bkg		0.0030	
5-MAR-2008 07:45	bkg		0.0040	

RADIUM 228  
SAMPLE AND QC DATA

**Lot No., Due Date:** F8A250205,F8A260145; 02/28/2008,02/25/2008  
**Client, Site:** 1418995; LANDWELL - Tronox Parcel H  
**QC Batch No., Method Test:** 8042382; 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** Thomas DME **Date** 3/5/08

**Data Review Checklist**  
**RADIOCHEMISTRY**  
 Second Level Review

Batch Number: 804 2382

Review Item	Yes (✓)	No (✓)	NA (✓)
<b>A. Sample Analysis</b>			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery 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?	✓		
<b>C. Other</b>			
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: *Erika Jod* Date: 3/6/18

2/21/2008 1:39:10 PM

1418995, Landwell Company  
Landwell Company

AnalyteDueDate: 02/22/2008

Batch: 8042382  
SEO Batch, Test: 8042381, D9TE

### Sample Preparation/Analysis

D9 Ra-226/228 PrpRC5013/5032, SepRC5005  
TF Radium-228 by GPC  
01 STANDARD TEST SET

PM, Quote: JAE, 78254

Balance Id:11

Pipet #:

Sep1 DT/Tm Tech: 2/25/08 14:55 DL

Sep2 DT/Tm Tech: 3/4/08 11:35 TDM

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:
1 KF5GG-1-AF F8A250205-13-SAMP 1.03g.in RATA30224 02:07:08 ✓ .9625		1.03g.in		11		3x50	7C	1711	7/4/08/ML	
01/24/2008 08:40 2 KF5GL-1-AF F8A250205-15-SAMP 1.03g.in RATA30225 02:07:08 ✓ .9282	AmtRec: SL #Containers: 1	1.03g.in					1A	1711	7/4/08/ML	
01/24/2008 09:30 3 KF6EM-1-AF F8A260145-1-SAMP 1.01g.in RATA30226 02:07:08 ✓ 1.0000	AmtRec: 500SL #Containers: 1	1.01g.in					1B	1711	7/4/08/ML	
01/25/2008 12:10 4 KF6EP-1-AF F8A260145-2-SAMP 1.01g.in RATA30227 02:07:08 ✓ 1.9453	AmtRec: 500SL #Containers: 1	1.01g.in					1C	1711	7/4/08/ML	
01/25/2008 12:50	AmtRec: 500SL #Containers: 1						1D	6557	3/1/08	



2/21/2008 1:39:11 PM

### Sample Preparation/Analysis

Balance Id:11

1418995, Landwell Company  
Landwell Company

D9 Ra-226/228 PprRC5013/5032, SepRC5005  
TF Radium-228 by GPC

Pipet #:

Analyte Due Date: 02/22/2008

Sep1 DT/Tm Tech:

Batch: 8042382  
SEQ Batch, Test: 8042381, D9TE

PM, Quote: JAE, 78254

Sep2 DT/Tm Tech:

Prep Tech: ,Barcotl

pCi/g

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 KF6EQ-1-AF F8A260145-3-SAMP 1.00g.in RATA30228 02/07/08 1.9499		1.00g.in	02/07/08	1"	3x50	3x50	1D	1711	J14/CR/RC	
6 KF6ER-1-AF F8A260145-4-SAMP 1.00g.in RATA30229 02/07/08 1.9386		1.00g.in	02/07/08				1A	1711	J14/CR/RC	
7 KF6ET-1-AF F8A260145-5-SAMP 1.00g.in RATA30230 02/07/08 1.9478		1.00g.in	02/07/08				1C	1711	J14/CR/RC	
8 KF6EV-1-AF F8A260145-6-SAMP 1.00g.in RATA30231 02/07/08 1.9416		1.00g.in	02/07/08				1D	1711	J14/CR/RC	

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

ISV - Insufficient Volume for Analysis

WO Cnt: 8

Prep\_SamplePrep v4.8.32

2/21/2008 1:39:11 PM

### Sample Preparation/Analysis

Balance Id:11

1418995, Landwell Company  
Landwell Company

D9 Ra-226/228 PrpRC5013/5032, SepRC5005  
TF Radium-228 by GPC

Pipet #:

AnalyteDueDate: 02/22/2008

Sep1 DT/Tm Tech:

Batch: 8042382  
SEQ Batch, Test: 8042381, D9TE

PM, Quote: JAE, 78254

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 KF6EW-1-AF F8A260145-7-SAMP		1.01g.in	RATA30232 02/07/08	1		3 x 50	7D	1711	3/14/08 MC	
			✓ 1.0000				35	0.05	3/30/08	
01/25/2008 08:05			AmtRec: 500SL	#Containers: 1				Scr:	Alpha:	Beta:
10 KF6E0-1-AF F8A260145-8-SAMP		1.01g.in	RATA30233 02/07/08				4A	1711	3/14/08 MC	
			✓ .9941				36	0.05	3/30/08	
01/25/2008 08:20			AmtRec: 500SL	#Containers: 1				Scr:	Alpha:	Beta:
11 KF6E1-1-AF F8A260145-9-SAMP		1.01g.in	RATA30234 02/07/08				4B	1711	3/14/08 MC	
			✓ 1.0000				3D	0.05	3/30/08	
01/25/2008 08:40			AmtRec: 500SL	#Containers: 1				Scr:	Alpha:	Beta:
12 KF6E2-1-AJ F8A260145-10-SAMP		1.01g.in	RATA30235 02/07/08				4C	1711	3/14/08 MC	
			✓ .9743				4A	0.05	3/30/08	
01/25/2008 08:55			AmtRec: 2X500SL	#Containers: 2				Scr:	Alpha:	Beta:

2/21/2008 1:39:11 PM

### Sample Preparation/Analysis

Balance Id:11

1418995, Landwell Company  
Landwell Company

D9 Ra-226/228 PprRC5013/5032, SepRC5005  
TF Radium-228 by GPC

Pipet #:

AnalyteDate: 02/22/2008

Sep1 DT/Tm Tech:

Batch: 8042382

PM, Quote: JAE, 78254

Sep2 DT/Tm Tech:

SEQ Batch, Test: 8042381, D9TE 8042381, D9TE

pCi/g

1.03g.in

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:
13 KF6E2-1-AL-X		1.03g.in	RATA30236	1.5"		3x50	SC	1711	3/14/08	
F8A260145-10-DUP	✓ 1.0000		02/07/08				SA	0557	3/16/08	
01/25/2008 08:55		AmtRec: 2X500SL	#Containers: 2					Scr:	Alpha:	Beta:
14 KF6E2-1-AN-X		1.00g.in	RATA30237				SD	1711	3/16/08	
F8A260145-10-DUP	✓ 1.0000		02/07/08				SC	0557	3/16/08	
01/25/2008 08:55		AmtRec: 2X500SL	#Containers: 2					Scr:	Alpha:	Beta:
15 KF6E5-1-AF		1.00g.in	RATA30238				CA	1711	3/14/08	
F8A260145-11-SAMP	✓ 1.0000		02/07/08				SD	0557	3/16/08	
01/25/2008 09:45		AmtRec: 500SL	#Containers: 1					Scr:	Alpha:	Beta:
16 KGXJE-1-AA-B		1.03g.in	RATA30239				LC	1711	3/14/08	
J8B110000-382-BLK	✓ 9674		02/07/08				GP	0557	3/16/08	
01/24/2008 08:40		AmtRec:	#Containers: 1					Scr:	Alpha:	Beta:

### Sample Preparation/Analysis

Balance Id:11

D9 Ra-226/228 PpRC5013/5032, SepRC5005  
TF Radium-228 by GPC

Pipet #:

Batch: 8042382

01 STANDARD TEST SET

Sep1 DT/Tm Tech:

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: ,Barcotl

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:
17KGXJE-1-AC-C	1.00g, in	1.5"	RASC4699	1.5"	3x50	6D	1711	3/4/08/KE		
J8B110000-382-LCS			01/21/08		31.0	6C	055	3/6/08		

1.5" 3x50 6D 1711 3/4/08/KE

31.0 6C 055 3/6/08

✓, 9134

01/24/2008 08:40

Amt/Rec: #Containers: 1

Scr.

Alpha:

Beta:

#### Comments:

All Clients for Batch: 1418995, Landwell Company

Landwell Company

JAE, 78254

#### KF5GG1AF-SAMP Constituent List:

KGXJE1AA-BLK:

RDL:	RDL:	pci/g	LCL:20	UCL:115	RPD:35	RA-228	RDL:2	RPD:35	UCL:130	RPD:35
Ba-133	RA-228DA	RA-226	RA-228DA	RA-228	RA-228DA	RA-228	RA-228DA	RA-228	RA-228DA	RA-228
RDL:2	RDL:2	RDL:2	RDL:2	RDL:2	RDL:2	RDL:2	RDL:2	RDL:2	RDL:2	RDL:2
Decay to SaDt: N	Decay to SaDt: N	Decay to SaDt: N	Decay to SaDt: N	Decay to SaDt: N	Decay to SaDt: N	Decay to SaDt: N	Decay to SaDt: N	Decay to SaDt: N	Decay to SaDt: N	Decay to SaDt: N

KF5GG1AF-SAMP Calc Info:

Uncert Level (#s): 4	Uncert Level (#s): 4	Uncert Level (#s): 4	Uncert Level (#s): 4
KGXJE1AA-BLK:	KGXJE1AC-LCS:	KGXJE1AA-BLK:	KGXJE1AC-LCS:
Decay to SaDt: N	Decay to SaDt: N	Decay to SaDt: N	Decay to SaDt: N

Approved By

Date:

# ICOC Fraction Transfer/Status Report

ByDate: 3/6/2007, 3/10/2008, Batch: '8042382', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
<b>8042382</b>				
AC	<b>Rev1C</b>	<b>Barcotl</b>	2/21/2008 1:42:55 PM	
SC		wagarr	IsBatched	2/12/2008 7:52:00 AM
SC		Barcotl	InPrep	2/21/2008 1:42:55 PM
SC		Barcotl	Prep1C	2/21/2008 1:43:15 PM
SC		LucasD	Sep1C	2/25/2008 3:04:58 PM
SC		McGinnisT	Sep2C	3/4/2008 1:05:42 PM
SC		ClarkR	InCnt1	3/4/2008 2:33:01 PM
SC		BlackCL	CalcC	3/5/2008 7:30:13 AM
SC		mcginnist	Rev1C	3/5/2008 2:51:07 PM
AC		<b>Barcotl</b>	2/21/2008 1:43:15 PM	
AC		<b>LucasD</b>	2/25/2008 3:04:58 PM	
AC		<b>McGinnisT</b>	3/4/2008 1:05:42 PM	
AC		<b>ClarkR</b>	3/4/2008 2:33:01 PM	
AC		<b>BlackCL</b>	3/5/2008 7:30:13 AM	
AC		<b>mcginnist</b>	3/5/2008 2:51:07 PM	

AC: Accepting Entry; SC: Status Change

TAL Richland

Richland Wa.

Page 1

Grp Rec Cnt: 7

ICOCFractions v4.8.32

# 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
<b>8030200</b>	<b>9KF5GG10</b>		<b>F8A25020513</b>	TSB-HJ-07-10'	SOLID	1/25/2008 9:15:00	1/24/2008 8:40:00 AM			
RA-226	D9TE	0	3/3/2008 1:33:00 PM	1.4051E+00	9.76E-02	1.743E-01	1.435E-01	pCi/g	0.963	1.03E+0
RA-226	TBD	0	3/3/2008 1:33:00 PM	1.4051E+00	9.76E-02	1.743E-01	1.435E-01	pCi/g	0.963	1.03E+0
RA-228	D9TF	0	3/5/2008 6:02:30 AM	1.3321E+00	1.79E-01	1.95E-01	6.343E-01	pCi/g	0.879	1.03E+0
TH-228	D2S1	0	2/20/2008 9:47:29 AM	1.7082E+00	1.443E-01	2.06E-01	6.866E-02	pCi/g	0.846	1.01E+0
TH-230	D2S1	0	2/20/2008 9:47:29 AM	1.6086E+00	1.38E-01	1.954E-01	5.666E-02	pCi/g	0.846	1.01E+0
TH-232	D2S1	0	2/20/2008 9:47:29 AM	1.1591E+00	1.171E-01	1.538E-01	5.666E-02	pCi/g	0.846	1.01E+0
U-234	KWSR	0	2/20/2008 6:25:07 PM	1.7882E+00	2.179E-01	2.905E-01	1.411E-01	PCI/G	0.233	1.01E+0
U-235	KWSR	0	2/20/2008 6:25:07 PM	5.0729E-02	3.743E-02	3.782E-02	1.064E-01	PCI/G	0.233	1.01E+0
U-238	KWSR	0	2/20/2008 6:25:07 PM	1.3126E+00	1.869E-01	2.341E-01	1.411E-01	PCI/G	0.233	1.01E+0
<b>8030200</b>	<b>9KF5GL10</b>		<b>F8A25020515</b>	TSB-HR-08-10'	SOLID	1/25/2008 9:15:00	1/24/2008 9:30:00 AM			
RA-226	D9TE	0	3/3/2008 1:42:00 PM	1.5878E+00	1.029E-01	1.881E-01	1.05E-01	pCi/g	0.928	1.03E+0
RA-226	TBD	0	3/3/2008 1:42:00 PM	1.5878E+00	1.029E-01	1.881E-01	1.05E-01	pCi/g	0.928	1.03E+0
RA-228	D9TF	0	3/5/2008 6:02:30 AM	1.405E+00	1.722E-01	1.92E-01	5.93E-01	pCi/g	0.842	1.03E+0
TH-228	D2S1	0	2/20/2008 12:48:03 PM	2.3821E+00	1.819E-01	2.733E-01	6.641E-02	pCi/g	0.9	1.0E+0
TH-230	D2S1	0	2/20/2008 12:48:03 PM	1.5522E+00	1.448E-01	1.966E-01	6.465E-02	pCi/g	0.9	1.0E+0
TH-232	D2S1	0	2/20/2008 12:48:03 PM	2.227E+00	1.734E-01	2.578E-01	6.465E-02	pCi/g	0.9	1.0E+0
U-234	KWSR	0	2/21/2008 6:26:27 AM	1.605E+00	1.007E-01	1.676E-01	4.32E-02	PCI/G	0.953	1.0E+0
U-235	KWSR	0	2/21/2008 6:26:27 AM	6.1636E-02	1.993E-02	2.058E-02	3.012E-02	PCI/G	0.953	1.0E+0
U-238	KWSR	0	2/21/2008 6:26:27 AM	1.3925E+00	9.373E-02	1.493E-01	3.97E-02	PCI/G	0.953	1.0E+0
<b>8030213</b>	<b>9KF6E010</b>		<b>F8A2601458</b>	TSB-HR-03-10'	SOLID	1/26/2008 10:15:00	1/25/2008 8:20:00 AM			
RA-226	D9TE	0	3/3/2008 2:35:00 PM	2.0933E+00	1.211E-01	2.478E-01	1.154E-01	pCi/g	0.994	1.01E+0
RA-226	TBD	0	3/3/2008 2:35:00 PM	2.0933E+00	1.211E-01	2.478E-01	1.154E-01	pCi/g	0.994	1.01E+0
RA-228	D9TF	0	3/5/2008 6:56:09 AM	1.2065E+00	1.375E-01	1.579E-01	3.788E-01	pCi/g	0.905	1.01E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	2.0177E+00	1.543E-01	2.234E-01	5.651E-02	pCi/g	0.705	1.01E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	3.0318E+00	1.866E-01	3.062E-01	5.5E-02	pCi/g	0.705	1.01E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.9155E+00	1.484E-01	2.134E-01	5.5E-02	pCi/g	0.705	1.01E+0
U-234	KWSR	0	2/22/2008 2:21:12 PM	3.3576E+00	1.395E-01	3.106E-01	2.778E-02	PCI/G	1.025	1.0E+0
U-235	KWSR	0	2/22/2008 2:21:12 PM	6.9587E-02	2.012E-02	2.093E-02	2.778E-02	PCI/G	1.025	1.0E+0
U-238	KWSR	0	2/22/2008 2:21:12 PM	2.6037E+00	1.229E-01	2.478E-01	2.778E-02	PCI/G	1.025	1.0E+0
<b>8030213</b>	<b>9KF6E110</b>		<b>F8A2601459</b>	TSB-HJ-02-0'	SOLID	1/26/2008 10:15:00	1/25/2008 8:40:00 AM			
RA-226	D9TE	0	3/3/2008 2:39:00 PM	8.2963E-01	9.527E-02	1.294E-01	1.622E-01	pCi/g	1.0	1.01E+0
RA-226	TBD	0	3/3/2008 2:39:00 PM	8.2963E-01	9.527E-02	1.294E-01	1.622E-01	pCi/g	1.0	1.01E+0
RA-228	D9TF	0	3/5/2008 6:56:09 AM	1.5439E+00	1.639E-01	1.904E-01	4.605E-01	pCi/g	0.892	1.01E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	1.8774E+00	1.475E-01	2.104E-01	6.525E-02	pCi/g	0.764	1.02E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	1.2916E+00	1.205E-01	1.586E-01	5.379E-02	pCi/g	0.764	1.02E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	1.7611E+00	1.407E-01	1.99E-01	5.379E-02	pCi/g	0.764	1.02E+0
U-234	KWSR	0	2/22/2008 2:21:29 PM	9.8107E-01	7.856E-02	1.135E-01	3.012E-02	PCI/G	0.928	1.02E+0
U-235	KWSR	0	2/22/2008 2:21:29 PM	3.7734E-02	1.546E-02	1.577E-02	3.012E-02	PCI/G	0.928	1.02E+0
U-238	KWSR	0	2/22/2008 2:21:29 PM	1.1131E+00	8.368E-02	1.251E-01	3.012E-02	PCI/G	0.928	1.02E+0
<b>8030213</b>	<b>9KF6E210</b>		<b>F8A26014510</b>	TSB-HJ-02-10'	SOLID	1/26/2008 10:15:00	1/25/2008 8:55:00 AM			
RA-226	D9TE	0	3/3/2008 2:34:00 PM	1.579E+00	9.616E-02	1.792E-01	8.26E-02	pCi/g	0.974	1.01E+0
RA-226	TBD	0	3/3/2008 2:34:00 PM	1.579E+00	9.616E-02	1.792E-01	8.26E-02	pCi/g	0.974	1.01E+0
RA-228	D9TF	0	3/5/2008 6:56:15 AM	1.4547E+00	1.601E-01	1.831E-01	4.393E-01	pCi/g	0.855	1.01E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	1.9666E+00	1.437E-01	2.128E-01	7.178E-02	pCi/g	0.871	1.02E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	1.7869E+00	1.353E-01	1.966E-01	7.932E-02	pCi/g	0.871	1.02E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	1.4901E+00	1.233E-01	1.713E-01	5.744E-02	pCi/g	0.871	1.02E+0
U-234	KWSR	0	2/22/2008 2:21:45 PM	2.1117E+00	1.133E-01	2.091E-01	2.908E-02	PCI/G	1.001	1.03E+0
U-235	KWSR	0	2/22/2008 2:21:45 PM	6.0715E-02	1.924E-02	1.989E-02	2.908E-02	PCI/G	1.001	1.03E+0
U-238	KWSR	0	2/22/2008 2:21:45 PM	1.5519E+00	9.716E-02	1.616E-01	3.431E-02	PCI/G	1.001	1.03E+0
<b>8030213</b>	<b>9KF6E510</b>		<b>F8A26014511</b>	TSB-HR-02-0'	SOLID	1/26/2008 10:15:00	1/25/2008 9:45:00 AM			
RA-226	D9TE	0	3/3/2008 2:33:00 PM	1.2536E+00	8.49E-02	1.476E-01	9.29E-02	pCi/g	1.0	1.0E+0

8042382, \*\*Samples Inserted | Updated | NotUpdated => 4 | 0 | 13,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 17 | 0 | 0 | 0.  
 \*\*Diff RptDb | Qtimes => .

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
RA-228	D9TF	0	3/5/2008 5:57:38 AM	2.2397E+00	1.856E-01	2.269E-01 5.372E-01	pCi/g	0.881	1.0E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	2.5836E+00	2.076E-01	2.93E-01 7.983E-02	pCi/g	0.727	1.01E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	1.4074E+00	1.513E-01	1.886E-01 7.766E-02	pCi/g	0.727	1.01E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	2.0754E+00	1.835E-01	2.475E-01 7.766E-02	pCi/g	0.727	1.01E+0
U-234	KWSR	0	2/22/2008 2:22:10 PM	1.105E+00	8.215E-02	1.233E-01 2.924E-02	PCI/G	0.953	1.01E+0
U-235	KWSR	0	2/22/2008 2:22:10 PM	4.2736E-02	1.62E-02	1.658E-02 2.924E-02	PCI/G	0.953	1.01E+0
U-238	KWSR	0	2/22/2008 2:22:10 PM	1.1478E+00	8.372E-02	1.27E-01 2.924E-02	PCI/G	0.953	1.01E+0
<b>8030213</b>	<b>9KF6EM10</b>		<b>F8A2601451</b>	TSB-HJ-01-10'	SOLID	1/26/2008 10:15:00	1/25/2008 12:10:00 PM		
RA-226	D9TE	0	3/3/2008 1:41:00 PM	1.3657E+00	9.376E-02	1.604E-01 1.367E-01	pCi/g	1.0	1.01E+0
RA-228	D9TF	0	3/5/2008 6:02:30 AM	1.4241E+00	1.707E-01	1.898E-01 5.712E-01	pCi/g	0.916	1.01E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	1.8241E+00	1.378E-01	2.095E-01 5.87E-02	pCi/g	0.857	1.01E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	1.6482E+00	1.291E-01	1.923E-01 4.843E-02	pCi/g	0.857	1.01E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	2.4147E+00	1.563E-01	2.608E-01 4.843E-02	pCi/g	0.857	1.01E+0
U-234	KWSR	0	2/22/2008 2:19:11 PM	1.6921E+00	1.015E-01	1.736E-01 3.432E-02	PCI/G	0.953	1.02E+0
U-235	KWSR	0	2/22/2008 2:19:11 PM	8.5031E-02	2.276E-02	2.383E-02 2.909E-02	PCI/G	0.953	1.02E+0
U-238	KWSR	0	2/22/2008 2:19:11 PM	1.6144E+00	9.907E-02	1.669E-01 2.909E-02	PCI/G	0.953	1.02E+0
<b>8030213</b>	<b>9KF6EP10</b>		<b>F8A2601452</b>	TSB-HJ-09-0'	SOLID	1/26/2008 10:15:00	1/25/2008 12:50:00 PM		
RA-226	D9TE	0	3/3/2008 1:44:00 PM	1.2501E+00	9.548E-02	1.53E-01 1.553E-01	pCi/g	0.945	1.01E+0
RA-228	D9TF	0	3/5/2008 6:02:30 AM	1.5569E+00	1.74E-01	1.96E-01 5.62E-01	pCi/g	0.857	1.01E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	2.0512E+00	1.457E-01	2.291E-01 7.073E-02	pCi/g	0.901	1.0E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	9.4027E-01	9.783E-02	1.27E-01 7.823E-02	pCi/g	0.901	1.0E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.6199E+00	1.276E-01	1.891E-01 5.665E-02	pCi/g	0.901	1.0E+0
U-234	KWSR	0	2/22/2008 2:19:29 PM	1.014E+00	7.967E-02	1.162E-01 2.998E-02	PCI/G	1.008	1.0E+0
U-235	KWSR	0	2/22/2008 2:19:29 PM	1.1266E-02	8.94E-03	8.989E-03 2.998E-02	PCI/G	1.008	1.0E+0
U-238	KWSR	0	2/22/2008 2:19:29 PM	1.0515E+00	8.114E-02	1.194E-01 2.998E-02	PCI/G	1.008	1.0E+0
<b>8030213</b>	<b>9KF6EQ10</b>		<b>F8A2601453</b>	TSB-HJ-09-10'	SOLID	1/26/2008 10:15:00	1/25/2008 1:00:00 PM		
RA-226	D9TE	0	3/3/2008 1:48:00 PM	1.6981E+00	1.121E-01	2.093E-01 1.298E-01	pCi/g	0.95	1.02E+0
RA-228	D9TF	0	3/5/2008 6:55:47 AM	1.6815E+00	1.75E-01	2.008E-01 5.383E-01	pCi/g	0.837	1.02E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	1.8173E+00	1.533E-01	2.183E-01 6.182E-02	pCi/g	0.948	1.02E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	1.4952E+00	1.371E-01	1.875E-01 6.018E-02	pCi/g	0.948	1.02E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.3947E+00	1.324E-01	1.782E-01 6.018E-02	pCi/g	0.948	1.02E+0
U-234	KWSR	0	2/22/2008 2:19:42 PM	2.6374E+00	1.285E-01	2.55E-01 4.291E-02	PCI/G	0.94	1.02E+0
U-235	KWSR	0	2/22/2008 2:19:42 PM	9.9949E-02	2.502E-02	2.637E-02 2.992E-02	PCI/G	0.94	1.02E+0
U-238	KWSR	0	2/22/2008 2:19:42 PM	2.3663E+00	1.218E-01	2.321E-01 4.875E-02	PCI/G	0.94	1.02E+0
<b>8030213</b>	<b>9KF6ER10</b>		<b>F8A2601454</b>	TSB-HJ-03-0'	SOLID	1/26/2008 10:15:00	1/25/2008 7:25:00 AM		
RA-226	D9TE	0	3/3/2008 1:47:00 PM	1.1157E+00	9.528E-02	1.428E-01 1.814E-01	pCi/g	0.939	1.0E+0
RA-228	D9TF	0	3/5/2008 6:55:47 AM	1.5538E+00	1.583E-01	1.829E-01 4.134E-01	pCi/g	0.868	1.0E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	1.582E+00	1.432E-01	1.974E-01 6.21E-02	pCi/g	0.915	1.03E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	9.5912E-01	1.1E-01	1.374E-01 6.044E-02	pCi/g	0.915	1.03E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.7416E+00	1.483E-01	2.106E-01 6.044E-02	pCi/g	0.915	1.03E+0
U-234	KWSR	0	2/22/2008 2:19:58 PM	1.1651E+00	8.547E-02	1.295E-01 4.586E-02	PCI/G	0.951	1.01E+0
U-235	KWSR	0	2/22/2008 2:19:58 PM	2.9906E-02	1.399E-02	1.421E-02 2.984E-02	PCI/G	0.951	1.01E+0
U-238	KWSR	0	2/22/2008 2:19:58 PM	9.7568E-01	7.809E-02	1.128E-01 3.521E-02	PCI/G	0.951	1.01E+0
<b>8030213</b>	<b>9KF6ET10</b>		<b>F8A2601455</b>	TSB-HJ-03-0' FD	SOLID	1/26/2008 10:15:00	1/25/2008 7:25:00 AM		
RA-226	D9TE	0	3/3/2008 1:43:00 PM	1.049E+00	1.002E-01	1.455E-01 2.045E-01	pCi/g	0.948	1.0E+0
RA-228	D9TF	0	3/5/2008 6:55:47 AM	1.5664E+00	1.763E-01	1.977E-01 5.167E-01	pCi/g	0.81	1.0E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	2.1485E+00	1.624E-01	2.451E-01 5.88E-02	pCi/g	0.977	1.02E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	1.3741E+00	1.282E-01	1.738E-01 5.723E-02	pCi/g	0.977	1.02E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	2.1269E+00	1.594E-01	2.418E-01 5.723E-02	pCi/g	0.977	1.02E+0
U-234	KWSR	0	2/22/2008 2:20:15 PM	9.8954E-01	7.584E-02	1.117E-01 3.971E-02	PCI/G	0.924	1.02E+0
U-235	KWSR	0	2/22/2008 2:20:15 PM	6.2424E-02	1.92E-02	1.989E-02 2.769E-02	PCI/G	0.924	1.02E+0
U-238	KWSR	0	2/22/2008 2:20:15 PM	1.0635E+00	7.866E-02	1.181E-01 4.255E-02	PCI/G	0.924	1.02E+0
<b>8030213</b>	<b>9KF6EV10</b>		<b>F8A2601456</b>	TSB-HJ-03-10'	SOLID	1/26/2008 10:15:00	1/25/2008 7:45:00 AM		
RA-226	D9TE	0	3/3/2008 2:37:00 PM	1.2479E+00	1.079E-01	1.635E-01 1.674E-01	pCi/g	0.942	1.0E+0

8042382, \*\*Samples Inserted | Updated | NotUpdated => 4 | 0 | 13,  
\*\*Results Inserted | ReTestInserted | Updated | NotInserted => 17 | 0 | 0 | 0.  
\*\*Diff RptDb | Qtimes => .

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	Yield	Volumes
RA-228	D9TF	0	3/5/2008 6:56:09 AM	1.5292E+00	1.585E-01	1.804E-01 4.107E-01	pCi/g	0.857	1.0E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	1.8638E+00	1.357E-01	2.106E-01 4.728E-02	pCi/g	0.884	1.0E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	1.495E+00	1.2E-01	1.763E-01 5.429E-02	pCi/g	0.884	1.0E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.5737E+00	1.231E-01	1.834E-01 4.602E-02	pCi/g	0.884	1.0E+0
U-234	KWSR	0	2/22/2008 2:20:30 PM	1.5931E+00	1.002E-01	1.665E-01 3.016E-02	PCI/G	0.916	1.02E+0
U-235	KWSR	0	2/22/2008 2:20:30 PM	3.0225E-02	1.414E-02	1.436E-02 3.016E-02	PCI/G	0.916	1.02E+0
U-238	KWSR	0	2/22/2008 2:20:30 PM	1.3274E+00	9.148E-02	1.437E-01 3.016E-02	PCI/G	0.916	1.02E+0
<b>8030213</b>	<b>9KF6EW10</b>		<b>F8A2601457</b>	TSB-HR-03-0'	SOLID	1/26/2008 10:15:00	1/25/2008 8:05:00 AM		
RA-226	D9TE	0	3/3/2008 2:24:00 PM	8.0495E-01	9.936E-02	1.261E-01 1.977E-01	pCi/g	1.0	1.01E+0
RA-228	D9TF	0	3/5/2008 6:56:09 AM	1.0503E+00	1.325E-01	1.461E-01 3.886E-01	pCi/g	0.898	1.01E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	2.2854E+00	2.053E-01	2.754E-01 8.827E-02	pCi/g	0.596	1.0E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	1.3777E+00	1.574E-01	1.925E-01 8.592E-02	pCi/g	0.596	1.0E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.7759E+00	1.785E-01	2.285E-01 8.592E-02	pCi/g	0.596	1.0E+0
U-234	KWSR	0	2/22/2008 2:20:42 PM	1.0882E+00	8.213E-02	1.223E-01 2.965E-02	PCI/G	0.974	1.0E+0
U-235	KWSR	0	2/22/2008 2:20:42 PM	4.2093E-02	1.642E-02	1.679E-02 2.965E-02	PCI/G	0.974	1.0E+0
U-238	KWSR	0	2/22/2008 2:20:42 PM	9.5824E-01	7.708E-02	1.11E-01 2.965E-02	PCI/G	0.974	1.0E+0
<b>8030213</b>	<b>KF6E21LR</b>		<b>F8A26014510</b>	TSB-HJ-02-10'	DUP SOLID	1/26/2008 10:15:00	1/25/2008 8:55:00 AM		
RA-228	D9TF	0 R	3/5/2008 5:57:38 AM	8.5781E-01	1.255E-01	1.36E-01 4.382E-01	pCi/g	0.913	1.03E+0
<b>8030213</b>	<b>KF6E21NR</b>		<b>F8A26014510</b>	TSB-HJ-02-10'	DUP SOLID	1/26/2008 10:15:00	1/25/2008 8:55:00 AM		
RA-228	D9TF	0 R	3/5/2008 5:57:38 AM	1.7126E+00	1.628E-01	1.906E-01 4.895E-01	pCi/g	0.904	1.0E+0
<b>8030213</b>	<b>KGXJE1AB</b>		<b>J8B110000382</b>	INTRA-LAB BLANK	SOLID	1/25/2008 9:15:00	1/24/2008 8:40:00 AM		
RA-228	D9TF	0 B	3/5/2008 5:57:46 AM	-1.4479E-01	1.009E-01	1.009E-01 5.156E-01	pCi/g	0.877	1.03E+0
<b>8030213</b>	<b>KGXJE1CS</b>		<b>J8B110000382</b>	INTRA-LAB CHECK	SOLID	1/25/2008 9:15:00	1/24/2008 8:40:00 AM		
RA-228	D9TF	0 S	3/5/2008 5:57:46 AM	5.0867E+00	2.615E-01	3.895E-01 5.822E-01	pCi/g	5.0121E+00 0.823	1.0E+0

8042382, \*\*Samples Inserted | Updated | NotUpdated => 4 | 0 | 13,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 17 | 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	SOLID	KF5GG1AF	RA-228	1.20E+00	(3.03E-01)		pCi/g	R	4.54E-01	9.86E-01					88%
Calc	TF	SOLID	KF5GG1AF	RA-228	1.39E+00	(3.41E-01)		pCi/g	R	5.04E-01	1.09E+00					88%
Calc	TF	SOLID	KF5GG1AF	RA-228	1.40E+00	(3.66E-01)		pCi/g	R	5.59E-01	1.21E+00					88%
Calc	TF	SOLID	KF5GG1AF	RA-228	1.33E+00	(1.95E-01)		pCi/g	A	2.92E-01	6.34E-01					88%
Calc	TF	SOLID	KF5GG1AF	RA-228	1.74E+00	(8.16E-01)		pCi/g	R	1.27E+00	2.97E+00					88%
Calc	TF	SOLID	KF5GL1AF	RA-228	1.73E+00	(3.40E-01)		pCi/g	R	4.22E-01	9.22E-01					84%
Calc	TF	SOLID	KF5GL1AF	RA-228	1.30E+00	(3.22E-01)		pCi/g	R	4.68E-01	1.02E+00					84%
Calc	TF	SOLID	KF5GL1AF	RA-228	1.19E+00	(3.35E-01)		pCi/g	R	5.19E-01	1.14E+00					84%
Calc	TF	SOLID	KF5GL1AF	RA-228	1.41E+00	(1.92E-01)		pCi/g	A	2.71E-01	5.93E-01					84%
Calc	TF	SOLID	KF5GL1AF	RA-228	1.77E+00	(9.94E-01)		pCi/g	R	1.71E+00	3.88E+00					84%
Calc	TF	SOLID	KF6EM1AF	RA-228	1.16E+00	(2.81E-01)		pCi/g	R	4.08E-01	8.88E-01					92%
Calc	TF	SOLID	KF6EM1AF	RA-228	1.11E+00	(2.96E-01)		pCi/g	R	4.53E-01	9.86E-01					92%
Calc	TF	SOLID	KF6EM1AF	RA-228	2.00E+00	(3.97E-01)		pCi/g	R	5.02E-01	1.09E+00					92%
Calc	TF	SOLID	KF6EM1AF	RA-228	1.42E+00	(1.90E-01)		pCi/g	A	2.62E-01	5.71E-01					92%
Calc	TF	SOLID	KF6EM1AF	RA-228	1.69E+00	(8.43E-01)		pCi/g	R	1.36E+00	3.15E+00					92%
Calc	TF	SOLID	KF6EP1AF	RA-228	1.61E+00	(3.24E-01)		pCi/g	R	3.97E-01	8.74E-01					86%
Calc	TF	SOLID	KF6EP1AF	RA-228	1.59E+00	(3.42E-01)		pCi/g	R	4.41E-01	9.70E-01					86%
Calc	TF	SOLID	KF6EP1AF	RA-228	1.47E+00	(3.52E-01)		pCi/g	R	4.89E-01	1.08E+00					86%
Calc	TF	SOLID	KF6EP1AF	RA-228	1.56E+00	(1.96E-01)		pCi/g	A	2.55E-01	5.62E-01					86%
Calc	TF	SOLID	KF6EP1AF	RA-228	2.88E+00	(1.05E+00)		pCi/g	R	1.53E+00	3.53E+00					86%
Calc	TF	SOLID	KF6EQ1AF	RA-228	1.47E+00	(3.07E-01)		pCi/g	R	3.79E-01	8.37E-01					84%
Calc	TF	SOLID	KF6EQ1AF	RA-228	1.95E+00	(3.72E-01)		pCi/g	R	4.20E-01	9.29E-01					84%
Calc	TF	SOLID	KF6EQ1AF	RA-228	1.62E+00	(3.61E-01)		pCi/g	R	4.66E-01	1.03E+00					84%
Calc	TF	SOLID	KF6EQ1AF	RA-228	1.68E+00	(2.01E-01)		pCi/g	A	2.44E-01	5.38E-01					84%
Calc	TF	SOLID	KF6EQ1AF	RA-228	4.83E+00	(1.40E+00)		pCi/g	R	2.05E+00	4.55E+00					84%
Calc	TF	SOLID	KF6ER1AF	RA-228	2.08E+00	(3.54E-01)		pCi/g	R	2.76E-01	6.43E-01					87%
Calc	TF	SOLID	KF6ER1AF	RA-228	1.52E+00	(3.12E-01)		pCi/g	R	3.06E-01	7.13E-01					87%
Calc	TF	SOLID	KF6ER1AF	RA-228	1.06E+00	(2.80E-01)		pCi/g	R	3.40E-01	7.92E-01					87%
Calc	TF	SOLID	KF6ER1AF	RA-228	1.55E+00	(1.83E-01)		pCi/g	A	1.77E-01	4.13E-01					87%
Calc	TF	SOLID	KF6ER1AF	RA-228	1.74E+00	(1.14E+00) U4		pCi/g	R	2.11E+00	4.67E+00					87%
Calc	TF	SOLID	KF6ET1AF	RA-228	1.38E+00	(3.04E-01)		pCi/g	R	3.55E-01	8.04E-01					81%
Calc	TF	SOLID	KF6ET1AF	RA-228	1.57E+00	(3.41E-01)		pCi/g	R	3.94E-01	8.92E-01					81%
Calc	TF	SOLID	KF6ET1AF	RA-228	1.74E+00	(3.78E-01)		pCi/g	R	4.37E-01	9.90E-01					81%
Calc	TF	SOLID	KF6ET1AF	RA-228	1.57E+00	(1.98E-01)		pCi/g	A	2.28E-01	5.17E-01					81%
Calc	TF	SOLID	KF6ET1AF	RA-228	1.14E+00	(1.16E+00) U4		pCi/g	R	2.26E+00	5.00E+00					81%
Calc	TF	SOLID	KF6EV1AF	RA-228	1.45E+00	(2.88E-01)		pCi/g	R	2.75E-01	6.39E-01					86%
Calc	TF	SOLID	KF6EV1AF	RA-228	1.47E+00	(3.05E-01)		pCi/g	R	3.05E-01	7.09E-01					86%

() - (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	SOLID	KF6EV1AF	RA-228	1.67E+00	(3.42E-01)		pCi/g	R	3.39E-01	7.87E-01	86%	
Calc	TF	SOLID	KF6EV1AF	RA-228	1.53E+00	(1.80E-01)		pCi/g	A	1.77E-01	4.11E-01 ✓	86%	
Calc	TF	SOLID	KF6EV1AF	RA-228	9.20E-01	(8.63E-01)	U4	pCi/g	R	1.64E+00	3.80E+00	86%	
Calc	TF	SOLID	KF6EW1AF	RA-228	1.16E+00	(2.50E-01)		pCi/g	R	2.60E-01	6.04E-01	90%	
Calc	TF	SOLID	KF6EW1AF	RA-228	1.15E+00	(2.63E-01)		pCi/g	R	2.89E-01	6.71E-01	90%	
Calc	TF	SOLID	KF6EW1AF	RA-228	8.49E-01	(2.46E-01)		pCi/g	R	3.20E-01	7.44E-01	90%	
Calc	TF	SOLID	KF6EW1AF	RA-228	1.05E+00	(1.46E-01)		pCi/g	A	1.67E-01	3.89E-01 ✓	90%	
Calc	TF	SOLID	KF6EW1AF	RA-228	0.00E+00	(8.34E-01)	U4	pCi/g	R	1.83E+00	4.13E+00	90%	
Calc	TF	SOLID	KF6E01AF	RA-228	1.41E+00	(2.81E-01)		pCi/g	R	2.53E-01	5.89E-01	90%	
Calc	TF	SOLID	KF6E01AF	RA-228	9.22E-01	(2.40E-01)		pCi/g	R	2.81E-01	6.54E-01	90%	
Calc	TF	SOLID	KF6E01AF	RA-228	1.29E+00	(2.96E-01)		pCi/g	R	3.12E-01	7.26E-01	90%	
Calc	TF	SOLID	KF6E01AF	RA-228	1.21E+00	(1.58E-01)		pCi/g	A	1.63E-01	3.79E-01 ✓	90%	
Calc	TF	SOLID	KF6E01AF	RA-228	1.82E+00	(9.05E-01)		pCi/g	R	1.50E+00	3.48E+00	90%	
Calc	TF	SOLID	KF6E11AF	RA-228	1.32E+00	(2.88E-01)		pCi/g	R	3.15E-01	7.16E-01	89%	
Calc	TF	SOLID	KF6E11AF	RA-228	1.75E+00	(3.51E-01)		pCi/g	R	3.49E-01	7.95E-01	89%	
Calc	TF	SOLID	KF6E11AF	RA-228	1.55E+00	(3.47E-01)		pCi/g	R	3.88E-01	8.82E-01	89%	
Calc	TF	SOLID	KF6E11AF	RA-228	1.54E+00	(1.90E-01)		pCi/g	A	2.02E-01	4.60E-01 ✓	89%	
Calc	TF	SOLID	KF6E11AF	RA-228	2.42E+00	(9.99E-01)		pCi/g	R	1.57E+00	3.62E+00	89%	
Calc	TF	SOLID	KF6E21AJ	RA-228	1.36E+00	(2.90E-01)		pCi/g	R	2.96E-01	6.83E-01	86%	
Calc	TF	SOLID	KF6E21AJ	RA-228	1.40E+00	(3.10E-01)		pCi/g	R	3.29E-01	7.58E-01	86%	
Calc	TF	SOLID	KF6E21AJ	RA-228	1.60E+00	(3.48E-01)		pCi/g	R	3.65E-01	8.41E-01	86%	
Calc	TF	SOLID	KF6E21AJ	RA-228	1.45E+00	(1.83E-01)		pCi/g	A	1.90E-01	4.39E-01 ✓	86%	
Calc	TF	SOLID	KF6E21AJ	RA-228	2.02E+00	(9.52E-01)		pCi/g	R	1.48E+00	3.46E+00	86%	
Calc	TF	SOLID	KF6E21AL	RA-228	1.00E+00	(2.31E-01)		pCi/g	R	3.08E-01	6.81E-01	R	91%
Calc	TF	SOLID	KF6E21AL	RA-228	5.19E-01	(2.02E-01)		pCi/g	R	3.42E-01	7.56E-01	R	91%
Calc	TF	SOLID	KF6E21AL	RA-228	1.05E+00	(2.68E-01)		pCi/g	R	3.79E-01	8.39E-01	R	91%
Calc	TF	SOLID	KF6E21AL	RA-228	8.58E-01	(1.36E-01)		pCi/g	A	1.98E-01	4.38E-01 ✓	R	91%
Calc	TF	SOLID	KF6E21AL	RA-228	6.91E-02	(8.57E-01)	U4	pCi/g	R	1.79E+00	3.92E+00	R	91%
Calc	TF	SOLID	KF6E21AN	RA-228	1.67E+00	(3.08E-01)		pCi/g	R	3.45E-01	7.61E-01	R	90%
Calc	TF	SOLID	KF6E21AN	RA-228	1.97E+00	(3.53E-01)		pCi/g	R	3.83E-01	8.45E-01	R	90%
Calc	TF	SOLID	KF6E21AN	RA-228	1.51E+00	(3.28E-01)		pCi/g	R	4.25E-01	9.38E-01	R	90%
Calc	TF	SOLID	KF6E21AN	RA-228	1.71E+00	(1.91E-01)		pCi/g	A	2.22E-01	4.90E-01 ✓	R	90%
Calc	TF	SOLID	KF6E21AN	RA-228	2.76E+00	(1.04E+00)		pCi/g	R	1.70E+00	3.74E+00	R	90%
Calc	TF	SOLID	KF6E51AF	RA-228	2.72E+00	(4.18E-01)		pCi/g	R	3.81E-01	8.35E-01	88%	
Calc	TF	SOLID	KF6E51AF	RA-228	1.72E+00	(3.42E-01)		pCi/g	R	4.23E-01	9.27E-01	88%	
Calc	TF	SOLID	KF6E51AF	RA-228	2.28E+00	(4.14E-01)		pCi/g	R	4.69E-01	1.03E+00	88%	
Calc	TF	SOLID	KF6E51AF	RA-228	2.24E+00	(2.27E-01)		pCi/g	A	2.45E-01	5.37E-01 ✓	88%	
Calc	TF	SOLID	KF6E51AF	RA-228	-3.33E-01	(8.84E-01)	U4	pCi/g	R	1.91E+00	4.19E+00	88%	

REC= 2.60 JK REC= .98

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 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	SOLID	KGXJE1AA	RA-228	5.58E-02	(1.71E-01)	U4	pCi/g	R	3.66E-01	8.02E-01	B	88%	
Calc	TF	SOLID	KGXJE1AA	RA-228	-1.71E-01	(1.72E-01)	U4	pCi/g	R	4.06E-01	8.90E-01	B	88%	
Calc	TF	SOLID	KGXJE1AA	RA-228	-3.19E-01	(1.81E-01)	U4	pCi/g	R	4.50E-01	9.87E-01	B	88%	
Calc	TF	SOLID	KGXJE1AA	RA-228	-1.45E-01	(1.01E-01)	U4	pCi/g	A	2.35E-01	5.16E-01	✓B	88%	<i>JK</i>
Calc	TF	SOLID	KGXJE1AA	RA-228	2.35E-01	(9.12E-01)	U4	pCi/g	R	1.96E+00	4.28E+00	B	88%	
Calc	TF	SOLID	KGXJE1AC	RA-228	5.35E+00	(6.81E-01)		pCi/g	R	4.14E-01	9.05E-01	S	82%	107%
Calc	TF	SOLID	KGXJE1AC	RA-228	5.14E+00	(6.79E-01)		pCi/g	R	4.59E-01	1.00E+00	S	82%	102%
Calc	TF	SOLID	KGXJE1AC	RA-228	4.77E+00	(6.65E-01)		pCi/g	R	5.10E-01	1.12E+00	S	82%	95%
Calc	TF	SOLID	KGXJE1AC	RA-228	5.09E+00	(3.90E-01)		pCi/g	A	2.66E-01	5.82E-01	✓S	82%	101%
Calc	TF	SOLID	KGXJE1AC	RA-228	5.11E+00	(1.33E+00)		pCi/g	R	1.92E+00	4.24E+00	S	82%	102%

*Tom DME*  3/5/08

( ) - (1s Uncertainties)  
 IDC - Instrument Detection Level in Conc Units  
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 \*Std - Lc, MDC using StdDev for Set of Blanks

# 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	Analysis	Date	Ppt	Wt	Sep1	Sep2	Date	QC	Tracer	Vial	Multi	Ent	Yld	Total	Analy	Vol	Final	Count	Vol					
1	Calc	TF	SOLID	*STLE	Ra228	WobS	KF5GL1AF		pCi/g			01/24/08	08:40	03/05/08	06:02	31.4		02/25/08	14:55	03/04/08	11:35	RATA30224	✓	1		96%	✓	g	1.03	g							
1418995	TSB-HJ-07-10			F8A250205-13					SOLID																												
<b>Sq</b>	<b>Cnt</b>	<b>Date</b>	<b>Parameter</b>	<b>Sample</b>	<b>Cnt</b>	<b>Bkgrnd</b>	<b>Cnt</b>	<b>Instr</b>	<b>Geom</b>	<b>Trc</b>	<b>Av</b>	<b>Ent</b>	<b>Efficiency1</b>	<b>Efficiency2</b>	<b>Ent</b>	<b>Trc</b>	<b>Yld</b>	<b>Fct</b>	<b>Ent</b>	<b>Bik</b>	<b>Value</b>	<b>Ingr</b>	<b>Fct</b>	<b>Conv</b>	<b>Fct</b>	<b>Vol</b>	<b>Adj</b>	<b>Decay</b>	<b>Abn</b>								
0	03/04/08	15:34	RA-228	86	359			GPC7C	1	N	N	5.1702E-01	1.0000E+00	0.0000E+00	N	88%	N	88%	N			1.4970E+00		4.5045E+00	0.970874	1.0107E+00											
				50	400					Y		(1.248E-02)	(0.000E+00)									(0.000E+00)		0.970874													
1	03/04/08	16:29	RA-228	88	359			GPC7C	1	N	N	5.1702E-01	1.0000E+00	0.0000E+00	N	88%	N	88%	N			1.6613E+00		4.5045E+00	0.970874	1.0107E+00											
				50	400					Y		(1.248E-02)	(0.000E+00)									(0.000E+00)		0.970874													
2	03/04/08	17:24	RA-228	84	359			GPC7C	1	N	N	5.1702E-01	1.0000E+00	0.0000E+00	N	88%	N	88%	N			1.8436E+00		4.5045E+00	0.970874	1.0107E+00											
				50	400					Y		(1.248E-02)	(0.000E+00)									(0.000E+00)		0.970874													
3	03/05/08	06:02	RA-228	23	60			GPC4A	1	N	N	4.9045E-01	1.0000E+00	0.0000E+00	N	88%	N	88%	N			7.6882E+00		4.5045E+00	0.970874	1.0107E+00											
				50	250					N		(2.447E-02)	(0.000E+00)									(0.000E+00)		0.970874													
<b>Sq</b>	<b>CalcDate</b>	<b>TrcAct</b>	<b>Parameter</b>	<b>Avg</b>	<b>Sa</b>	<b>Act</b>	<b>Total</b>	<b>U</b>	<b>Q</b>	<b>Net</b>	<b>Cnt</b>	<b>Rt</b>	<b>Dpm</b>	<b>Wo</b>	<b>Bik</b>	<b>Dpm</b>	<b>Bik</b>	<b>Vol</b>	<b>Used</b>	<b>Trc</b>	<b>Yld</b>	<b>EnFct</b>	<b>LCS</b>	<b>Yld</b>	<b>EF</b>	<b>FctU</b>	<b>IDC</b>	<b>LcC</b>	<b>BikLcC</b>	<b>MDC</b>	<b>Std</b>	<b>Dv</b>	<b>MdC</b>	<b>LcC</b>			
03/05/08	RA-228	R	1.198146	0.302514	2.710668	2.710668			1.03G	88%			0.98648																								
										(0.670302)	(0.670302)		(0.0103)																								
03/05/08	RA-228	R	1.394333	0.341303	3.154519	3.154519			1.03G	88%			1.094767																								
										(0.75522)	(0.75522)		(0.0103)																								
03/05/08	RA-228	R	1.403821	0.366399	3.175984	3.175984			1.03G	88%			1.214903																								
										(0.812963)	(0.812963)		(0.0103)																								
03/05/08	RA-228	A	1.3321	0.195007	3.013724	3.013724			1.03G	88%			0.634344																								
										(1.1052E-01)	(0.432123)		(0.005947)																								
03/05/08	RA-228	R	1.735053	0.816411	3.925358	3.925358			1.03G	88%			0.29196																								
										(1.0080E-01)	(1.836159)		(0.0103)																								
2	Calc	TF	SOLID	*STLE	Ra228	WobS	KF5GL1AFV		pCi/g			01/24/08	09:30	03/05/08	06:02	31.2		02/25/08	14:55	03/04/08	11:35	RATA30225	✓	1		93%	✓	g	1.03	g							
1418995	TSB-HR-08-10			F8A250205-15					SOLID																												
<b>Sq</b>	<b>Cnt</b>	<b>Date</b>	<b>Parameter</b>	<b>Sample</b>	<b>Cnt</b>	<b>Bkgrnd</b>	<b>Cnt</b>	<b>Instr</b>	<b>Geom</b>	<b>Trc</b>	<b>Av</b>	<b>Ent</b>	<b>Efficiency1</b>	<b>Efficiency2</b>	<b>Ent</b>	<b>Trc</b>	<b>Yld</b>	<b>Fct</b>	<b>Ent</b>	<b>Bik</b>	<b>Value</b>	<b>Ingr</b>	<b>Fct</b>	<b>Conv</b>	<b>Fct</b>	<b>Vol</b>	<b>Adj</b>	<b>Decay</b>	<b>Abn</b>								
0	03/04/08	15:34	RA-228	97	305			GPC1A	1	N	N	5.3617E-01	1.0000E+00	0.0000E+00	N	84%	N	84%	N			1.4988E+00		4.5045E+00	0.970874	1.0107E+00											
				50	400					Y		(1.092E-02)	(0.000E+00)									(0.000E+00)		0.970874													
1	03/04/08	16:30	RA-228	78	305			GPC1A	1	N	N	5.3617E-01	1.0000E+00	0.0000E+00	N	84%	N	84%	N			1.6631E+00		4.5045E+00	0.970874	1.0107E+00											
				50	400					Y		(1.092E-02)	(0.000E+00)									(0.000E+00)		0.970874													
2	03/04/08	17:25	RA-228	71	305			GPC1A	1	N	N	5.3617E-01	1.0000E+00	0.0000E+00	N	84%	N	84%	N			1.8456E+00		4.5045E+00	0.970874	1.0107E+00											
				50	400					Y		(1.092E-02)	(0.000E+00)									(0.000E+00)		0.970874													

( ) - (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

Alpha Beta, Ra-228 by GPC, Calculated Results

3/5/2008 7:28:16 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/ILcC	BIKlC/MDC	StdDvMdc/LcC	
3	03/05/08	06:02	RA-228	29	93				N	N	4.7330E-01	1.0000E+00	84%	N	7.6882E+00	4.5045E-01	1.0107E+00
				50	250				N	(2.332E-02)	(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,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlC/MDC	StdDvMdc/LcC	
0	03/05/08	RA-228	R	1.727973	1.17750E+00	3.909385			3.909385	(0.743538)	1.03 G	84%			0.92222		
				(0.340254)	(2.0176E-01)	(0.743538)			(0.743538)		(0.0103)				0.421591		
0	03/05/08	RA-228	R	1.298794	7.97500E-01	2.938406			2.938406	(0.712937)	1.03 G	84%			1.023454		
				(0.322006)	(1.8195E-01)	(0.712937)			(0.712937)		(0.0103)				0.46787		
0	03/05/08	RA-228	R	1.188298	6.57500E-01	2.688419			2.688419	(0.745609)	1.03 G	84%			1.135765		
				(0.335088)	(1.7409E-01)	(0.745609)			(0.745609)		(0.0103)				0.519213		
0	03/05/08	RA-228	A	1.405022	8.77500E-01	3.178737			3.178737	(0.423879)	1.03 G	84%			0.593023		
				(0.191991)	(1.0756E-01)	(0.423879)			(0.423879)		(0.005947)				0.2711		
0	03/05/08	RA-228	R	1.773952	2.08000E-01	4.013409			4.013409	(2.239408)	1.03 G	84%			3.882974		
				(0.993957)	(1.1440E-01)	(2.239408)			(2.239408)		(0.0103)				1.711378		

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

Sq	Calc	TF	SOLID	*STLE	Ra228WoBS	KF6EM1AF	pc/g	SOLID	F8A260145-1	01/25/08	12:10	03/05/08	06:02	02/25/08	14:55	03/04/08	11:35	RATA30226	Alq	100%	1.01 g
0	03/04/08	15:34	RA-228	85	336	GPC1B	1	N	N	5.4530E-01	1.0000E+00	1.0000E+00	N	92%	N	1.4986E+00	4.5045E-01	1.0103E+00			
				50	400			Y	(1.339E-02)	(0.000E+00)				7%		(0.000E+00)	0.990099				
1	03/04/08	16:30	RA-228	79	336	GPC1B	1	N	N	5.4530E-01	1.0000E+00	1.0000E+00	N	92%	N	1.6631E+00	4.5045E-01	1.0103E+00			
				50	400			Y	(1.339E-02)	(0.000E+00)				7%		(0.000E+00)	0.990099				
2	03/04/08	17:25	RA-228	102	336	GPC1B	1	N	N	5.4530E-01	1.0000E+00	1.0000E+00	N	92%	N	1.8456E+00	4.5045E-01	1.0103E+00			
				50	400			Y	(1.339E-02)	(0.000E+00)				7%		(0.000E+00)	0.990099				
3	03/05/08	06:02	RA-228	24	67	GPC4C	1	N	N	4.7390E-01	1.0000E+00	1.0000E+00	N	92%	N	7.6882E+00	4.5045E-01	1.0103E+00			
				50	250			N	(2.034E-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,EnFct	LCSYld,EFctU	IDC/ILcC	BIKlC/MDC	StdDvMdc/LcC
0	03/05/08	RA-228	R	1.163008	8.60000E-01	2.581056			2.581056	(0.609771)	1.01 G	92%			0.88836	
				(0.281086)	(1.9000E-01)	(0.609771)			(0.609771)		(0.0101)				0.407774	
0	03/05/08	RA-228	R	1.110579	7.40000E-01	2.464702			2.464702	(0.645284)	1.01 G	92%			0.985877	
				(0.296224)	(1.8358E-01)	(0.645284)			(0.645284)		(0.0101)				0.452536	
0	03/05/08	RA-228	R	1.998568	1.20000E+00	4.435411			4.435411	(0.8508)	1.01 G	92%			1.094064	
				(0.396679)	(2.0712E-01)	(0.8508)			(0.8508)		(0.0101)				0.502196	
0	03/05/08	RA-228	A	1.424051	9.33333E-01	3.16039			3.16039	(0.409888)	1.01 G	92%			0.57125	
				(0.189769)	(1.1190E-01)	(0.409888)			(0.409888)		(0.005831)				0.262214	
0	03/05/08	RA-228	R	1.692393	2.12000E-01	3.755919			3.755919	(1.861716)	1.01 G	92%			3.150373	
				(0.843304)	(1.0331E-01)	(1.861716)			(1.861716)		(0.0101)				1.359655	

( ) - (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

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	TF	SOLID	*STLE	Ra228WoBS	KF6EPIAF	✓	pCi/g	✓	01/25/08 12:50	03/05/08 06:02	02/25/08 14:55	✓	1	g			
1418995	TSB-HJ-09-0			.F8A260145-2				SOLID		31.2	03/04/08 11:35	RATA30227	Alq	95%	✓	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	03/04/08 15:34	RA-228	87	263	GPC1C	1	N	N	5.2932E-01	1.0000E+00	N	86%	N		1.4986E+00	4.5045E-01	1.0103E+00	
			50	400			Y		(1.089E-02)	(0.000E+00)		7%			(0.000E+00)	0.990099		
1	03/04/08 16:30	RA-228	81	263	GPC1C	1	N	N	5.2932E-01	1.0000E+00	N	86%	N		1.6631E+00	4.5045E-01	1.0103E+00	
			50	400			Y		(1.089E-02)	(0.000E+00)		7%			(0.000E+00)	0.990099		
2	03/04/08 17:25	RA-228	73	263	GPC1C	1	N	N	5.2932E-01	1.0000E+00	N	86%	N		1.8456E+00	4.5045E-01	1.0103E+00	
			50	400			Y		(1.089E-02)	(0.000E+00)		7%			(0.000E+00)	0.990099		
3	03/05/08 06:02	RA-228	31	72	GPC4D	1	N	N	4.6642E-01	1.0000E+00	N	86%	N		7.6882E+00	4.5045E-01	1.0103E+00	
			50	250			N		(2.247E-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	Trc Yld,EntFct	LCSYld,EFctU	IDC/ILcC	BIKcC/MDC	StdDvMdc/LcC				
03/05/08	RA-228	R	1.610675			1.08250E+00	3.574596	3.574596	1.01 G	86%		0.874052						
			(0.324238)			(1.9090E-01)	(0.69612)	(0.69612)	(0.0101)			0.396939						
03/05/08	RA-228	R	1.589331			9.62500E-01	3.527227	3.527227	1.01 G	86%		0.969998						
			(0.341509)			(1.8451E-01)	(0.736268)	(0.736268)	(0.0101)			0.440512						
03/05/08	RA-228	R	1.470546			8.02500E-01	3.263605	3.263605	1.01 G	86%		1.076443						
			(0.352063)			(1.7562E-01)	(0.763412)	(0.763412)	(0.0101)			0.488852						
03/05/08	RA-228	A	1.556851			9.49167E-01	3.455143	3.455143	1.01 G	86%		0.562049						
			(0.19599)			(1.0611E-01)	(0.422883)	(0.422883)	(0.005831)			0.255247						
03/05/08	RA-228	R	2.876064			3.32000E-01	6.382893	6.382893	1.01 G	86%		3.526732						
			(1.053876)			(1.1641E-01)	(2.316128)	(2.316128)	(0.0101)			1.529511						

# Alpha Beta, Ra-228 by GPC , Calculated Results

Batch Nbr: 8042382

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
03/05/08	RA-228	R	1.466012 (0.307083)	9.92500E-01 (1.8308E-01)	Q	3.285763 (0.66756)	3.285763 (0.66756)	1.02 G (0.0102)	84%	0.837149	0.37877			
03/05/08	RA-228	R	1.954785 (0.372094)	1.19250E+00 (1.9370E-01)	Q	4.381246 (0.803492)	4.381246 (0.803492)	1.02 G (0.0102)	84%	0.929044	0.420349			
03/05/08	RA-228	R	1.623561 (0.360922)	8.92500E-01 (1.7754E-01)	Q	3.638878 (0.787365)	3.638878 (0.787365)	1.02 G (0.0102)	84%	1.030995	0.466476			
03/05/08	RA-228	A	1.681453 (0.200837)	1.02583E+00 (1.0675E-01)	Q	3.768629 (0.43604)	3.768629 (0.43604)	1.02 G (0.005889)	84%	0.538319	0.243564			
03/05/08	RA-228	R	4.830362 (1.400863)	5.73815E-01 (1.5682E-01)	Q	10.826259 (3.090834)	10.826259 (3.090834)	1.02 G (0.0102)	84%	4.547403	2.04679			

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

6	Calc	TF	SOLID	*STLE	Ra228WoBS	KF6ER1AF	pCi/g	SOLID	F8A260145-4	01/25/08 07:25	03/05/08 06:55	02/25/08 14:55	03/04/08 11:35	RATA30229	Alq	94%	1.00 g	9	
0	03/04/08 15:35	RA-228	74	99	GPCSA	1	N	N	4.6673E-01	1.0000E+00	N	87%	N	1.4998E+00	4.5045E-01	1.0104E+00			
1	03/04/08 16:30	RA-228	53	400	GPCSA	1	N	Y	4.765E-03	(0.000E+00)	N	7%	N	1.6644E+00	4.5045E-01	1.0104E+00			
2	03/04/08 17:25	RA-228	38	400	GPCSA	1	N	Y	4.765E-03	(0.000E+00)	N	7%	N	1.8471E+00	4.5045E-01	1.0104E+00			
3	03/05/08 06:55	RA-228	39	143	GPC1C	1	N	N	5.2709E-01	1.0000E+00	N	87%	N	8.5003E+00	4.5045E-01	1.0104E+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	BIK/LcC/MDC	StdDvMdc/LcC
03/05/08	RA-228	R	2.077511 (0.353771)	1.23250E+00 (1.7384E-01)	Q	4.564662 (0.741633)	4.564662 (0.741633)	1.00 G (0.01)	87%	0.642817	0.275893			
03/05/08	RA-228	R	1.519847 (0.312051)	8.12500E-01 (1.4771E-01)	Q	3.339374 (0.66415)	3.339374 (0.66415)	1.00 G (0.01)	87%	0.713358	0.306168			
03/05/08	RA-228	R	1.063908 (0.280134)	5.12500E-01 (1.2577E-01)	Q	2.337594 (0.603852)	2.337594 (0.603852)	1.00 G (0.01)	87%	0.791665	0.339777			
03/05/08	RA-228	A	1.553755 (0.18288)	8.52500E-01 (8.6831E-02)	Q	3.413877 (0.388123)	3.413877 (0.388123)	1.00 G (0.005774)	87%	0.413352	0.177408			
03/05/08	RA-228	R	1.740111 (1.14452)	2.05703E-01 (1.3381E-01)	U4	3.823333 (2.507146)	3.823333 (2.507146)	1.00 G (0.01)	87%	4.674228	2.109118			

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 hh:mm, 24hr Time

RecCnt:7

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Sq	Calc	TF	SOLID	STLE Ra228WoBS	KF6EVIATF	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		
7	1418995	TSB-HJ-03-0' FD	SOLID	*STLE Ra228WoBS	KF6EVIATF	F8A260145-5	154	GPC3B	1	N	4.8476E-01	1.0000E+00	N	81%	N	1.4998E+00	4.5045E-01	1.0104E+00
							400			Y	(1.037E-02)	(0.000E+00)				(0.000E+00)	1.00	
1	03/04/08	16:30	RA-228	154	GPC3B	1	N	4.8476E-01	1.0000E+00	N	81%	N	81%	N	1.6644E+00	4.5045E-01	1.0104E+00	
							400			Y	(1.037E-02)	(0.000E+00)				(0.000E+00)	1.00	
2	03/04/08	17:25	RA-228	154	GPC3B	1	N	4.8476E-01	1.0000E+00	N	81%	N	81%	N	1.8471E+00	4.5045E-01	1.0104E+00	
							400			Y	(1.037E-02)	(0.000E+00)				(0.000E+00)	1.00	
3	03/05/08	06:55	RA-228	37	GPC1D	1	N	5.4218E-01	1.0000E+00	N	81%	N	81%	N	8.5003E+00	4.5045E-01	1.0104E+00	
							249			N	(1.580E-02)	(0.000E+00)				(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,EntFct	LCSYld,EFctU	IDC/ILcC	BIKlC/MDC	StdDvMdc/LcC				
	03/05/08	RA-228	R	1.382	7.95000E-01	3.036501	3.036501	3.036501	1.00 G	81%	0.803535	0.803535						
							(0.64928)	(0.64928)	(0.01)			0.354868						
	03/05/08	RA-228	R	1.572239	8.15000E-01	3.454489	3.454489	3.454489	1.00 G	81%	0.891712	0.891712						
							(0.728229)	(0.728229)	(0.01)			0.39381						
	03/05/08	RA-228	R	1.744826	8.15000E-01	3.833694	3.833694	3.833694	1.00 G	81%	0.989597	0.989597						
							(0.808167)	(0.808167)	(0.01)			0.43704						
	03/05/08	RA-228	A	1.566355	8.08333E-01	3.441561	3.441561	3.441561	1.00 G	81%	0.516698	0.516698						
							(0.422297)	(0.422297)	(0.005774)			0.228192						
	03/05/08	RA-228	R	1.141255	1.29558E-01	2.507541	2.507541	2.507541	1.00 G	81%	5.003369	5.003369						
							(1.3135E-01)	(2.551078)	(0.01)			2.26431						
Sq	Calc	TF	SOLID	*STLE Ra228WoBS	KF6EVIATF	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		
8	1418995	TSB-HJ-03-10'	SOLID	*STLE Ra228WoBS	KF6EVIATF	F8A260145-6	103	GPC3C	1	N	4.8385E-01	1.0000E+00	N	86%	N	1.4998E+00	4.5045E-01	1.0104E+00
							400			Y	(7.224E-03)	(0.000E+00)				(0.000E+00)	1.00	
1	03/04/08	16:30	RA-228	103	GPC3C	1	N	4.8385E-01	1.0000E+00	N	86%	N	86%	N	1.6644E+00	4.5045E-01	1.0104E+00	
							400			Y	(7.224E-03)	(0.000E+00)				(0.000E+00)	1.00	
2	03/04/08	17:25	RA-228	103	GPC3C	1	N	4.8385E-01	1.0000E+00	N	86%	N	86%	N	1.8471E+00	4.5045E-01	1.0104E+00	
							400			Y	(7.224E-03)	(0.000E+00)				(0.000E+00)	1.00	
3	03/05/08	06:56	RA-228	18	GPC3A	1	N	4.6658E-01	1.0000E+00	N	86%	N	86%	N	8.5062E+00	4.5045E-01	1.0104E+00	
							400			N	(4.764E-03)	(0.000E+00)				(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,EFcIU	IDC/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
03/05/08	RA-228	R	1.453184	8.82500E-01		3.192918	3.192918	(0.611884)	1.00 G	86%		0.638743		
			(0.288174)	(1.5311E-01)		(0.611884)	(0.611884)		(0.01)			0.27491		
03/05/08	RA-228	R	1.466462	8.02500E-01		3.222093	3.222093	(0.648765)	1.00 G	86%		0.708836		
			(0.304592)	(1.4780E-01)		(0.648765)	(0.648765)		(0.01)			0.305078		
03/05/08	RA-228	R	1.667997	8.22500E-01		3.664904	3.664904	(0.728415)	1.00 G	86%		0.786646		
			(0.342258)	(1.4914E-01)		(0.728415)	(0.728415)		(0.01)			0.338566		
03/05/08	RA-228	A	1.529214	8.35833E-01		3.359972	3.359972	(0.383824)	1.00 G	86%		0.410732		
			(0.18042)	(8.6623E-02)		(0.383824)	(0.383824)		(0.005774)			0.176776		
03/05/08	RA-228	R	0.920046	9.50000E-02	U4	2.021514	2.021514	(1.893863)	1.00 G	86%		3.803422		
			(0.863224)	(8.8671E-02)		(1.893863)	(1.893863)		(0.01)			1.64023		

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	TF	SOLID	*STLE	Ra228WoBS	KF6EW1AF	PCi/g	SOLID	F8A260145-7	01/25/08 08:05	03/05/08 06:56	02/25/08 14:55	03/04/08 11:35	RATA30232	Alq	100%	1.01 g
0	03/04/08 15:35	RA-228	50	103	GPC3D	1	N	N	4.8299E-01	1.0000E+00	N	90%	N	1.4998E+00	4.5045E-01	1.0104E+00	
			50	400			Y	Y	(8.182E-03)	(0.000E+00)		7%		(0.000E+00)	0.990099		
1	03/04/08 16:30	RA-228	46	103	GPC3D	1	N	N	4.8299E-01	1.0000E+00	N	90%	N	1.6644E+00	4.5045E-01	1.0104E+00	
			50	400			Y	Y	(8.182E-03)	(0.000E+00)		7%		(0.000E+00)	0.990099		
2	03/04/08 17:25	RA-228	35	103	GPC3D	1	N	N	4.8299E-01	1.0000E+00	N	90%	N	1.8471E+00	4.5045E-01	1.0104E+00	
			50	400			Y	Y	(8.182E-03)	(0.000E+00)		7%		(0.000E+00)	0.990099		
3	03/05/08 06:56	RA-228	20	160	GPC3B	1	N	N	4.8561E-01	1.0000E+00	N	90%	N	8.5062E+00	4.5045E-01	1.0104E+00	
			50	400			N	N	(1.039E-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,EnFct	LCSYld,EFcIU	IDC/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
03/05/08	RA-228	R	1.156658	7.42500E-01		2.566822	2.566822	(0.539229)	1.01 G	90%		0.604267		
			(0.250042)	(1.4368E-01)		(0.539229)	(0.539229)		(0.0101)			0.260072		
03/05/08	RA-228	R	1.145288	6.62500E-01		2.541588	2.541588	(0.568748)	1.01 G	90%		0.670577		
			(0.262858)	(1.3800E-01)		(0.568748)	(0.568748)		(0.0101)			0.288611		
03/05/08	RA-228	R	0.848937	4.42500E-01		1.883936	1.883936	(0.537744)	1.01 G	90%		0.744188		
			(0.246154)	(1.2101E-01)		(0.537744)	(0.537744)		(0.0101)			0.320293		
03/05/08	RA-228	A	1.050294	6.15833E-01		2.330782	2.330782	(0.316826)	1.01 G	90%		0.388563		
			(0.146138)	(7.7697E-02)		(0.316826)	(0.316826)		(0.005831)			0.167234		
03/05/08	RA-228	R	0.00E00	0.00000E+00	U4	0.00E00	0.00E00	(1.849965)	1.01 G	90%		4.130951		
			(0.833629)	(9.4868E-02)		(1.849965)	(1.849965)		(0.0101)			1.828427		

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

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			
10	Calc	TF SOLID	*STLE Ra228WoBS KF6E01AF	✓	1418995,TSB-HR-03-10'	31.3	01/25/08 08:20	03/05/08 06:56	02/25/08 14:55	03/04/08 11:35	RATA30233	Alq	99%	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	03/04/08 15:35	RA-228	59	102	GPC4A	1	N	N	4.9025E-01	1.0000E+00	N	90%	N	1.5008E+00	4.5045E-01	1.0104E+00		
			50	400			Y		(2.446E-02)	(0.000E+00)		7%		(0.000E+00)	0.990099			
1	03/04/08 16:30	RA-228	40	102	GPC4A	1	N	N	4.9025E-01	1.0000E+00	N	90%	N	1.6655E+00	4.5045E-01	1.0104E+00		
			50	400			Y		(2.446E-02)	(0.000E+00)		7%		(0.000E+00)	0.990099			
2	03/04/08 17:26	RA-228	47	102	GPC4A	1	N	N	4.9025E-01	1.0000E+00	N	90%	N	1.8483E+00	4.5045E-01	1.0104E+00		
			50	400			Y		(2.446E-02)	(0.000E+00)		7%		(0.000E+00)	0.990099			
3	03/05/08 06:56	RA-228	24	109	GPC3C	1	N	N	4.8385E-01	1.0000E+00	N	90%	N	8.5062E+00	4.5045E-01	1.0104E+00		
			50	400			N		(7.224E-03)	(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	Trc Yld,EnFct	LCSYld,EFctU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC				
	03/05/08	RA-228	R	1.410694		9.25000E-01	3.130582	3.130582	1.01 G	90%		0.589101						
				(0.281494)		(1.5568E-01)	(0.603945)	(0.603945)	(0.0101)			0.253371						
	03/05/08	RA-228	R	0.922375		5.45000E-01	2.046915	2.046915	1.01 G	90%		0.653747						
				(0.239647)		(1.2899E-01)	(0.521477)	(0.521477)	(0.0101)			0.281175						
	03/05/08	RA-228	R	1.286576		6.85000E-01	2.85514	2.85514	1.01 G	90%		0.725509						
				(0.295954)		(1.3942E-01)	(0.640435)	(0.640435)	(0.0101)			0.31204						
	03/05/08	RA-228	A	1.206549		7.18333E-01	2.677546	2.677546	1.01 G	90%		0.37881						
				(0.157853)		(8.1862E-02)	(0.341051)	(0.341051)	(0.005831)			0.162926						
	03/05/08	RA-228	R	1.81731		2.07500E-01	4.032934	4.032934	1.01 G	90%		3.481197						
				(0.90503)		(1.0140E-01)	(1.997868)	(1.997868)	(0.0101)			1.504146						

( ) - (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

Alpha Beta, Ra-228 by GPC, Calculated Results

3/5/2008 7:28:16 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/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
03/05/08	RA-228	R	1.324523 (0.288389)	8.25000E-01 (1.5648E-01)	Q	2.939365 (0.622191)	2.939365 (0.622191)	1.01 G (0.0101)	89%	0.716071	0.314714			
03/05/08	RA-228	R	1.754938 (0.350837)	9.85000E-01 (1.6640E-01)	Q	3.894536 (0.752822)	3.894536 (0.752822)	1.01 G (0.0101)	89%	0.79465	0.349249			
03/05/08	RA-228	R	1.552132 (0.34661)	7.85000E-01 (1.5391E-01)	Q	3.444473 (0.748872)	3.444473 (0.748872)	1.01 G (0.0101)	89%	0.88188	0.387587			
03/05/08	RA-228	A	1.543864 (0.190436)	8.65000E-01 (9.1810E-02)	Q	3.426125 (0.41024)	3.426125 (0.41024)	1.01 G (0.005831)	89%	0.460456	0.202371			
03/05/08	RA-228	R	2.423339 (0.998567)	2.72500E-01 (1.0917E-01)	Q	5.377846 (2.198976)	5.377846 (2.198976)	1.01 G (0.0101)	89%	3.617701	1.568782			

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
12	Calc TF	SOLID	*STLE	Ra228WoBS	KF8E21AJ	✓	pc/g	01/25/08 08:55	03/05/08 06:56	02/25/08 14:55	✓	1	97%	1.01 g	✓
1418995	TSB-HJ-02-10'				FBA260145-10	SOLID			30.2	03/04/08 11:35	RATA30235	Alq			

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/VolAdj	Decay	Abn
0	03/04/08 15:35	RA-228	55	115	GPC4C	1	N	N	4.7084E-01	1.0000E+00	N	86%	N	1.5008E+00	4.5045E-01	1.0104E+00		
1	03/04/08 16:30	RA-228	50	400	GPC4C	1	Y	Y	(2.021E-02)	(0.000E+00)	N	7%	N	(0.000E+00)	0.990099			
2	03/04/08 17:26	RA-228	50	400	GPC4C	1	Y	Y	(2.021E-02)	(0.000E+00)	N	7%	N	(0.000E+00)	0.990099			
3	03/05/08 06:56	RA-228	23	60	GPC4A	1	N	N	4.8719E-01	1.0000E+00	N	86%	N	8.5078E+00	4.5045E-01	1.0104E+00		
			50	250			N	N	(2.431E-02)	(0.000E+00)	N	7%	N	(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
03/05/08	RA-228	R	1.364359 (0.29025)	8.12500E-01 (1.5073E-01)	Q	3.027779 (0.625346)	3.027779 (0.625346)	1.01 G (0.0101)	86%	0.683109	0.296224			
03/05/08	RA-228	R	1.40227 (0.309914)	7.52500E-01 (1.4669E-01)	Q	3.111912 (0.669204)	3.111912 (0.669204)	1.01 G (0.0101)	86%	0.758071	0.328731			
03/05/08	RA-228	R	1.59756 (0.348447)	7.72500E-01 (1.4805E-01)	Q	3.545299 (0.751844)	3.545299 (0.751844)	1.01 G (0.0101)	86%	0.841286	0.364816			
03/05/08	RA-228	A	1.45473 (0.183093)	7.79167E-01 (8.5736E-02)	Q	3.22833 (0.394991)	3.22833 (0.394991)	1.01 G (0.005831)	86%	0.439261	0.190481			
03/05/08	RA-228	R	2.023952 (0.952349)	2.20000E-01 (1.0080E-01)	Q	4.491545 (2.101003)	4.491545 (2.101003)	1.01 G (0.0101)	86%	3.462443	1.482788			

( ) - (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:13

RADCALC v4.8.29  
 TA Richland

Sq	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				
13	Calc	TF SOLID	*STLE Ra228WoBS KF6E21AL	✓	R	01/25/08 08:55	03/05/08 05:57	02/25/08 14:55	31.4	03/04/08 11:35	RATA30236	Alq	100%	1.03 g	1.03 g				
14	18995	TSB-HJ-02-10	DUP																
	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	03/04/08 15:35	RA-228	71	238	GPC5C	1.5	N	N	N	5.9901E-01	1.0000E+00	N	91%	N	1.5017E+00	1.5017E+00	4.5045E-01	1.0104E+00	
			50	400			Y	(1.374E-02)	(0.000E+00)				7%		(0.000E+00)	(0.000E+00)	0.970874		
1	03/04/08 16:31	RA-228	49	238	GPC5C	1.5	N	N	N	5.9901E-01	1.0000E+00	N	91%	N	1.6666E+00	1.6666E+00	4.5045E-01	1.0104E+00	
			50	400			Y	(1.374E-02)	(0.000E+00)				7%		(0.000E+00)	(0.000E+00)	0.970874		
2	03/04/08 17:26	RA-228	65	238	GPC5C	1.5	N	N	N	5.9901E-01	1.0000E+00	N	91%	N	1.8495E+00	1.8495E+00	4.5045E-01	1.0104E+00	
			50	400			Y	(1.374E-02)	(0.000E+00)				7%		(0.000E+00)	(0.000E+00)	0.970874		
3	03/05/08 05:57	RA-228	39	173	GPC5A	1.5	N	N	N	5.9331E-01	1.0000E+00	N	91%	N	7.6180E+00	7.6180E+00	4.5045E-01	1.0104E+00	
			50	225			N	(1.557E-02)	(0.000E+00)				7%		(0.000E+00)	(0.000E+00)	0.970874		
	Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rtt	Dpm Wo Blk	Dpm-Blk	Vol Used	Trc Yld,EntFct	LCSYld,EFctU	IDC/LcC	BIKLC/MDC	StdDvMdc/LcC				
	03/05/08	RA-228	R	1.001202	8.25000E-01	2.26586	2.26586	1.03 G	91%	0.68137									
				(0.231444)	(1.7288E-01)	(0.510888)	(0.510888)	(0.0103)											
	03/05/08	RA-228	R	0.518516	3.85000E-01	1.173474	1.173474	1.03 G	91%	0.756165									
				(0.202017)	(1.4522E-01)	(0.45326)	(0.45326)	(0.0103)											
	03/05/08	RA-228	R	1.053717	7.05000E-01	2.38471	2.38471	1.03 G	91%	0.83917									
				(0.268294)	(1.6579E-01)	(0.594888)	(0.594888)	(0.0103)											
	03/05/08	RA-228	A	0.857812	6.38333E-01	1.941348	1.941348	1.03 G	91%	0.438152									
				(0.135957)	(9.3371E-02)	(0.301909)	(0.301909)	(0.005947)											
	03/05/08	RA-228	R	0.069062	U4	1.11111E-02	0.156296	1.03 G	91%	3.920974									
				(0.85717)	(1.3790E-01)	(1.93988)	(1.93988)	(0.0103)											
	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			
14	Calc	TF SOLID	*STLE Ra228WoBS KF6E21AN	✓	R	01/25/08 08:55	03/05/08 05:57	02/25/08 14:55	31.1	03/04/08 11:35	RATA30237	Alq	100%	1.00 g	1.00 g				
14	18995	TSB-HJ-02-10	DUP																
	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	03/04/08 15:35	RA-228	96	258	GPC5D	1.5	N	N	N	5.7829E-01	1.0000E+00	N	90%	N	1.5017E+00	1.5017E+00	4.5045E-01	1.0104E+00	
			50	400			Y	(1.332E-02)	(0.000E+00)				7%		(0.000E+00)	(0.000E+00)	1.00		
1	03/04/08 16:31	RA-228	100	258	GPC5D	1.5	N	N	N	5.7829E-01	1.0000E+00	N	90%	N	1.6666E+00	1.6666E+00	4.5045E-01	1.0104E+00	
			50	400			Y	(1.332E-02)	(0.000E+00)				7%		(0.000E+00)	(0.000E+00)	1.00		
2	03/04/08 17:26	RA-228	79	258	GPC5D	1.5	N	N	N	5.7829E-01	1.0000E+00	N	90%	N	1.8495E+00	1.8495E+00	4.5045E-01	1.0104E+00	
			50	400			Y	(1.332E-02)	(0.000E+00)				7%		(0.000E+00)	(0.000E+00)	1.00		
3	03/05/08 05:57	RA-228	54	146	GPC5C	1.5	N	N	N	5.9910E-01	1.0000E+00	N	90%	N	7.6180E+00	7.6180E+00	4.5045E-01	1.0104E+00	
			50	225			N	(1.374E-02)	(0.000E+00)				7%		(0.000E+00)	(0.000E+00)	1.00		

# Alpha Beta, Ra-228 by GPC, Calculated Results

Batch Nbr: 8042382

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	BIK/LcC/MDC	StdDvMdc/LcC
03/05/08	RA-228	R	1.666769 (0.307987)	1.27500E+00 (2.0003E-01)	Q	3.662263 (0.650441)	3.662263 (0.650441)	1.00 G (0.01)	90%	0.761273	0.345415			
03/05/08	RA-228	R	1.965794 (0.352721)	1.35500E+00 (2.0399E-01)	Q	4.319289 (0.743054)	4.319289 (0.743054)	1.00 G (0.01)	90%	0.84484	0.383332			
03/05/08	RA-228	R	1.505373 (0.328161)	9.35000E-01 (1.8224E-01)	Q	3.30764 (0.701042)	3.30764 (0.701042)	1.00 G (0.01)	90%	0.937579	0.42541			
03/05/08	RA-228	A	1.712645 (0.190601)	1.18833E+00 (1.1296E-01)	Q	3.763064 (0.403686)	3.763064 (0.403686)	1.00 G (0.005774)	90%	0.489534	0.222118			
03/05/08	RA-228	R	2.759667 (1.037214)	4.31111E-01 (1.5647E-01)	Q	6.063604 (2.25792)	6.063604 (2.25792)	1.00 G (0.01)	90%	3.737893	1.696479			

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	TF	SOLID	*STLE Ra228WoBS	KF6E51AF	pCi/g	SOLID	F8A260145-11	01/25/08 09:45	03/05/08 06:57	02/25/08 14:55	03/04/08 11:35	RATA30238	Alq	100%	1.00 g
0	03/04/08 15:36	RA-228	136	289	GPC6A	1.5	N	N	5.7001E-01	1.0000E+00	N	88%	N	1.5030E+00	4.5045E-01	1.0104E+00
1	03/04/08 16:31	RA-228	93	400	GPC6A	1.5	N	Y	(1.252E-02)	(0.000E+00)	N	7%	N	(0.000E+00)	1.00	1.0104E+00
2	03/04/08 17:26	RA-228	104	400	GPC6A	1.5	N	Y	(1.252E-02)	(0.000E+00)	N	7%	N	1.8511E+00	4.5045E-01	1.0104E+00
3	03/05/08 05:57	RA-228	34	164	GPC5D	1.5	N	N	5.7822E-01	1.0000E+00	N	88%	N	7.6180E+00	4.5045E-01	1.0104E+00
50			225				N	N	(1.332E-02)	(0.000E+00)	N	7%	N	(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,EnrFct	LCSYld,EFctU	IDC/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
03/05/08	RA-228	R	2.721489 (0.417808)	1.99750E+00 (2.3708E-01)	Q	5.979788 (0.865914)	5.979788 (0.865914)	1.00 G (0.01)	88%	0.835409	0.381009			
03/05/08	RA-228	R	1.719907 (0.34238)	1.13750E+00 (1.9750E-01)	Q	3.779062 (0.727196)	3.779062 (0.727196)	1.00 G (0.01)	88%	0.927113	0.422832			
03/05/08	RA-228	R	2.277788 (0.414011)	1.35750E+00 (2.0834E-01)	Q	5.004866 (0.873154)	5.004866 (0.873154)	1.00 G (0.01)	88%	1.028852	0.469233			
03/05/08	RA-228	A	2.239728 (0.226861)	1.49750E+00 (1.2411E-01)	Q	4.921239 (0.476214)	4.921239 (0.476214)	1.00 G (0.005774)	88%	0.5372	0.245003			
03/05/08	RA-228	R	-0.332811 (0.883986)	-4.88889E-02 (1.2977E-01)	U4	-0.731268 (1.941979)	-0.731268 (1.941979)	1.00 G (0.01)	88%	4.190923	1.912114			

(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	Status	Method	Matrix	Protocol	Equation	Set	Wrk Ord	Units/Matrix	QC/IBB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol	
16	Calc	TF	SOLID	*STLE	Ra228WoBS	KGXJEIAA	B	01/24/08 08:40	03/05/08 05:57	02/25/08 14:55	31.2	03/04/08 11:35	RATA30239	Alq	97%	1.03 g		
0	INTRA-LAB	BLANK					J8B110000-382	SOLID										
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	03/04/08 15:36	RA-228	38	287	GPC6C	1.5	N	N	5.7722E-01	1.0000E+00	N	88%	N	1.5030E+00	4.5045E-01	1.0107E+00		
			50	400			Y		(1.579E-02)	(0.000E+00)		7%		(0.000E+00)	0.970874			
1	03/04/08 16:31	RA-228	30	287	GPC6C	1.5	N	N	5.7722E-01	1.0000E+00	N	88%	N	1.6680E+00	4.5045E-01	1.0107E+00		
			50	400			Y		(1.579E-02)	(0.000E+00)		7%		(0.000E+00)	0.970874			
2	03/04/08 17:26	RA-228	26	287	GPC6C	1.5	N	N	5.7722E-01	1.0000E+00	N	88%	N	1.8511E+00	4.5045E-01	1.0107E+00		
			50	400			Y		(1.579E-02)	(0.000E+00)		7%		(0.000E+00)	0.970874			
3	03/05/08 05:57	RA-228	41	314	GPC6A	1.5	N	N	5.7070E-01	1.0000E+00	N	88%	N	7.6199E+00	4.5045E-01	1.0107E+00		
			50	400			N		(1.253E-02)	(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				
	03/05/08	RA-228	R	0.05575	U4	4.25000E-02	0.126129	0.126129	1.03 G	88%		0.801795						
				(0.171091)		(1.3036E-01)	(0.387021)	(0.387021)	(0.0103)			0.365566						
	03/05/08	RA-228	R	-0.171053	U4	-1.17500E-01	-0.386987	-0.386987	1.03 G	88%		0.88981						
				(0.171807)		(1.1745E-01)	(0.388193)	(0.388193)	(0.0103)			0.405694						
	03/05/08	RA-228	R	-0.319065	U4	-1.97500E-01	-0.721848	-0.721848	1.03 G	88%		0.987454						
				(0.181154)		(1.1043E-01)	(0.408185)	(0.408185)	(0.0103)			0.450214						
	03/05/08	RA-228	A	-0.144789	U4	-9.08335E-02	-0.327569	-0.327569	1.03 G	88%		0.515585						
				(0.100889)		(6.9106E-02)	(0.227814)	(0.227814)	(0.005947)			0.235073						
	03/05/08	RA-228	R	0.235418	U4	3.50000E-02	0.532607	0.532607	1.03 G	88%		4.283561						
				(0.91175)		(1.3551E-01)	(2.06255)	(2.06255)	(0.0103)			1.960664						
Sq	Status	Method	Matrix	Protocol	Equation <td>Set</td> <td>Wrk Ord</td> <td>Units/Matrix</td> <td>QC/IBB</td> <td>Sa/On Date</td> <td>AnalysisDate/PptWt</td> <td>Sep1/Sep2 Date</td> <td>QC/Tracer</td> <td>Vial</td> <td>Mult/EntYld</td> <td>Total/Analy Vol</td> <td>Final/Count Vol</td>	Set	Wrk Ord	Units/Matrix	QC/IBB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol	
17	Calc	TF	SOLID	*STLE	Ra228WoBS	KGXJEIAC	S	01/24/08 08:40	03/05/08 05:57	02/25/08 14:55	31.0	03/04/08 11:35	RASC4699	Alq	91%	1.00 g		
0	INTRA-LAB	CHECK					J8B110000-382	SOLID										
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	03/04/08 15:36	RA-228	223	303	GPC6D	1.5	N	N	5.7529E-01	1.0000E+00	N	82%	N	1.5030E+00	4.5045E-01	1.0107E+00		
			50	400			Y		(1.350E-02)	(0.000E+00)		7%		(0.000E+00)	1.00			
1	03/04/08 16:31	RA-228	198	303	GPC6D	1.5	N	N	5.7529E-01	1.0000E+00	N	82%	N	1.6680E+00	4.5045E-01	1.0107E+00		
			50	400			Y		(1.350E-02)	(0.000E+00)		7%		(0.000E+00)	1.00			
2	03/04/08 17:26	RA-228	172	303	GPC6D	1.5	N	N	5.7529E-01	1.0000E+00	N	82%	N	1.8511E+00	4.5045E-01	1.0107E+00		
			50	400			Y		(1.350E-02)	(0.000E+00)		7%		(0.000E+00)	1.00			
3	03/05/08 05:57	RA-228	67	256	GPC6C	1.5	N	N	5.7740E-01	1.0000E+00	N	82%	N	7.6199E+00	4.5045E-01	1.0107E+00		
			50	400			N		(1.579E-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,EnFet	LCSYld,EFctU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC
03/05/08	RA-228	R	5.350339	(0.680891)	3.70250E+00	11.751971	11.751971	1.00 G	82%	107%	0.905399			
					(3.0182E-01)	(1.370273)	(1.370273)	(0.01)			0.413784			
03/05/08	RA-228	R	5.135811	(0.678575)	3.20250E+00	11.280761	11.280761	1.00 G	82%	102%	1.004786			
					(2.8477E-01)	(1.375019)	(1.375019)	(0.01)			0.459206			
03/05/08	RA-228	R	4.773969	(0.664503)	2.68250E+00	10.485978	10.485978	1.00 G	82%	95%	1.115048			
					(2.6588E-01)	(1.358113)	(1.358113)	(0.01)			0.509597			
03/05/08	RA-228	A	5.086706	(0.389535)	3.19583E+00	11.172903	11.172903	1.00 G	82%	101%	0.582206			
					(1.6428E-01)	(0.789711)	(0.789711)	(0.005774)			0.266079			
03/05/08	RA-228	R	5.109515	(1.329527)	7.00000E-01	11.223003	11.223003	1.00 G	82%	102%	4.235697			
					(1.6852E-01)	(2.863674)	(2.863674)	(0.01)			1.921178			

UST Number: KF5GG1AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 7-C      File: [quad7.sample.C]KF5GG1AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD7.BKGRND]CURRENT.C\_1;3555

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00086	0050	01171	1700	4-MAR-2008 15:34:17.13
2	00000	00088	0050	01163	1700	4-MAR-2008 16:29:33.12
3	00000	00084	0050	01175	1700	4-MAR-2008 17:24:48.98

Bkg File: [quad7.bkgrnd]2008-03-04\_0024.C\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00359	0400	0.90	09279	1700	4-MAR-2008 00:24:07.14 ✓



UST Number: KF5GG1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 4-A      File: [quad4.sample.A]KF5GG1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.A\_1;6077

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00023	0050	01192	1850	5-MAR-2008 06:02:30.87

Bkg File: [quad4.bkgrnd]2008-03-05\_0124.A\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00060	0250	0.24	06041	1850	5-MAR-2008 01:24:39.63

UST Number: KF5GL1AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 1-A      File: [quad1.sample.A]KF5GL1AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD1.BKGRND]CURRENT.A\_1;3609

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00097	0050	01188	1650	4-MAR-2008 15:34:51.46
2	00000	00078	0050	01178	1650	4-MAR-2008 16:30:07.39
3	00000	00071	0050	01167	1650	4-MAR-2008 17:25:22.98

Bkg File: [quad1.bkgrnd]2008-03-04\_0023.A\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00305	0400	0.76	09423	1650	4-MAR-2008 00:23:28.63 /

UST Number: KF5GL1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 4-B      File: [quad4.sample.B]KF5GL1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.B\_1;6076

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00029	0050	01192	1850	5-MAR-2008 06:02:30.87

Bkg File: [quad4.bkgrnd]2008-03-05\_0124.B\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00093	0250	0.37	06041	1850	5-MAR-2008 01:24:39.63

UST Number: KF6EM1AF Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 1-B File: [quad1.sample.B]KF6EM1AF.180  
Dish Size: 1 Bkg File: \$DISK1:[QUAD1.BKGRND]CURRENT.B\_1;3608

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00085	0050	01188	1650	4-MAR-2008 15:34:51.46
2	00000	00079	0050	01178	1650	4-MAR-2008 16:30:07.39
3	00000	00102	0050	01167	1650	4-MAR-2008 17:25:22.98

Bkg File: [quad1.bkgrnd]2008-03-04\_0023.B\_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00336	0400	0.84	09423	1650	4-MAR-2008 00:23:28.63 ✓

UST Number: KF6EM1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 4-C      File: [quad4.sample.C]KF6EM1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.C\_1;6079

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00024	0050	01192	1850	5-MAR-2008 06:02:30.87

Bkg File: [quad4.bkgrnd]2008-03-05\_0124.C\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00067	0250	0.27	06041	1850	5-MAR-2008 01:24:39.63

UST Number: KF6EP1AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 1-C      File: [quad1.sample.C]KF6EP1AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD1.BKGRND]CURRENT.C\_1;3605

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00087	0050	01188	1650	4-MAR-2008 15:34:51.46
2	00000	00081	0050	01178	1650	4-MAR-2008 16:30:07.39
3	00000	00073	0050	01167	1650	4-MAR-2008 17:25:22.98

Bkg File: [quad1.bkgrnd]2008-03-04\_0023.C\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00263	0400	0.66	09423	1650	4-MAR-2008 00:23:28.63 ✓

UST Number: KF6EP1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 4-D      File: [quad4.sample.D]KF6EP1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.D\_1;6093

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00031	0050	01192	1850	5-MAR-2008 06:02:30.87

Bkg File: [quad4.bkgrnd]2008-03-05\_0124.D\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00072	0250	0.29	06041	1850	5-MAR-2008 01:24:39.63

UST Number: KF6EQ1AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 1-D      File: [quad1.sample.D]KF6EQ1AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD1.BKGRND]CURRENT.D\_1;3608

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00080	0050	01188	1650	4-MAR-2008 15:34:51.46
2	00000	00090	0050	01178	1650	4-MAR-2008 16:30:07.39
3	00000	00075	0050	01167	1650	4-MAR-2008 17:25:22.98

Bkg File: [quad1.bkgrnd]2008-03-04\_0023.D\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00243	0400	0.61	09423	1650	4-MAR-2008 00:23:28.63 ✓



UST Number: KF6EQ1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 1-A      File: [quad1.sample.A]KF6EQ1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD1.BKGRND]CURRENT.A\_1;3610

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00056	0050	01166	1650	5-MAR-2008 06:55:47.75

Bkg File: [quad1.bkgrnd]2008-03-05\_0123.A\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00136	0249	0.55	05800	1650	5-MAR-2008 01:23:53.39

UST Number: KF6ER1AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 3-A      File: [quad3.sample.A]KF6ER1AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.A\_1;6063

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00074	0050	01256	1920	4-MAR-2008 15:35:17.14
2	00000	00053	0050	01261	1920	4-MAR-2008 16:30:32.69
3	00000	00038	0050	01245	1920	4-MAR-2008 17:25:48.47

Bkg File: [quad3.bkgrnd]2008-03-04\_0244.A\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00099	0400	0.25	10120	1920	4-MAR-2008 02:44:37.86 ✓

UST Number: KF6ER1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 1-C      File: [quad1.sample.C]KF6ER1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD1.BKGRND]CURRENT.C\_1;3606

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00039	0050	01166	1650	5-MAR-2008 06:55:47.75

Bkg File: [quad1.bkgrnd]2008-03-05\_0123.C\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00143	0249	0.57	05800	1650	5-MAR-2008 01:23:53.39

UST Number: KF6ET1AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 3-B      File: [quad3.sample.B]KF6ET1AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.B\_1;6071

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00059	0050	01256	1920	4-MAR-2008 15:35:17.14
2	00000	00060	0050	01261	1920	4-MAR-2008 16:30:32.69
3	00000	00060	0050	01245	1920	4-MAR-2008 17:25:48.47

Bkg File: [quad3.bkgrnd]2008-03-04\_0244.B\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00154	0400	0.39	10120	1920	4-MAR-2008 02:44:37.86 ✓

UST Number: KF6ET1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 1-D      File: [quad1.sample.D]KF6ET1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD1.BKGRND]CURRENT.D\_1;3609

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00037	0050	01166	1650	5-MAR-2008 06:55:47.75

Bkg File: [quad1.bkgrnd]2008-03-05\_0123.D\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00152	0249	0.61	05800	1650	5-MAR-2008 01:23:53.39

UST Number: KF6EV1AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 3-C      File: [quad3.sample.C]KF6EV1AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.C\_1;6076

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00057	0050	01256	1920	4-MAR-2008 15:35:17.14
2	00000	00053	0050	01261	1920	4-MAR-2008 16:30:32.69
3	00000	00054	0050	01245	1920	4-MAR-2008 17:25:48.47

Bkg File: [quad3.bkgrnd]2008-03-04\_0244.C\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00103	0400	0.26	10120	1920	4-MAR-2008 02:44:37.86 ✓

UST Number: KF6EV1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 3-A      File: [quad3.sample.A]KF6EV1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.A\_1;6064

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00018	0050	01249	1920	5-MAR-2008 06:56:09.48

Bkg File: [quad3.bkgrnd]2008-03-05\_0355.A\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00106	0400	0.27	09907	1920	5-MAR-2008 03:55:09.87

UST Number: KF6EW1AF Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 3-D File: [quad3.sample.D]KF6EW1AF.180  
Dish Size: 1 Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.D\_1;6061

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00050	0050	01256	1920	4-MAR-2008 15:35:17.14
2	00000	00046	0050	01261	1920	4-MAR-2008 16:30:32.69
3	00000	00035	0050	01245	1920	4-MAR-2008 17:25:48.47

Bkg File: [quad3.bkgrnd]2008-03-04\_0244.D\_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00103	0400	0.26	10120	1920	4-MAR-2008 02:44:37.86 ✓



UST Number: KF6EW1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 3-B      File: [quad3.sample.B]KF6EW1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.B\_1;6072

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00020	0050	01249	1920	5-MAR-2008 06:56:09.48

Bkg File: [quad3.bkgrnd]2008-03-05\_0355.B\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00160	0400	0.40	09907	1920	5-MAR-2008 03:55:09.87

UST Number: KF6E01AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 4-A      File: [quad4.sample.A]KF6E01AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.A\_1;6076

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00059	0050	01231	1850	4-MAR-2008 15:35:37.26
2	00000	00040	0050	01230	1850	4-MAR-2008 16:30:52.89
3	00000	00047	0050	01210	1850	4-MAR-2008 17:26:08.63

Bkg File: [quad4.bkgrnd]2008-03-04\_0244.A\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00102	0400	0.26	09801	1850	4-MAR-2008 02:44:33.65 ✓

UST Number: KF6E01AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 3-C      File: [quad3.sample.C]KF6E01AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.C\_1;6077

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00024	0050	01249	1920	5-MAR-2008 06:56:09.48

Bkg File: [quad3.bkgrnd]2008-03-05\_0355.C\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00109	0400	0.27	09907	1920	5-MAR-2008 03:55:09.87

UST Number: KF6E11AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 4-B      File: [quad4.sample.B]KF6E11AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.B\_1;6075

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00059	0050	01231	1850	4-MAR-2008 15:35:37.26
2	00000	00067	0050	01230	1850	4-MAR-2008 16:30:52.89
3	00000	00057	0050	01210	1850	4-MAR-2008 17:26:08.63

Bkg File: [quad4.bkgrnd]2008-03-04\_0244.B\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00142	0400	0.36	09801	1850	4-MAR-2008 02:44:33.65 ✓

UST Number: KF6E11AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 3-D      File: [quad3.sample.D]KF6E11AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.D\_1;6062

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00028	0050	01249	1920	5-MAR-2008 06:56:09.48

Bkg File: [quad3.bkgrnd]2008-03-05\_0355.D\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00115	0400	0.29	09907	1920	5-MAR-2008 03:55:09.87

UST Number: KF6E21AJ      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 4-C      File: [quad4.sample.C]KF6E21AJ.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.C\_1;6078

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00055	0050	01231	1850	4-MAR-2008 15:35:37.26
2	00000	00052	0050	01230	1850	4-MAR-2008 16:30:52.89
3	00000	00053	0050	01210	1850	4-MAR-2008 17:26:08.63

Bkg File: [quad4.bkgrnd]2008-03-04\_0244.C\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00115	0400	0.29	09801	1850	4-MAR-2008 02:44:33.65 ✓

UST Number: KF6E21AJ      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 4-A      File: [quad4.sample.A]KF6E21AJ.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.A\_1;6077

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00023	0050	01221	1850	5-MAR-2008 06:56:15.13

Bkg File: [quad4.bkgrnd]2008-03-05\_0124.A\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00060	0250	0.24	06041	1850	5-MAR-2008 01:24:39.63

US7 Number: KF6E21AL Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 5-C File: [quad5.sample.C]KF6E21AL.180  
Dish Size: 15 Bkg File: \$DISK1:[QUAD5.BKGRND]CURRENT.C\_15;6134

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00071	0050	01311	1800	4-MAR-2008 15:35:57.83
2	00000	00049	0050	01297	1800	4-MAR-2008 16:31:13.55
3	00000	00065	0050	01280	1800	4-MAR-2008 17:26:29.25

Bkg File: [quad5.bkgrnd]2008-03-04\_0244.C\_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00238	0400	0.60	10396	1800	4-MAR-2008 02:44:32.13 ✓



UST Number: KF6E21AL Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 5-A File: [quad5.sample.A]KF6E21AL.430  
Dish Size: 15 Bkg File: \$DISK1:[QUAD5.BKGRND]CURRENT.A\_15;6122

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00039	0050	01258	1800	5-MAR-2008 05:57:38.75

Bkg File: [quad5.bkgrnd]2008-03-05\_0059.A\_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00173	0225	0.77	05733	1800	5-MAR-2008 00:59:17.96

UST Number: KF6E21AN      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 5-D      File: [quad5.sample.D]KF6E21AN.180  
Dish Size: 15      Bkg File: \$DISK1:[QUAD5.BKGRND]CURRENT.D\_15;6187

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00096	0050	01311	1800	4-MAR-2008 15:35:57.83
2	00000	00100	0050	01297	1800	4-MAR-2008 16:31:13.55
3	00000	00079	0050	01280	1800	4-MAR-2008 17:26:29.25

Bkg File: [quad5.bkgrnd]2008-03-04\_0244.D\_15      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00258	0400	0.65	10396	1800	4-MAR-2008 02:44:32.13 ✓

UST Number: KF6E21AN      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 5-C      File: [quad5.sample.C]KF6E21AN.430  
Dish Size: 15      Bkg File: \$DISK1:[QUAD5.BKGRND]CURRENT.C\_15;6135

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00054	0050	01258	1800	5-MAR-2008 05:57:38.75

Bkg File: [quad5.bkgrnd]2008-03-05\_0059.C\_15      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00146	0225	0.65	05733	1800	5-MAR-2008 00:59:17.96

UST Number: KF6E51AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 6-A      File: [quad6.sample.A]KF6E51AF.180  
Dish Size: 15      Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.A\_15;6138

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00136	0050	01311	1800	4-MAR-2008 15:36:25.39
2	00000	00093	0050	01289	1800	4-MAR-2008 16:31:41.24
3	00000	00104	0050	01290	1800	4-MAR-2008 17:26:56.96

Bkg File: [quad6.bkgrnd]2008-03-04\_0024.A\_15      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00289	0400	0.72	10497	1800	4-MAR-2008 00:24:01.29 ✓

UST Number: KF6E51AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 5-D      File: [quad5.sample.D]KF6E51AF.430  
Dish Size: 15      Bkg File: \$DISK1:[QUAD5.BKGRND]CURRENT.D\_15;6188

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00034	0050	01258	1800	5-MAR-2008 05:57:38.75

Bkg File: [quad5.bkgrnd]2008-03-05\_0059.D\_15      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00164	0225	0.73	05733	1800	5-MAR-2008 00:59:17.96

UST Number: KGXJE1AA Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 6-C File: [quad6.sample.C]KGXJE1AA.180  
Dish Size: 15 Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.C\_15;6141

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00038	0050	01311	1800	4-MAR-2008 15:36:25.39
2	00000	00030	0050	01289	1800	4-MAR-2008 16:31:41.24
3	00000	00026	0050	01290	1800	4-MAR-2008 17:26:56.96

Bkg File: [quad6.bkgrnd]2008-03-04\_0024.C\_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00287	0400	0.72	10497	1800	4-MAR-2008 00:24:01.29 ✓

UST Number: KGXJE1AA    Isotope: 430    (QREPORT Rev 11-OCT-98)

Detector: 6-A    File: [quad6.sample.A]KGXJE1AA.430  
Dish Size: 15    Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.A\_15;6139

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00041	0050	01284	1800	5-MAR-2008 05:57:46.57

Bkg File: [quad6.bkgrnd]2008-03-05\_0356.A\_15    (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00314	0400	0.79	10328	1800	5-MAR-2008 03:56:08.51

JST Number: KGXJE1AC      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 6-D      File: [quad6.sample.D] KGXJE1AC.180  
Dish Size: 15      Bkg File: \$DISK1:[QUAD6.BKGRND] CURRENT.D\_15;6140

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00223	0050	01311	1800	4-MAR-2008 15:36:25.39
2	00000	00198	0050	01289	1800	4-MAR-2008 16:31:41.24
3	00000	00172	0050	01290	1800	4-MAR-2008 17:26:56.96

Bkg File: [quad6.bkgrnd]2008-03-04\_0024.D\_15      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00303	0400	0.76	10497	1800	4-MAR-2008 00:24:01.29 /



UST Number: KGXJE1AC      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 6-C      File: [quad6.sample.C]KGXJE1AC.430  
Dish Size: 15      Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.C\_15;6142

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00067	0050	01284	1800	5-MAR-2008 05:57:46.57

Bkg File: [quad6.bkgrnd]2008-03-05\_0356.C\_15      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00256	0400	0.64	10328	1800	5-MAR-2008 03:56:08.51

**Lot No., Due Date:** F8A260145; 02/25/2008  
**Client, Site:** 1418995; LANDWELL - Tronox Parcel H  
**QC Batch No., Method Test:** 8042389; 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 10-11978

First Level Review

*Thomas DMEH*

Date 3/13/08

**Data Review Checklist**  
**RADIOCHEMISTRY**  
 Second Level Review

Batch Number: 804 2389

Review Item	Yes (✓)	No (✓)	NA (✓)
<b>A. Sample Analysis</b>			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery 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?			✓
<b>C. Other</b>			
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

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Second Level Review: Erika Ford Date: 3/13/18

# Clouseau Nonconformance Memo

NCM #: <b>10-11978</b> NCM Initiated By: Tom McGinnis Date Opened: 03/13/2008 Date Closed:	Classification: <b>Deficiency</b> Status: <b>GLREVIEW</b> Production Area: Environmental - Sep Tests: Ra-228 by GPC Lot #'s (Sample #'s): J8B110000 (389), QC Batches: 8042389,
Nonconformance: QC Result Out of Limits Subcategory: Analyte was recovered low in the LCS	

### Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
Tom McGinnis	03/13/2008	LCS was recovered low and outside of criteria. Project manager notified and results accepted with low LCS recovery.

### Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
Tom McGinnis	03/13/2008	QA manager and PM notified of deficiency. PM accepted results with low LCS recovery.

### 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>
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**2/27/2008 1:47:49 PM** Balance Id: 1120373922  
**1418995, Landwell Company** Pipet #: **DL**  
**Landwell Company**  
**Analyte Due Date: 02/22/2008** Sep1 DT/Tm Tech: 3/12/08 15:28 DL  
**Batch: 8042389** Sep2 DT/Tm Tech: 3/12/08 08:40 DL  
 SEQ Batch, Test: 8042387, D9TE  
**Sample Preparation/Analysis** PM, Quote: JAE, 78254  
 D9 Ra-226/228 PprRC5013/5032, SepRC5005  
 TF Radium-228 by GPC  
 01 STANDARD TEST SET  
**1.02g.in** pCi/g  
 QC Tracer Prep Date: 02/07/08  
 #Containers: 1  
 AmtRec: 500SL  
 Initial Aliquot Amt/Unit: 1.02g.in  
 Total Amt/Unit: 1.02g.in  
 Dish Size: 1.1  
 Count Time Min: 3x50  
 Ppt or Geometry: 31.9  
 Detector Id: 7C  
 Count On | Off (24hr) Circle: 1417  
 CR Analyst, Init/Date: 3/12/08 JAE  
 Prep Tech: ,Barcott  
 Comments:

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 KF6FA-1-AF F8A260145-12-SAMP	1.02g.in	1.02g.in	RATA30240 02/07/08	1.1	31.9	3x50	7C	1417	3/12/08 JAE	
01/25/2008 10:00 2 KF6FD-1-AF F8A260145-13-SAMP	1.02g.in	1.02g.in	RATA30241 02/07/08		32.2		1A	1417	7/12/08 JAE	
01/25/2008 10:30 3 KF6FF-1-AF F8A260145-14-SAMP	1.02g.in	1.02g.in	RATA30242 02/07/08		31.9		1C	1417	3/12/08 JAE	
01/25/2008 10:40 4 KF6FJ-1-AF F8A260145-15-SAMP	1.01g.in	1.01g.in	RATA30243 02/07/08		31.2		1P	1417	7/12/08 JAE	

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:
01/25/2008 10:00 2 KF6FD-1-AF F8A260145-13-SAMP	1.02g.in	1.02g.in	RATA30241 02/07/08		32.2		2B	1417	3/13/08	
01/25/2008 10:30 3 KF6FF-1-AF F8A260145-14-SAMP	1.02g.in	1.02g.in	RATA30242 02/07/08		31.9		3A	1417	3/13/08	
01/25/2008 10:40 4 KF6FJ-1-AF F8A260145-15-SAMP	1.01g.in	1.01g.in	RATA30243 02/07/08		31.2		3C	1417	3/13/08	

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:
01/25/2008 10:00 2 KF6FD-1-AF F8A260145-13-SAMP	1.02g.in	1.02g.in	RATA30241 02/07/08		32.2		1A	1417	7/12/08 JAE	
01/25/2008 10:30 3 KF6FF-1-AF F8A260145-14-SAMP	1.02g.in	1.02g.in	RATA30242 02/07/08		31.9		1C	1417	3/12/08 JAE	
01/25/2008 10:40 4 KF6FJ-1-AF F8A260145-15-SAMP	1.01g.in	1.01g.in	RATA30243 02/07/08		31.2		1P	1417	7/12/08 JAE	

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:
01/25/2008 10:00 2 KF6FD-1-AF F8A260145-13-SAMP	1.02g.in	1.02g.in	RATA30241 02/07/08		32.2		2B	1417	3/13/08	
01/25/2008 10:30 3 KF6FF-1-AF F8A260145-14-SAMP	1.02g.in	1.02g.in	RATA30242 02/07/08		31.9		3A	1417	3/13/08	
01/25/2008 10:40 4 KF6FJ-1-AF F8A260145-15-SAMP	1.01g.in	1.01g.in	RATA30243 02/07/08		31.2		3C	1417	3/13/08	

2/27/2008 1:47:49 PM

1418995, Landwell Company  
Landwell Company

### Sample Preparation/Analysis

D9 Ra-226/228 PprRC5013/5032, SepRC5005  
TF Radium-228 by GPC

Balance Id: 1120373922

Pipet #:

Analyte Date: 02/22/2008

01 STANDARD TEST SET

Sep1 DT/Tm Tech:

Batch: 8042389


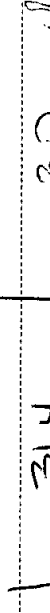

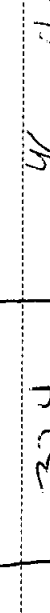

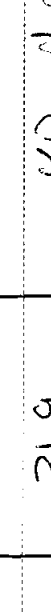


PM, Quote: JAE, 78254

pCi/g

SEQ Batch, Test: 8042387, D9TE

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:
5 KF6FK-1-AF F8A260145-16-SAMP	1.00g.in	1.00g.in	RATA30244 02/07/08	1 11	3x50	3x50	ZA	1413	JAE	
										
										
31.4										
6 KF6FL-1-AF F8A260145-17-SAMP	1.00g.in	1.00g.in	RATA30245 02/07/08					2B 1413	JAE	
										
										
32.4										
7 KF6FM-1-AJ F8A260145-18-SAMP	1.03g.in	1.03g.in	RATA30246 02/07/08					2C 1413	JAE	
										
										
31.9										
8 KGXJ0-1-AA-B J8B110000-389-BLK	1.01g.in	1.01g.in	RATA30247 02/07/08					7A 1413	JAE	
										
										
32.3										
01/25/2008 11:30										
01/25/2008 10:00										

2/27/2008 1:47:50 PM

Sample Preparation/Analysis

Balance Id: 1120373922

D9 Ra-226/228 PpRC5013/5032, SepRC5005  
TF Radium-228 by GPC

Pipet #:

Analyte Due Date: 02/22/2008

01 STANDARD TEST SET

Sep1 DT/Tm Tech:

Batch: 8042389

pCi/g

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:
9 KGXJ0-1-AC-C		1.01g in	RAS04700	1 #		3x50	7C	7711	3/11/08	
J8B110000-389-LCS			01/21/08							

31.6

2B 0706 3/15/08

1.0000

01/25/2008 10:00

AmtRec: #Containers: 1

Scr:

Alpha:

Beta:

Comments:

All Clients for Batch:

1418995, Landwell Company

Landwell Company

JAE, 78254

KF6FALAF-SAMP Constituent List:

KGXJ01AA-BLK:	RDL:	pCi/g	LCL:20	UCL:115	RPD:35	RA-228	RDL:2	pCi/g	LCL:	UCL:	RPD:
Ba-133	RDL:2										
RA-228DA											
KGXJ01AC-LCS:	RDL:	pCi/g	LCL:70	UCL:130	RPD:35	RA-228DA	RDL:2	pCi/g	LCL:70	UCL:130	RPD:35
Ba-133	RDL:2										
RA-228											

KF6FALAF-SAMP Calc Info:

Uncert Level (#s): 4	Decay to SaDt: N	Blk Subt.: N	Sci.Not.: N	ODRs: B
KGXJ01AA-BLK:				
Uncert Level (#s): 4	Decay to SaDt: N	Blk Subt.: N	Sci.Not.: N	ODRs: B
KGXJ01AC-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: 3/14/2007, 3/18/2008, Batch: '8042389', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
<b>8042389</b>				
AC		<b>Rev1C</b>	<b>Barcotl</b>	2/27/2008 1:51:52 PM
SC		wagarr	IsBatched	2/12/2008 7:52:00 AM
SC		Barcotl	InPrep	2/27/2008 1:51:52 PM
SC		Barcotl	Prep1C	2/27/2008 1:52:08 PM
SC		LucasD	Sep1C	3/3/2008 3:39:03 PM
SC		McGinnisT	Sep2C	3/12/2008 10:12:16 AM
SC		ClarkR	InCnt1	3/12/2008 11:32:37 AM
SC		BlackCL	CalcC	3/13/2008 9:23:57 AM
SC		mcginnist	Rev1C	3/13/2008 12:41:48 PM
AC		<b>Barcotl</b>		2/27/2008 1:52:08 PM
AC		<b>LucasD</b>		3/3/2008 3:39:03 PM
AC		<b>McGinnisT</b>		3/12/2008 10:12:16
AC		<b>ClarkR</b>		3/12/2008 11:32:37
AC		<b>BlackCL</b>		3/13/2008 9:23:57
AC		<b>mcginnist</b>		3/13/2008 12:41:48

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	
<b>8030213</b>	<b>9KF6FA10</b>		<b>F8A26014512</b>	TSB-HR-02-10'	SOLID	1/26/2008 10:15:00	1/25/2008 10:00:00 AM			
RA-226	D9TE	0	3/11/2008 1:46:00 PM	<b>2.4607E+00</b>	1.212E-01	2.821E-01	1.441E-01	pCi/g	1.0	1.02E+0
RA-226	TBD	0	3/11/2008 1:46:00 PM	<b>2.4607E+00</b>	1.212E-01	2.821E-01	1.441E-01	pCi/g	1.0	1.02E+0
RA-228	D9TF	0	3/13/2008 6:13:12 AM	<b>1.4783E+00</b>	1.806E-01	2.009E-01	6.349E-01	pCi/g	0.927	1.02E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	<b>1.7892E+00</b>	1.558E-01	2.113E-01	6.492E-02	pCi/g	0.903	1.0E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	<b>2.8084E+00</b>	1.924E-01	2.954E-01	6.315E-02	pCi/g	0.903	1.0E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	<b>1.78E+00</b>	1.532E-01	2.089E-01	6.315E-02	pCi/g	0.903	1.0E+0
U-234	KWSR	0	2/22/2008 2:23:12 PM	<b>3.5173E+00</b>	1.469E-01	3.276E-01	3.058E-02	PCI/G	0.93	1.0E+0
U-235	KWSR	0	2/22/2008 2:23:12 PM	<b>1.589E-01</b>	3.126E-02	3.395E-02	2.468E-02	PCI/G	0.93	1.0E+0
U-238	KWSR	0	2/22/2008 2:23:12 PM	<b>2.5666E+00</b>	1.255E-01	2.478E-01	3.274E-02	PCI/G	0.93	1.0E+0
<b>8030213</b>	<b>9KF6FD10</b>		<b>F8A26014513</b>	TSB-HJ-11-10'	SOLID	1/26/2008 10:15:00	1/25/2008 10:30:00 AM			
RA-226	D9TE	0	3/11/2008 1:34:00 PM	<b>1.2552E+00</b>	8.426E-02	1.558E-01	7.537E-02	pCi/g	1.0	1.02E+0
RA-226	TBD	0	3/11/2008 1:34:00 PM	<b>1.2552E+00</b>	8.426E-02	1.558E-01	7.537E-02	pCi/g	1.0	1.02E+0
RA-228	D9TF	0	3/13/2008 6:13:12 AM	<b>2.095E+00</b>	1.791E-01	2.158E-01	5.199E-01	pCi/g	0.936	1.02E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	<b>2.9151E+00</b>	1.864E-01	2.986E-01	5.703E-02	pCi/g	0.719	1.02E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	<b>1.5245E+00</b>	1.331E-01	1.806E-01	6.546E-02	pCi/g	0.719	1.02E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	<b>2.7431E+00</b>	1.783E-01	2.828E-01	5.548E-02	pCi/g	0.719	1.02E+0
U-234	KWSR	0	2/22/2008 2:23:29 PM	<b>1.2867E+00</b>	9.001E-02	1.403E-01	3.358E-02	PCI/G	0.959	1.03E+0
U-235	KWSR	0	2/22/2008 2:23:29 PM	<b>5.6075E-02</b>	1.887E-02	1.944E-02	2.531E-02	PCI/G	0.959	1.03E+0
U-238	KWSR	0	2/22/2008 2:23:29 PM	<b>1.1673E+00</b>	8.574E-02	1.299E-01	3.358E-02	PCI/G	0.959	1.03E+0
<b>8030213</b>	<b>9KF6FF10</b>		<b>F8A26014514</b>	TSB-HJ-11-10'	SOLID	1/26/2008 10:15:00	1/25/2008 10:40:00 AM			
RA-226	D9TE	0	3/11/2008 1:47:00 PM	<b>2.3229E+00</b>	1.311E-01	2.641E-01	9.426E-02	pCi/g	0.944	1.02E+0
RA-226	TBD	0	3/11/2008 1:47:00 PM	<b>2.3229E+00</b>	1.311E-01	2.641E-01	9.426E-02	pCi/g	0.944	1.02E+0
RA-228	D9TF	0	3/13/2008 6:08:21 AM	<b>1.5864E+00</b>	1.679E-01	1.924E-01	5.288E-01	pCi/g	0.875	1.02E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	<b>2.0864E+00</b>	1.655E-01	2.347E-01	6.285E-02	pCi/g	0.813	1.03E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	<b>3.0227E+00</b>	1.965E-01	3.111E-01	6.114E-02	pCi/g	0.813	1.03E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	<b>1.6211E+00</b>	1.439E-01	1.935E-01	6.114E-02	pCi/g	0.813	1.03E+0
U-234	KWSR	0	2/22/2008 2:23:43 PM	<b>2.6778E+00</b>	1.356E-01	2.619E-01	2.765E-02	PCI/G	1.057	9.9E-1
U-235	KWSR	0	2/22/2008 2:23:43 PM	<b>1.0988E-01</b>	2.748E-02	2.897E-02	2.765E-02	PCI/G	1.057	9.9E-1
U-238	KWSR	0	2/22/2008 2:23:43 PM	<b>1.7919E+00</b>	1.11E-01	1.865E-01	2.765E-02	PCI/G	1.057	9.9E-1
<b>8030213</b>	<b>9KF6FJ10</b>		<b>F8A26014515</b>	TSB-HJ-11-10'	FD SOLID	1/26/2008 10:15:00	1/25/2008 10:40:00 AM			
RA-226	D9TE	0	3/11/2008 1:46:00 PM	<b>1.5527E+00</b>	9.949E-02	1.783E-01	1.359E-01	pCi/g	0.906	1.01E+0
RA-226	TBD	0	3/11/2008 1:46:00 PM	<b>1.5527E+00</b>	9.949E-02	1.783E-01	1.359E-01	pCi/g	0.906	1.01E+0
RA-228	D9TF	0	3/13/2008 6:08:21 AM	<b>1.5879E+00</b>	1.77E-01	2.026E-01	5.712E-01	pCi/g	0.822	1.01E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	<b>1.8722E+00</b>	1.419E-01	2.062E-01	5.153E-02	pCi/g	0.758	1.03E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	<b>1.4863E+00</b>	1.247E-01	1.722E-01	5.013E-02	pCi/g	0.758	1.03E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	<b>1.9866E+00</b>	1.443E-01	2.145E-01	5.013E-02	pCi/g	0.758	1.03E+0
U-234	KWSR	0	2/22/2008 2:23:57 PM	<b>1.3584E+00</b>	1.087E-01	1.601E-01	4.902E-02	PCI/G	1.014	1.01E+0
U-235	KWSR	0	2/22/2008 2:23:57 PM	<b>1.6655E-02</b>	1.229E-02	1.237E-02	3.492E-02	PCI/G	1.014	1.01E+0
U-238	KWSR	0	2/22/2008 2:23:57 PM	<b>1.3005E+00</b>	1.062E-01	1.548E-01	3.492E-02	PCI/G	1.014	1.01E+0
<b>8030213</b>	<b>9KF6FK10</b>		<b>F8A26014516</b>	TSB-HR-01-0'	SOLID	1/26/2008 10:15:00	1/25/2008 11:30:00 AM			
RA-226	D9TE	0	3/11/2008 1:45:00 PM	<b>8.0655E-01</b>	7.937E-02	1.123E-01	1.589E-01	pCi/g	1.0	1.0E+0
RA-226	TBD	0	3/11/2008 1:45:00 PM	<b>8.0655E-01</b>	7.937E-02	1.123E-01	1.589E-01	pCi/g	1.0	1.0E+0
RA-228	D9TF	0	3/13/2008 6:08:21 AM	<b>1.412E+00</b>	1.558E-01	1.77E-01	4.16E-01	pCi/g	0.913	1.0E+0
TH-228	D2S1	0	2/22/2008 6:16:29 AM	<b>1.9142E+00</b>	1.437E-01	2.099E-01	5.157E-02	pCi/g	0.752	1.01E+0
TH-230	D2S1	0	2/22/2008 6:16:29 AM	<b>1.2464E+00</b>	1.143E-01	1.516E-01	5.016E-02	pCi/g	0.752	1.01E+0
TH-232	D2S1	0	2/22/2008 6:16:29 AM	<b>2.0214E+00</b>	1.455E-01	2.175E-01	5.016E-02	pCi/g	0.752	1.01E+0
U-234	KWSR	0	2/22/2008 2:24:09 PM	<b>9.8332E-01</b>	8.003E-02	1.143E-01	3.119E-02	PCI/G	1.1	1.01E+0
U-235	KWSR	0	2/22/2008 2:24:09 PM	<b>2.4746E-02</b>	1.309E-02	1.325E-02	3.119E-02	PCI/G	1.1	1.01E+0
U-238	KWSR	0	2/22/2008 2:24:09 PM	<b>8.3875E-01</b>	7.397E-02	1.016E-01	3.119E-02	PCI/G	1.1	1.01E+0
<b>8030213</b>	<b>9KF6FL10</b>		<b>F8A26014517</b>	TSB-HR-01-10'	SOLID	1/26/2008 10:15:00	1/25/2008 11:37:00 AM			
RA-226	D9TE	0	3/11/2008 1:47:00 PM	<b>1.7996E+00</b>	1.06E-01	2.212E-01	1.085E-01	pCi/g	0.91	1.0E+0

8042389, \*\*Samples Inserted | Updated | NotUpdated => 2 | 0 | 7,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 9 | 0 | 0 | 0.  
 \*\*Diff RptDb | Qtims => .

SDG or Batch Isotope	Rpt Db Id Method	RTst Qc	LotSample Analysis Date	Client Id Result	Matrix Cnt Uncert	Received Date Tot uncert mqa	Sample Date Units	Expected Yield	Volumes
RA-226	TBD	0	3/11/2008 1:47:00 PM	1.7996E+00	1.06E-01	2.212E-01 1.085E-01	pCi/g	0.91	1.0E+0
RA-228	D9TF	0	3/13/2008 6:08:32 AM	1.8303E+00	1.77E-01	2.076E-01 4.69E-01	pCi/g	0.857	1.0E+0
TH-228	D2S1	0	2/22/2008 6:16:38 AM	1.6007E+00	1.409E-01	1.902E-01 6.981E-02	pCi/g	0.857	1.0E+0
TH-230	D2S1	0	2/22/2008 6:16:38 AM	1.8864E+00	1.506E-01	2.13E-01 5.756E-02	pCi/g	0.857	1.0E+0
TH-232	D2S1	0	2/22/2008 6:16:38 AM	1.7302E+00	1.442E-01	1.997E-01 5.756E-02	pCi/g	0.857	1.0E+0
U-234	KWSR	0	2/25/2008 6:17:05 AM	2.2548E+00	1.15E-01	2.196E-01 2.923E-02	PCI/G	0.954	1.02E+0
U-235	KWSR	0	2/25/2008 6:17:05 AM	5.7197E-02	1.855E-02	1.915E-02 2.923E-02	PCI/G	0.954	1.02E+0
U-238	KWSR	0	2/25/2008 6:17:05 AM	1.7855E+00	1.024E-01	1.801E-01 3.13E-02	PCI/G	0.954	1.02E+0
<b>8030213</b>	<b>9KF6FM10</b>		<b>F8A26014518</b>	TSB-HJ-01-0'	SOLID	1/26/2008 10:15:00	1/25/2008 11:50:00 AM		
RA-226	D9TE	0	3/11/2008 1:52:00 PM	1.0126E+00	9.92E-02	1.457E-01 2.084E-01	pCi/g	0.949	1.03E+0
RA-226	TBD	0	3/11/2008 1:52:00 PM	1.0126E+00	9.92E-02	1.457E-01 2.084E-01	pCi/g	0.949	1.03E+0
RA-228	D9TF	0	3/13/2008 6:08:32 AM	1.8874E+00	1.795E-01	2.104E-01 4.69E-01	pCi/g	0.88	1.03E+0
TH-228	D2S1	0	2/22/2008 6:16:41 AM	1.7296E+00	1.114E-01	1.773E-01 4.046E-02	pCi/g	0.878	1.02E+0
TH-230	D2S1	0	2/22/2008 6:16:41 AM	1.2243E+00	9.24E-02	1.344E-01 3.336E-02	pCi/g	0.878	1.02E+0
TH-232	D2S1	0	2/22/2008 6:16:41 AM	1.5461E+00	1.038E-01	1.611E-01 3.336E-02	pCi/g	0.878	1.02E+0
U-234	KWSR	0	2/25/2008 6:17:14 AM	1.0488E+00	8.036E-02	1.185E-01 3.282E-02	PCI/G	1.04	1.01E+0
U-235	KWSR	0	2/25/2008 6:17:14 AM	2.4086E-02	1.23E-02	1.246E-02 2.474E-02	PCI/G	1.04	1.01E+0
U-238	KWSR	0	2/25/2008 6:17:14 AM	1.0918E+00	8.198E-02	1.222E-01 3.282E-02	PCI/G	1.04	1.01E+0
<b>8030213</b>	<b>KGXJ01AB</b>		<b>J8B110000389</b>	INTRA-LAB BLANK	SOLID	1/26/2008 10:15:00	1/25/2008 10:00:00 AM		
RA-228	D9TF	0 B	3/13/2008 7:09:53 AM	1.2712E-01	8.25E-02	8.687E-02 3.943E-01	pCi/g	0.939	1.01E+0
<b>8030213</b>	<b>KGXJ01CS</b>		<b>J8B110000389</b>	INTRA-LAB CHECK	SOLID	1/26/2008 10:15:00	1/25/2008 10:00:00 AM		
RA-228	D9TF	0 S	3/13/2008 7:09:53 AM	3.5395E+00	2.133E-01	2.928E-01 3.996E-01	pCi/g	4.9107E+00 0.919	1.01E+0

8042389, \*\*Samples Inserted | Updated | NotUpdated => 2 | 0 | 7,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 9 | 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
Ra-228 by GPC Ra-226/Ra-228 Deem With Out Blk Subst. *CntU: 0+1, + *SystU, `MDCConst:2.71																
Calc	TF	SOLID	KF6FA1AF	RA-228	1.56E+00	(3.33E-01)		pCi/g	R	4.56E-01	9.87E-01			93%		
Calc	TF	SOLID	KF6FA1AF	RA-228	1.46E+00	(3.45E-01)		pCi/g	R	5.06E-01	1.10E+00			93%		
Calc	TF	SOLID	KF6FA1AF	RA-228	1.41E+00	(3.65E-01)		pCi/g	R	5.62E-01	1.22E+00			93%		
Calc	TF	SOLID	KF6FA1AF	RA-228	1.48E+00	(2.01E-01)		pCi/g	A	2.93E-01	6.35E-01			93%		
Calc	TF	SOLID	KF6FA1AF	RA-228	1.43E+00	(1.17E+00)	U4	pCi/g	R	2.21E+00	5.07E+00			93%		
Calc	TF	SOLID	KF6FD1AF	RA-228	2.18E+00	(3.63E-01)		pCi/g	R	3.68E-01	8.08E-01			94%		
Calc	TF	SOLID	KF6FD1AF	RA-228	1.95E+00	(3.59E-01)		pCi/g	R	4.09E-01	8.97E-01			94%		
Calc	TF	SOLID	KF6FD1AF	RA-228	2.16E+00	(3.98E-01)		pCi/g	R	4.54E-01	9.96E-01			94%		
Calc	TF	SOLID	KF6FD1AF	RA-228	2.10E+00	(2.16E-01)		pCi/g	A	2.37E-01	5.20E-01			94%		
Calc	TF	SOLID	KF6FD1AF	RA-228	1.71E+00	(1.18E+00)	U4	pCi/g	R	2.17E+00	4.95E+00			94%		
Calc	TF	SOLID	KF6FF1AF	RA-228	1.88E+00	(3.42E-01)		pCi/g	R	3.72E-01	8.22E-01			88%		
Calc	TF	SOLID	KF6FF1AF	RA-228	1.48E+00	(3.23E-01)		pCi/g	R	4.13E-01	9.13E-01			88%		
Calc	TF	SOLID	KF6FF1AF	RA-228	1.39E+00	(3.35E-01)		pCi/g	R	4.58E-01	1.01E+00			88%		
Calc	TF	SOLID	KF6FF1AF	RA-228	1.59E+00	(1.92E-01)		pCi/g	A	2.39E-01	5.29E-01			88%		
Calc	TF	SOLID	KF6FF1AF	RA-228	3.35E+00	(1.38E+00)		pCi/g	R	2.19E+00	5.02E+00			88%		
Calc	TF	SOLID	KF6FJ1AF	RA-228	1.98E+00	(3.65E-01)		pCi/g	R	4.03E-01	8.88E-01			82%		
Calc	TF	SOLID	KF6FJ1AF	RA-228	9.50E-01	(2.87E-01)		pCi/g	R	4.48E-01	9.86E-01			82%		
Calc	TF	SOLID	KF6FJ1AF	RA-228	1.84E+00	(3.92E-01)		pCi/g	R	4.97E-01	1.09E+00			82%		
Calc	TF	SOLID	KF6FJ1AF	RA-228	1.59E+00	(2.03E-01)		pCi/g	A	2.59E-01	5.71E-01			82%		
Calc	TF	SOLID	KF6FJ1AF	RA-228	3.63E+00	(1.41E+00)		pCi/g	R	2.15E+00	4.97E+00			82%		
Calc	TF	SOLID	KF6FK1AF	RA-228	1.06E+00	(2.50E-01)		pCi/g	R	2.78E-01	6.47E-01			91%		
Calc	TF	SOLID	KF6FK1AF	RA-228	1.88E+00	(3.53E-01)		pCi/g	R	3.09E-01	7.18E-01			91%		
Calc	TF	SOLID	KF6FK1AF	RA-228	1.30E+00	(3.08E-01)		pCi/g	R	3.42E-01	7.97E-01			91%		
Calc	TF	SOLID	KF6FK1AF	RA-228	1.41E+00	(1.77E-01)		pCi/g	A	1.79E-01	4.16E-01			91%		
Calc	TF	SOLID	KF6FK1AF	RA-228	1.91E+00	(1.10E+00)		pCi/g	R	1.91E+00	4.42E+00			91%		
Calc	TF	SOLID	KF6FL1AF	RA-228	1.97E+00	(3.57E-01)		pCi/g	R	3.19E-01	7.29E-01			86%		
Calc	TF	SOLID	KF6FL1AF	RA-228	1.93E+00	(3.69E-01)		pCi/g	R	3.54E-01	8.09E-01			86%		
Calc	TF	SOLID	KF6FL1AF	RA-228	1.59E+00	(3.53E-01)		pCi/g	R	3.92E-01	8.98E-01			86%		
Calc	TF	SOLID	KF6FL1AF	RA-228	1.83E+00	(2.08E-01)		pCi/g	A	2.05E-01	4.69E-01			86%		
Calc	TF	SOLID	KF6FL1AF	RA-228	-3.03E-01	(1.12E+00)	U4	pCi/g	R	2.53E+00	5.72E+00			86%		
Calc	TF	SOLID	KF6FM1AJ	RA-228	1.75E+00	(3.32E-01)		pCi/g	R	3.19E-01	7.29E-01			88%		
Calc	TF	SOLID	KF6FM1AJ	RA-228	1.83E+00	(3.57E-01)		pCi/g	R	3.54E-01	8.09E-01			88%		
Calc	TF	SOLID	KF6FM1AJ	RA-228	2.08E+00	(4.01E-01)		pCi/g	R	3.93E-01	8.98E-01			88%		
Calc	TF	SOLID	KF6FM1AJ	RA-228	1.89E+00	(2.10E-01)		pCi/g	A	2.05E-01	4.69E-01			88%		
Calc	TF	SOLID	KF6FM1AJ	RA-228	4.10E+00	(1.40E+00)		pCi/g	R	1.98E+00	4.59E+00			88%		
Calc	TF	SOLID	KGXJ01AA	RA-228	2.54E-01	(1.52E-01)		pCi/g	R	2.65E-01	6.13E-01	B		94%		
Calc	TF	SOLID	KGXJ01AA	RA-228	4.26E-02	(1.40E-01)	U4	pCi/g	R	2.94E-01	6.81E-01	B		94%		

( ) - (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	SOLID	KGXJ01AA	RA-228	8.52E-02	(1.60E-01)	U4	pCi/g	R	3.27E-01	7.55E-01	B	94%	
Calc	TF	SOLID	KGXJ01AA	RA-228	1.27E-01	(8.69E-02)	U4	pCi/g	A	1.70E-01	3.94E-01	B	94%	JK
Calc	TF	SOLID	KGXJ01AA	RA-228	5.28E-01	(1.18E+00)	U4	pCi/g	R	2.46E+00	5.62E+00	B	94%	
Calc	TF	SOLID	KGXJ01AC	RA-228	3.56E+00	(4.92E-01)		pCi/g	R	2.70E-01	6.21E-01	S	92%	72%
Calc	TF	SOLID	KGXJ01AC	RA-228	3.98E+00	(5.50E-01)		pCi/g	R	2.99E-01	6.90E-01	S	92%	81%
Calc	TF	SOLID	KGXJ01AC	RA-228	3.08E+00	(4.76E-01)		pCi/g	R	3.32E-01	7.65E-01	S	92%	63%
Calc	TF	SOLID	KGXJ01AC	RA-228	3.54E+00	(2.93E-01)		pCi/g	A	1.73E-01	4.00E-01	S	92%	72%
Calc	TF	SOLID	KGXJ01AC	RA-228	1.19E+00	(1.27E+00)	U4	pCi/g	R	2.49E+00	5.66E+00	S	92%	24%

LOW LCS

Tom D M... 3/13/08

() - (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

Batch Nbr: 8042389

# Alpha Beta, Ra-228 by GPC , Calculated Results Detailed Report

3/13/2008 9:15:09 AM

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk	Ord	Units/Matrix	QC/BB	Sa/On	Date	AnalysisDate/PptWt	Sep1/Sep2	Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy	Vol	Final/Count	Vol
1	Calc	TF	SOLID	*STLE	Ra228WobS	KF6FA1AF	✓		pCi/g		01/25/08	10:00	03/13/08	06:13	03/03/08	15:28	✓	RATA30240	1	g	✓	
1418995	TSB	HR	02-10'						SOLID				31.9	✓	03/12/08	08:40		RATA30240	Alq	100%	✓	1.02 g
<b>Sq</b>	<b>Cnt</b>	<b>Date</b>	<b>Parameter</b>	<b>Sample Cnt</b>	<b>Bkgrnd Cnt</b>	<b>Instr</b>	<b>Geom</b>	<b>Trc/Av</b>	<b>Ent</b>	<b>Efficiency1</b>	<b>Efficiency2</b>	<b>Ent</b>	<b>Trc Yld Fct</b>	<b>Ent</b>	<b>Blk Value</b>	<b>Ingr Fct</b>	<b>Conv Fct/VolAdj</b>	<b>Decay</b>	<b>Abn</b>			
0	03/12/08	12:35	RA-228	106	398	GPC7C	1	N	N	5.1553E-01	1.0000E+00	N	93%	N	1.4862E+00	4.5045E-01	1.0127E+00					
				50	400			Y		(1.244E-02)	(0.000E+00)		7%		(0.000E+00)	0.980392						
1	03/12/08	13:30	RA-228	97	398	GPC7C	1	N	N	5.1553E-01	1.0000E+00	N	93%	N	1.6493E+00	4.5045E-01	1.0127E+00					
				50	400			Y		(1.244E-02)	(0.000E+00)		7%		(0.000E+00)	0.980392						
2	03/12/08	14:25	RA-228	91	398	GPC7C	1	N	N	5.1553E-01	1.0000E+00	N	93%	N	1.8304E+00	4.5045E-01	1.0127E+00					
				50	400			Y		(1.244E-02)	(0.000E+00)		7%		(0.000E+00)	0.980392						
3	03/13/08	06:13	RA-228	22	128	GPC2A	1	N	N	4.4268E-01	1.0000E+00	N	93%	N	1.0910E+01	4.5045E-01	1.0127E+00					
				50	400			N		(1.088E-02)	(0.000E+00)		7%		(0.000E+00)	0.980392						
<b>Sq</b>	<b>CalcDate,TrcAct</b>	<b>Parameter</b>	<b>Avg</b>	<b>Sa Act, Total U</b>	<b>Q</b>	<b>Net Cnt Rt</b>	<b>Dpm Wo Blk</b>	<b>Dpm-Blk</b>	<b>Vol Used</b>	<b>TrcYld,EnFct</b>	<b>LCSYld,EFctU</b>	<b>IDC/LcC</b>	<b>BlkLcC/MDC</b>	<b>StdDvMdc/LcC</b>								
	03/13/08	RA-228	R	1.564083		1.12500E+00	3.497309	3.497309	1.02 G	93%		0.987337										
				(0.332667)		(2.1187E-01)	(0.720559)	(0.720559)	(0.017321)			0.456262										
	03/13/08	RA-228	R	1.458051		9.45000E-01	3.26022	3.26022	1.02 G	93%		1.095719										
				(0.345051)		(2.0319E-01)	(0.752087)	(0.752087)	(0.017321)			0.506347										
	03/13/08	RA-228	R	1.41263		8.25000E-01	3.158658	3.158658	1.02 G	93%		1.215997										
				(0.365394)		(1.9720E-01)	(0.799819)	(0.799819)	(0.017321)			0.56193										
	03/13/08	RA-228	A	1.478255		9.65000E-01	3.305396	3.305396	1.02 G	93%		0.634903										
				(0.200898)		(1.1788E-01)	(0.437741)	(0.437741)	(0.01)			0.293398										
	03/13/08	RA-228	R	1.426268		U4	1.20000E-01	3.189153	1.02 G	93%		5.065628										
				(1.173065)		(9.7980E-02)	(2.617575)	(2.617575)	(0.017321)			2.212029										

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 Beta, Ra-228 by GPC, Calculated Results

3/13/2008 9:15:09 AM

Batch Nbr: 8042389

Sq	Calc Date	TrAcT Parameter	Avg Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnrFct	LCSYld,EFctU	IDC/ILcC	BkLcC/MDC	StdDVMdC/LcC			
3	03/13/08	RA-228	25	139	GPC2B	1	N	N	4.5517E-01	1.0000E+00	N	94%	N	1.0910E+01	4.5045E-01	1.0127E+00
			50	400					(1.354E-02)	(0.000E+00)		7%		(0.000E+00)	0.980392	
	03/13/08	RA-228	R	2.179973	1.6350E+00	4.87448	4.87448	1.02 G	94%				0.808466			
				(0.363272)	(2.2037E-01)	(0.770427)	(0.770427)	(0.017321)					0.368319			
	03/13/08	RA-228	R	1.945775	1.3150E+00	4.350808	4.350808	1.02 G	94%				0.897212			
				(0.358705)	(2.0534E-01)	(0.768467)	(0.768467)	(0.017321)					0.40875			
	03/13/08	RA-228	R	2.159299	1.3150E+00	4.828251	4.828251	1.02 G	94%				0.99567			
				(0.398068)	(2.0534E-01)	(0.852796)	(0.852796)	(0.017321)					0.453605			
	03/13/08	RA-228	A	2.095016	1.42167E+00	4.684513	4.684513	1.02 G	94%				0.519875			
				(0.215792)	(1.2151E-01)	(0.46084)	(0.46084)	(0.01)					0.236843			
	03/13/08	RA-228	R	1.708812	1.5250E-01	3.820951	3.820951	1.02 G	94%				4.951128			
				(1.180667)	(1.0425E-01)	(2.632284)	(2.632284)	(0.017321)					2.17319			

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sept1/Sept2 Date	QC/Tracer	Viat	Mult/EntYld	Total/Analy Vol	Final/Count Vol
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3	Calc	TF	SOLID	*STLE	Ra228WObS	KF6FFIAF	✓	pCi/g		01/25/08 10:40	03/13/08 06:08	03/03/08 15:28	✓		✓	1	g
								SOLID			31.9	03/12/08 08:40	RATA30242	Alq	94%	✓	1.02 g
0	03/12/08	12:35	RA-228	96	246	GPC1C	1	N	N	5.2667E-01	1.0000E+00	N	88%	N	1.4874E+00	4.5045E-01	1.0127E+00
				50	400			Y		(1.084E-02)	(0.000E+00)		7%		(0.000E+00)	0.980392	
1	03/12/08	13:31	RA-228	77	246	GPC1C	1	N	N	5.2667E-01	1.0000E+00	N	88%	N	1.6507E+00	4.5045E-01	1.0127E+00
				50	400			Y		(1.084E-02)	(0.000E+00)		7%		(0.000E+00)	0.980392	
2	03/12/08	14:26	RA-228	70	246	GPC1C	1	N	N	5.2667E-01	1.0000E+00	N	88%	N	1.8318E+00	4.5045E-01	1.0127E+00
				50	400			Y		(1.084E-02)	(0.000E+00)		7%		(0.000E+00)	0.980392	
3	03/13/08	06:08	RA-228	30	125	GPC3A	1	N	N	4.6677E-01	1.0000E+00	N	88%	N	1.0810E+01	4.5045E-01	1.0127E+00
				50	394			N		(4.766E-03)	(0.000E+00)		7%		(0.000E+00)	0.980392	

Sq	CalcDate,TrAcT Parameter	Avg Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	TrcYld,EnrFct	LCSYld,EFctU	IDC/ILcC	BkLcC/MDC	StdDVMdC/LcC
03/13/08	RA-228	R	1.883029	1.3050E+00	4.210516	4.210516	1.02 G	88%				0.822343
			(0.342395)	(1.9984E-01)	(0.732611)	(0.732611)	(0.017321)					0.372289
03/13/08	RA-228	R	1.481228	9.2500E-01	3.312075	3.312075	1.02 G	88%				0.912613
			(0.322506)	(1.7983E-01)	(0.699605)	(0.699605)	(0.017321)					0.413156
03/13/08	RA-228	R	1.394986	7.8500E-01	3.119234	3.119234	1.02 G	88%				1.01276
			(0.334636)	(1.7186E-01)	(0.729904)	(0.729904)	(0.017321)					0.458494
03/13/08	RA-228	A	1.586414	1.0050E+00	3.547275	3.547275	1.02 G	88%				0.528798
			(0.192419)	(1.0636E-01)	(0.41619)	(0.41619)	(0.01)					0.239396
03/13/08	RA-228	R	3.345735	2.8274E-01	7.481173	7.481173	1.02 G	88%				5.024419
			(1.377342)	(1.1316E-01)	(3.05434)	(3.05434)	(0.017321)					2.192832

0 - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 \* TP  
 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

Sq	Calc	TF	SOLID	*STLE Ra228WoBS	KF6FK1AF	pCi/g	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/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	03/12/08 12:35	RA-228	98	262	GPC1D 1	1	N	N	5.3949E-01	1.0000E+00	N	82%	N	1.4874E+00	4.5045E-01	1.0127E+00			
			50	400			Y		(1.573E-02)	(0.000E+00)		7%		(0.000E+00)	0.990099				
1	03/12/08 13:31	RA-228	61	262	GPC1D 1	1	N	N	5.3949E-01	1.0000E+00	N	82%	N	1.6507E+00	4.5045E-01	1.0127E+00			
			50	400			Y		(1.573E-02)	(0.000E+00)		7%		(0.000E+00)	0.990099				
2	03/12/08 14:26	RA-228	82	262	GPC1D 1	1	N	N	5.3949E-01	1.0000E+00	N	82%	N	1.8318E+00	4.5045E-01	1.0127E+00			
			50	400			Y		(1.573E-02)	(0.000E+00)		7%		(0.000E+00)	0.990099				
3	03/13/08 06:08	RA-228	29	112	GPC3C 1	1	N	N	4.8388E-01	1.0000E+00	N	82%	N	1.0810E+01	4.5045E-01	1.0127E+00			
			50	394			N		(7.224E-03)	(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,EntFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDv/Mdc/LcC					
	03/13/08	RA-228	R	1.976666		1.30500E+00	4.376558	4.376558	1.01 G	82%	0.888238								
				(0.364604)		(2.0208E-01)	(0.773415)	(0.773415)	(0.017321)		0.40331								
	03/13/08	RA-228	R	0.94974		5.65000E-01	2.102831	2.102831	1.01 G	82%	0.985741								
				(0.287457)		(1.6136E-01)	(0.62668)	(0.62668)	(0.017321)		0.447582								
	03/13/08	RA-228	R	1.837438		9.85000E-01	4.068291	4.068291	1.01 G	82%	1.093913								
				(0.392103)		(1.8557E-01)	(0.841105)	(0.841105)	(0.017321)		0.496699								
	03/13/08	RA-228	A	1.587948		9.51667E-01	3.515893	3.515893	1.01 G	82%	0.571171								
				(0.20257)		(1.0610E-01)	(0.434403)	(0.434403)	(0.01)		0.259344								
	03/13/08	RA-228	R	3.629901		2.95736E-01	8.037003	8.037003	1.01 G	82%	4.968733								
				(1.407253)		(1.1100E-01)	(3.086717)	(3.086717)	(0.017321)		2.153016								
Sq	Calc	TF	SOLID	*STLE Ra228WoBS	KF6FK1AF	pCi/g	QC/BB	Sa/On Date <th>AnalysisDate/PptWt</th> <th>Sep1/Sep2 Date</th> <th>QC/Tracer</th> <th>Vial</th> <th>Multi/EntYld</th> <th>Total/Analy Vol</th> <th>Final/Count Vol</th>	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol				
	1418995.TSB-HJ-11-10	FD																	
5	03/12/08 12:36	RA-228	44	101	GPC2A 1	1	N	N	4.4276E-01	1.0000E+00	N	91%	N	1.4902E+00	4.5045E-01	1.0127E+00			
			50	400			Y		(1.088E-02)	(0.000E+00)		7%		(0.000E+00)	1.00				
1	03/12/08 13:32	RA-228	63	101	GPC2A 1	1	N	N	4.4276E-01	1.0000E+00	N	91%	N	1.6538E+00	4.5045E-01	1.0127E+00			
			50	400			Y		(1.088E-02)	(0.000E+00)		7%		(0.000E+00)	1.00				
2	03/12/08 14:27	RA-228	44	101	GPC2A 1	1	N	N	4.4276E-01	1.0000E+00	N	91%	N	1.8353E+00	4.5045E-01	1.0127E+00			
			50	400			Y		(1.088E-02)	(0.000E+00)		7%		(0.000E+00)	1.00				
3	03/13/08 06:08	RA-228	22	106	GPC3D 1	1	N	N	4.8308E-01	1.0000E+00	N	91%	N	1.0810E+01	4.5045E-01	1.0127E+00			
			50	394			N		(8.183E-03)	(0.000E+00)		7%		(0.000E+00)	1.00				

Batch Nbr: 8042389

Alpha Beta, Ra-228 by GPC, Calculated Results

3/13/2008 9:15:09 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/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
03/13/08	RA-228	R	1.055437 (0.249996)	6.27500E-01 (1.3502E-01)	2.313743 (0.534194)	2.313743 (0.534194)	2.313743 (0.534194)	1.00 G (0.017321)	91%	0.646961				
03/13/08	RA-228	R	1.880603 (0.353094)	1.00750E+00 (1.6072E-01)	4.122684 (0.742682)	4.122684 (0.742682)	1.00 G (0.017321)	91%	0.717979	0.308588				
03/13/08	RA-228	R	1.299868 (0.307893)	6.27500E-01 (1.3502E-01)	2.84959 (0.65791)	2.84959 (0.65791)	1.00 G (0.017321)	91%	0.796793	0.342462				
03/13/08	RA-228	A	1.411969 (0.177003)	7.54167E-01 (8.3196E-02)	3.095339 (0.375616)	3.095339 (0.375616)	1.00 G (0.01)	91%	0.416026	0.178808				
03/13/08	RA-228	R	1.91193 (1.104826)	1.70964E-01 (9.7380E-02)	4.19136 (2.411839)	4.19136 (2.411839)	1.00 G (0.017321)	91%	4.420641	1.908389				

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 TF	SOLID	*STLE Ra228WoBS	KF6FL1AF	pcI/g	SOLID	01/25/08 11:37	03/13/08 06:08	03/03/08 15:28	03/12/08 08:40	RATA30245	Alq	91%	g
1418995	TSB-HR-01-10						32.4							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/Vol/Adj	Decay	Abn
0	03/12/08 12:36	RA-228	74	129	GPC2B 1	N	N	N	4.6504E-01	1.0000E+00	N	86%	N	1.4902E+00	1.4902E+00	4.5045E-01	1.0127E+00	
			50	400		Y	Y	Y	(1.353E-02)	(0.000E+00)		7%		(0.000E+00)	1.00			
1	03/12/08 13:32	RA-228	67	129	GPC2B 1	N	N	N	4.6504E-01	1.0000E+00	N	86%	N	1.6538E+00	1.6538E+00	4.5045E-01	1.0127E+00	
			50	400		Y	Y	Y	(1.353E-02)	(0.000E+00)		7%		(0.000E+00)	1.00			
2	03/12/08 14:27	RA-228	54	129	GPC2B 1	N	N	N	4.6504E-01	1.0000E+00	N	86%	N	1.8353E+00	1.8353E+00	4.5045E-01	1.0127E+00	
			50	400		Y	Y	Y	(1.353E-02)	(0.000E+00)		7%		(0.000E+00)	1.00			
3	03/13/08 06:08	RA-228	19	162	GPC4C 1	N	N	N	4.7537E-01	1.0000E+00	N	86%	N	1.0814E+01	1.0814E+01	4.5045E-01	1.0127E+00	
			50	400		N	N	N	(2.041E-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/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
03/13/08	RA-228	R	1.974085 (0.357202)	1.15750E+00 (1.7437E-01)	4.327624 (0.748833)	4.327624 (0.748833)	1.00 G (0.017321)	86%	0.729346	0.318644				
03/13/08	RA-228	R	1.925807 (0.36899)	1.01750E+00 (1.6615E-01)	4.221789 (0.777447)	4.221789 (0.777447)	1.00 G (0.017321)	86%	0.809407	0.353622				
03/13/08	RA-228	R	1.59109 (0.352545)	7.57500E-01 (1.4969E-01)	3.488015 (0.750493)	3.488015 (0.750493)	1.00 G (0.017321)	86%	0.898257	0.39244				
03/13/08	RA-228	A	1.830327 (0.207641)	9.77500E-01 (9.4527E-02)	4.012476 (0.438231)	4.012476 (0.438231)	1.00 G (0.01)	86%	0.469003	0.204903				
03/13/08	RA-228	R	-0.302683 (1.124051)	-2.50000E-02 (9.2804E-02)	-0.663546 (2.463915)	-0.663546 (2.463915)	1.00 G (0.017321)	86%	5.723124	2.534959				

( ) - (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



Sq	Calc	TF	SOLID	STLE Ra228WoBS	KF6FM1AJ	pc/g	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		
7	1418995,TSB-HJ-01-0			*STLE Ra228WoBS	KF6FM1AJ	pc/g		SOLID		01/25/08 11:50	03/13/08 06:08	03/03/08 15:28		1	g			
											31.9	03/12/08 08:40	RATA30246	Alq	95%	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	03/12/08 12:36	RA-228	69	134	GPC2C	1	N	N	4.4688E-01	1.0000E+00	N	88%	N	1.4902E+00	4.5045E-01	1.0127E+00		
			50	400			Y		(1.174E-02)	(0.000E+00)		7%		(0.000E+00)	0.970874			
1	03/12/08 13:32	RA-228	66	134	GPC2C	1	N	N	4.4688E-01	1.0000E+00	N	88%	N	1.6538E+00	4.5045E-01	1.0127E+00		
			50	400			Y		(1.174E-02)	(0.000E+00)		7%		(0.000E+00)	0.970874			
2	03/12/08 14:27	RA-228	67	134	GPC2C	1	N	N	4.4688E-01	1.0000E+00	N	88%	N	1.8353E+00	4.5045E-01	1.0127E+00		
			50	400			Y		(1.174E-02)	(0.000E+00)		7%		(0.000E+00)	0.970874			
3	03/13/08 06:08	RA-228	31	107	GPC4D	1	N	N	4.6753E-01	1.0000E+00	N	88%	N	1.0814E+01	4.5045E-01	1.0127E+00		
			50	400			N		(2.253E-02)	(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,EnFct	LCSYld,EFctU	IDC/ILcC	BIK/LcC	BIK/LcC/MDC	StdDvMdc/LcC			
	03/13/08	RA-228	R	1.752756		1.04500E+00	3.957708	3.957708	1.03 G	88%		0.729313						
				(0.332162)		(1.6863E-01)	(0.720375)	(0.720375)	(0.017321)			0.319392						
	03/13/08	RA-228	R	1.833475		9.85000E-01	4.139971	4.139971	1.03 G	88%		0.80937						
				(0.357155)		(1.6504E-01)	(0.776319)	(0.776319)	(0.017321)			0.354452						
	03/13/08	RA-228	R	2.076053		1.00500E+00	4.68771	4.68771	1.03 G	88%		0.898216						
				(0.400606)		(1.6625E-01)	(0.870107)	(0.870107)	(0.017321)			0.393361						
	03/13/08	RA-228	A	1.887428		1.01167E+00	4.261796	4.261796	1.03 G	88%		0.468981						
				(0.21039)		(9.6213E-02)	(0.456885)	(0.456885)	(0.01)			0.205383						
	03/13/08	RA-228	R	4.101047		3.52500E-01	9.260127	9.260127	1.03 G	88%		4.587567						
				(1.400854)		(1.1432E-01)	(3.125167)	(3.125167)	(0.017321)			1.979673						
Sq	Calc	TF	SOLID	*STLE Ra228WoBS	KGXJ01AA	pc/g	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		
8	0,INTRA-LAB BLANK			*STLE Ra228WoBS	KGXJ01AA	pc/g		SOLID		01/25/08 10:00	03/13/08 07:09	03/03/08 15:28		1	g			
											32.3	03/12/08 08:40	RATA30247	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	03/12/08 12:37	RA-228	22	110	GPC3A	1	N	N	4.6694E-01	1.0000E+00	N	94%	N	1.4917E+00	4.5045E-01	1.0127E+00		
			50	400			Y		(4.767E-03)	(0.000E+00)		8%		(0.000E+00)	0.990099			
1	03/12/08 13:32	RA-228	15	110	GPC3A	1	N	N	4.6694E-01	1.0000E+00	N	94%	N	1.6554E+00	4.5045E-01	1.0127E+00		
			50	400			Y		(4.767E-03)	(0.000E+00)		8%		(0.000E+00)	0.990099			
2	03/12/08 14:27	RA-228	16	110	GPC3A	1	N	N	4.6694E-01	1.0000E+00	N	94%	N	1.8372E+00	4.5045E-01	1.0127E+00		
			50	400			Y		(4.767E-03)	(0.000E+00)		8%		(0.000E+00)	0.990099			
3	03/13/08 07:09	RA-228	18	128	GPC2A	1	N	N	4.4267E-01	1.0000E+00	N	94%	N	1.2140E+01	4.5045E-01	1.0127E+00		
			50	400			N		(1.088E-02)	(0.000E+00)		8%		(0.000E+00)	0.990099			

Batch Nbr: 8042389

Alpha Beta, Ra-228 by GPC, Calculated Results

3/13/2008 9:15:09 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
03/13/08	RA-228	R	0.253552	1.65000E-01		0.561388	0.561388	0.561388	1.01 G	94%		0.613218		
			(0.151662)	(9.7404E-02)		(0.33448)	(0.33448)	(0.33448)	(0.017321)			0.265122		
03/13/08	RA-228	R	0.042634	2.50000E-02	U4	0.094396	0.094396	0.094396	1.01 G	94%		0.680531		
			(0.13952)	(8.1777E-02)		(0.308871)	(0.308871)	(0.308871)	(0.017321)			0.294225		
03/13/08	RA-228	R	0.085165	4.50000E-02	U4	0.188564	0.188564	0.188564	1.01 G	94%		0.755235		
			(0.159541)	(8.4187E-02)		(0.353099)	(0.353099)	(0.353099)	(0.017321)			0.326523		
03/13/08	RA-228	A	0.127117	7.83333E-02	U4	0.281449	0.281449	0.281449	1.01 G	94%		0.394327		
			(0.086872)	(5.0840E-02)		(0.192052)	(0.192052)	(0.192052)	(0.01)			0.170486		
03/13/08	RA-228	R	0.527654	4.00000E-02	U4	1.168275	1.168275	1.168275	1.01 G	94%		5.622158		
			(1.181027)	(8.9443E-02)		(2.614171)	(2.614171)	(2.614171)	(0.017321)			2.455051		

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
9	Calc	TF	SOLID	*STLE	Ra228WoBS	KGXJ01AC	✓	pCi/g	S	01/25/08 10:00	03/13/08 07:09	03/03/08 15:28	✓	RASC4700	✓	1	g
0	INTRA-LAB	CHECK					.J8B110000-389	SOLID			31.6	03/12/08 08:40	✓	RASC4700	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	03/12/08 12:37	RA-228	132	117	GPC3C	1	N	N	4.8377E-01	1.0000E+00	N	92%	N	1.4917E+00	4.5045E-01	1.0127E+00		
			50	400			Y	Y	(7.223E-03)	(0.000E+00)		7%		(0.000E+00)	0.990099			
1	03/12/08 13:32	RA-228	133	117	GPC3C	1	N	N	4.8377E-01	1.0000E+00	N	92%	N	1.6554E+00	4.5045E-01	1.0127E+00		
			50	400			Y	Y	(7.223E-03)	(0.000E+00)		7%		(0.000E+00)	0.990099			
2	03/12/08 14:27	RA-228	97	117	GPC3C	1	N	N	4.8377E-01	1.0000E+00	N	92%	N	1.8372E+00	4.5045E-01	1.0127E+00		
			50	400			Y	Y	(7.223E-03)	(0.000E+00)		7%		(0.000E+00)	0.990099			
3	03/13/08 07:09	RA-228	22	139	GPC2B	1	N	N	4.6560E-01	1.0000E+00	N	92%	N	1.2140E+01	4.5045E-01	1.0127E+00		
			50	400			N	N	(1.355E-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,EnFct	LCSYld,EFctU	IDC/LcC	BIK/LcC/MDC	StdDvMdc/LcC
03/13/08	RA-228	R	3.558964	2.34750E+00		7.879868	7.879868	7.879868	1.01 G	92%		0.621369		
			(0.492257)	(2.3137E-01)		(1.007171)	(1.007171)	(1.007171)	(0.017321)			0.26976		
03/13/08	RA-228	R	3.983286	2.36750E+00		8.819358	8.819358	8.819358	1.01 G	92%		0.689578		
			(0.54962)	(2.3223E-01)		(1.124072)	(1.124072)	(1.124072)	(0.017321)			0.299371		
03/13/08	RA-228	R	3.076172	1.64750E+00		6.810924	6.810924	6.810924	1.01 G	92%		0.765274		
			(0.476373)	(1.9882E-01)		(0.991386)	(0.991386)	(0.991386)	(0.017321)			0.332234		
03/13/08	RA-228	A	3.539474	2.12083E+00		7.836716	7.836716	7.836716	1.01 G	92%		0.399569		
			(0.292751)	(1.2780E-01)		(0.601921)	(0.601921)	(0.601921)	(0.01)			0.173468		
03/13/08	RA-228	R	1.185802	9.25000E-02	U4	2.625473	2.625473	2.625473	1.01 G	92%		5.664352		
			(1.266125)	(9.8330E-02)		(2.799878)	(2.799878)	(2.799878)	(0.017321)			2.486244		

( ) - (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:9

RADCALC v4.8.29  
 TA Richland

UST Number: KGXJ01AC      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 3-C      File: [quad3.sample.C]KGXJ01AC.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.C\_1;6085

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00132	0050	01258	1920	12-MAR-2008 12:37:24.65
2	00000	00133	0050	01275	1920	12-MAR-2008 13:32:40.50
3	00000	00097	0050	01258	1920	12-MAR-2008 14:27:56.63

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: KGXJ01AC      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 2-B      File: [quad2.sample.B]KGXJ01AC.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD2.BKGRND]CURRENT.B\_1;4155

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00022	0050	01208	1810	13-MAR-2008 07:09:53.26

Bkg File: [quad2.bkgrnd]2008-03-13\_0257.B\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00139	0400	0.35	09541	1810	13-MAR-2008 02:57:57.97

UST Number: KF6FA1AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 7-C      File: [quad7.sample.C]KF6FA1AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD7.BKGRND]CURRENT.C\_1;3564

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00106	0050	01162	1700	12-MAR-2008 12:35:26.86
2	00000	00097	0050	01183	1700	12-MAR-2008 13:30:42.65
3	00000	00091	0050	01168	1700	12-MAR-2008 14:25:58.29

Bkg File: [quad7.bkgrnd]2008-03-12\_0300.C\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00398	0400	1.00	09157	1700	12-MAR-2008 03:00:59.81 ✓

UST Number: KF6FA1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 2-A      File: [quad2.sample.A]KF6FA1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD2.BKGRND]CURRENT.A\_1;4158

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00022	0050	01196	1810	13-MAR-2008 06:13:12.10

Bkg File: [quad2.bkgrnd]2008-03-13\_0257.A\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00128	0400	0.32	09541	1810	13-MAR-2008 02:57:57.97

UST Number: KF6FD1AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 1-A      File: [quad1.sample.A]KF6FD1AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD1.BKGRND]CURRENT.A\_1;3617

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00117	0050	01185	1650	12-MAR-2008 12:35:52.54
2	00000	00101	0050	01168	1650	12-MAR-2008 13:31:08.28
3	00000	00101	0050	01181	1650	12-MAR-2008 14:26:23.86

Bkg File: [quad1.bkgrnd]2008-03-12\_0302.A\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00282	0400	0.71	09290	1650	12-MAR-2008 03:02:26.96 ✓

UST Number: KF6FD1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 2-B      File: [quad2.sample.B]KF6FD1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD2.BKGRND]CURRENT.B\_1;4155

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00025	0050	01196	1810	13-MAR-2008 06:13:12.10

Bkg File: [quad2.bkgrnd]2008-03-13\_0257.B\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00139	0400	0.35	09541	1810	13-MAR-2008 02:57:57.97



UST Number: KF6FF1AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 1-C      File: [quad1.sample.C]KF6FF1AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD1.BKGRND]CURRENT.C\_1;3613

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00096	0050	01185	1650	12-MAR-2008 12:35:52.54
2	00000	00077	0050	01168	1650	12-MAR-2008 13:31:08.28
3	00000	00070	0050	01181	1650	12-MAR-2008 14:26:23.86

Bkg File: [quad1.bkgrnd]2008-03-12\_0302.C\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00246	0400	0.62	09290	1650	12-MAR-2008 03:02:26.96 ✓

UST Number: KF6FF1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 3-A      File: [quad3.sample.A]KF6FF1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.A\_1;6073

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00030	0050	01286	1920	13-MAR-2008 06:08:21.48

Bkg File: [quad3.bkgrnd]2008-03-13\_0247.A\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00125	0394	0.32	10041	1920	13-MAR-2008 02:47:59.09

UST Number: KF6FJ1AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 1-D      File: [quad1.sample.D]KF6FJ1AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD1.BKGRND]CURRENT.D\_1;3616

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00098	0050	01185	1650	12-MAR-2008 12:35:52.54
2	00000	00061	0050	01168	1650	12-MAR-2008 13:31:08.28
3	00000	00082	0050	01181	1650	12-MAR-2008 14:26:23.86

Bkg File: [quad1.bkgrnd]2008-03-12\_0302.D\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00262	0400	0.66	09290	1650	12-MAR-2008 03:02:26.96 ✓

UST Number: KF6FJ1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 3-C      File: [quad3.sample.C]KF6FJ1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.C\_1;6086

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00029	0050	01286	1920	13-MAR-2008 06:08:21.48

Bkg File: [quad3.bkgrnd]2008-03-13\_0247.C\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00112	0394	0.28	10041	1920	13-MAR-2008 02:47:59.09

UST Number: KF6FK1AF      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 2-A      File: [quad2.sample.A]KF6FK1AF.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD2.BKGRND]CURRENT.A\_1;4157

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00044	0050	01188	1810	12-MAR-2008 12:36:52.66
2	00000	00063	0050	01188	1810	12-MAR-2008 13:32:08.50
3	00000	00044	0050	01196	1810	12-MAR-2008 14:27:24.10

Bkg File: [quad2.bkgrnd]2008-03-12\_0302.A\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00101	0400	0.25	09330	1810	12-MAR-2008 03:02:33.54 ✓

UST Number: KF6FK1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 3-D      File: [quad3.sample.D]KF6FK1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.D\_1;6071

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00022	0050	01286	1920	13-MAR-2008 06:08:21.48

Bkg File: [quad3.bkgrnd]2008-03-13\_0247.D\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00106	0394	0.27	10041	1920	13-MAR-2008 02:47:59.09

UST Number: KF6FL1AF Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 2-B File: [quad2.sample.B]KF6FL1AF.180  
Dish Size: 1 Bkg File: \$DISK1:[QUAD2.BKGRND]CURRENT.B\_1;4154

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00074	0050	01188	1810	12-MAR-2008 12:36:52.66
2	00000	00067	0050	01188	1810	12-MAR-2008 13:32:08.50
3	00000	00054	0050	01196	1810	12-MAR-2008 14:27:24.10

Bkg File: [quad2.bkgrnd]2008-03-12\_0302.B\_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00129	0400	0.32	09330	1810	12-MAR-2008 03:02:33.54 ✓

UST Number: KF6FL1AF      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 4-C      File: [quad4.sample.C]KF6FL1AF.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.C\_1;6087

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00019	0050	01231	1850	13-MAR-2008 06:08:32.79

Bkg File: [quad4.bkgrnd]2008-03-13\_0253.C\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00162	0400	0.41	09850	1850	13-MAR-2008 02:53:35.60



UST Number: KF6FM1AJ Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 2-C File: [quad2.sample.C]KF6FM1AJ.180  
Dish Size: 1 Bkg File: \$DISK1:[QUAD2.BKGRND]CURRENT.C\_1;4155

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00069	0050	01188	1810	12-MAR-2008 12:36:52.66
2	00000	00066	0050	01188	1810	12-MAR-2008 13:32:08.50
3	00000	00067	0050	01196	1810	12-MAR-2008 14:27:24.10

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: KF6FM1AJ      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 4-D      File: [quad4.sample.D]KF6FM1AJ.430  
Dish Size: 1      Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.D\_1;6101

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00031	0050	01231	1850	13-MAR-2008 06:08:32.79

Bkg File: [quad4.bkgrnd]2008-03-13\_0253.D\_1      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00107	0400	0.27	09850	1850	13-MAR-2008 02:53:35.60

UST Number: KGXJ01AA      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 3-A      File: [quad3.sample.A]KGXJ01AA.180  
Dish Size: 1      Bkg File: \$DISK1:[QUAD3.BKGRND]CURRENT.A\_1;6072

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00022	0050	01258	1920	12-MAR-2008 12:37:24.65
2	00000	00015	0050	01275	1920	12-MAR-2008 13:32:40.50
3	00000	00016	0050	01258	1920	12-MAR-2008 14:27:56.63

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: KGXJ01AA    Isotope: 430    (QREPORT Rev 11-OCT-98)

Detector: 2-A    File: [quad2.sample.A]KGXJ01AA.430  
Dish Size: 1    Bkg File: \$DISK1:[QUAD2.BKGRND]CURRENT.A\_1;4158

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00018	0050	01208	1810	13-MAR-2008 07:09:53.26

Bkg File: [quad2.bkgrnd]2008-03-13\_0257.A\_1    (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00128	0400	0.32	09541	1810	13-MAR-2008 02:57:57.97

# 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	
RASC4699	RA-226	3.0308E+00 ± 4.664E-02 DPM	0.1443 g	1/21/2008 1/21/2008	Armstron	2.1003E+01 ± 3.225E-01 DPM/G

3.0308E+000 ± 3.031E+000 ( 1)                      3.0308E+000 , 3.0308E+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      

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**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      

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**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	± 1.482E+01	DPM/G	
RASC4699	RA-228	1.1167E+01 ± 3.708E-01 DPM	0.0408 g	1/21/2008 1/21/2008	Armstron	2.7370E+02 ± 9.038E+00 DPM/G
		1.1167E+001 ± 1.117E+001 ( 1)	1.1167E+001 , 1.1167E+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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>new source</u></b>		
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>4.4881E+02</u></b>	±	<b><u>1.482E+01</u></b>
12) Total Uncertainty	<u>3.302</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>RA22806A000</u></b>		<b><u>6076</u></b>
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>

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**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

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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 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
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	

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

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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

-----  
 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 | | |

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

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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)

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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
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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) Page : 3

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
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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
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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
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)

Page : 4

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
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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 25-MAR-2008 19:02:46.29

QA Filename : \$DISK1:[QUAD2.QA]CHK.QAF;2

-- Multi-Test Full Report --

Description : quad 2a 1" beta %eff

Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 41.000000 Upper Bound : 45.250000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUN-2007 00:00

Mean : 43.240147 Std Deviation : 0.743052

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-JAN-2008 04:39	CHK		43.3000		
12-JAN-2008 06:31	CHK		43.0000		
13-JAN-2008 09:03	CHK		43.8000		
14-JAN-2008 04:54	CHK		43.4000		
15-JAN-2008 04:44	CHK		43.1000		
16-JAN-2008 04:44	CHK		42.7000		
17-JAN-2008 04:40	CHK		43.0000		
18-JAN-2008 04:50	CHK		43.3000		
19-JAN-2008 05:11	CHK		43.2000		
21-JAN-2008 05:37	CHK		43.5000		
22-JAN-2008 04:47	CHK		43.0000		
23-JAN-2008 04:46	CHK		42.6000		
24-JAN-2008 04:49	CHK		46.4000	Ab Ac	
24-JAN-2008 05:06	CHK		44.8000	In	
24-JAN-2008 05:06	CHK		No Value		
24-JAN-2008 05:35	CHK		No Value		
25-JAN-2008 04:58	CHK		42.5000		
28-JAN-2008 10:20	CHK		42.5000		
29-JAN-2008 05:01	CHK		42.6000		
30-JAN-2008 04:49	CHK		43.3000		
31-JAN-2008 04:33	CHK		43.4000		



1-FEB-2008 04:41	CHK	42.9000			
2-FEB-2008 04:49	CHK	42.6000			
4-FEB-2008 05:33	CHK	42.4000			
5-FEB-2008 04:54	CHK	43.3000			
6-FEB-2008 04:48	CHK	43.4000			
7-FEB-2008 04:51	CHK	42.7000			
8-FEB-2008 04:50	CHK	43.9000			
11-FEB-2008 04:50	CHK	43.5000			
12-FEB-2008 05:11	CHK	42.3000			
13-FEB-2008 05:17	CHK	43.0000			
14-FEB-2008 05:44	CHK	43.2000			
15-FEB-2008 04:46	CHK	43.3000			
15-FEB-2008 05:03	CHK	No Value			
16-FEB-2008 06:21	CHK	43.0000			
18-FEB-2008 05:37	CHK	42.2000			
19-FEB-2008 04:55	CHK	42.6000			
20-FEB-2008 04:48	CHK	42.7000			

Quality Assurance Multi-Test Full Report (continued)

Page : 2

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej	
21-FEB-2008 04:48	CHK		44.6000			
22-FEB-2008 04:49	CHK		43.0000			
25-FEB-2008 04:51	CHK		43.0000			
26-FEB-2008 04:44	CHK		41.9000			
27-FEB-2008 04:49	CHK		42.6000			
28-FEB-2008 04:48	CHK		42.5000			
29-FEB-2008 04:47	CHK		43.6000			
3-MAR-2008 04:56	CHK		43.2000			
4-MAR-2008 04:44	CHK		43.0000			
5-MAR-2008 04:57	CHK		42.8000			
7-MAR-2008 04:52	CHK		42.1000			
10-MAR-2008 05:25	CHK		42.7000			
11-MAR-2008 05:39	CHK		43.4000			
12-MAR-2008 05:06	CHK		42.4000			
13-MAR-2008 05:09	CHK		43.8000			
14-MAR-2008 05:43	CHK		43.7000			
17-MAR-2008 06:26	CHK		42.9000			
18-MAR-2008 05:01	CHK		42.7000			
19-MAR-2008 04:55	CHK		43.7000			
20-MAR-2008 05:06	CHK		42.7000			
21-MAR-2008 04:57	CHK		41.9000			

## -- Multi-Test Full Report --

Description : quad 2b 1" beta %eff

Parameter Units : percent Parameter Type : Manual

## ---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 43.500000 Upper Bound : 47.500000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUN-2007 00:00

Mean : 45.508148 Std Deviation : 0.670381

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-JAN-2008 04:39	CHK		45.8000		
12-JAN-2008 06:31	CHK		45.4000		
13-JAN-2008 09:03	CHK		45.6000		
14-JAN-2008 04:54	CHK		44.9000		
15-JAN-2008 04:44	CHK		45.6000		
16-JAN-2008 04:44	CHK		46.1000		
17-JAN-2008 04:40	CHK		45.3000		
18-JAN-2008 04:50	CHK		44.7000		
19-JAN-2008 05:11	CHK		45.9000		
21-JAN-2008 05:37	CHK		45.3000		
22-JAN-2008 04:47	CHK		44.6000		
23-JAN-2008 04:46	CHK		44.7000		
24-JAN-2008 04:49	CHK		48.7000	Ab Ac	
24-JAN-2008 05:06	CHK		46.4000		
24-JAN-2008 05:06	CHK		No Value		
24-JAN-2008 05:35	CHK		47.0000	In	
25-JAN-2008 04:58	CHK		45.5000		

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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28-JAN-2008 10:20	CHK		45.9000		
29-JAN-2008 05:01	CHK		45.4000		
30-JAN-2008 04:49	CHK		45.4000		
31-JAN-2008 04:33	CHK		45.0000		
1-FEB-2008 04:41	CHK		45.8000		
2-FEB-2008 04:49	CHK		45.4000		

4-FEB-2008 05:33	CHK	46.2000			
5-FEB-2008 04:54	CHK	45.5000			
6-FEB-2008 04:48	CHK	45.9000			
7-FEB-2008 04:51	CHK	45.2000			
8-FEB-2008 04:50	CHK	46.1000			
11-FEB-2008 04:50	CHK	46.2000			
12-FEB-2008 05:11	CHK	45.5000			
13-FEB-2008 05:17	CHK	45.5000			
14-FEB-2008 05:44	CHK	45.7000			
15-FEB-2008 04:46	CHK	44.4000			
15-FEB-2008 05:03	CHK	No Value			
16-FEB-2008 06:21	CHK	46.0000			
18-FEB-2008 05:37	CHK	45.1000			
19-FEB-2008 04:55	CHK	45.2000			
20-FEB-2008 04:48	CHK	45.1000			
21-FEB-2008 04:48	CHK	45.3000			
22-FEB-2008 04:49	CHK	45.6000			
25-FEB-2008 04:51	CHK	45.3000			
26-FEB-2008 04:44	CHK	44.5000			
27-FEB-2008 04:49	CHK	45.1000			
28-FEB-2008 04:48	CHK	45.7000			
29-FEB-2008 04:47	CHK	45.9000			
3-MAR-2008 04:56	CHK	45.3000			
4-MAR-2008 04:44	CHK	45.5000			
5-MAR-2008 04:57	CHK	45.1000			
7-MAR-2008 04:52	CHK	45.7000			
10-MAR-2008 05:25	CHK	45.2000			
11-MAR-2008 05:39	CHK	45.7000			
12-MAR-2008 05:06	CHK	46.1000			
13-MAR-2008 05:09	CHK	46.1000			
14-MAR-2008 05:43	CHK	45.6000			
17-MAR-2008 06:26	CHK	46.0000			
18-MAR-2008 05:01	CHK	45.7000			
19-MAR-2008 04:55	CHK	45.5000			
20-MAR-2008 05:06	CHK	45.6000			
21-MAR-2008 04:57	CHK	46.0000			

-- Multi-Test Full Report --

Description : quad 2c 1" beta %eff  
Parameter Units : percent           Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 40.000000 Upper Bound : 44.500000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUN-2007 00:00

Mean : 42.309700 Std Deviation : 0.726395

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		42.0000	
12-JAN-2008 06:31	CHK		42.4000	
13-JAN-2008 09:03	CHK		41.9000	
14-JAN-2008 04:54	CHK		40.9000	
15-JAN-2008 04:44	CHK		41.8000	
16-JAN-2008 04:44	CHK		41.4000	
17-JAN-2008 04:40	CHK		42.7000	
18-JAN-2008 04:50	CHK		42.1000	
19-JAN-2008 05:11	CHK		42.2000	
21-JAN-2008 05:37	CHK		42.3000	
22-JAN-2008 04:47	CHK		41.0000	
23-JAN-2008 04:46	CHK		41.9000	
24-JAN-2008 04:49	CHK		41.7000	
24-JAN-2008 05:06	CHK		No Value	
24-JAN-2008 05:06	CHK		No Value	
24-JAN-2008 05:35	CHK		No Value	
25-JAN-2008 04:58	CHK		42.7000	
28-JAN-2008 10:20	CHK		41.4000	
29-JAN-2008 05:01	CHK		41.7000	
30-JAN-2008 04:49	CHK		41.9000	
31-JAN-2008 04:33	CHK		42.5000	
1-FEB-2008 04:41	CHK		41.8000	
2-FEB-2008 04:49	CHK		42.2000	
4-FEB-2008 05:33	CHK		41.2000	
5-FEB-2008 04:54	CHK		42.3000	
6-FEB-2008 04:48	CHK		42.8000	
7-FEB-2008 04:51	CHK		42.6000	
8-FEB-2008 04:50	CHK		41.6000	
11-FEB-2008 04:50	CHK		42.3000	

12-FEB-2008 05:11	CHK	41.3000	
13-FEB-2008 05:17	CHK	42.6000	
14-FEB-2008 05:44	CHK	41.7000	
15-FEB-2008 04:46	CHK	44.6000	Ab Ac
15-FEB-2008 05:03	CHK	42.5000	
16-FEB-2008 06:21	CHK	41.4000	
18-FEB-2008 05:37	CHK	41.4000	
19-FEB-2008 04:55	CHK	41.3000	
20-FEB-2008 04:48	CHK	41.3000	
21-FEB-2008 04:48	CHK	42.4000	
22-FEB-2008 04:49	CHK	42.8000	
25-FEB-2008 04:51	CHK	41.8000	
26-FEB-2008 04:44	CHK	41.6000	
27-FEB-2008 04:49	CHK	42.4000	
28-FEB-2008 04:48	CHK	41.4000	
29-FEB-2008 04:47	CHK	41.4000	
3-MAR-2008 04:56	CHK	40.9000	
4-MAR-2008 04:44	CHK	41.4000	
5-MAR-2008 04:57	CHK	41.1000	
7-MAR-2008 04:52	CHK	42.0000	
10-MAR-2008 05:25	CHK	41.2000	
11-MAR-2008 05:39	CHK	42.3000	
12-MAR-2008 05:06	CHK	42.1000	
13-MAR-2008 05:09	CHK	42.4000	
14-MAR-2008 05:43	CHK	42.4000	
17-MAR-2008 06:26	CHK	41.9000	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample	Analyst	Value	LU SD UD BS Rej
18-MAR-2008 05:01	CHK			41.9000	
19-MAR-2008 04:55	CHK			41.6000	
20-MAR-2008 05:06	CHK			42.4000	
21-MAR-2008 04:57	CHK			41.7000	

-- Multi-Test Full Report --

Description : quad 2d 1" beta %eff

Parameter Units : percent Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 41.000000 Upper Bound : 44.750000

Investigate Level : 2.000000      Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUN-2007 00:00

Mean : 42.974075      Std Deviation : 0.597253

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		43.1000		
13-JAN-2008 09:03	CHK		42.3000		
14-JAN-2008 04:54	CHK		42.2000		
15-JAN-2008 04:44	CHK		42.6000		
16-JAN-2008 04:44	CHK		42.0000		
17-JAN-2008 04:40	CHK		43.3000		
18-JAN-2008 04:50	CHK		43.1000		
19-JAN-2008 05:11	CHK		42.9000		
21-JAN-2008 05:37	CHK		42.7000		
22-JAN-2008 04:47	CHK		42.6000		
23-JAN-2008 04:46	CHK		42.3000		
24-JAN-2008 04:49	CHK		44.9000	Ab Ac	
24-JAN-2008 05:06	CHK		44.4000	In	
24-JAN-2008 05:06	CHK		No Value		
24-JAN-2008 05:35	CHK		No Value		
25-JAN-2008 04:58	CHK		43.0000		
28-JAN-2008 10:20	CHK		42.7000		
29-JAN-2008 05:01	CHK		43.1000		
30-JAN-2008 04:49	CHK		42.4000		
31-JAN-2008 04:33	CHK		43.0000		
1-FEB-2008 04:41	CHK		42.8000		
2-FEB-2008 04:49	CHK		43.5000		
4-FEB-2008 05:33	CHK		42.2000		
5-FEB-2008 04:54	CHK		43.0000		
6-FEB-2008 04:48	CHK		42.8000		
7-FEB-2008 04:51	CHK		43.0000		
8-FEB-2008 04:50	CHK		43.0000		
11-FEB-2008 04:50	CHK		42.8000		
12-FEB-2008 05:11	CHK		43.3000		
13-FEB-2008 05:17	CHK		43.4000		
14-FEB-2008 05:44	CHK		43.1000		
15-FEB-2008 04:46	CHK		43.0000		
15-FEB-2008 05:03	CHK		No Value		

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
16-FEB-2008 06:21	CHK		42.2000	
18-FEB-2008 05:37	CHK		42.4000	
19-FEB-2008 04:55	CHK		42.8000	
20-FEB-2008 04:48	CHK		42.7000	
21-FEB-2008 04:48	CHK		43.3000	
22-FEB-2008 04:49	CHK		43.1000	
25-FEB-2008 04:51	CHK		42.1000	
26-FEB-2008 04:44	CHK		43.2000	
27-FEB-2008 04:49	CHK		43.2000	
28-FEB-2008 04:48	CHK		42.1000	
29-FEB-2008 04:47	CHK		44.1000	
3-MAR-2008 04:56	CHK		43.2000	
4-MAR-2008 04:44	CHK		43.0000	
5-MAR-2008 04:57	CHK		43.6000	
7-MAR-2008 04:52	CHK		43.6000	
10-MAR-2008 05:25	CHK		42.5000	
11-MAR-2008 05:39	CHK		43.0000	
12-MAR-2008 05:06	CHK		43.9000	
13-MAR-2008 05:09	CHK		43.9000	
14-MAR-2008 05:43	CHK		43.7000	
17-MAR-2008 06:26	CHK		43.3000	
18-MAR-2008 05:01	CHK		44.0000	
19-MAR-2008 04:55	CHK		43.3000	
20-MAR-2008 05:06	CHK		43.4000	
21-MAR-2008 04:57	CHK		42.6000	

Quality Assurance Report.

Generated 25-MAR-2008 19:02:48.12

QA Filename : \$DISK1:[QUAD2.QA]BKG\_1.QAF;5

-- Multi-Test Full Report --

Description : quad 2a 1" beta bkg, cpm

Parameter Units : cpm Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 02:20	BKG		0.2100	
12-JAN-2008 03:04	BKG		0.2300	

12-JAN-2008 20:43	BKG	0.3500			
13-JAN-2008 21:38	BKG	0.2400			
15-JAN-2008 04:13	BKG	0.1700			
16-JAN-2008 02:26	BKG	0.2200			
17-JAN-2008 02:55	BKG	0.2300			
18-JAN-2008 03:42	BKG	0.3700			
19-JAN-2008 02:17	BKG	0.2200			
19-JAN-2008 15:43	BKG	0.2500			
20-JAN-2008 13:39	BKG	0.2500			
22-JAN-2008 02:10	BKG	0.2000			
23-JAN-2008 01:52	BKG	0.2500			
24-JAN-2008 03:41	BKG	0.2400			
25-JAN-2008 03:03	BKG	0.2100			
25-JAN-2008 23:30	BKG	0.2100			
27-JAN-2008 19:17	BKG	0.2200			
29-JAN-2008 01:41	BKG	0.2000			
30-JAN-2008 01:56	BKG	0.2000			
31-JAN-2008 02:15	BKG	0.2200			
1-FEB-2008 02:39	BKG	0.1700			
2-FEB-2008 00:10	BKG	0.2400			
2-FEB-2008 13:26	BKG	0.4100			
3-FEB-2008 18:54	BKG	0.4800			
5-FEB-2008 02:45	BKG	0.2100			
6-FEB-2008 01:44	BKG	0.1900			
7-FEB-2008 02:33	BKG	0.1600			
8-FEB-2008 01:59	BKG	0.2100			
8-FEB-2008 23:20	BKG	0.2100			
9-FEB-2008 13:57	BKG	0.2400			
10-FEB-2008 19:25	BKG	0.2100			
12-FEB-2008 02:15	BKG	0.1800			
13-FEB-2008 02:07	BKG	0.2400			
14-FEB-2008 02:31	BKG	0.1900			
14-FEB-2008 23:14	BKG	0.2200			
16-FEB-2008 01:36	BKG	0.2200			
16-FEB-2008 15:11	BKG	0.2600			
17-FEB-2008 14:26	BKG	0.2300			
19-FEB-2008 01:53	BKG	0.2700			
19-FEB-2008 23:27	BKG	0.2300			
21-FEB-2008 03:19	BKG	0.2400			
22-FEB-2008 03:22	BKG	0.2700			
22-FEB-2008 23:18	BKG	0.2500			
23-FEB-2008 18:49	BKG	0.2300			
24-FEB-2008 19:17	BKG	0.2800			



26-FEB-2008 04:14 BKG 0.2700 | | |  
 27-FEB-2008 01:51 BKG 0.2700 | | |

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
28-FEB-2008 03:04	BKG		0.2400		
29-FEB-2008 03:58	BKG		0.2800		
29-FEB-2008 23:15	BKG		0.2400		
1-MAR-2008 12:15	BKG		0.2700		
2-MAR-2008 14:02	BKG		0.2300		
4-MAR-2008 02:44	BKG		0.2400		
5-MAR-2008 03:55	BKG		0.2100		
7-MAR-2008 02:47	BKG		0.2400		
7-MAR-2008 23:29	BKG		0.2900		
8-MAR-2008 17:08	BKG		0.2500		
9-MAR-2008 16:41	BKG		0.2600		
11-MAR-2008 03:01	BKG		0.2700		
12-MAR-2008 03:02	BKG		0.2500		
13-MAR-2008 02:57	BKG		0.3200		
14-MAR-2008 02:18	BKG		0.2600		
14-MAR-2008 23:35	BKG		0.2900		
15-MAR-2008 23:29	BKG		0.2500		
16-MAR-2008 16:07	BKG		0.2400		
18-MAR-2008 03:37	BKG		0.2300		
19-MAR-2008 03:31	BKG		0.2600		
20-MAR-2008 01:51	BKG		0.2700		
21-MAR-2008 02:27	BKG		0.2600		
21-MAR-2008 23:20	BKG		0.2900		
23-MAR-2008 20:01	BKG		0.3000		

-- Multi-Test Full Report --

Description : quad 2b 1" beta bkg, cpm

Parameter Units : cpm Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-JAN-2008 02:20	BKG		0.2800		
12-JAN-2008 03:04	BKG		0.2500		
12-JAN-2008 20:43	BKG		0.2700		
13-JAN-2008 21:38	BKG		0.2800		
15-JAN-2008 04:13	BKG		0.2200		

16-JAN-2008 02:26	BKG	0.2900			
17-JAN-2008 02:55	BKG	0.2400			
18-JAN-2008 03:42	BKG	0.3300			
19-JAN-2008 02:17	BKG	0.2800			
19-JAN-2008 15:43	BKG	0.2100			
20-JAN-2008 13:39	BKG	0.2600			
22-JAN-2008 02:10	BKG	0.2500			
23-JAN-2008 01:52	BKG	0.2400			
24-JAN-2008 03:41	BKG	0.2500			
25-JAN-2008 03:03	BKG	0.3000			
25-JAN-2008 23:30	BKG	0.2500			
27-JAN-2008 19:17	BKG	0.3200			
29-JAN-2008 01:41	BKG	0.2900			
30-JAN-2008 01:56	BKG	0.2800			
31-JAN-2008 02:15	BKG	0.2400			
1-FEB-2008 02:39	BKG	0.2600			
2-FEB-2008 00:10	BKG	0.2600			
2-FEB-2008 13:26	BKG	0.5200			

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej	
3-FEB-2008 18:54	BKG		0.8000			
5-FEB-2008 02:45	BKG		0.2500			
6-FEB-2008 01:44	BKG		0.2600			
7-FEB-2008 02:33	BKG		0.3100			
8-FEB-2008 01:59	BKG		0.2300			
8-FEB-2008 23:20	BKG		0.2700			
9-FEB-2008 13:57	BKG		0.2600			
10-FEB-2008 19:25	BKG		0.2900			
12-FEB-2008 02:15	BKG		0.2800			
13-FEB-2008 02:07	BKG		0.3000			
14-FEB-2008 02:31	BKG		0.2700			
14-FEB-2008 23:14	BKG		0.2900			
16-FEB-2008 01:36	BKG		0.2500			
16-FEB-2008 15:11	BKG		0.3000			
17-FEB-2008 14:26	BKG		0.2700			
19-FEB-2008 01:53	BKG		0.3000			
19-FEB-2008 23:27	BKG		0.3000			
21-FEB-2008 03:19	BKG		0.3300			
22-FEB-2008 03:22	BKG		0.3100			
22-FEB-2008 23:18	BKG		0.3300			
23-FEB-2008 18:49	BKG		0.3100			

24-FEB-2008 19:17	BKG	0.2900			
26-FEB-2008 04:14	BKG	0.2400			
27-FEB-2008 01:51	BKG	0.3100			
28-FEB-2008 03:04	BKG	0.3000			
29-FEB-2008 03:58	BKG	0.3400			
29-FEB-2008 23:15	BKG	0.3300			
1-MAR-2008 12:15	BKG	0.3000			
2-MAR-2008 14:02	BKG	0.3200			
4-MAR-2008 02:44	BKG	0.2600			
5-MAR-2008 03:55	BKG	0.3200			
7-MAR-2008 02:47	BKG	0.3400			
7-MAR-2008 23:29	BKG	0.3800			
8-MAR-2008 17:08	BKG	0.2900			
9-MAR-2008 16:41	BKG	0.3400			
11-MAR-2008 03:01	BKG	0.2700			
12-MAR-2008 03:02	BKG	0.3200			
13-MAR-2008 02:57	BKG	0.3500			
14-MAR-2008 02:18	BKG	0.3300			
14-MAR-2008 23:35	BKG	0.3200			
15-MAR-2008 23:29	BKG	0.3100			
16-MAR-2008 16:07	BKG	0.3100			
18-MAR-2008 03:37	BKG	0.3500			
19-MAR-2008 03:31	BKG	0.3400			
20-MAR-2008 01:51	BKG	0.3700			
21-MAR-2008 02:27	BKG	0.3100			
21-MAR-2008 23:20	BKG	0.3300			
23-MAR-2008 20:01	BKG	0.3100			

-- Multi-Test Full Report --

Description : quad 2c 1" beta bkg, cpm

Parameter Units : cpm 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-JAN-2008 02:20	BKG	0.2800			
12-JAN-2008 03:04	BKG	0.2600			
12-JAN-2008 20:43	BKG	0.2100			
13-JAN-2008 21:38	BKG	0.2500			

15-JAN-2008 04:13	BKG	0.2000			
16-JAN-2008 02:26	BKG	0.2500			
17-JAN-2008 02:55	BKG	0.2400			
18-JAN-2008 03:42	BKG	0.3400			
19-JAN-2008 02:17	BKG	0.2400			
19-JAN-2008 15:43	BKG	0.3100			
20-JAN-2008 13:39	BKG	0.2800			
22-JAN-2008 02:10	BKG	0.2400			
23-JAN-2008 01:52	BKG	0.2700			
24-JAN-2008 03:41	BKG	0.2600			
25-JAN-2008 03:03	BKG	0.2800			
25-JAN-2008 23:30	BKG	0.2400			
27-JAN-2008 19:17	BKG	0.2900			
29-JAN-2008 01:41	BKG	0.2500			
30-JAN-2008 01:56	BKG	0.3400			
31-JAN-2008 02:15	BKG	0.3000			
1-FEB-2008 02:39	BKG	0.2700			
2-FEB-2008 00:10	BKG	0.2700			
2-FEB-2008 13:26	BKG	0.4900			R
3-FEB-2008 18:54	BKG	0.4000			R
5-FEB-2008 02:45	BKG	0.2700			
6-FEB-2008 01:44	BKG	0.2400			
7-FEB-2008 02:33	BKG	0.2800			
8-FEB-2008 01:59	BKG	0.3100			
8-FEB-2008 23:20	BKG	0.2400			
9-FEB-2008 13:57	BKG	0.3400			
10-FEB-2008 19:25	BKG	0.3000			
12-FEB-2008 02:15	BKG	0.3100			
13-FEB-2008 02:07	BKG	0.2700			
14-FEB-2008 02:31	BKG	0.2800			
14-FEB-2008 23:14	BKG	0.2700			
16-FEB-2008 01:36	BKG	0.3400			
16-FEB-2008 15:11	BKG	0.3300			
17-FEB-2008 14:26	BKG	0.3200			
19-FEB-2008 01:53	BKG	0.2900			
19-FEB-2008 23:27	BKG	0.3600			
21-FEB-2008 03:19	BKG	0.3400			
22-FEB-2008 03:22	BKG	0.2700			
22-FEB-2008 23:18	BKG	0.3000			
23-FEB-2008 18:49	BKG	0.3200			
24-FEB-2008 19:17	BKG	0.3600			
26-FEB-2008 04:14	BKG	0.3400			
27-FEB-2008 01:51	BKG	0.3500			

28-FEB-2008 03:04	BKG	0.3100	
29-FEB-2008 03:58	BKG	0.3600	
29-FEB-2008 23:15	BKG	0.3100	
1-MAR-2008 12:15	BKG	0.3500	
2-MAR-2008 14:02	BKG	0.3600	
4-MAR-2008 02:44	BKG	0.3700	
5-MAR-2008 03:55	BKG	0.3300	
7-MAR-2008 02:47	BKG	0.3900	

Quality Assurance Multi-Test Full Report (continued)

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Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
7-MAR-2008 23:29	BKG		0.3500	
8-MAR-2008 17:08	BKG		0.3800	
9-MAR-2008 16:41	BKG		0.3000	
11-MAR-2008 03:01	BKG		0.4100	
12-MAR-2008 03:02	BKG		0.3400	
13-MAR-2008 02:57	BKG		0.4300	
14-MAR-2008 02:18	BKG		0.3700	
14-MAR-2008 23:35	BKG		0.4000	
15-MAR-2008 23:29	BKG		0.3700	
16-MAR-2008 16:07	BKG		0.4300	
18-MAR-2008 03:37	BKG		0.3600	
19-MAR-2008 03:31	BKG		0.3400	
20-MAR-2008 01:51	BKG		0.4000	
21-MAR-2008 02:27	BKG		0.5200	
21-MAR-2008 23:20	BKG		0.4200	
23-MAR-2008 20:01	BKG		0.4700	

-- Multi-Test Full Report --

Description : quad 2d 1" beta bkg, cpm

Parameter Units : cpm Parameter Type :

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 02:20	BKG		0.2500	
12-JAN-2008 03:04	BKG		0.2100	
12-JAN-2008 20:43	BKG		0.2600	
13-JAN-2008 21:38	BKG		0.2600	
15-JAN-2008 04:13	BKG		0.2200	
16-JAN-2008 02:26	BKG		0.2400	
17-JAN-2008 02:55	BKG		0.2400	

18-JAN-2008 03:42	BKG	0.3300		
19-JAN-2008 02:17	BKG	0.2900		
19-JAN-2008 15:43	BKG	0.2700		
20-JAN-2008 13:39	BKG	0.3000		
22-JAN-2008 02:10	BKG	0.3200		
23-JAN-2008 01:52	BKG	0.2500		
24-JAN-2008 03:41	BKG	0.2900		
25-JAN-2008 03:03	BKG	0.3100		
25-JAN-2008 23:30	BKG	0.2900		
27-JAN-2008 19:17	BKG	0.3100		
29-JAN-2008 01:41	BKG	0.2900		
30-JAN-2008 01:56	BKG	0.3700		
31-JAN-2008 02:15	BKG	0.3100		
1-FEB-2008 02:39	BKG	0.3300		
2-FEB-2008 00:10	BKG	0.3500		
2-FEB-2008 13:26	BKG	0.5300		R
3-FEB-2008 18:54	BKG	0.7800		R
5-FEB-2008 02:45	BKG	0.3000		
6-FEB-2008 01:44	BKG	0.3100		
7-FEB-2008 02:33	BKG	0.3500		
8-FEB-2008 01:59	BKG	0.3100		
8-FEB-2008 23:20	BKG	0.3100		
9-FEB-2008 13:57	BKG	0.3500		
10-FEB-2008 19:25	BKG	0.2800		

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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12-FEB-2008 02:15	BKG	0.3900		
13-FEB-2008 02:07	BKG	0.3400		
14-FEB-2008 02:31	BKG	0.3100		
14-FEB-2008 23:14	BKG	0.3400		
16-FEB-2008 01:36	BKG	0.3100		
16-FEB-2008 15:11	BKG	0.3500		
17-FEB-2008 14:26	BKG	0.3800		
19-FEB-2008 01:53	BKG	0.3800		
19-FEB-2008 23:27	BKG	0.3900		
21-FEB-2008 03:19	BKG	0.4400		
22-FEB-2008 03:22	BKG	0.4000		
22-FEB-2008 23:18	BKG	0.4400		
23-FEB-2008 18:49	BKG	0.3600		
24-FEB-2008 19:17	BKG	0.3800		
26-FEB-2008 04:14	BKG	0.4100		

27-FEB-2008 01:51 BKG	0.4800			
28-FEB-2008 03:04 BKG	0.3800			
29-FEB-2008 03:58 BKG	0.3900			
29-FEB-2008 23:15 BKG	0.4000			
1-MAR-2008 12:15 BKG	0.3700			
2-MAR-2008 14:02 BKG	0.4600			
4-MAR-2008 02:44 BKG	0.4100			
5-MAR-2008 03:55 BKG	0.4200			
7-MAR-2008 02:47 BKG	0.5000			
7-MAR-2008 23:29 BKG	0.4100			
8-MAR-2008 17:08 BKG	0.4600			
9-MAR-2008 16:41 BKG	0.4400			
11-MAR-2008 03:01 BKG	0.4500			
12-MAR-2008 03:02 BKG	0.4500			
13-MAR-2008 02:57 BKG	0.4900			
14-MAR-2008 02:18 BKG	0.5400			
14-MAR-2008 23:35 BKG	0.5200			
15-MAR-2008 23:29 BKG	0.4800			
16-MAR-2008 16:07 BKG	0.4700			
18-MAR-2008 03:37 BKG	0.4400			
19-MAR-2008 03:31 BKG	0.5200			
20-MAR-2008 01:51 BKG	0.5700			
21-MAR-2008 02:27 BKG	0.5800			
21-MAR-2008 23:20 BKG	0.6500			
23-MAR-2008 20:01 BKG	0.5000			

## Quality Assurance Report.

Generated 25-MAR-2008 18:58:55.40

QA Filename : \$DISK1:[QUAD1.QA]CHK.QAF;2

## -- Multi-Test Full Report --

Description : quad 1a 1" beta %eff

Parameter Units : percent Parameter Type : Generic

## ---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 54.000000 Upper Bound : 57.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUN-2007 00:00

Mean : 55.588463 Std Deviation : 0.506796

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-JAN-2008 04:39	CHK		55.7000		
12-JAN-2008 06:31	CHK		41.0000	Be Ac	
12-JAN-2008 07:07	CHK		55.6000		
14-JAN-2008 04:54	CHK		54.6000		
15-JAN-2008 04:44	CHK		55.4000		
16-JAN-2008 04:44	CHK		54.7000		
17-JAN-2008 04:40	CHK		55.2000		
18-JAN-2008 04:50	CHK		55.7000		
19-JAN-2008 05:11	CHK		55.5000		
21-JAN-2008 05:37	CHK		55.9000		
22-JAN-2008 04:46	CHK		55.4000		
23-JAN-2008 04:46	CHK		54.7000		
24-JAN-2008 04:48	CHK		55.5000		
25-JAN-2008 04:58	CHK		55.6000		
28-JAN-2008 10:19	CHK		55.5000		
29-JAN-2008 05:01	CHK		54.8000		
30-JAN-2008 04:49	CHK		55.4000		
31-JAN-2008 04:32	CHK		55.1000		
1-FEB-2008 04:41	CHK		55.8000		
2-FEB-2008 04:49	CHK		55.6000		
4-FEB-2008 05:33	CHK		55.5000		



5-FEB-2008 04:49	CHK	55.5000	
6-FEB-2008 04:48	CHK	55.7000	
7-FEB-2008 04:51	CHK	55.1000	
8-FEB-2008 04:50	CHK	55.5000	
11-FEB-2008 04:50	CHK	55.8000	
12-FEB-2008 05:11	CHK	55.3000	
13-FEB-2008 05:17	CHK	55.1000	
14-FEB-2008 05:44	CHK	55.8000	
15-FEB-2008 04:46	CHK	55.5000	
16-FEB-2008 06:21	CHK	55.3000	
18-FEB-2008 05:37	CHK	51.6000	Be Ac
18-FEB-2008 05:56	CHK	55.9000	
19-FEB-2008 04:55	CHK	55.4000	
20-FEB-2008 04:48	CHK	56.0000	
21-FEB-2008 04:49	CHK	55.5000	
22-FEB-2008 04:49	CHK	56.0000	
23-FEB-2008 09:32	CHK	54.6000	

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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25-FEB-2008 04:51	CHK	55.2000	
26-FEB-2008 04:44	CHK	54.5000	In
27-FEB-2008 04:49	CHK	55.6000	
28-FEB-2008 04:43	CHK	55.9000	
29-FEB-2008 04:47	CHK	55.8000	
3-MAR-2008 04:56	CHK	55.6000	
4-MAR-2008 04:49	CHK	56.3000	
5-MAR-2008 04:57	CHK	56.0000	
6-MAR-2008 05:12	CHK	55.9000	
7-MAR-2008 04:52	CHK	55.2000	
10-MAR-2008 05:21	CHK	55.4000	
11-MAR-2008 05:39	CHK	54.5000	In
12-MAR-2008 05:06	CHK	55.8000	
13-MAR-2008 05:09	CHK	56.0000	
14-MAR-2008 05:43	CHK	55.4000	
17-MAR-2008 06:26	CHK	55.9000	
18-MAR-2008 05:01	CHK	55.6000	
19-MAR-2008 04:55	CHK	55.3000	
20-MAR-2008 05:06	CHK	55.3000	
21-MAR-2008 05:02	CHK	55.8000	

-- Multi-Test Full Report --

Description : quad 1b 1" beta %eff  
 Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 45.000000 Upper Bound : 48.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUN-2007 00:00

Mean : 46.490002 Std Deviation : 0.494128

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 04:39	CHK		46.5000	
12-JAN-2008 06:31	CHK		33.5000	Be Ac
12-JAN-2008 07:07	CHK		46.2000	
14-JAN-2008 04:54	CHK		47.2000	
15-JAN-2008 04:44	CHK		46.0000	
16-JAN-2008 04:44	CHK		46.0000	
17-JAN-2008 04:40	CHK		45.6000	
18-JAN-2008 04:50	CHK		46.8000	
19-JAN-2008 05:11	CHK		46.5000	
21-JAN-2008 05:37	CHK		46.8000	
22-JAN-2008 04:46	CHK		46.7000	
23-JAN-2008 04:46	CHK		46.6000	
24-JAN-2008 04:48	CHK		46.8000	
25-JAN-2008 04:58	CHK		46.4000	
28-JAN-2008 10:19	CHK		46.3000	
29-JAN-2008 05:01	CHK		46.5000	
30-JAN-2008 04:49	CHK		46.7000	
31-JAN-2008 04:32	CHK		46.4000	

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		46.8000	
2-FEB-2008 04:49	CHK		46.9000	
4-FEB-2008 05:33	CHK		45.9000	
5-FEB-2008 04:49	CHK		46.9000	
6-FEB-2008 04:48	CHK		46.8000	
7-FEB-2008 04:51	CHK		47.3000	

8-FEB-2008 04:50	CHK	46.6000	
11-FEB-2008 04:50	CHK	46.8000	
12-FEB-2008 05:11	CHK	46.5000	
13-FEB-2008 05:17	CHK	46.2000	
14-FEB-2008 05:44	CHK	46.4000	
15-FEB-2008 04:46	CHK	46.8000	
16-FEB-2008 06:21	CHK	46.3000	
18-FEB-2008 05:37	CHK	43.2000	Be Ac
18-FEB-2008 05:56	CHK	45.8000	
19-FEB-2008 04:55	CHK	46.5000	
20-FEB-2008 04:48	CHK	45.9000	
21-FEB-2008 04:49	CHK	47.1000	
22-FEB-2008 04:49	CHK	46.7000	
23-FEB-2008 09:32	CHK	46.7000	
25-FEB-2008 04:51	CHK	45.9000	
26-FEB-2008 04:44	CHK	46.7000	
27-FEB-2008 04:49	CHK	45.8000	
28-FEB-2008 04:43	CHK	45.2000	In
29-FEB-2008 04:47	CHK	46.2000	
3-MAR-2008 04:56	CHK	46.7000	
4-MAR-2008 04:49	CHK	46.4000	
5-MAR-2008 04:57	CHK	47.3000	
6-MAR-2008 05:12	CHK	46.4000	
7-MAR-2008 04:52	CHK	46.2000	
10-MAR-2008 05:21	CHK	46.1000	
11-MAR-2008 05:39	CHK	47.2000	
12-MAR-2008 05:06	CHK	47.6000	In
13-MAR-2008 05:09	CHK	47.4000	
14-MAR-2008 05:43	CHK	47.4000	
17-MAR-2008 06:26	CHK	47.9000	In
18-MAR-2008 05:01	CHK	46.5000	
19-MAR-2008 04:55	CHK	45.8000	
20-MAR-2008 05:06	CHK	46.6000	
21-MAR-2008 05:02	CHK	45.8000	

-- Multi-Test Full Report --

Description : quad 1c 1" 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-JUN-2007 00:00

Mean : 51.024616      Std Deviation : 0.657934

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		50.5000		
12-JAN-2008 06:31	CHK		36.1000	Be Ac	
12-JAN-2008 07:07	CHK		51.0000		
14-JAN-2008 04:54	CHK		51.2000		
15-JAN-2008 04:44	CHK		51.1000		
16-JAN-2008 04:44	CHK		49.6000	In	
17-JAN-2008 04:40	CHK		51.2000		
18-JAN-2008 04:50	CHK		51.7000		
19-JAN-2008 05:11	CHK		51.1000		
21-JAN-2008 05:37	CHK		51.4000		
22-JAN-2008 04:46	CHK		50.4000		
23-JAN-2008 04:46	CHK		50.3000		
24-JAN-2008 04:48	CHK		51.0000		
25-JAN-2008 04:58	CHK		50.8000		
28-JAN-2008 10:19	CHK		51.1000		
29-JAN-2008 05:01	CHK		50.4000		
30-JAN-2008 04:49	CHK		51.2000		
31-JAN-2008 04:32	CHK		51.0000		
1-FEB-2008 04:41	CHK		50.6000		
2-FEB-2008 04:49	CHK		51.6000		
4-FEB-2008 05:33	CHK		50.3000		
5-FEB-2008 04:49	CHK		50.9000		
6-FEB-2008 04:48	CHK		51.6000		
7-FEB-2008 04:51	CHK		51.1000		
8-FEB-2008 04:50	CHK		50.7000		
11-FEB-2008 04:50	CHK		51.1000		
12-FEB-2008 05:11	CHK		51.6000		
13-FEB-2008 05:17	CHK		51.1000		
14-FEB-2008 05:44	CHK		50.8000		
15-FEB-2008 04:46	CHK		50.2000		
16-FEB-2008 06:21	CHK		50.9000		

18-FEB-2008 05:37	CHK	47.5000	Be Ac	
18-FEB-2008 05:56	CHK	50.6000		
19-FEB-2008 04:55	CHK	51.0000		
20-FEB-2008 04:48	CHK	51.7000		
21-FEB-2008 04:49	CHK	51.6000		
22-FEB-2008 04:49	CHK	51.7000		
23-FEB-2008 09:32	CHK	49.9000		
25-FEB-2008 04:51	CHK	50.9000		
26-FEB-2008 04:44	CHK	50.3000		
27-FEB-2008 04:49	CHK	51.4000		
28-FEB-2008 04:43	CHK	50.8000		
29-FEB-2008 04:47	CHK	50.6000		
3-MAR-2008 04:56	CHK	50.9000		
4-MAR-2008 04:49	CHK	50.8000		
5-MAR-2008 04:57	CHK	51.2000		
6-MAR-2008 05:12	CHK	50.3000		
7-MAR-2008 04:52	CHK	50.6000		
10-MAR-2008 05:21	CHK	49.9000		
11-MAR-2008 05:39	CHK	50.7000		
12-MAR-2008 05:06	CHK	50.0000		
13-MAR-2008 05:09	CHK	51.6000		
14-MAR-2008 05:43	CHK	51.3000		
17-MAR-2008 06:26	CHK	51.1000		
18-MAR-2008 05:01	CHK	51.3000		

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		52.2000		
20-MAR-2008 05:06	CHK		51.3000		
21-MAR-2008 05:02	CHK		50.4000		

-- Multi-Test Full Report --

Description : quad 1d 1" beta %eff  
Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 46.500000 Upper Bound : 49.750000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUN-2007 00:00  
 Mean : 48.156155 Std Deviation : 0.518197

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-JAN-2008 04:39	CHK		48.1000	
12-JAN-2008 06:31	CHK		37.0000	Be Ac
12-JAN-2008 07:07	CHK		47.6000	
14-JAN-2008 04:54	CHK		48.7000	
15-JAN-2008 04:44	CHK		47.9000	
16-JAN-2008 04:44	CHK		47.6000	
17-JAN-2008 04:40	CHK		48.6000	
18-JAN-2008 04:50	CHK		47.6000	
19-JAN-2008 05:11	CHK		48.1000	
21-JAN-2008 05:37	CHK		48.4000	
22-JAN-2008 04:46	CHK		47.6000	
23-JAN-2008 04:46	CHK		47.8000	
24-JAN-2008 04:48	CHK		48.1000	
25-JAN-2008 04:58	CHK		48.3000	
28-JAN-2008 10:19	CHK		47.6000	
29-JAN-2008 05:01	CHK		48.2000	
30-JAN-2008 04:49	CHK		48.3000	
31-JAN-2008 04:32	CHK		49.1000	
1-FEB-2008 04:41	CHK		48.3000	
2-FEB-2008 04:49	CHK		47.9000	
4-FEB-2008 05:33	CHK		48.1000	
5-FEB-2008 04:49	CHK		48.5000	
6-FEB-2008 04:48	CHK		48.4000	
7-FEB-2008 04:51	CHK		49.0000	
8-FEB-2008 04:50	CHK		48.2000	
11-FEB-2008 04:50	CHK		46.7000	In
12-FEB-2008 05:11	CHK		48.4000	
13-FEB-2008 05:17	CHK		48.1000	
14-FEB-2008 05:44	CHK		48.5000	
15-FEB-2008 04:46	CHK		47.3000	
16-FEB-2008 06:21	CHK		48.0000	
18-FEB-2008 05:37	CHK		44.3000	Be Ac
18-FEB-2008 05:56	CHK		47.9000	
19-FEB-2008 04:55	CHK		48.4000	
20-FEB-2008 04:48	CHK		48.1000	

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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21-FEB-2008 04:49  CHK          48.1000  | | |
22-FEB-2008 04:49  CHK          48.4000  | | |
23-FEB-2008 09:32  CHK          47.8000  | | |
25-FEB-2008 04:51  CHK          47.3000  | | |
26-FEB-2008 04:44  CHK          48.2000  | | |
27-FEB-2008 04:49  CHK          47.9000  | | |
28-FEB-2008 04:43  CHK          48.2000  | | |
29-FEB-2008 04:47  CHK          48.1000  | | |
 3-MAR-2008 04:56  CHK          48.5000  | | |
 4-MAR-2008 04:49  CHK          47.6000  | | |
 5-MAR-2008 04:57  CHK          47.6000  | | |
 6-MAR-2008 05:12  CHK          47.9000  | | |
 7-MAR-2008 04:52  CHK          48.6000  | | |
10-MAR-2008 05:21  CHK          47.7000  | | |
11-MAR-2008 05:39  CHK          47.4000  | | |
12-MAR-2008 05:06  CHK          48.5000  | | |
13-MAR-2008 05:09  CHK          47.3000  | | |
14-MAR-2008 05:43  CHK          48.2000  | | |
17-MAR-2008 06:26  CHK          48.4000  | | |
18-MAR-2008 05:01  CHK          48.2000  | | |
19-MAR-2008 04:55  CHK          48.8000  | | |
20-MAR-2008 05:06  CHK          48.6000  | | |
21-MAR-2008 05:02  CHK          47.8000  | | |

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Quality Assurance Report.

Generated 25-MAR-2008 18:58:56.45

QA Filename : \$DISK1:[QUAD1.QA]BKG\_1.QAF;2

-- Multi-Test Full Report --

Description : quad 1a 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-JUN-2007 00:00

Mean : 0.645497 Std Deviation : 0.101164

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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11-JAN-2008 02:20	BKG	0.6700			
12-JAN-2008 03:04	BKG	0.7600			R
12-JAN-2008 20:43	BKG	0.7000			
13-JAN-2008 21:38	BKG	0.6600			
15-JAN-2008 04:13	BKG	0.6700			
16-JAN-2008 02:20	BKG	0.7100			
17-JAN-2008 02:55	BKG	0.7200			
18-JAN-2008 03:42	BKG	0.7500			
19-JAN-2008 02:17	BKG	0.7100			
19-JAN-2008 15:41	BKG	0.6800			
20-JAN-2008 13:39	BKG	0.6400			
22-JAN-2008 02:15	BKG	0.6500			
23-JAN-2008 01:52	BKG	0.6900			
24-JAN-2008 03:41	BKG	0.7400			
25-JAN-2008 03:03	BKG	0.7000			
25-JAN-2008 23:30	BKG	0.7000			
27-JAN-2008 19:17	BKG	0.6700			
29-JAN-2008 01:41	BKG	0.6700			
30-JAN-2008 01:56	BKG	0.6900			
31-JAN-2008 02:15	BKG	0.7600			
1-FEB-2008 02:39	BKG	0.6400			
2-FEB-2008 00:09	BKG	0.6800			
2-FEB-2008 13:26	BKG	0.6900			
3-FEB-2008 18:42	BKG	0.7500			
5-FEB-2008 02:45	BKG	0.7100			
6-FEB-2008 01:38	BKG	0.7700			
7-FEB-2008 03:52	BKG	0.7200			
8-FEB-2008 01:59	BKG	0.7000			
8-FEB-2008 23:20	BKG	0.6300			
9-FEB-2008 13:57	BKG	0.6500			
10-FEB-2008 19:25	BKG	0.7100			
12-FEB-2008 02:15	BKG	0.6100			
13-FEB-2008 02:07	BKG	0.8200			
14-FEB-2008 02:30	BKG	0.5900			
14-FEB-2008 23:14	BKG	0.6100			
16-FEB-2008 01:36	BKG	0.6700			
16-FEB-2008 15:11	BKG	0.6800			
17-FEB-2008 14:26	BKG	0.6700			
19-FEB-2008 01:53	BKG	0.6000			
19-FEB-2008 23:26	BKG	0.8500		In	
21-FEB-2008 03:19	BKG	0.6500			



Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
22-FEB-2008 03:21	BKG		0.6300		
22-FEB-2008 23:17	BKG		0.7300		
23-FEB-2008 18:49	BKG		0.7000		
24-FEB-2008 19:17	BKG		0.7200		
26-FEB-2008 04:14	BKG		0.7200		
27-FEB-2008 01:51	BKG		0.7200		
28-FEB-2008 03:04	BKG		0.6300		
29-FEB-2008 03:58	BKG		0.7600		
29-FEB-2008 23:15	BKG		0.6600		
1-MAR-2008 12:15	BKG		0.7700		
2-MAR-2008 14:02	BKG		0.7600		
4-MAR-2008 00:23	BKG		0.8000		
4-MAR-2008 00:23	BKG		0.7600		
5-MAR-2008 01:23	BKG		0.5500		
6-MAR-2008 03:42	BKG		0.7500		
7-MAR-2008 02:47	BKG		0.8000		
7-MAR-2008 23:29	BKG		0.6700		
8-MAR-2008 17:08	BKG		0.7400		
9-MAR-2008 16:41	BKG		0.7900		
11-MAR-2008 03:01	BKG		0.6700		
12-MAR-2008 03:02	BKG		0.7100		
13-MAR-2008 02:57	BKG		0.8100		
14-MAR-2008 03:58	BKG		0.7100		
14-MAR-2008 23:35	BKG		0.6700		
15-MAR-2008 23:29	BKG		0.6100		
16-MAR-2008 15:22	BKG		0.6800		
18-MAR-2008 03:37	BKG		0.6900		
19-MAR-2008 03:31	BKG		0.7200		
20-MAR-2008 01:51	BKG		0.7800		
21-MAR-2008 03:37	BKG		0.7300		
21-MAR-2008 23:20	BKG		0.7100		
23-MAR-2008 20:01	BKG		0.7000		

-- Multi-Test Full Report --

Description : quad 1b 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-JUN-2007 00:00  
 Mean : 0.664437 Std Deviation : 0.059527

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-JAN-2008 02:20	BKG		0.7200		
12-JAN-2008 03:04	BKG		0.7000		R
12-JAN-2008 20:43	BKG		0.7100		
13-JAN-2008 21:38	BKG		0.6800		
15-JAN-2008 04:13	BKG		0.6400		
16-JAN-2008 02:20	BKG		0.6700		
17-JAN-2008 02:55	BKG		0.7600		
18-JAN-2008 03:42	BKG		0.6400		
19-JAN-2008 02:17	BKG		0.6200		

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
19-JAN-2008 15:41	BKG		0.6100		
20-JAN-2008 13:39	BKG		0.6100		
22-JAN-2008 02:15	BKG		0.7700		
23-JAN-2008 01:52	BKG		0.6700		
24-JAN-2008 03:41	BKG		0.7300		
25-JAN-2008 03:03	BKG		0.7000		
25-JAN-2008 23:30	BKG		0.7400		
27-JAN-2008 19:17	BKG		0.7300		
29-JAN-2008 01:41	BKG		0.7100		
30-JAN-2008 01:56	BKG		0.7100		
31-JAN-2008 02:15	BKG		0.7400		
1-FEB-2008 02:39	BKG		0.6600		
2-FEB-2008 00:09	BKG		0.7400		
2-FEB-2008 13:26	BKG		0.8000	In	
3-FEB-2008 18:42	BKG		0.6900		
5-FEB-2008 02:45	BKG		0.7200		
6-FEB-2008 01:38	BKG		0.7600		
7-FEB-2008 03:52	BKG		0.7700		
8-FEB-2008 01:59	BKG		0.7500		
8-FEB-2008 23:20	BKG		0.7700		
9-FEB-2008 13:57	BKG		0.7100		
10-FEB-2008 19:25	BKG		0.7900	In	
12-FEB-2008 02:15	BKG		0.7600		
13-FEB-2008 02:07	BKG		0.7400		
14-FEB-2008 02:30	BKG		0.7400		

14-FEB-2008 23:14	BKG	0.7300	
16-FEB-2008 01:36	BKG	0.7200	
16-FEB-2008 15:11	BKG	0.8200	In
17-FEB-2008 14:26	BKG	0.7600	
19-FEB-2008 01:53	BKG	0.7100	
19-FEB-2008 23:26	BKG	0.9400	Ac
21-FEB-2008 03:19	BKG	0.8300	In
22-FEB-2008 03:21	BKG	0.7600	
22-FEB-2008 23:17	BKG	0.8700	Ac
23-FEB-2008 18:49	BKG	0.8600	Ac
24-FEB-2008 19:17	BKG	0.8100	In
26-FEB-2008 04:14	BKG	0.8500	Ac
27-FEB-2008 01:51	BKG	0.7800	
28-FEB-2008 03:04	BKG	0.7300	
29-FEB-2008 03:58	BKG	0.8700	Ac
29-FEB-2008 23:15	BKG	0.8600	Ac
1-MAR-2008 12:15	BKG	0.8400	In
2-MAR-2008 14:02	BKG	0.8200	In
4-MAR-2008 00:23	BKG	0.8100	In
4-MAR-2008 00:23	BKG	0.8400	In
5-MAR-2008 01:23	BKG	0.8800	Ac
6-MAR-2008 03:42	BKG	1.0700	Ac
7-MAR-2008 02:47	BKG	0.8400	In
7-MAR-2008 23:29	BKG	0.8700	Ac
8-MAR-2008 17:08	BKG	0.8100	In
9-MAR-2008 16:41	BKG	0.9500	Ac
11-MAR-2008 03:01	BKG	0.9500	Ac
12-MAR-2008 03:02	BKG	0.9000	Ac
13-MAR-2008 02:57	BKG	1.0500	Ac
14-MAR-2008 03:58	BKG	0.9500	Ac

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 23:35	BKG		0.8600	Ac
15-MAR-2008 23:29	BKG		0.9000	Ac
16-MAR-2008 15:22	BKG		0.9900	Ac
18-MAR-2008 03:37	BKG		0.9100	Ac
19-MAR-2008 03:31	BKG		1.0300	Ac
20-MAR-2008 01:51	BKG		1.0600	Ac
21-MAR-2008 03:37	BKG		0.9500	Ac
21-MAR-2008 23:20	BKG		0.9900	Ac
23-MAR-2008 20:01	BKG		1.0100	Ac

## -- Multi-Test Full Report --

Description : quad 1c 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-JUN-2007 00:00  
 Mean : 0.557351              Std Deviation : 0.061511

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-JAN-2008 02:20	BKG		0.6900	In	
12-JAN-2008 03:04	BKG		0.5100		R
12-JAN-2008 20:43	BKG		0.6200		
13-JAN-2008 21:38	BKG		0.5500		
15-JAN-2008 04:13	BKG		0.5800		
16-JAN-2008 02:20	BKG		0.6000		
17-JAN-2008 02:55	BKG		0.5000		
18-JAN-2008 03:42	BKG		0.5900		
19-JAN-2008 02:17	BKG		0.5700		
19-JAN-2008 15:41	BKG		0.6200		
20-JAN-2008 13:39	BKG		0.6300		
22-JAN-2008 02:15	BKG		0.5700		
23-JAN-2008 01:52	BKG		0.6000		
24-JAN-2008 03:41	BKG		0.6800		
25-JAN-2008 03:03	BKG		0.5700		
25-JAN-2008 23:30	BKG		0.6400		
27-JAN-2008 19:17	BKG		0.5900		
29-JAN-2008 01:41	BKG		0.5500		
30-JAN-2008 01:56	BKG		0.5800		
31-JAN-2008 02:15	BKG		0.6100		
1-FEB-2008 02:39	BKG		0.6100		
2-FEB-2008 00:09	BKG		0.6500		
2-FEB-2008 13:26	BKG		0.6000		
3-FEB-2008 18:42	BKG		0.6200		
5-FEB-2008 02:45	BKG		0.6000		
6-FEB-2008 01:38	BKG		0.6400		
7-FEB-2008 03:52	BKG		0.6700		
8-FEB-2008 01:59	BKG		0.6200		
8-FEB-2008 23:20	BKG		0.5300		

9-FEB-2008 13:57	BKG	0.6200	
10-FEB-2008 19:25	BKG	0.5500	
12-FEB-2008 02:15	BKG	0.5500	

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		0.6200	
14-FEB-2008 02:30	BKG		0.6400	
14-FEB-2008 23:14	BKG		0.6400	
16-FEB-2008 01:36	BKG		0.5800	
16-FEB-2008 15:11	BKG		0.7000	In
17-FEB-2008 14:26	BKG		0.6600	
19-FEB-2008 01:53	BKG		0.6200	
19-FEB-2008 23:26	BKG		0.6200	
21-FEB-2008 03:19	BKG		0.6500	
22-FEB-2008 03:21	BKG		0.6500	
22-FEB-2008 23:17	BKG		0.6200	
23-FEB-2008 18:49	BKG		0.6000	
24-FEB-2008 19:17	BKG		0.6800	
26-FEB-2008 04:14	BKG		0.5300	
27-FEB-2008 01:51	BKG		0.6100	
28-FEB-2008 03:04	BKG		0.5900	
29-FEB-2008 03:58	BKG		0.5900	
29-FEB-2008 23:15	BKG		0.5500	
1-MAR-2008 12:15	BKG		0.5700	
2-MAR-2008 14:02	BKG		0.5800	
4-MAR-2008 00:23	BKG		0.6600	
4-MAR-2008 00:23	BKG		0.6600	
5-MAR-2008 01:23	BKG		0.5700	
6-MAR-2008 03:42	BKG		0.9000	Ac
7-MAR-2008 02:47	BKG		0.5900	
7-MAR-2008 23:29	BKG		0.5900	
8-MAR-2008 17:08	BKG		0.5600	
9-MAR-2008 16:41	BKG		0.6400	
11-MAR-2008 03:01	BKG		0.6000	
12-MAR-2008 03:02	BKG		0.6200	
13-MAR-2008 02:57	BKG		0.5900	
14-MAR-2008 03:58	BKG		0.5800	
14-MAR-2008 23:35	BKG		0.5500	
15-MAR-2008 23:29	BKG		0.5700	
16-MAR-2008 15:22	BKG		0.5200	
18-MAR-2008 03:37	BKG		0.5200	

19-MAR-2008 03:31	BKG	0.6100			
20-MAR-2008 01:51	BKG	0.6400			
21-MAR-2008 03:37	BKG	0.5800			
21-MAR-2008 23:20	BKG	0.5800			
23-MAR-2008 20:01	BKG	0.5900			

## -- Multi-Test Full Report --

Description : quad 1d 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-JUN-2007 00:00  
 Mean : 0.625364              Std Deviation : 0.054096

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		0.7000			
12-JAN-2008 03:04	BKG		0.6200			R
12-JAN-2008 20:43	BKG		0.5900			
13-JAN-2008 21:38	BKG		0.6500			
15-JAN-2008 04:13	BKG		0.5700			
16-JAN-2008 02:20	BKG		0.6100			
17-JAN-2008 02:55	BKG		0.6000			
18-JAN-2008 03:42	BKG		0.6300			
19-JAN-2008 02:17	BKG		0.6500			
19-JAN-2008 15:41	BKG		0.6500			
20-JAN-2008 13:39	BKG		0.6400			
22-JAN-2008 02:15	BKG		0.6400			
23-JAN-2008 01:52	BKG		0.7200			
24-JAN-2008 03:41	BKG		0.6700			
25-JAN-2008 03:03	BKG		0.5900			
25-JAN-2008 23:30	BKG		0.5700			
27-JAN-2008 19:17	BKG		0.6800			
29-JAN-2008 01:41	BKG		0.5500			
30-JAN-2008 01:56	BKG		0.5900			
31-JAN-2008 02:15	BKG		0.5900			

1-FEB-2008 02:39	BKG	0.6600	
2-FEB-2008 00:09	BKG	0.6400	
2-FEB-2008 13:26	BKG	0.7500	In
3-FEB-2008 18:42	BKG	0.6600	
5-FEB-2008 02:45	BKG	0.6800	
6-FEB-2008 01:38	BKG	0.6000	
7-FEB-2008 03:52	BKG	0.6900	
8-FEB-2008 01:59	BKG	0.6300	
8-FEB-2008 23:20	BKG	0.6400	
9-FEB-2008 13:57	BKG	0.6500	
10-FEB-2008 19:25	BKG	0.5900	
12-FEB-2008 02:15	BKG	0.6100	
13-FEB-2008 02:07	BKG	0.6700	
14-FEB-2008 02:30	BKG	0.6700	
14-FEB-2008 23:14	BKG	0.5400	
16-FEB-2008 01:36	BKG	0.7000	
16-FEB-2008 15:11	BKG	0.5900	
17-FEB-2008 14:26	BKG	0.6100	
19-FEB-2008 01:53	BKG	0.6000	
19-FEB-2008 23:26	BKG	0.6500	
21-FEB-2008 03:19	BKG	0.7100	
22-FEB-2008 03:21	BKG	0.6200	
22-FEB-2008 23:17	BKG	0.6700	
23-FEB-2008 18:49	BKG	0.6300	
24-FEB-2008 19:17	BKG	0.6900	
26-FEB-2008 04:14	BKG	0.6500	
27-FEB-2008 01:51	BKG	0.6400	
28-FEB-2008 03:04	BKG	0.7200	
29-FEB-2008 03:58	BKG	0.6300	
29-FEB-2008 23:15	BKG	0.6400	
1-MAR-2008 12:15	BKG	0.6600	
2-MAR-2008 14:02	BKG	0.5700	
4-MAR-2008 00:23	BKG	0.5800	
4-MAR-2008 00:23	BKG	0.6100	
5-MAR-2008 01:23	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
6-MAR-2008 03:42	BKG		0.7200	
7-MAR-2008 02:47	BKG		0.6700	
7-MAR-2008 23:29	BKG		0.6100	
8-MAR-2008 17:08	BKG		0.6200	

9-MAR-2008 16:41 BKG	0.7500	In	
11-MAR-2008 03:01 BKG	0.7100		
12-MAR-2008 03:02 BKG	0.6600		
13-MAR-2008 02:57 BKG	0.6600		
14-MAR-2008 03:58 BKG	0.7000		
14-MAR-2008 23:35 BKG	0.6600		
15-MAR-2008 23:29 BKG	0.6400		
16-MAR-2008 15:22 BKG	0.6600		
18-MAR-2008 03:37 BKG	0.5600		
19-MAR-2008 03:31 BKG	0.6800		
20-MAR-2008 01:51 BKG	0.6800		
21-MAR-2008 03:37 BKG	0.6800		
21-MAR-2008 23:20 BKG	0.6100		
23-MAR-2008 20:01 BKG	0.6400		



## Quality Assurance Report.

Generated 26-MAR-2008 13:40:09.47

QA Filename : \$DISK1:[QUAD7.QA]CHK.QAF;2

## -- Multi-Test Full Report --

Description : quad 7a 1" beta %eff

Parameter Units : percent Parameter Type : Generic

## ---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 41.000000 Upper Bound : 45.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUN-2007 00:00

Mean : 43.066666 Std Deviation : 0.694772

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 04:50	CHK		42.9000		
12-FEB-2008 05:11	CHK		43.4000		
13-FEB-2008 05:17	CHK		42.5000		
14-FEB-2008 05:45	CHK		42.7000		
15-FEB-2008 04:46	CHK		43.1000		
16-FEB-2008 06:17	CHK		42.7000		
18-FEB-2008 05:36	CHK		42.4000		
19-FEB-2008 04:56	CHK		43.0000		
20-FEB-2008 04:48	CHK		42.4000		
21-FEB-2008 04:48	CHK		42.6000		
22-FEB-2008 04:49	CHK		42.8000		
23-FEB-2008 09:56	CHK		42.5000		
25-FEB-2008 04:51	CHK		42.7000		
26-FEB-2008 04:45	CHK		43.4000		
27-FEB-2008 04:44	CHK		42.4000		
28-FEB-2008 04:49	CHK		42.4000		
29-FEB-2008 04:47	CHK		43.7000		
3-MAR-2008 04:56	CHK		43.1000		
4-MAR-2008 04:50	CHK		43.1000		
5-MAR-2008 04:57	CHK		42.7000		
7-MAR-2008 04:53	CHK		42.4000		

10-MAR-2008 05:25	CHK	41.7000			
11-MAR-2008 05:39	CHK	43.0000			
12-MAR-2008 05:01	CHK	42.9000			
13-MAR-2008 05:09	CHK	42.9000			
14-MAR-2008 05:39	CHK	43.1000			
17-MAR-2008 06:26	CHK	43.0000			
18-MAR-2008 05:02	CHK	42.9000			
19-MAR-2008 04:55	CHK	43.1000			
20-MAR-2008 05:06	CHK	43.2000			
21-MAR-2008 05:02	CHK	43.3000			
24-MAR-2008 06:46	CHK	43.4000			
25-MAR-2008 05:02	CHK	42.7000			

-- Multi-Test Full Report --

Description : quad 7b 1" beta %eff  
 Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 43.000000 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-JUN-2007 00:00  
 Mean : 44.638760 Std Deviation : 0.608958

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	44.0000			
12-FEB-2008 05:11	CHK	43.2000		In	
13-FEB-2008 05:17	CHK	44.5000			
14-FEB-2008 05:45	CHK	43.7000			
15-FEB-2008 04:46	CHK	45.1000			
16-FEB-2008 06:17	CHK	44.6000			
18-FEB-2008 05:36	CHK	44.6000			
19-FEB-2008 04:56	CHK	44.4000			
20-FEB-2008 04:48	CHK	44.0000			
21-FEB-2008 04:48	CHK	45.0000			

22-FEB-2008 04:49	CHK	44.5000			
23-FEB-2008 09:56	CHK	44.6000			
25-FEB-2008 04:51	CHK	45.2000			
26-FEB-2008 04:45	CHK	45.2000			
27-FEB-2008 04:44	CHK	45.0000			
28-FEB-2008 04:49	CHK	44.9000			
29-FEB-2008 04:47	CHK	45.2000			
3-MAR-2008 04:56	CHK	44.8000			
4-MAR-2008 04:50	CHK	44.4000			
5-MAR-2008 04:57	CHK	44.8000			
7-MAR-2008 04:53	CHK	44.7000			
10-MAR-2008 05:25	CHK	44.3000			
11-MAR-2008 05:39	CHK	44.6000			
12-MAR-2008 05:01	CHK	45.3000			
13-MAR-2008 05:09	CHK	45.2000			
14-MAR-2008 05:39	CHK	45.6000			
17-MAR-2008 06:26	CHK	44.8000			
18-MAR-2008 05:02	CHK	44.6000			
19-MAR-2008 04:55	CHK	45.2000			
20-MAR-2008 05:06	CHK	45.7000			
21-MAR-2008 05:02	CHK	45.3000			
24-MAR-2008 06:46	CHK	44.8000			
25-MAR-2008 05:02	CHK	45.8000			

## -- Multi-Test Full Report --

Description : quad 7c 1" beta %eff

Parameter Units : percent Parameter Type : Generic

## ---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 37.000000 Upper Bound : 41.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUN-2007 00:00

Mean : 39.105072 Std Deviation : 0.586879

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 04:50	CHK		38.7000			
12-FEB-2008 05:11	CHK		37.9000		In	
13-FEB-2008 05:17	CHK		38.0000			

14-FEB-2008 05:45 CHK 38.3000 | | |  
 15-FEB-2008 04:46 CHK 38.5000 | | |

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
16-FEB-2008 06:17	CHK		38.9000	
18-FEB-2008 05:36	CHK		39.4000	
19-FEB-2008 04:56	CHK		38.3000	
20-FEB-2008 04:48	CHK		38.9000	
21-FEB-2008 04:48	CHK		39.1000	
22-FEB-2008 04:49	CHK		39.1000	
23-FEB-2008 09:56	CHK		39.1000	
25-FEB-2008 04:51	CHK		37.9000	In
26-FEB-2008 04:45	CHK		38.1000	
27-FEB-2008 04:44	CHK		38.5000	
28-FEB-2008 04:49	CHK		39.3000	
29-FEB-2008 04:47	CHK		38.3000	
3-MAR-2008 04:56	CHK		38.3000	
4-MAR-2008 04:50	CHK		38.9000	
5-MAR-2008 04:57	CHK		36.7000	Be Ac
7-MAR-2008 04:53	CHK		38.3000	
10-MAR-2008 05:25	CHK		38.3000	
11-MAR-2008 05:39	CHK		39.2000	
12-MAR-2008 05:01	CHK		38.6000	
13-MAR-2008 05:09	CHK		38.7000	
14-MAR-2008 05:39	CHK		39.4000	
17-MAR-2008 06:26	CHK		38.5000	
18-MAR-2008 05:02	CHK		39.1000	
19-MAR-2008 04:55	CHK		38.8000	
20-MAR-2008 05:06	CHK		38.5000	
21-MAR-2008 05:02	CHK		38.7000	
24-MAR-2008 06:46	CHK		38.8000	
25-MAR-2008 05:02	CHK		38.7000	

-- Multi-Test Full Report --

Description : quad 7d 1" beta %eff  
 Parameter Units : percent Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 15.000000 Upper Bound : 45.000000

Investigate Level : 2.000000      Action Level : 3.000000

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

Start Date : 1-JAN-2007 00:00 End Date : 1-JUN-2007 00:00

Mean : 33.268749      Std Deviation : 6.344590

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-FEB-2008 04:50	CHK		29.8000	
12-FEB-2008 05:11	CHK		25.6000	
13-FEB-2008 05:17	CHK		26.4000	
14-FEB-2008 05:45	CHK		24.2000	
15-FEB-2008 04:46	CHK		36.8000	
16-FEB-2008 06:17	CHK		27.1000	
18-FEB-2008 05:36	CHK		26.4000	
19-FEB-2008 04:56	CHK		27.0000	
20-FEB-2008 04:48	CHK		27.4000	
21-FEB-2008 04:48	CHK		27.5000	

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 04:49	CHK		36.0000	
23-FEB-2008 09:56	CHK		26.5000	
25-FEB-2008 04:51	CHK		26.4000	
26-FEB-2008 04:45	CHK		25.6000	
27-FEB-2008 04:44	CHK		43.5000	
28-FEB-2008 04:49	CHK		43.2000	
29-FEB-2008 04:47	CHK		44.3000	
3-MAR-2008 04:56	CHK		43.8000	
4-MAR-2008 04:50	CHK		43.4000	
5-MAR-2008 04:57	CHK		43.9000	
7-MAR-2008 04:53	CHK		43.4000	
10-MAR-2008 05:25	CHK		43.3000	
11-MAR-2008 05:39	CHK		43.5000	
12-MAR-2008 05:01	CHK		43.8000	
13-MAR-2008 05:09	CHK		44.1000	
14-MAR-2008 05:39	CHK		44.2000	
17-MAR-2008 06:26	CHK		43.6000	
18-MAR-2008 05:02	CHK		44.2000	
19-MAR-2008 04:55	CHK		26.8000	
20-MAR-2008 05:06	CHK		43.2000	
21-MAR-2008 05:02	CHK		44.1000	

24-MAR-2008 06:46 CHK 44.4000 | | |  
 25-MAR-2008 05:02 CHK 43.1000 | | |

Quality Assurance Report. Generated 26-MAR-2008 13:40:10.62

QA Filename : \$DISK1:[QUAD7.QA]BKG\_1.QAF;2

-- Multi-Test Full Report --

Description : quad 7a 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-JUN-2007 00:00  
 Mean : 0.760199 Std Deviation : 0.050153

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
10-FEB-2008 19:27	BKG		0.9800	Ac	
12-FEB-2008 02:16	BKG		0.8000		
13-FEB-2008 02:08	BKG		0.8500		
14-FEB-2008 02:31	BKG		0.8600		
14-FEB-2008 23:18	BKG		0.8900	In	
16-FEB-2008 01:36	BKG		0.8900	In	
16-FEB-2008 15:12	BKG		0.9400	Ac	
17-FEB-2008 14:29	BKG		0.9500	Ac	
19-FEB-2008 02:09	BKG		0.9300	Ac	
19-FEB-2008 23:27	BKG		0.8500		
21-FEB-2008 03:20	BKG		0.9100	In	
22-FEB-2008 03:23	BKG		0.9100	In	
22-FEB-2008 23:18	BKG		0.9100	In	
23-FEB-2008 18:50	BKG		1.0100	Ac	
24-FEB-2008 19:17	BKG		0.9600	Ac	
26-FEB-2008 04:15	BKG		0.9800	Ac	
27-FEB-2008 01:52	BKG		0.8700	In	
28-FEB-2008 03:05	BKG		0.8800	In	
29-FEB-2008 03:59	BKG		1.0000	Ac	
29-FEB-2008 23:15	BKG		0.9500	Ac	
1-MAR-2008 12:16	BKG		0.9800	Ac	
2-MAR-2008 12:03	BKG		1.0500	Ac	

2-MAR-2008 12:03	BKG	1.0200	Ac	
4-MAR-2008 00:24	BKG	1.0200	Ac	
4-MAR-2008 00:24	BKG	0.9600	Ac	
5-MAR-2008 01:09	BKG	1.0600	Ac	
6-MAR-2008 20:01	BKG	1.0600	Ac	
7-MAR-2008 03:09	BKG	1.0600	Ac	
7-MAR-2008 23:29	BKG	0.9700	Ac	
8-MAR-2008 17:08	BKG	1.0300	Ac	
9-MAR-2008 16:42	BKG	0.9500	Ac	
11-MAR-2008 02:57	BKG	0.9800	Ac	
12-MAR-2008 03:00	BKG	1.0100	Ac	
13-MAR-2008 00:33	BKG	1.1000	Ac	
13-MAR-2008 00:33	BKG	1.1100	Ac	
14-MAR-2008 04:50	BKG	1.0900	Ac	
14-MAR-2008 23:36	BKG	1.0300	Ac	
15-MAR-2008 23:29	BKG	1.1000	Ac	
16-MAR-2008 14:33	BKG	1.0500	Ac	
18-MAR-2008 03:37	BKG	1.0700	Ac	
19-MAR-2008 03:28	BKG	1.0900	Ac	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
20-MAR-2008 02:15	BKG		0.9200	Ac
21-MAR-2008 04:17	BKG		1.0800	Ac
21-MAR-2008 23:23	BKG		1.0100	Ac
23-MAR-2008 20:02	BKG		1.0800	Ac
25-MAR-2008 02:37	BKG		1.1500	Ac

-- Multi-Test Full Report --

Description : quad 7b 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-JUN-2007 00:00  
 Mean : 0.734636                      Std Deviation : 0.058819

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
10-FEB-2008 19:27	BKG		0.9700	Ac

12-FEB-2008 02:16	BKG	0.9100	In	
13-FEB-2008 02:08	BKG	0.9900	Ac	
14-FEB-2008 02:31	BKG	1.0500	Ac	
14-FEB-2008 23:18	BKG	1.0000	Ac	
16-FEB-2008 01:36	BKG	1.0100	Ac	
16-FEB-2008 15:12	BKG	1.0100	Ac	
17-FEB-2008 14:29	BKG	0.9200	Ac	
19-FEB-2008 02:09	BKG	0.9300	Ac	
19-FEB-2008 23:27	BKG	1.0200	Ac	
21-FEB-2008 03:20	BKG	1.0400	Ac	
22-FEB-2008 03:23	BKG	1.0300	Ac	
22-FEB-2008 23:18	BKG	1.1000	Ac	
23-FEB-2008 18:50	BKG	0.9500	Ac	
24-FEB-2008 19:17	BKG	1.0600	Ac	
26-FEB-2008 04:15	BKG	1.0500	Ac	
27-FEB-2008 01:52	BKG	1.1700	Ac	
28-FEB-2008 03:05	BKG	1.0600	Ac	
29-FEB-2008 03:59	BKG	1.1000	Ac	
29-FEB-2008 23:15	BKG	1.0100	Ac	
1-MAR-2008 12:16	BKG	1.2100	Ac	
2-MAR-2008 12:03	BKG	1.1200	Ac	
2-MAR-2008 12:03	BKG	1.1300	Ac	
4-MAR-2008 00:24	BKG	1.0800	Ac	
4-MAR-2008 00:24	BKG	1.1000	Ac	
5-MAR-2008 01:09	BKG	1.2500	Ac	
6-MAR-2008 20:01	BKG	1.5000	Ac	
7-MAR-2008 03:09	BKG	1.1700	Ac	
7-MAR-2008 23:29	BKG	1.2000	Ac	
8-MAR-2008 17:08	BKG	1.3100	Ac	
9-MAR-2008 16:42	BKG	1.2400	Ac	
11-MAR-2008 02:57	BKG	1.1900	Ac	
12-MAR-2008 03:00	BKG	1.3000	Ac	
13-MAR-2008 00:33	BKG	1.5300	Ac	
13-MAR-2008 00:33	BKG	1.4300	Ac	
14-MAR-2008 04:50	BKG	1.2500	Ac	

Quality Assurance Multi-Test Full Report (continued)

Page : 3

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
14-MAR-2008 23:36	BKG		1.2600	Ac	
15-MAR-2008 23:29	BKG		1.2600	Ac	
16-MAR-2008 14:33	BKG		1.3800	Ac	
18-MAR-2008 03:37	BKG		1.3200	Ac	



19-MAR-2008 03:28	BKG	1.2900	Ac	
20-MAR-2008 02:15	BKG	1.2400	Ac	
21-MAR-2008 04:17	BKG	1.3100	Ac	
21-MAR-2008 23:23	BKG	1.2400	Ac	
23-MAR-2008 20:02	BKG	1.4700	Ac	
25-MAR-2008 02:37	BKG	1.5200	Ac	

## -- Multi-Test Full Report --

Description : quad 7c 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-JUN-2007 00:00  
 Mean : 0.904636              Std Deviation : 0.084686

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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10-FEB-2008 19:27	BKG		0.9600			
12-FEB-2008 02:16	BKG		0.8800			
13-FEB-2008 02:08	BKG		0.9500			
14-FEB-2008 02:31	BKG		0.9800			
14-FEB-2008 23:18	BKG		1.0100			
16-FEB-2008 01:36	BKG		0.9500			
16-FEB-2008 15:12	BKG		0.9100			
17-FEB-2008 14:29	BKG		0.8800			
19-FEB-2008 02:09	BKG		1.0600			
19-FEB-2008 23:27	BKG		1.0300			
21-FEB-2008 03:20	BKG		1.0100			
22-FEB-2008 03:23	BKG		0.9800			
22-FEB-2008 23:18	BKG		0.9100			
23-FEB-2008 18:50	BKG		0.9800			
24-FEB-2008 19:17	BKG		1.0400			
26-FEB-2008 04:15	BKG		0.9400			
27-FEB-2008 01:52	BKG		0.9800			
28-FEB-2008 03:05	BKG		0.9300			
29-FEB-2008 03:59	BKG		0.9600			
29-FEB-2008 23:15	BKG		0.9500			
1-MAR-2008 12:16	BKG		0.9100			
2-MAR-2008 12:03	BKG		0.9100			
2-MAR-2008 12:03	BKG		0.9200			

4-MAR-2008 00:24	BKG	0.8800	
4-MAR-2008 00:24	BKG	0.9000	
5-MAR-2008 01:09	BKG	1.0200	
6-MAR-2008 20:01	BKG	1.0100	
7-MAR-2008 03:09	BKG	0.9400	
7-MAR-2008 23:29	BKG	1.0100	
8-MAR-2008 17:08	BKG	0.8700	
9-MAR-2008 16:42	BKG	0.9800	

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

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
11-MAR-2008 02:57	BKG		1.0100	
12-MAR-2008 03:00	BKG		1.0000	
13-MAR-2008 00:33	BKG		1.2400	Ac
13-MAR-2008 00:33	BKG		1.1600	Ac
14-MAR-2008 04:50	BKG		1.0200	
14-MAR-2008 23:36	BKG		1.0000	
15-MAR-2008 23:29	BKG		0.9400	
16-MAR-2008 14:33	BKG		1.0000	
18-MAR-2008 03:37	BKG		0.9200	
19-MAR-2008 03:28	BKG		1.0200	
20-MAR-2008 02:15	BKG		0.9900	
21-MAR-2008 04:17	BKG		1.0100	
21-MAR-2008 23:23	BKG		0.8600	
23-MAR-2008 20:02	BKG		0.9700	
25-MAR-2008 02:37	BKG		1.0700	

-- Multi-Test Full Report --

Description : quad 7d 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-JUN-2007 00:00  
 Mean : 0.622848                      Std Deviation : 0.119255

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
10-FEB-2008 19:27	BKG		0.5000	
12-FEB-2008 02:16	BKG		0.4400	

13-FEB-2008 02:08	BKG	0.4900	
14-FEB-2008 02:31	BKG	0.4000	
14-FEB-2008 23:18	BKG	0.4000	
16-FEB-2008 01:36	BKG	0.5100	
16-FEB-2008 15:12	BKG	0.7600	
17-FEB-2008 14:29	BKG	0.7700	
19-FEB-2008 02:09	BKG	0.4900	
19-FEB-2008 23:27	BKG	0.5100	
21-FEB-2008 03:20	BKG	0.5400	
22-FEB-2008 03:23	BKG	0.7100	
22-FEB-2008 23:18	BKG	0.5900	
23-FEB-2008 18:50	BKG	0.8000	
24-FEB-2008 19:17	BKG	0.7400	
26-FEB-2008 04:15	BKG	0.4600	
27-FEB-2008 01:52	BKG	0.8100	
28-FEB-2008 03:05	BKG	0.7300	
29-FEB-2008 03:59	BKG	0.7800	
29-FEB-2008 23:15	BKG	0.8100	
1-MAR-2008 12:16	BKG	0.7100	
2-MAR-2008 12:03	BKG	0.8000	
2-MAR-2008 12:03	BKG	0.7700	
4-MAR-2008 00:24	BKG	0.7900	
4-MAR-2008 00:24	BKG	0.7900	
5-MAR-2008 01:09	BKG	0.8200	

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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6-MAR-2008 20:01	BKG	0.8200	
7-MAR-2008 03:09	BKG	0.8000	
7-MAR-2008 23:29	BKG	0.8000	
8-MAR-2008 17:08	BKG	0.8800	In
9-MAR-2008 16:42	BKG	0.7700	
11-MAR-2008 02:57	BKG	0.8100	
12-MAR-2008 03:00	BKG	0.7700	
13-MAR-2008 00:33	BKG	0.8900	In
13-MAR-2008 00:33	BKG	0.8400	
14-MAR-2008 04:50	BKG	0.7900	
14-MAR-2008 23:36	BKG	0.8200	
15-MAR-2008 23:29	BKG	0.8500	
16-MAR-2008 14:33	BKG	0.8500	
18-MAR-2008 03:37	BKG	0.7000	
19-MAR-2008 03:28	BKG	0.8300	

20-MAR-2008 02:15 BKG	0.8500			
21-MAR-2008 04:17 BKG	0.7400			
21-MAR-2008 23:23 BKG	0.7700			
23-MAR-2008 20:02 BKG	0.8500			
25-MAR-2008 02:37 BKG	0.9000	In		

RADIUM 226  
SAMPLE AND QC DATA

Lot No., Due Date: F8A250205,F8A260145; 02/28/2008,02/25/2008

Client, Site: 1418995; LANDWELL - Tronox Parcel H

QC Batch No., Method Test: 8042381; 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

3/5/08

**Data Review Checklist**  
**RADIOCHEMISTRY**  
 Second Level Review

Batch Number: 8042381

Review Item	Yes (✓)	No (✓)	NA (✓)
<b>A. Sample Analysis</b>			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery 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?	✓		
<b>C. Other</b>			
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: Erika Ford Date: 3/6/18

2/21/2008 1:37:39 PM

1418995, Landwell Company  
Landwell Company

### 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:11

Pipet #:

Sep1 DT/Tm Tech: 2/25/08 14:55 DL

AnalyDueDate: 02/22/2008

Batch: 8042381  
SEQ Batch. Test: 8042382, D9TF

PM, Quote: JAE, 78254

Sep2 DT/Tm Tech:

Prep Tech: ,Barcolt

pCi/g

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, Ini/Date	Comments:
1 KF5GG-1-AE F8A250205-13-SAMP		1.03g.in	RATA30224 02/07/08	2126108 115		9"		1734	2/25/08	
				7.4282 = 1.0389 7.15					2HA 3-3-08 (115) Alpha	15:15 SB 9:33 SB
01/24/2008 08:40										Beta:
2 KF5GL-1-AE F8A250205-15-SAMP		1.03g.in	RATA30225 02/07/08			9"		1142 1815	2/25/08 2/25/08	
				7.4230 = 1.0774 6.89					3MA 3-3-08 (937) Alpha	15:15 SB 9:42 SB
01/24/2008 09:30										Beta:
3 KF6EM-1-AE F8A260145-1-SAMP		1.01g.in	RATA30226 02/07/08			9"		845	2/25/08	
				7.4540 = 1.0000 7.50					4HC 3-3-08 (087) Alpha	15:15 SB 9:41 SB
01/25/2008 12:10										Beta:
4 KF6EP-1-AE F8A260145-2-SAMP		1.01g.in	RATA30227 02/07/08			9"		1919	2/25/08	
				7.5109 = 1.0579 7.10					5HA 3-3-08 (005) Alpha	15:15 SB 9:44 SB
01/25/2008 12:50										Beta:



2/21/2008 1:37:40 PM Balance Id:11  
 141895, Landwell Company Pipet #:  
 Landwell Company  
**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  
**AnalyteDueDate: 02/22/2008**  
 pCi/g Prep Tech: ,Barcotl  
 Batch: 8042381 PM, Quote: JAE, 78254  
 SEQ Batch, Test: 8042382, 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:
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5 KF6EQ-1-AE 1.02g.in RATA30228 02/07/08  
 F8A260145-3-SAMP  
 7.5057 ✓ = 1.0527  
 7.13  
 9" 1957 2/25/08  
 2-26-08 15:15 SB  
 GMB 3-3-08 9:48 SB  
 (970) Alpha: Beta:

6 KF6ER-1-AE 1.00g.in RATA30229 02/07/08  
 F8A260145-4-SAMP  
 7.5005 ✓ = 1.0654  
 7.04  
 9" 2118 2/25/08  
 2-26-08 15:15 SB  
 JHB 3-3-08 9:47 SB  
 (32) Alpha: Beta:

7 KF6ET-1-AE 1.00g.in RATA30230 02/07/08  
 F8A260145-5-SAMP  
 7.4385 ✓ = 1.0551  
 7.05  
 9" 2157 2/25/08  
 2-26-08 15:15 SB  
 8HA 3-3-08 9:43 SB  
 (440) Alpha: Beta:

8 KF6EV-1-AE 1.00g.in RATA30231 02/07/08  
 F8A260145-6-SAMP  
 7.4126 ✓ = 1.0620  
 6.98  
 9" 2230 2/25/08  
 2-26-08 15:15 SB  
 9RC 3-3-08 10:37 SB  
 (129) Alpha: Beta:

2/21/2008 1:37:40 PM Balance Id:11  
 1418995, Landwell Company Pipet #:  
 Landwell Company  
**Sample Preparation/Analysis**  
 D9 Ra-226/228 PprRC5013/5032, SepRC5005  
 TE Ba-133 by Nat & Ra-226 by Alpha Scint 7 day ingrow  
 01 STANDARD TEST SET

**AnalyteDate:** 02/22/2008 **Sep1 DT/Tm Tech:**  
**Batch:** 8042381 **Sep2 DT/Tm Tech:**  
 SEO Batch, Test: 8042382, D9TF **Prep Tech:** ,Barcotl

**PM, Quote:** JAE, 78254

**pCi/g**

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 KF6EW-1-AE	1.01g.in	1.01g.in	RATA30232				94	OSB	2/26/08	15:45 SB
F8A260145-7-SAMP			02/07/08						2/26/08	15:45 SB

01/25/2008 08:05 #Containers: 1

AmtRec: 500SL	RATA30233	02/07/08	Scr:	Beta:
1.01g.in			94	
			911	

F8A260145-8-SAMP

AmtRec: 500SL	RATA30233	02/07/08	Scr:	Beta:
1.01g.in			94	
			911	

01/25/2008 08:20 #Containers: 1

AmtRec: 500SL	RATA30234	02/07/08	Scr:	Beta:
1.01g.in			65	
			65	

F8A260145-9-SAMP

AmtRec: 500SL	RATA30235	02/07/08	Scr:	Beta:
1.01g.in			611	
			611	

01/25/2008 08:40 #Containers: 1

AmtRec: 500SL	RATA30235	02/07/08	Scr:	Beta:
1.01g.in			611	
			611	

F8A260145-10-SAMP

AmtRec: 500SL	RATA30235	02/07/08	Scr:	Beta:
1.01g.in			611	
			611	

01/25/2008 08:55 #Containers: 2

AmtRec: 2X500SL	RATA30235	02/07/08	Scr:	Beta:
1.01g.in			611	
			611	

TAL Richland Key In - Initial Amt. fi - Final Amt. di - Diluted Amt. s1 - Sep1, s2 - Sep2 Page 3  
 Richland Wa. pd - Prep Dt. r - Reference Dt. ec-Enrichment Cell, ct-Cocktailed Added

2/21/2008 1:37:40 PM Balance Id: 11  
 141899b, Landwell Company Pipet #:  
 Landwell Company Sep1 DT/Tm Tech:  
**Sample Preparation/Analysis** Sep2 DT/Tm Tech:  
 D9 Ra-226/228 PprRC5013/5032, SepRC5005  
 TE Ba-133 by Nat & Ra-226 by Alpha Scint 7 day ingrow  
 01 STANDARD TEST SET

**Batch: 8042381** PM, Quote: JAE, 78254  
 SEQ Batch, Test: 8042382, D9TF 8042382, D9TF

**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:
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13XF5E2-1-AK-X	1.03g.in		RATA30236				614	0613	None	
F8A260145-10-DUP		7.4643 ✓	02:07:08							2-26-08 15:45 SB
		8.282								3-3-08 10:44 SB

01/25/2008 08:55										
13XF5E2-1-AM-X	1.00g.in		RATA30237				64	0614	None	
F8A260145-10-DUP		7.4695 ✓	02:07:08							2-26-08 15:45 SB
		7.601								3-3-08 10:43 SB

01/25/2008 08:55										
15XG5E2-1-AM-X	1.00g.in		RATA30238				911	0715	None	
F8A260145-11-SAMP		7.4850 ✓	02:07:08				67	0714	None	
		8.503					971	0714	2/26/08/12	2-26-08 15:45 SB

01/25/2008 09:45										
15XGXA-1-AA-B	1.03g.in		RATA30239				610	0614	None	
J8B110000-381-BLK		7.4695 ✓	02:07:08							2-26-08 15:45 SB
		7.226								3-3-08 11:25 SB

01/24/2008 08:40										

TAL Richland Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 4  
 Richland Wa pd - Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

WO Cnt: 16  
 Prep\_SamplePrep v4.8.32

2/21/2008 1:37:40 PM

### Sample Preparation/Analysis

Balance Id:11

D9 Ra-226/228 PrpRC5013/5032, SepRC5005

TE Ba-133 by Nai & Ra-226 by Alpha Scint 7 day ingrow

AnalytDueDate: 02/22/2008

Sep1 DT/Tm Tech:

Batch: 8042381

pCi/g

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:
J8B110000-381-LCS KMXJALAA-AC		1.00g.in	RASC4699 01/21/08	7.5127 6.802	✓	1.0948	68 9"	0614 0827	2/26/08 2/26/08	2-26-08 16:10 SB
01/24/2008 08:40									KMF 3-3-08 (Alpha)	11:19 SB

Scr:

#Containers: 1

AmtRec:

01/24/2008 08:40

Beta:

#### Comments:

All Clients for Batch:

1418995, Landwell Company

Landwell Company

JAE, 78254

KF5GG1AE-SAMP Constituent List:

KGXJALAA-BLK:

Ba-133 RDL: RDL: pCi/g LCL:20 UCL:115 RPD:35 Ra-226 RDL:1 ICL: pCi/g UCL: RPD:

KGXJALAC-LCS:

Ba-133 RDL: RDL: pCi/g LCL:20 UCL:115 RPD:35 Ra-226 RDL:1 ICL: pCi/g UCL: RPD:

KF5GG1AE-SAMP Calc Info:

Uncert Level (#s): 4 Decay to SaDt: N Blk Subt.: N Sci.Not.: N ODRs: B

KGXJALAA-BLK:

Uncert Level (#s): 4 Decay to SaDt: N Blk Subt.: N Sci.Not.: N ODRs: B

KGXJALAC-LCS:

Uncert Level (#s): 4 Decay to SaDt: N Blk Subt.: N Sci.Not.: N ODRs: B

Approved By

Date:

TAL Richland

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

Page 5

ISV - Insufficient Volume for Analysis

WO Cnt: 17

Richland Wa.

pd Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

Prep\_SamplePrep v4 8.32

# ICOC Fraction Transfer/Status Report

ByDate: 3/6/2007, 3/10/2008, Batch: '8042381', User: \*ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting	Comments
<b>8042381</b>					
AC		<b>Rev1C</b>		<b>Barcotl</b>	2/21/2008 1:42:21 PM
SC		wagarr	IsBatched	2/12/2008 7:52:00 AM	ICOC_RADCALC v4.8.32
SC		Barcotl	InPrep	2/21/2008 1:42:21 PM	RICH-RC-5032 REVISION 3
SC		Barcotl	Prep1C	2/21/2008 1:42:37 PM	RICH-RC-5032 REVISION 3
SC		LucasD	Sep1C	2/25/2008 3:04:53 PM	RICH-RC-5005 REVISION 6
SC		DAWKINSO	InCnt1	2/25/2008 5:02:34 PM	RICH-RD-0007 REVISION 6
SC		BlackCL	Cnt1C	2/26/2008 6:19:31 AM	RICH-RD-0007 REVISION 6
SC		BairdS	InSep2	2/26/2008 4:44:54 PM	RICH-RC-5005 REVISION 6
SC		BairdS	CalcC	3/3/2008 4:51:11 PM	RICH-RC-5005 REVISION 6
SC		mcginnist	Rev1C	3/5/2008 2:43:17 PM	RICH-RC-0002 REV 8
AC		<b>Barcotl</b>		2/21/2008 1:42:37 PM	
AC		<b>LucasD</b>		2/25/2008 3:04:53 PM	
AC		<b>DAWKINSO</b>		2/25/2008 5:02:34 PM	
AC		<b>BlackCL</b>		2/26/2008 6:19:31	
AC		<b>BairdS</b>		2/26/2008 4:44:54 PM	
AC		<b>BairdS</b>		3/3/2008 4:51:11 PM	
AC		<b>mcginnist</b>		3/5/2008 2:43:17 PM	

AC: Accepting Entry; SC: Status Change

## Rpt DB Transfer log (Batch Results)

SDG or Batch Isotope	Rpt Db Id Method	LotSample RTst Qc Analysis Date	Client Id Result	Matrix CntUncert	Received Date Tot uncert mga	Sample Date Units Expected Yield	Volumes			
<b>8030200</b>	<b>9KF5GG10</b>	<b>F8A25020513</b>	TSB-HJ-07-10'	SOLID	1/25/2008 9:15:00	1/24/2008 8:40:00 AM				
RA-226	D9TE	0	3/3/2008 1:33:00 PM	1.4051E+00	9.76E-02	1.743E-01	1.435E-01	pCi/g	0.963	1.03E+0
RA-226	TBD	0	3/3/2008 1:33:00 PM	1.4051E+00	9.76E-02	1.743E-01	1.435E-01	pCi/g	0.963	1.03E+0
TH-228	D2S1	0	2/20/2008 9:47:29 AM	1.7082E+00	1.443E-01	2.06E-01	6.866E-02	pCi/g	0.846	1.01E+0
TH-230	D2S1	0	2/20/2008 9:47:29 AM	1.6086E+00	1.38E-01	1.954E-01	5.666E-02	pCi/g	0.846	1.01E+0
TH-232	D2S1	0	2/20/2008 9:47:29 AM	1.1591E+00	1.171E-01	1.538E-01	5.666E-02	pCi/g	0.846	1.01E+0
U-234	KWSR	0	2/20/2008 6:25:07 PM	1.7882E+00	2.179E-01	2.905E-01	1.411E-01	PCI/G	0.233	1.01E+0
U-235	KWSR	0	2/20/2008 6:25:07 PM	5.0729E-02	3.743E-02	3.782E-02	1.064E-01	PCI/G	0.233	1.01E+0
U-238	KWSR	0	2/20/2008 6:25:07 PM	1.3126E+00	1.869E-01	2.341E-01	1.411E-01	PCI/G	0.233	1.01E+0
<b>8030200</b>	<b>9KF5GL10</b>	<b>F8A25020515</b>	TSB-HR-08-10'	SOLID	1/25/2008 9:15:00	1/24/2008 9:30:00 AM				
RA-226	D9TE	0	3/3/2008 1:42:00 PM	1.5878E+00	1.029E-01	1.881E-01	1.05E-01	pCi/g	0.928	1.03E+0
RA-226	TBD	0	3/3/2008 1:42:00 PM	1.5878E+00	1.029E-01	1.881E-01	1.05E-01	pCi/g	0.928	1.03E+0
TH-228	D2S1	0	2/20/2008 12:48:03 PM	2.3821E+00	1.819E-01	2.733E-01	6.641E-02	pCi/g	0.9	1.0E+0
TH-230	D2S1	0	2/20/2008 12:48:03 PM	1.5522E+00	1.448E-01	1.966E-01	6.465E-02	pCi/g	0.9	1.0E+0
TH-232	D2S1	0	2/20/2008 12:48:03 PM	2.227E+00	1.734E-01	2.578E-01	6.465E-02	pCi/g	0.9	1.0E+0
U-234	KWSR	0	2/21/2008 6:26:27 AM	1.605E+00	1.007E-01	1.676E-01	4.32E-02	PCI/G	0.953	1.0E+0
U-235	KWSR	0	2/21/2008 6:26:27 AM	6.1636E-02	1.993E-02	2.058E-02	3.012E-02	PCI/G	0.953	1.0E+0
U-238	KWSR	0	2/21/2008 6:26:27 AM	1.3925E+00	9.373E-02	1.493E-01	3.97E-02	PCI/G	0.953	1.0E+0
<b>8030213</b>	<b>9KF6E010</b>	<b>F8A2601458</b>	TSB-HR-03-10'	SOLID	1/26/2008 10:15:00	1/25/2008 8:20:00 AM				
RA-226	D9TE	0	3/3/2008 2:35:00 PM	2.0933E+00	1.211E-01	2.478E-01	1.154E-01	pCi/g	0.994	1.01E+0
RA-226	TBD	0	3/3/2008 2:35:00 PM	2.0933E+00	1.211E-01	2.478E-01	1.154E-01	pCi/g	0.994	1.01E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	2.0177E+00	1.543E-01	2.234E-01	5.651E-02	pCi/g	0.705	1.01E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	3.0318E+00	1.866E-01	3.062E-01	5.5E-02	pCi/g	0.705	1.01E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.9155E+00	1.484E-01	2.134E-01	5.5E-02	pCi/g	0.705	1.01E+0
U-234	KWSR	0	2/22/2008 2:21:12 PM	3.3576E+00	1.395E-01	3.106E-01	2.778E-02	PCI/G	1.025	1.0E+0
U-235	KWSR	0	2/22/2008 2:21:12 PM	6.9587E-02	2.012E-02	2.093E-02	2.778E-02	PCI/G	1.025	1.0E+0
U-238	KWSR	0	2/22/2008 2:21:12 PM	2.6037E+00	1.229E-01	2.478E-01	2.778E-02	PCI/G	1.025	1.0E+0
<b>8030213</b>	<b>9KF6E110</b>	<b>F8A2601459</b>	TSB-HJ-02-0'	SOLID	1/26/2008 10:15:00	1/25/2008 8:40:00 AM				
RA-226	D9TE	0	3/3/2008 2:39:00 PM	8.2963E-01	9.527E-02	1.294E-01	1.622E-01	pCi/g	1.0	1.01E+0
RA-226	TBD	0	3/3/2008 2:39:00 PM	8.2963E-01	9.527E-02	1.294E-01	1.622E-01	pCi/g	1.0	1.01E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	1.8774E+00	1.475E-01	2.104E-01	6.525E-02	pCi/g	0.764	1.02E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	1.2916E+00	1.205E-01	1.586E-01	5.379E-02	pCi/g	0.764	1.02E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	1.7611E+00	1.407E-01	1.99E-01	5.379E-02	pCi/g	0.764	1.02E+0
U-234	KWSR	0	2/22/2008 2:21:29 PM	9.8107E-01	7.856E-02	1.135E-01	3.012E-02	PCI/G	0.928	1.02E+0
U-235	KWSR	0	2/22/2008 2:21:29 PM	3.7734E-02	1.546E-02	1.577E-02	3.012E-02	PCI/G	0.928	1.02E+0
U-238	KWSR	0	2/22/2008 2:21:29 PM	1.1131E+00	8.368E-02	1.251E-01	3.012E-02	PCI/G	0.928	1.02E+0
<b>8030213</b>	<b>9KF6E210</b>	<b>F8A26014510</b>	TSB-HJ-02-10'	SOLID	1/26/2008 10:15:00	1/25/2008 8:55:00 AM				
RA-226	D9TE	0	3/3/2008 2:34:00 PM	1.579E+00	9.616E-02	1.792E-01	8.26E-02	pCi/g	0.974	1.01E+0
RA-226	TBD	0	3/3/2008 2:34:00 PM	1.579E+00	9.616E-02	1.792E-01	8.26E-02	pCi/g	0.974	1.01E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	1.9666E+00	1.437E-01	2.128E-01	7.178E-02	pCi/g	0.871	1.02E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	1.7869E+00	1.353E-01	1.966E-01	7.932E-02	pCi/g	0.871	1.02E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	1.4901E+00	1.233E-01	1.713E-01	5.744E-02	pCi/g	0.871	1.02E+0
U-234	KWSR	0	2/22/2008 2:21:45 PM	2.1117E+00	1.133E-01	2.091E-01	2.908E-02	PCI/G	1.001	1.03E+0
U-235	KWSR	0	2/22/2008 2:21:45 PM	6.0715E-02	1.924E-02	1.989E-02	2.908E-02	PCI/G	1.001	1.03E+0
U-238	KWSR	0	2/22/2008 2:21:45 PM	1.5519E+00	9.716E-02	1.616E-01	3.431E-02	PCI/G	1.001	1.03E+0
<b>8030213</b>	<b>9KF6E510</b>	<b>F8A26014511</b>	TSB-HR-02-0'	SOLID	1/26/2008 10:15:00	1/25/2008 9:45:00 AM				
RA-226	D9TE	0	3/3/2008 2:33:00 PM	1.2536E+00	8.49E-02	1.476E-01	9.29E-02	pCi/g	1.0	1.0E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	2.5836E+00	2.076E-01	2.93E-01	7.983E-02	pCi/g	0.727	1.01E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	1.4074E+00	1.513E-01	1.886E-01	7.766E-02	pCi/g	0.727	1.01E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	2.0754E+00	1.835E-01	2.475E-01	7.766E-02	pCi/g	0.727	1.01E+0
U-234	KWSR	0	2/22/2008 2:22:10 PM	1.105E+00	8.215E-02	1.233E-01	2.924E-02	PCI/G	0.953	1.01E+0
U-235	KWSR	0	2/22/2008 2:22:10 PM	4.2736E-02	1.62E-02	1.658E-02	2.924E-02	PCI/G	0.953	1.01E+0

8042381, \*\*Samples Inserted | Updated | NotUpdated => 4 | 0 | 13,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 17 | 0 | 0 | 0.  
 \*\*Diff RptDb | Qtimes => .

SDG or Batch	Rpt Db Id	LotSample	Client Id	Matrix	Received Date	Sample Date			Volumes	
Isotope	Method	RTst Qc	Analysis Date	Result	CntUncert	TotUncert	maa	Units	Expected Yield	
U-238	KWSR	0	2/22/2008 2:22:10 PM	1.1478E+00	8.372E-02	1.27E-01	2.924E-02	PCI/G	0.953	1.01E+0
<b>8030213</b>	<b>9KF6EM10</b>		<b>F8A2601451</b>	TSB-HJ-01-10'	SOLID	1/26/2008 10:15:00	1/25/2008 12:10:00 PM			
RA-226	D9TE	0	3/3/2008 1:41:00 PM	1.3657E+00	9.376E-02	1.604E-01	1.367E-01	pCi/g	1.0	1.01E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	1.8241E+00	1.378E-01	2.095E-01	5.87E-02	pCi/g	0.857	1.01E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	1.6482E+00	1.291E-01	1.923E-01	4.843E-02	pCi/g	0.857	1.01E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	2.4147E+00	1.563E-01	2.608E-01	4.843E-02	pCi/g	0.857	1.01E+0
U-234	KWSR	0	2/22/2008 2:19:11 PM	1.6921E+00	1.015E-01	1.736E-01	3.432E-02	PCI/G	0.953	1.02E+0
U-235	KWSR	0	2/22/2008 2:19:11 PM	8.5031E-02	2.276E-02	2.383E-02	2.909E-02	PCI/G	0.953	1.02E+0
U-238	KWSR	0	2/22/2008 2:19:11 PM	1.6144E+00	9.907E-02	1.669E-01	2.909E-02	PCI/G	0.953	1.02E+0
<b>8030213</b>	<b>9KF6EP10</b>		<b>F8A2601452</b>	TSB-HJ-09-0'	SOLID	1/26/2008 10:15:00	1/25/2008 12:50:00 PM			
RA-226	D9TE	0	3/3/2008 1:44:00 PM	1.2501E+00	9.548E-02	1.53E-01	1.553E-01	pCi/g	0.945	1.01E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	2.0512E+00	1.457E-01	2.291E-01	7.073E-02	pCi/g	0.901	1.0E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	9.4027E-01	9.783E-02	1.27E-01	7.823E-02	pCi/g	0.901	1.0E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.6199E+00	1.276E-01	1.891E-01	5.665E-02	pCi/g	0.901	1.0E+0
U-234	KWSR	0	2/22/2008 2:19:29 PM	1.014E+00	7.967E-02	1.162E-01	2.998E-02	PCI/G	1.008	1.0E+0
U-235	KWSR	0	2/22/2008 2:19:29 PM	1.1266E-02	8.94E-03	8.989E-03	2.998E-02	PCI/G	1.008	1.0E+0
U-238	KWSR	0	2/22/2008 2:19:29 PM	1.0515E+00	8.114E-02	1.194E-01	2.998E-02	PCI/G	1.008	1.0E+0
<b>8030213</b>	<b>9KF6EQ10</b>		<b>F8A2601453</b>	TSB-HJ-09-10'	SOLID	1/26/2008 10:15:00	1/25/2008 1:00:00 PM			
RA-226	D9TE	0	3/3/2008 1:48:00 PM	1.6981E+00	1.121E-01	2.093E-01	1.298E-01	pCi/g	0.95	1.02E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	1.8173E+00	1.533E-01	2.183E-01	6.182E-02	pCi/g	0.948	1.02E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	1.4952E+00	1.371E-01	1.875E-01	6.018E-02	pCi/g	0.948	1.02E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.3947E+00	1.324E-01	1.782E-01	6.018E-02	pCi/g	0.948	1.02E+0
U-234	KWSR	0	2/22/2008 2:19:42 PM	2.6374E+00	1.285E-01	2.55E-01	4.291E-02	PCI/G	0.94	1.02E+0
U-235	KWSR	0	2/22/2008 2:19:42 PM	9.9949E-02	2.502E-02	2.637E-02	2.992E-02	PCI/G	0.94	1.02E+0
U-238	KWSR	0	2/22/2008 2:19:42 PM	2.3663E+00	1.218E-01	2.321E-01	4.875E-02	PCI/G	0.94	1.02E+0
<b>8030213</b>	<b>9KF6ER10</b>		<b>F8A2601454</b>	TSB-HJ-03-0'	SOLID	1/26/2008 10:15:00	1/25/2008 7:25:00 AM			
RA-226	D9TE	0	3/3/2008 1:47:00 PM	1.1157E+00	9.528E-02	1.428E-01	1.814E-01	pCi/g	0.939	1.0E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	1.582E+00	1.432E-01	1.974E-01	6.21E-02	pCi/g	0.915	1.03E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	9.5912E-01	1.1E-01	1.374E-01	6.044E-02	pCi/g	0.915	1.03E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.7416E+00	1.483E-01	2.106E-01	6.044E-02	pCi/g	0.915	1.03E+0
U-234	KWSR	0	2/22/2008 2:19:58 PM	1.1651E+00	8.547E-02	1.295E-01	4.586E-02	PCI/G	0.951	1.01E+0
U-235	KWSR	0	2/22/2008 2:19:58 PM	2.9906E-02	1.399E-02	1.421E-02	2.984E-02	PCI/G	0.951	1.01E+0
U-238	KWSR	0	2/22/2008 2:19:58 PM	9.7568E-01	7.809E-02	1.128E-01	3.521E-02	PCI/G	0.951	1.01E+0
<b>8030213</b>	<b>9KF6ET10</b>		<b>F8A2601455</b>	TSB-HJ-03-0' FD	SOLID	1/26/2008 10:15:00	1/25/2008 7:25:00 AM			
RA-226	D9TE	0	3/3/2008 1:43:00 PM	1.049E+00	1.002E-01	1.455E-01	2.045E-01	pCi/g	0.948	1.0E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	2.1485E+00	1.624E-01	2.451E-01	5.88E-02	pCi/g	0.977	1.02E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	1.3741E+00	1.282E-01	1.738E-01	5.723E-02	pCi/g	0.977	1.02E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	2.1269E+00	1.594E-01	2.418E-01	5.723E-02	pCi/g	0.977	1.02E+0
U-234	KWSR	0	2/22/2008 2:20:15 PM	9.8954E-01	7.584E-02	1.117E-01	3.971E-02	PCI/G	0.924	1.02E+0
U-235	KWSR	0	2/22/2008 2:20:15 PM	6.2424E-02	1.92E-02	1.989E-02	2.769E-02	PCI/G	0.924	1.02E+0
U-238	KWSR	0	2/22/2008 2:20:15 PM	1.0635E+00	7.866E-02	1.181E-01	4.255E-02	PCI/G	0.924	1.02E+0
<b>8030213</b>	<b>9KF6EV10</b>		<b>F8A2601456</b>	TSB-HJ-03-10'	SOLID	1/26/2008 10:15:00	1/25/2008 7:45:00 AM			
RA-226	D9TE	0	3/3/2008 2:37:00 PM	1.2479E+00	1.079E-01	1.635E-01	1.674E-01	pCi/g	0.942	1.0E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	1.8638E+00	1.357E-01	2.106E-01	4.728E-02	pCi/g	0.884	1.0E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	1.495E+00	1.2E-01	1.763E-01	5.429E-02	pCi/g	0.884	1.0E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.5737E+00	1.231E-01	1.834E-01	4.602E-02	pCi/g	0.884	1.0E+0
U-234	KWSR	0	2/22/2008 2:20:30 PM	1.5931E+00	1.002E-01	1.665E-01	3.016E-02	PCI/G	0.916	1.02E+0
U-235	KWSR	0	2/22/2008 2:20:30 PM	3.0225E-02	1.414E-02	1.436E-02	3.016E-02	PCI/G	0.916	1.02E+0
U-238	KWSR	0	2/22/2008 2:20:30 PM	1.3274E+00	9.148E-02	1.437E-01	3.016E-02	PCI/G	0.916	1.02E+0
<b>8030213</b>	<b>9KF6EW10</b>		<b>F8A2601457</b>	TSB-HR-03-0'	SOLID	1/26/2008 10:15:00	1/25/2008 8:05:00 AM			
RA-226	D9TE	0	3/3/2008 2:24:00 PM	8.0495E-01	9.936E-02	1.261E-01	1.977E-01	pCi/g	1.0	1.01E+0
TH-228	D2S1	0	2/21/2008 3:24:40 PM	2.2854E+00	2.053E-01	2.754E-01	8.827E-02	pCi/g	0.596	1.0E+0
TH-230	D2S1	0	2/21/2008 3:24:40 PM	1.3777E+00	1.574E-01	1.925E-01	8.592E-02	pCi/g	0.596	1.0E+0
TH-232	D2S1	0	2/21/2008 3:24:40 PM	1.7759E+00	1.785E-01	2.285E-01	8.592E-02	pCi/g	0.596	1.0E+0

8042381, \*\*Samples Inserted | Updated | NotUpdated => 4 | 0 | 13,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 17 | 0 | 0 | 0.  
 \*\*Diff RptDb | Qtimes => .

SDG or Batch	Rpt Db Id	LotSample	Client Id	Matrix	Received Date	Sample Date			Volumes	
Isotope	Method	RTst Qc	Analysis Date	Result	Cnt.Uncert	Tot.uncert	mg/g	Units	Expected Yield	
U-234	KWSR	0	2/22/2008 2:20:42 PM	1.0882E+00	8.213E-02	1.223E-01	2.965E-02	PCI/G	0.974	1.0E+0
U-235	KWSR	0	2/22/2008 2:20:42 PM	4.2093E-02	1.642E-02	1.679E-02	2.965E-02	PCI/G	0.974	1.0E+0
U-238	KWSR	0	2/22/2008 2:20:42 PM	9.5824E-01	7.708E-02	1.11E-01	2.965E-02	PCI/G	0.974	1.0E+0
<b>8030213</b>	<b>KF6E21KR</b>		<b>F8A26014510</b>	TSB-HJ-02-10' DUP	SOIL	1/26/2008 10:15:00	1/25/2008 8:55:00 AM			
RA-226	D9TE	0 R	3/3/2008 2:44:00 PM	1.6309E+00	1.311E-01	2.063E-01	1.56E-01	pCi/g	1.0	1.03E+0
<b>8030213</b>	<b>KF6E21MR</b>		<b>F8A26014510</b>	TSB-HJ-02-10' DUP	SOIL	1/26/2008 10:15:00	1/25/2008 8:55:00 AM			
RA-226	D9TE	0 R	3/3/2008 2:43:00 PM	1.9089E+00	1.309E-01	2.44E-01	1.307E-01	pCi/g	1.0	1.0E+0
<b>8030213</b>	<b>KGXJA1AB</b>		<b>J8B110000381</b>	INTRA-LAB BLANK	SOIL	1/25/2008 9:15:00	1/24/2008 8:40:00 AM			
RA-226	D9TE	0 B	3/3/2008 3:25:00 PM	1.4816E-02	2.389E-02	2.394E-02	9.153E-02	pCi/g	0.967	1.03E+0
<b>8030213</b>	<b>KGXJA1CS</b>		<b>J8B110000381</b>	INTRA-LAB CHECK	SOIL	1/25/2008 9:15:00	1/24/2008 8:40:00 AM			
RA-226	D9TE	0 S	3/3/2008 3:19:00 PM	1.5259E+00	1.022E-01	1.89E-01	9.123E-02	pCi/g	1.3652E+00 0.913	1.0E+0

8042381, \*\*Samples Inserted | Updated | NotUpdated => 4 | 0 | 13,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 17 | 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
Ra-226 by ASC-7			Richland Standard Ra-226/Ra-228 Deem Wo Blk Subt. *CntU: 0+1, + *SystU, MDCCConst:2.71													
Calc	TE	SOIL	KF5GG1AE	RA-226	1.41E+00	(1.74E-01)		pCi/g	R 6.39E-02	1.44E-01	✓					96%
Calc	TE	SOIL	KF5GL1AE	RA-226	1.59E+00	(1.88E-01)		pCi/g	R 4.41E-02	1.05E-01	✓					93%
Calc	TE	SOIL	KF6EM1AE	RA-226	1.37E+00	(1.60E-01)		pCi/g	R 6.09E-02	1.37E-01	✓					100%
Calc	TE	SOIL	KF6EP1AE	RA-226	1.25E+00	(1.53E-01)		pCi/g	R 6.96E-02	1.55E-01	✓					95%
Calc	TE	SOIL	KF6EQ1AE	RA-226	1.70E+00	(2.09E-01)		pCi/g	R 5.58E-02	1.30E-01	✓					95%
Calc	TE	SOIL	KF6ER1AE	RA-226	1.12E+00	(1.43E-01)		pCi/g	R 8.25E-02	1.81E-01	✓					94%
Calc	TE	SOIL	KF6ET1AE	RA-226	1.05E+00	(1.45E-01)		pCi/g	R 9.31E-02	2.05E-01	✓					95%
Calc	TE	SOIL	KF6EV1AE	RA-226	1.25E+00	(1.64E-01)		pCi/g	R 7.30E-02	1.67E-01	✓					94%
Calc	TE	SOIL	KF6EW1AE	RA-226	8.05E-01	(1.26E-01)		pCi/g	R 8.65E-02	1.98E-01	✓					100%
Calc	TE	SOIL	KF6E01AE	RA-226	2.09E+00	(2.48E-01)		pCi/g	R 4.87E-02	1.15E-01	✓					99%
Calc	TE	SOIL	KF6E11AE	RA-226	8.30E-01	(1.29E-01)		pCi/g	R 6.89E-02	1.62E-01	✓					100%
Calc	TE	SOIL	KF6E21AH	RA-226	1.58E+00	(1.79E-01)		pCi/g	R 3.37E-02	8.26E-02	✓					97%
Calc	TE	SOIL	KF6E21AK	RA-226	1.63E+00	(2.06E-01)		pCi/g	R 6.49E-02	1.56E-01	✓	R				100%
Calc	TE	SOIL	KF6E21AM	RA-226	1.91E+00	(2.44E-01)		pCi/g	R 5.39E-02	1.31E-01	✓	R				100%
Calc	TE	SOIL	KF6E51AE	RA-226	1.25E+00	(1.48E-01)		pCi/g	R 3.92E-02	9.29E-02	✓					100%
Calc	TE	SOIL	KGXJA1AA	RA-226	1.48E-02	(2.39E-02)	U4	pCi/g	R 3.78E-02	9.15E-02	✓	B				97%
Calc	TE	SOIL	KGXJA1AC	RA-226	1.53E+00	(1.89E-01)		pCi/g	R 3.68E-02	9.12E-02	✓	S				91%

REP=  
018 JK  
1.09  
OK  
OK

Tom DME

3/2/08

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

# Alpha Beta, Ra-226 by ASC-7 , Calculated Results Detailed Report

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk	Ord	Units/Matrix	QC/BB	Sa/On	Date	AnalysisDate/PtWt	Sep1/Sep2	Date	QC/Tracer	Vial	Multi/Ent/Yld	Total/Analy	Vol	Final/Count	Vol	
1	Calc	TE	SOIL	*STLE	Ra226WoBS	KF5GG1AE	1418995,TSB-HJ-07-10		pci/g				03/03/08 13:33	02/26/08 15:15	03/03/08 09:33	RATA30224	1	96%	1.03 g	1.03 g	1.03 g	1.03 g	1.03 g
0																							
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn							
	03/03/08	RA-226	R	1.405126		4.85000E+00	3.212838	3.212838	1.03 G	96%			0.143508										
				(0.174334)		(3.3690E-01)	(0.363396)	(0.363396)	(0.0103)				0.06394										
2	Calc	TE	SOIL	*STLE	Ra226WoBS	KF5GL1AE	1418995,TSB-HR-08-10		pci/g				03/03/08 13:42	02/26/08 15:15	03/03/08 09:42	RATA30225	1	93%	1.03 G	1.03 G	1.03 G	1.03 G	1.03 G
0																							
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn							
	03/03/08	RA-226	R	1.587755		5.07667E+00	3.630422	3.630422	1.03 G	93%			0.105014										
				(0.188143)		(3.2902E-01)	(0.388327)	(0.388327)	(0.0103)				0.044058										
3	Calc	TE	SOIL	*STLE	Ra226WoBS	KF6EM1AE	1418995,TSB-HJ-01-10		pci/g				03/03/08 13:41	02/26/08 15:15	03/03/08 09:41	RATA30226	1	100%	1.01 G	1.01 G	1.01 G	1.01 G	1.01 G
0																							
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn							
	03/03/08	RA-226	R	1.365674		4.95000E+00	3.062001	3.062001	1.01 G	100%			0.136661										
				(0.160423)		(3.3985E-01)	(0.324035)	(0.324035)	(0.0101)				0.06089										
4	Calc	TE	SOIL	*STLE	Ra226WoBS	KF6EP1AE	1418995,TSB-HJ-09-0		pci/g				03/03/08 13:44	02/26/08 15:15	03/03/08 09:44	RATA30227	1	95%	1.01 G	1.01 G	1.01 G	1.01 G	1.01 G
0																							
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Dpm Wo Bk	Dpm-Bk	Vol Used	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn							
	03/03/08	RA-226	R	1.365674		4.95000E+00	3.062001	3.062001	1.01 G	100%			0.136661										
				(0.160423)		(3.3985E-01)	(0.324035)	(0.324035)	(0.0101)				0.06089										

(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/LcC	BIKlC/MDC	StdDvMdc/LcC				
03/03/08	RA-226		R	1.250109 (0.15297)		4.18000E+00 (3.1927E-01)	2.802891 (0.311779)	2.802891 (0.311779)	1.01 G (0.0101)	95%	0.155277 0.069575							
<b>Protocol Equation Set</b> 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	TE	SOIL	*STLE	Ra226WoBS	KF6EQ1AE	pCi/g	01/25/08 13:00	03/03/08 13:48	02/26/08 15:15	RATA30228	1	g					
1418995,TSB-HJ-09-10							SOIL			03/03/08 09:48	RATA30228	Alq	95%	1.02 G				
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency 1	Efficiency 2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/03/08 13:48	RA-226	263	15	ASC6MB	ASC	N	N	2.1822E+00	1.0000E+00	N	95%	N	1.5909E+00	4.5045E-01	1.0000E+00		
			50	60			Y		(9.340E-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 Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BIKlC/MDC	StdDvMdc/LcC				
03/03/08	RA-226		R	1.698141 (0.209286)		5.01000E+00 (3.3071E-01)	3.845128 (0.431427)	3.845128 (0.431427)	1.02 G (0.0102)	95%	0.12982 0.055757							
<b>Protocol Equation Set</b> 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	TE	SOIL	*STLE	Ra226WoBS	KF6ER1AE	pCi/g	01/25/08 07:25	03/03/08 13:47	02/26/08 15:15	RATA30229	1	g					
1418995,TSB-HJ-03-0							SOIL			03/03/08 09:47	RATA30229	Alq	94%	1.00 G				
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency 1	Efficiency 2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/03/08 13:47	RA-226	218	41	ASC7HB	ASC	N	N	2.5164E+00	1.0000E+00	N	94%	N	1.5911E+00	4.5045E-01	1.0000E+00		
			50	60			Y		(2.224E-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 Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BIKlC/MDC	StdDvMdc/LcC				
03/03/08	RA-226		R	1.115692 (0.142753)		3.67667E+00 (3.1399E-01)	2.476743 (0.290649)	2.476743 (0.290649)	1.00 G (0.01)	94%	0.181405 0.082528							
<b>Protocol Equation Set</b> 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	TE	SOIL	*STLE	Ra226WoBS	KF6ET1AE	pCi/g	01/25/08 07:25	03/03/08 13:43	02/26/08 15:15	RATA30230	1	g					
1418995,TSB-HJ-03-0							SOIL			03/03/08 09:43	RATA30230	Alq	95%	1.00 G				
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency 1	Efficiency 2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	03/03/08 13:43	RA-226	190	42	ASC8HA	ASC	N	N	2.2354E+00	1.0000E+00	N	95%	N	1.5915E+00	4.5045E-01	1.0000E+00		
			50	60			Y		(7.444E-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 Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BIKlC/MDC	StdDvMdc/LcC				
03/03/08	RA-226		R	1.048965 (0.145467)		3.10000E+00 (2.9609E-01)	2.328614 (0.300304)	2.328614 (0.300304)	1.00 G (0.01)	95%	0.204513 0.093142							
<b>Protocol Equation Set</b> 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	TE	SOIL	*STLE	Ra226WoBS	KF6EV1AE	pCi/g	01/25/08 07:45	03/03/08 14:37	02/26/08 15:15	RATA30231	1	g					
1418995,TSB-HJ-03-10							SOIL			03/03/08 10:37	RATA30231	Alq	94%	1.00 G				
Sq	Cnt Date	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency 1	Efficiency 2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn

Alpha Beta, Ra-226 by ASC-7, Calculated Results

Sq	CalcDate,TrcAct	Parameter	Avg	Se Act, Total U	Q	Net Cnt Rt	Dpm Wo Bik	Dpm-Bik	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC				
0	03/03/08 14:37	RA-226	174	19	ASC9RC ASC	N	N	1.9230E+00	1.0000E+00	N	94%	N	1.5857E+00	4.5045E-01	1.0000E+00			
			50	60		Y		(5.038E-02)	(0.000E+00)		8%		(0.000E+00)	1.00				
Sq	CalcDate,TrcAct	Parameter	Avg	Se Act, Total U	Q	Net Cnt Rt	Dpm Wo Bik	Dpm-Bik	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC				
	03/03/08	RA-226	R	1.247885		3.16333E+00	2.770202	2.770202	1.00 G	94%		0.167363						
				(0.163512)		(2.7364E-01)	(0.334372)	(0.334372)	(0.01)			0.073034						
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/Analyt Vol	Final/Count Vol			
9	Calc	TE SOIL	*STLE	Ra226WoBS	KF6E11AE	1.76667E+00	1.804786	1.804786	1.01 G	100%								
						(2.1807E-01)	(0.267432)	(0.267432)	(0.0101)									
	1418995,TSB	HR-03-0'																
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	03/03/08 14:24	RA-226	105	20	ASCASC ASC	N	N	1.5567E+00	1.0000E+00	1.0000E+00	N	100%	N	1.5903E+00	4.5045E-01	1.0000E+00		Abn
			50	60		Y		(2.787E-02)	(0.000E+00)			8%		(0.000E+00)	0.990099			
Sq	CalcDate,TrcAct	Parameter	Avg	Se Act, Total U	Q	Net Cnt Rt	Dpm Wo Bik	Dpm-Bik	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC				
	03/03/08	RA-226	R	0.804948		1.76667E+00	1.804786	1.804786	1.01 G	100%		0.197685						
				(0.126141)		(2.1807E-01)	(0.267432)	(0.267432)	(0.0101)			0.086546						
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/Analyt Vol	Final/Count Vol			
10	Calc	TE SOIL	*STLE	Ra226WoBS	KF6E01AE	6.32000E+00	4.693492	4.693492	1.01 G	99%								
						(3.6570E-01)	(0.501409)	(0.501409)	(0.0101)									
	1418995,TSB	HR-03-10'																
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	03/03/08 14:35	RA-226	326	12	ASCCSB ASC	N	N	2.1524E+00	1.0000E+00	1.0000E+00	N	99%	N	1.5891E+00	4.5045E-01	1.0000E+00		Abn
			50	60		Y		(8.782E-02)	(0.000E+00)			8%		(0.000E+00)	0.990099			
Sq	CalcDate,TrcAct	Parameter	Avg	Se Act, Total U	Q	Net Cnt Rt	Dpm Wo Bik	Dpm-Bik	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC				
	03/03/08	RA-226	R	2.093331		6.32000E+00	4.693492	4.693492	1.01 G	99%		0.115362						
				(0.247799)		(3.6570E-01)	(0.501409)	(0.501409)	(0.0101)			0.048734						
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/Analyt Vol	Final/Count Vol			
11	Calc	TE SOIL	*STLE	Ra226WoBS	KF6E11AE	1.84333E+00	1.860133	1.860133	1.01 G	100%								
						(2.1169E-01)	(0.274156)	(0.274156)	(0.0101)									
	1418995,TSB	HJ-02-0'																
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	03/03/08 14:39	RA-226	103	13	ASCDSA ASC	N	N	1.5743E+00	1.0000E+00	1.0000E+00	N	100%	N	1.5887E+00	4.5045E-01	1.0000E+00		Abn
			50	60		Y		(7.273E-02)	(0.000E+00)			8%		(0.000E+00)	0.990099			
Sq	CalcDate,TrcAct	Parameter	Avg	Se Act, Total U	Q	Net Cnt Rt	Dpm Wo Bik	Dpm-Bik	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC				
	03/03/08	RA-226	R	0.829633		1.84333E+00	1.860133	1.860133	1.01 G	100%		0.162161						
				(0.129387)		(2.1169E-01)	(0.274156)	(0.274156)	(0.0101)			0.068925						

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol	
12	Calc	TE	SOIL	*STLE	Ra226WoBS	KF6E21AH	pCi/g		01/25/08 08:55	03/03/08 14:34	02/26/08 15:45	RATA30235	1	97%	1.01 G	9	
							SOIL				03/03/08 10:34	RATA30235	Alq	97%	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	288	8	ASCESD	ASC	N	N	2.5922E+00	1.0000E+00	N	97%	N	1.5892E+00	4.5045E-01	1.0000E+00		
		50	60			Y		(3.422E-02)	(0.000E+00)		8%		(0.000E+00)	0.990099			
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Q	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BKlC/MDC	StdDwMdc/LcC		
03/03/08	RA-226	R	1.579032	5.62667E+00	3.540373	3.540373	1.01 G	3.540373	3.540373	1.01 G	97%	0.082597					
			(0.179226)	(3.4267E-01)	(0.359015)	(0.359015)	(0.0101)					0.033714					
13	Calc	TE	SOIL	*STLE	Ra226WoBS	KF6E21AK	pCi/g		01/25/08 08:55	03/03/08 14:44	02/26/08 15:45	RATA30236	1	100%	1.03 G	9	
							SOIL				03/03/08 10:44	RATA30236	Alq	100%	1.03 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	177	10	ASCFSA	ASC	N	N	1.4366E+00	1.0000E+00	N	100%	N	1.5881E+00	4.5045E-01	1.0000E+00		
		50	60			Y		(3.319E-02)	(0.000E+00)		8%		(0.000E+00)	0.970874			
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Q	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BKlC/MDC	StdDwMdc/LcC		
03/03/08	RA-226	R	1.630924	3.37333E+00	3.729131	3.729131	1.03 G	3.729131	3.729131	1.03 G	100%	0.156002					
			(0.206294)	(2.7125E-01)	(0.43167)	(0.43167)	(0.0103)					0.064937					
14	Calc	TE	SOIL	*STLE	Ra226WoBS	KF6E21AM	pCi/g		01/25/08 08:55	03/03/08 14:43	02/26/08 15:45	RATA30237	1	100%	1.00 G	9	
							SOIL				03/03/08 10:43	RATA30237	Alq	100%	1.00 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	233	9	ASCGSA	ASC	N	N	1.6903E+00	1.0000E+00	N	100%	N	1.5882E+00	4.5045E-01	1.0000E+00		
		50	60			Y		(8.671E-02)	(0.000E+00)		8%		(0.000E+00)	1.00			
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Q	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BKlC/MDC	StdDwMdc/LcC		
03/03/08	RA-226	R	1.908947	4.51000E+00	4.237705	4.237705	1.00 G	4.237705	4.237705	1.00 G	100%	0.130744					
			(0.243992)	(3.0935E-01)	(0.496674)	(0.496674)	(0.01)					0.053934					
15	Calc	TE	SOIL	*STLE	Ra226WoBS	KF6E51AE	pCi/g		01/25/08 09:45	03/03/08 14:33	02/26/08 15:45	RATA30238	1	100%	1.00 G	9	
							SOIL				03/03/08 10:33	RATA30238	Alq	100%	1.00 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	245	12	ASCHAC	ASC	N	N	2.6843E+00	1.0000E+00	N	100%	N	1.5893E+00	4.5045E-01	1.0000E+00		
		50	60			Y		(4.483E-02)	(0.000E+00)		8%		(0.000E+00)	1.00			
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Q	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/LcC	BKlC/MDC	StdDwMdc/LcC		
03/03/08	RA-226	R	1.908947	4.51000E+00	4.237705	4.237705	1.00 G	4.237705	4.237705	1.00 G	100%	0.130744					
			(0.243992)	(3.0935E-01)	(0.496674)	(0.496674)	(0.01)					0.053934					

( ) (Is 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

# Alpha Beta, Ra-226 by ASC-7 , Calculated Results

3/3/2008 4:48:15 PM

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/LcC	BIKLC/MDC	StdDvMdc/LcC				
03/03/08	RA-226		R	1.253566 (0.147613)		4.70000E+00 (3.1833E-01)	2.782813 (0.295374)	2.782813 (0.295374)	1.00 G (0.01)	100%	0.092895 0.039243							
<b>Sq Status Method Matrix</b> Protocol Equation Set <b>Wrk Ord</b> Units/Matrix <b>QC/BB</b> Sa/On Date AnalysisDate/PptWt <b>Sep1/Sep2 Date</b> QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol																		
16	Calc	TE	SOIL	*STLE	Ra226WoBS	KGXJA1AA	pCi/g	B	01/24/08 08:40	03/03/08 15:25	02/26/08 15:45	RATA30239	1	g				
0	INTRA-LAB	BLANK			.J8B110000-381	SOIL					03/03/08 11:25	RATA30239	Alq	97%	1.03 G	✓		
<b>Sq</b>	<b>Cnt Date</b>	<b>Parameter</b>	<b>Sample Cnt</b>	<b>Bkgrnd Cnt</b>	<b>Instr</b>	<b>Geom</b>	<b>Trc/Av</b>	<b>Ent</b>	<b>Efficiency1</b>	<b>Efficiency2</b>	<b>Ent</b>	<b>Trc Yld Fct</b>	<b>Ent</b>	<b>Blk Value</b>	<b>Ingr Fct</b>	<b>Conv Fct/VolAdj</b>	<b>Decay</b>	<b>Abn</b>
0	03/03/08 15:25	RA-226	10	✓	9	ASCJMA	ASC	N	N	2.4163E+00	1.0000E+00	N	97%	N	1.5838E+00	4.5045E-01	1.0000E+00	
			50		60		Y			(8.336E-02)	(0.000E+00)		8%		(0.000E+00)	0.970874		
<b>Sq</b>	<b>CalcDate,TrcAct</b>	<b>Parameter</b>	<b>Avg</b>	<b>Sa Act, Total U</b>	<b>Q</b>	<b>Net Cnt Rt</b>	<b>Dpm Wo Blk</b>	<b>Dpm-Blk</b>	<b>Vol Used</b>	<b>TrcYld,EnrFct</b>	<b>LCSYld,EFctU</b>	<b>IDC/LcC</b>	<b>BIKLC/MDC</b>	<b>StdDvMdc/LcC</b>				
03/03/08	RA-226		R	0.014816 (0.023937)		5.00000E-02 (8.0623E-02)	0.033877 (0.054705)	0.033877 (0.054705)	1.03 G (0.0103)	97%	0.091531 0.037757							

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/LcC	BIKLC/MDC	StdDvMdc/LcC				
<b>Sq Status Method Matrix</b> Protocol Equation Set <b>Wrk Ord</b> Units/Matrix <b>QC/BB</b> Sa/On Date AnalysisDate/PptWt <b>Sep1/Sep2 Date</b> QC/Tracer Vial Multi/EntYld Total/Analy Vol Final/Count Vol																		
17	Calc	TE	SOIL	*STLE	Ra226WoBS	KGXJA1AC	pCi/g	S	01/24/08 08:40	03/03/08 15:19	02/26/08 16:10	RASC4699	1	g				
0	INTRA-LAB	CHECK			.J8B110000-381	SOIL					03/03/08 11:19	RASC4699	Alq	91%	1.00 G	✓		
<b>Sq</b>	<b>Cnt Date</b>	<b>Parameter</b>	<b>Sample Cnt</b>	<b>Bkgrnd Cnt</b>	<b>Instr</b>	<b>Geom</b>	<b>Trc/Av</b>	<b>Ent</b>	<b>Efficiency1</b>	<b>Efficiency2</b>	<b>Ent</b>	<b>Trc Yld Fct</b>	<b>Ent</b>	<b>Blk Value</b>	<b>Ingr Fct</b>	<b>Conv Fct/VolAdj</b>	<b>Decay</b>	<b>Abn</b>
0	03/03/08 15:19	RA-226	239	✓	7	ASCKMF	ASC	N	N	2.3920E+00	1.0000E+00	N	91%	N	1.5871E+00	4.5045E-01	1.0000E+00	
			50		60		Y			(1.031E-01)	(0.000E+00)		7%		(0.000E+00)	1.00		
<b>Sq</b>	<b>CalcDate,TrcAct</b>	<b>Parameter</b>	<b>Avg</b>	<b>Sa Act, Total U</b>	<b>Q</b>	<b>Net Cnt Rt</b>	<b>Dpm Wo Blk</b>	<b>Dpm-Blk</b>	<b>Vol Used</b>	<b>TrcYld,EnrFct</b>	<b>LCSYld,EFctU</b>	<b>IDC/LcC</b>	<b>BIKLC/MDC</b>	<b>StdDvMdc/LcC</b>				
03/03/08	RA-226		R	1.525909 (0.18901)		4.66333E+00 (3.1232E-01)	3.387387 (0.382386)	3.387387 (0.382386)	1.00 G (0.01)	91%	0.091233 0.036771							

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF5GG1AE                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0389  
Technician: SB  
Analysis Size: 1.03                      Analysis Unit: G  
    Report Date: 3-MAR-2008 14:23:00.74  
    First Separation Date: 26-FEB-2008 15:15:00.00  
    Second Separation Date: 3-MAR-2008 09:33:00.00  
Detector ID: 2                              Cell ID: 2HA  
Bkg Date: 20-FEB-2008 09:00:37.98  
    Bkg Counts: 000027                      Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 13:33:00.33  
    Counts: 000265                      Count Duration: 000050.0

End of Report      ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF5GL1AE                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0774  
Technician: SB

Analysis Size: 1.03                      Analysis Unit: G

Report Date: 3-MAR-2008 14:32:00.62  
First Separation Date: 26-FEB-2008 15:15:00.00  
Second Separation Date: 3-MAR-2008 09:42:00.00

Detector ID: 3                              Cell ID: 3MA

Bkg Date: 20-FEB-2008 09:00:46.41  
Bkg Counts: 000011                      Bkg Duration: 000060.0

Count Date: 3-MAR-2008 13:42:00.30  
Counts: 000263                              Count Duration: 000050.0

End of Report ✓



ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6EM1AE                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0  
Technician: SB  
Analysis Size: 1.01                      Analysis Unit: G  
   Report Date: 3-MAR-2008 14:31:00.65  
   First Separation Date: 26-FEB-2008 15:15:00.00  
   Second Separation Date: 3-MAR-2008 09:41:00.00  
Detector ID: 4                              Cell ID: 4HC  
Bkg Date: 6-FEB-2008 16:28:24.19  
   Bkg Counts: 000027                              Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 13:41:00.31  
   Counts: 000270                                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6EP1AE                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0579  
Technician: SB  
Analysis Size: 1.01                      Analysis Unit: G  
    Report Date: 3-MAR-2008 14:34:00.84  
    First Separation Date: 26-FEB-2008 15:15:00.00  
    Second Separation Date: 3-MAR-2008 09:44:00.00  
Detector ID: 5                              Cell ID: 5HA  
Bkg Date: 20-FEB-2008 09:00:54.36  
    Bkg Counts: 000030                      Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 13:44:00.46  
    Counts: 000234                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6EQ1AE                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0527  
Technician: SB  
Analysis Size: 1.02                      Analysis Unit: G  
   Report Date: 3-MAR-2008 14:38:00.62  
   First Separation Date: 26-FEB-2008 15:15:00.00  
   Second Separation Date: 3-MAR-2008 09:48:00.00  
Detector ID: 6                              Cell ID: 6MB  
Bkg Date: 20-FEB-2008 09:01:05.17  
   Bkg Counts: 000015                      Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 13:48:00.28  
   Counts: 000263                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6ER1AE                      Isotope: RA-226  
Client: STL                      Matrix Code: 341  
Batch Nbr: 8042381              Activity Unit: PCI/G              Multiplier: 1.0654  
Technician: SB  
Analysis Size: 1.00              Analysis Unit: G  
                    Report Date: 3-MAR-2008 14:37:00.67  
                    First Separation Date: 26-FEB-2008 15:15:00.00  
                    Second Separation Date: 3-MAR-2008 09:47:00.00  
Detector ID: 7                      Cell ID: 7HB  
Bkg Date: 11-FEB-2008 09:55:31.32  
                    Bkg Counts: 000041                      Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 13:47:00.31  
                    Counts: 000218                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6ET1AE                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0551  
Technician: SB  
Analysis Size: 1.00                      Analysis Unit: G  
   Report Date: 3-MAR-2008 14:33:00.67  
   First Separation Date: 26-FEB-2008 15:15:00.00  
   Second Separation Date: 3-MAR-2008 09:43:00.00  
Detector ID: 8                              Cell ID: 8HA  
Bkg Date: 21-FEB-2008 09:06:36.57  
   Bkg Counts: 000042                      Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 13:43:00.30  
   Counts: 000190                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6EV1AE                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0620  
Technician: SB  
Analysis Size: 1.00                      Analysis Unit: G  
   Report Date: 3-MAR-2008 15:27:00.64  
   First Separation Date: 26-FEB-2008 15:15:00.00  
   Second Separation Date: 3-MAR-2008 10:37:00.00  
Detector ID: 9                              Cell ID: 9RC  
Bkg Date: 26-FEB-2008 08:44:50.83  
   Bkg Counts: 000019                      Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 14:37:00.28  
   Counts: 000174                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6EW1AE                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0  
Technician: SB  
Analysis Size: 1.01                      Analysis Unit: G  
    Report Date: 3-MAR-2008 15:14:00.85  
    First Separation Date: 26-FEB-2008 15:45:00.00  
    Second Separation Date: 3-MAR-2008 10:24:00.00  
Detector ID: 10                              Cell ID: ASC  
Bkg Date: 21-FEB-2008 09:06:51.64  
    Bkg Counts: 000020                      Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 14:24:00.41  
    Counts: 000105                      Count Duration: 000050.0

End of Report    ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6E01AE                      Isotope: RA-226  
Client: STL                                Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0059  
Technician: SB  
Analysis Size: 1.01                      Analysis Unit: G  
    Report Date: 3-MAR-2008 15:25:00.97  
    First Separation Date: 26-FEB-2008 15:45:00.00  
    Second Separation Date: 3-MAR-2008 10:35:00.00  
Detector ID: 12                            Cell ID: CSB  
Bkg Date: 20-FEB-2008 09:01:42.58  
    Bkg Counts: 000012                      Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 14:35:00.28  
    Counts: 000326                            Count Duration: 000050.0

End of Report ✓



ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6E11AE                      Isotope: RA-226  
Client: STL                                Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0  
Technician: SB  
Analysis Size: 1.01                      Analysis Unit: G  
    Report Date: 3-MAR-2008 15:29:00.71  
    First Separation Date: 26-FEB-2008 15:45:00.00  
    Second Separation Date: 3-MAR-2008 10:39:00.00  
Detector ID: 13                            Cell ID: DSA  
Bkg Date: 20-FEB-2008 09:01:50.52  
    Bkg Counts: 000013                      Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 14:39:00.38  
    Counts: 000103                            Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6E21AH                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0263  
Technician: SB  
Analysis Size: 1.01                      Analysis Unit: G  
   Report Date: 3-MAR-2008 15:24:00.73  
   First Separation Date: 26-FEB-2008 15:45:00.00  
   Second Separation Date: 3-MAR-2008 10:34:00.00  
Detector ID: 14                              Cell ID: ESD  
Bkg Date: 14-FEB-2008 09:31:06.91  
   Bkg Counts: 000008                              Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 14:34:00.27  
   Counts: 000288                                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6E21AK                      Isotope: RA-226  
Client: STL                      Matrix Code: 341  
Batch Nbr: 8042381              Activity Unit: PCI/G              Multiplier: 1.0  
Technician: SB  
Analysis Size: 1.03              Analysis Unit: G  
                    Report Date: 3-MAR-2008 15:34:00.85  
                    First Separation Date: 26-FEB-2008 15:45:00.00  
                    Second Separation Date: 3-MAR-2008 10:44:00.00  
Detector ID: 15                      Cell ID: FSA  
Bkg Date: 14-FEB-2008 09:31:17.80  
                    Bkg Counts: 000010                      Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 14:44:00.45  
                    Counts: 000177                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6E21AM                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0  
Technician: SB  
Analysis Size: 1.00                      Analysis Unit: G  
    Report Date: 3-MAR-2008 15:33:00.71  
    First Separation Date: 26-FEB-2008 15:45:00.00  
    Second Separation Date: 3-MAR-2008 10:43:00.00  
Detector ID: 16                              Cell ID: GSA  
Bkg Date: 20-FEB-2008 09:02:22.04  
    Bkg Counts: 000009                              Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 14:43:00.38  
    Counts: 000233                                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6E51AE                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0  
Technician: SB  
Analysis Size: 1.00                      Analysis Unit: G  
    Report Date: 3-MAR-2008 15:23:00.62  
    First Separation Date: 26-FEB-2008 15:45:00.00  
    Second Separation Date: 3-MAR-2008 10:33:00.00  
Detector ID: 17                              Cell ID: HAC  
Bkg Date: 20-FEB-2008 09:02:45.23  
    Bkg Counts: 000012                      Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 14:33:00.29  
    Counts: 000245                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KGXJA1AA                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0337  
Technician: SB  
Analysis Size: 1.03                      Analysis Unit: G  
   Report Date: 3-MAR-2008 16:15:00.62  
   First Separation Date: 26-FEB-2008 15:45:00.00  
   Second Separation Date: 3-MAR-2008 11:25:00.00  
Detector ID: 18                              Cell ID: JMA  
Bkg Date: 20-FEB-2008 09:02:53.79  
   Bkg Counts: 000009                              Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 15:25:00.30  
   Counts: 000010                                      Count Duration: 000050.0

End of Report



ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KGXJA1AC                      Isotope: RA-226  
Client: STL                                Matrix Code: 341  
Batch Nbr: 8042381                      Activity Unit: PCI/G                      Multiplier: 1.0948  
Technician: SB  
Analysis Size: 1.00                      Analysis Unit: G  
    Report Date: 3-MAR-2008 16:09:00.62  
    First Separation Date: 26-FEB-2008 16:10:00.00  
    Second Separation Date: 3-MAR-2008 11:19:00.00  
Detector ID: 19                            Cell ID: KMF  
Bkg Date: 14-FEB-2008 09:34:42.19  
    Bkg Counts: 000007                      Bkg Duration: 000060.0  
Count Date: 3-MAR-2008 15:19:00.28  
    Counts: 000239                            Count Duration: 000050.0

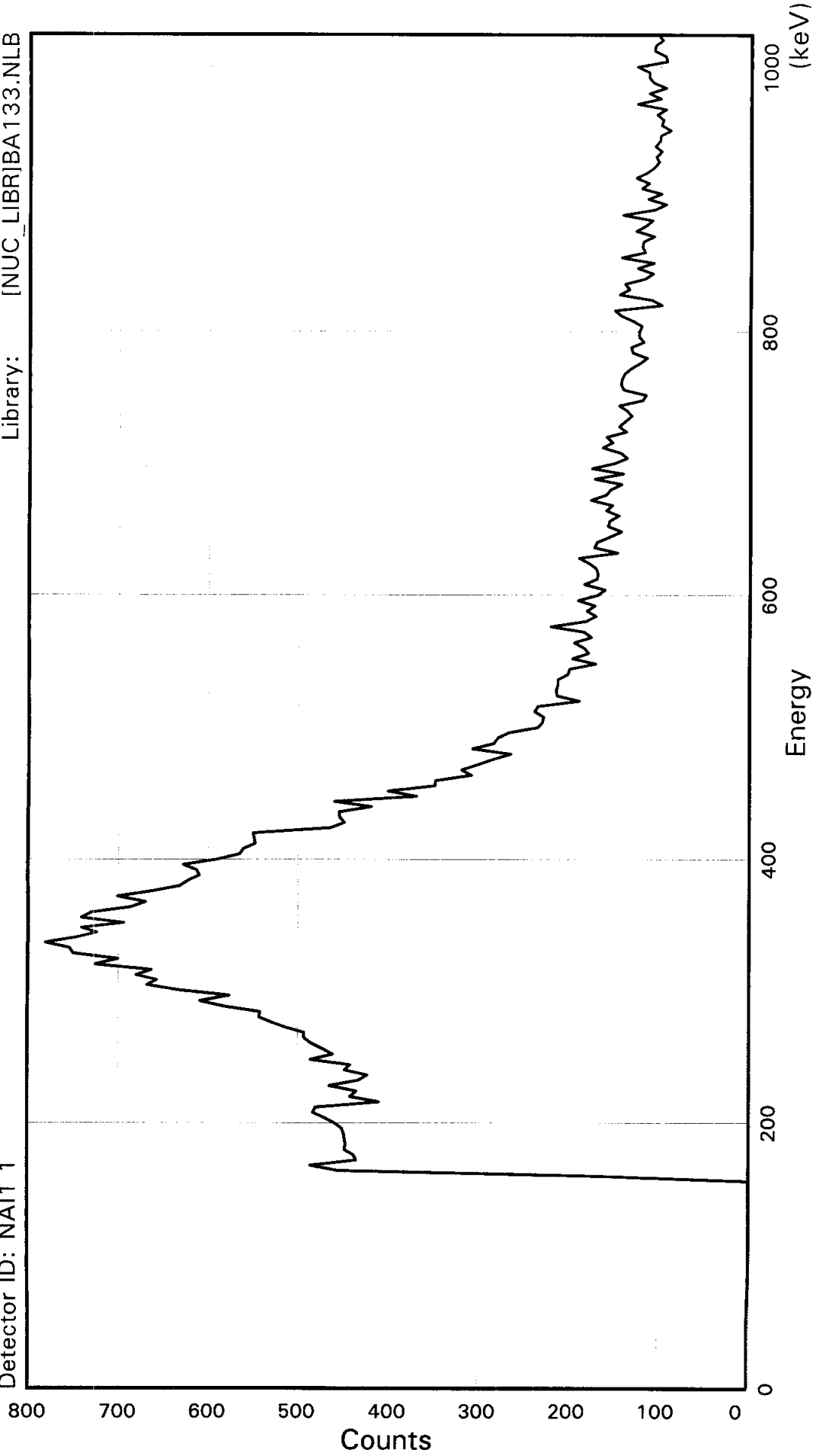
End of Report    ✓

TAL Richland WA.

BA133

Sample ID: KF5GG1AE  
Detector ID: NAI1 1

BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB



Acquisition Start: 25-FEB-2008 17:04:47.99  
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: KF5GG1AE

CONFIGURATION ID: NAI1:KF5GG1AE\_250281704  
TITLE : BA133  
SAMPLE ID : KF5GG1AE

REPORT DATE: 25-FEB-08  
ACQUIRE DATE: 25-FEB-08 17:04:47  
ELAPSED LIVE TIME: 1800.0 Sec  
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00  
CALIB DATE: 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/C<sup>2</sup>  
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] KF5GG1AE\_250281704.CNF;1  
Analyses by : NAI V3.0  
Sample title : BA133  
Sample date : 7-FEB-2008 12:00:00 Acquisition date : 25-FEB-2008 17:04:47  
Sample ID : KF5GG1AE 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:	6.9	5.0	6.4	5.7	6.5	3.5	2.8	2.5
88:	0.4	1.5	0.7	-0.6	-0.9	-1.2	-1.1	-2.2
96:	-1.9	-2.9	-2.7	-1.8	-3.7	-2.0	-3.0	-2.9
104:	-3.7	-3.4	-5.4	-4.5	-3.7	-3.6	-4.8	-2.5
112:	-4.2	-2.5						

List of Suspicious Channels

81 82 83 84 85 86

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	1.25E+01	0.00E+00	1.02E+00
2	6.49E+00	0.00E+00	1.05E+00
3	2.68E+00	0.00E+00	1.07E+00
4	1.02E+00	0.00E+00	1.08E+00

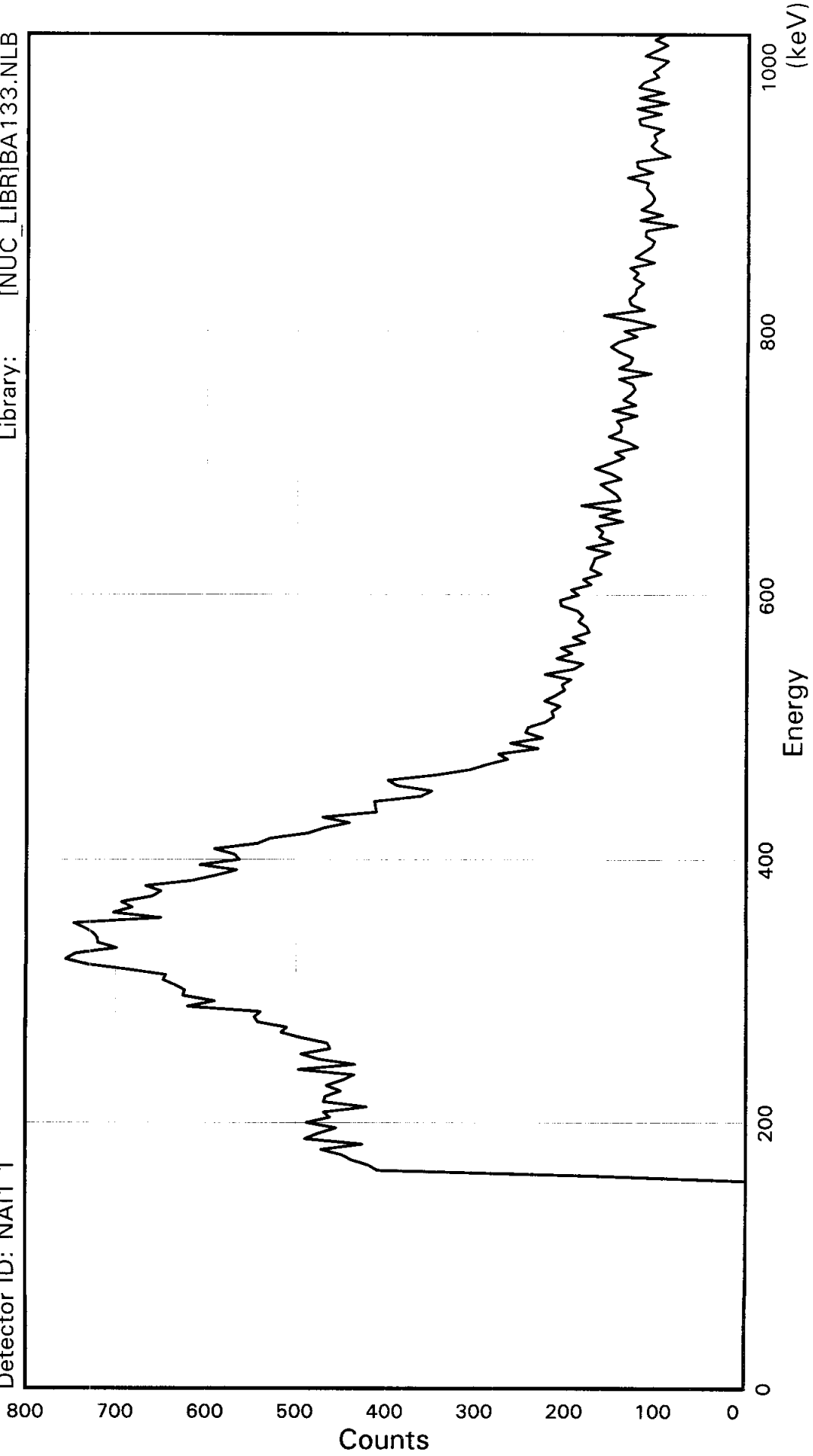
Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	715.	9.36
-----		
Total Activity :	715.	

TAL Richland WA.  
BA133

Sample ID: KF5GL1AE  
Detector ID: NAI1 1

BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB



Acquisition Start: 25-FEB-2008 17:43:42.1  
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: lter

SAMPLE IDENTIFICATION: KF5GL1AE

CONFIGURATION ID: NAI1:KF5GL1AE\_250281743  
TITLE : BA133  
SAMPLE ID : KF5GL1AE

REPORT DATE: 25-FEB-08	SAMPLE DATE: 7-FEB-2008 12:00:00.00
ACQUIRE DATE: 25-FEB-08 17:43:42	CALIB DATE: 17-NOV-1993 10:39:59.60
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:	SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV	FWHM OFFSET: -.2302E+02 keV
ENERGY SLOPE: 4.0000E+00 keV/C	FWHM SLOPE: 5.7163E+00 sqr keV
ENERGY Q COEFF: 0.0000E+00 keV/C <sup>2</sup>	ITERATIONS: 5
PEAK SENSITIVITY: 5.000	GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %	HALF-LIFE RATIO: 8.00
ENERGY TOLERANCE: 20.000 keV	ACTIVITY MULTIPLIER: 2.2200E+06
VARIABLE PEAK WIDTH: 3.00	LIBRARY: [NUC_LIBR]BA133.NLB

Configuration : RDND06\$DKA100: [NAI1.SAMPLE] KF5GL1AE\_250281743.CNF;1  
Analyses by : NAI V3.0  
Sample title : BA133  
Sample date : 7-FEB-2008 12:00:00 Acquisition date : 25-FEB-2008 17:43:42  
Sample ID : KF5GL1AE Sample quantity : 1.0000 sampl  
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.66 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	8.5	6.8	4.0	4.6	3.1	3.2	3.2
88:	3.9	-0.7	0.1	-1.0	0.3	-2.5	-0.9	0.5
96:	-1.9	-4.0	-4.1	-1.9	-4.5	-2.0	-1.6	-2.4
104:	-3.4	-5.3	-5.2	-5.1	-3.2	-5.4	-4.6	-3.9
112:	-4.7	-5.4						

List of Suspicious Channels

81 82 83 84 85 86 87

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	1.65E+01	0.00E+00	1.02E+00
2	7.81E+00	0.00E+00	1.04E+00
3	3.45E+00	0.00E+00	1.07E+00
4	1.75E+00	0.00E+00	1.08E+00
5	1.28E+00	0.00E+00	1.08E+00



Brief Report

	Nuclide	Activity DPM/sampl	1-Sigma Error
	BA-133	689.	10.2
		-----	
Total Activity :		689.	

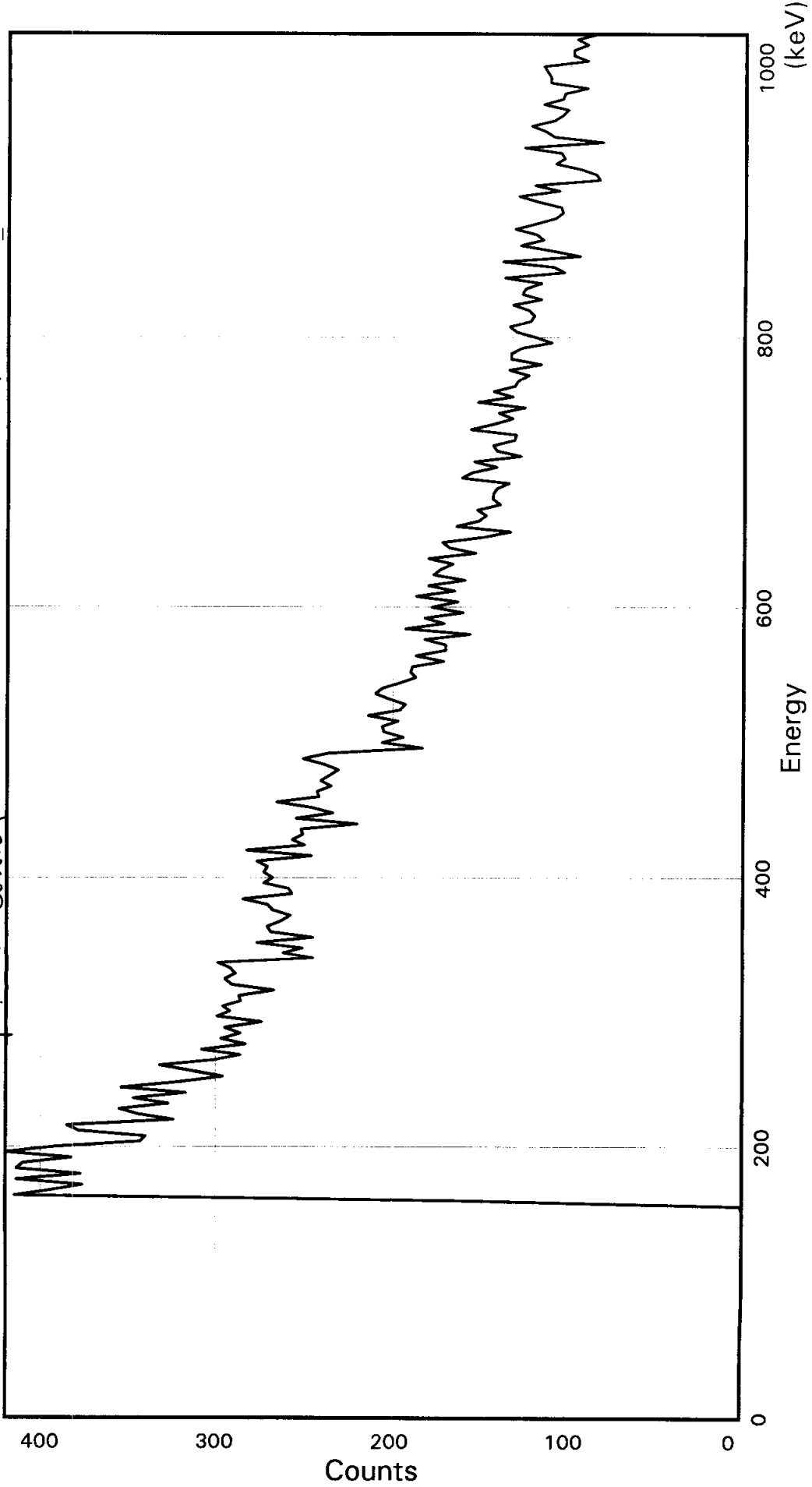
TAL Richland WA.

BA133

Sample ID: KF5GL1AE  
Detector ID: NAI1 1

*Preemptive Count*

BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB



Acquisition Start: 25-FEB-2008 11:12:58.84  
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: KF5GL1AE

CONFIGURATION ID: NAI1:KF5GL1AE\_250281112  
TITLE : BA133  
SAMPLE ID : KF5GL1AE

REPORT DATE: 25-FEB-08	SAMPLE DATE: 7-FEB-2008 12:00:00.00
ACQUIRE DATE: 25-FEB-08 11:12:58	CALIB DATE: 17-NOV-1993 10:39:59.60
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:	SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV	FWHM OFFSET: -.2302E+02 keV
ENERGY SLOPE: 4.0000E+00 keV/C	FWHM SLOPE: 5.7163E+00 sqr keV
ENERGY Q COEFF: 0.0000E+00 keV/C <sup>2</sup>	ITERATIONS: 5
PEAK SENSITIVITY: 5.000	GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %	HALF-LIFE RATIO: 8.00
ENERGY TOLERANCE: 20.000 keV	ACTIVITY MULTIPLIER: 2.2200E+06
VARIABLE PEAK WIDTH: 3.00	LIBRARY: [NUC_LIBR]BA133.NLB

Configuration : RDND06\$DKA100:[NAI1.SAMPLE]KF5GL1AE\_250281112.CNF;1  
Analyses by : NAI V3.0  
Sample title : BA133  
Sample date : 7-FEB-2008 12:00:00 Acquisition date : 25-FEB-2008 11:12:58  
Sample ID : KF5GL1AE Sample quantity : 1.0000 sampl  
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.54 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:	1.1	1.5	1.1	0.6	1.9	-1.4	-0.6	-0.8
88:	1.1	-1.1	0.3	0.1	-0.3	-0.5	0.0	0.4
96:	1.4	-0.5	-0.3	0.7	0.4	1.1	0.1	1.0
104:	-0.9	0.9	-0.9	-0.3	-0.4	-0.6	-2.0	-0.3
112:	-1.0	-1.0						

List of Suspicious Channels

None

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	7.90E-01	0.00E+00	1.01E+00

Brief Report

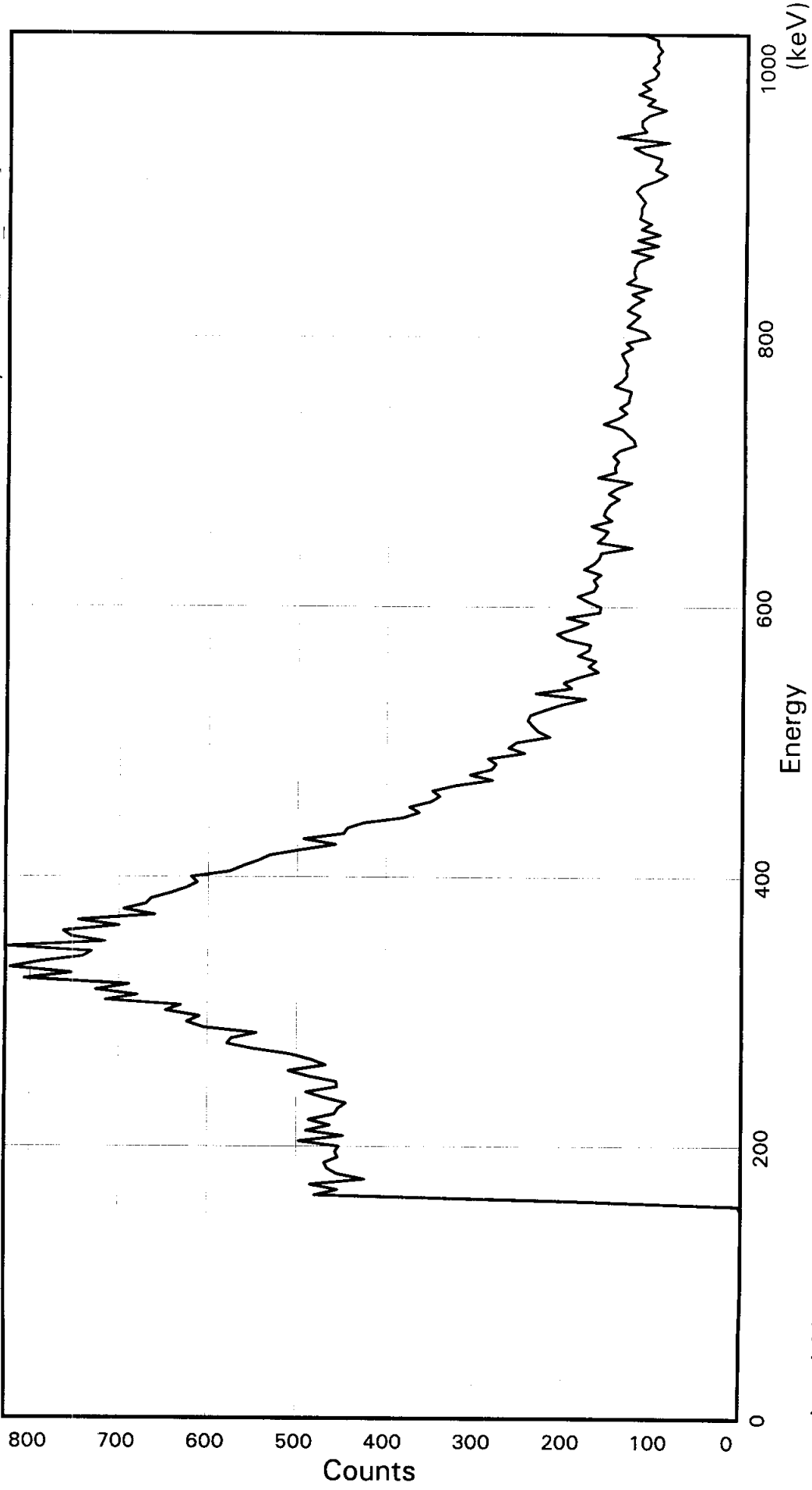
Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	-14.0	5.22
	-----	
Total Activity :	-14.0	

TAL Richland WA.

BA133

Sample ID: KF6EM1AE  
Detector ID: NAI1 1

BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB



Acquisition Start: 25-FEB-2008 18:15:35.87  
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: KF6EM1AE

CONFIGURATION ID: NAI1:KF6EM1AE\_250281815  
TITLE : BA133  
SAMPLE ID : KF6EM1AE

REPORT DATE: 25-FEB-08  
ACQUIRE DATE: 25-FEB-08 18:15:35  
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/C<sup>2</sup>  
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]KF6EM1AE\_250281815.CNF;1  
Analyses by : NAI V3.0  
Sample title : BA133  
Sample date : 7-FEB-2008 12:00:00 Acquisition date : 25-FEB-2008 18:15:35  
Sample ID : KF6EM1AE 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:	5.3	9.1	5.4	7.3	6.2	3.0	2.1	4.8
88:	0.6	1.3	1.1	-1.0	1.2	-4.0	-0.7	-0.9
96:	-1.5	-3.0	-2.7	-2.8	-3.4	-2.7	-4.1	-3.7
104:	-4.6	-5.6	-6.3	-3.9	-4.8	-4.0	-4.6	-6.4
112:	-5.4	-4.5						

List of Suspicious Channels

81      82      83      84      85      86

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	1.71E+01	0.00E+00	1.03E+00
2	6.15E+00	0.00E+00	1.06E+00
3	1.71E+00	0.00E+00	1.08E+00
4	5.82E-01	0.00E+00	1.09E+00

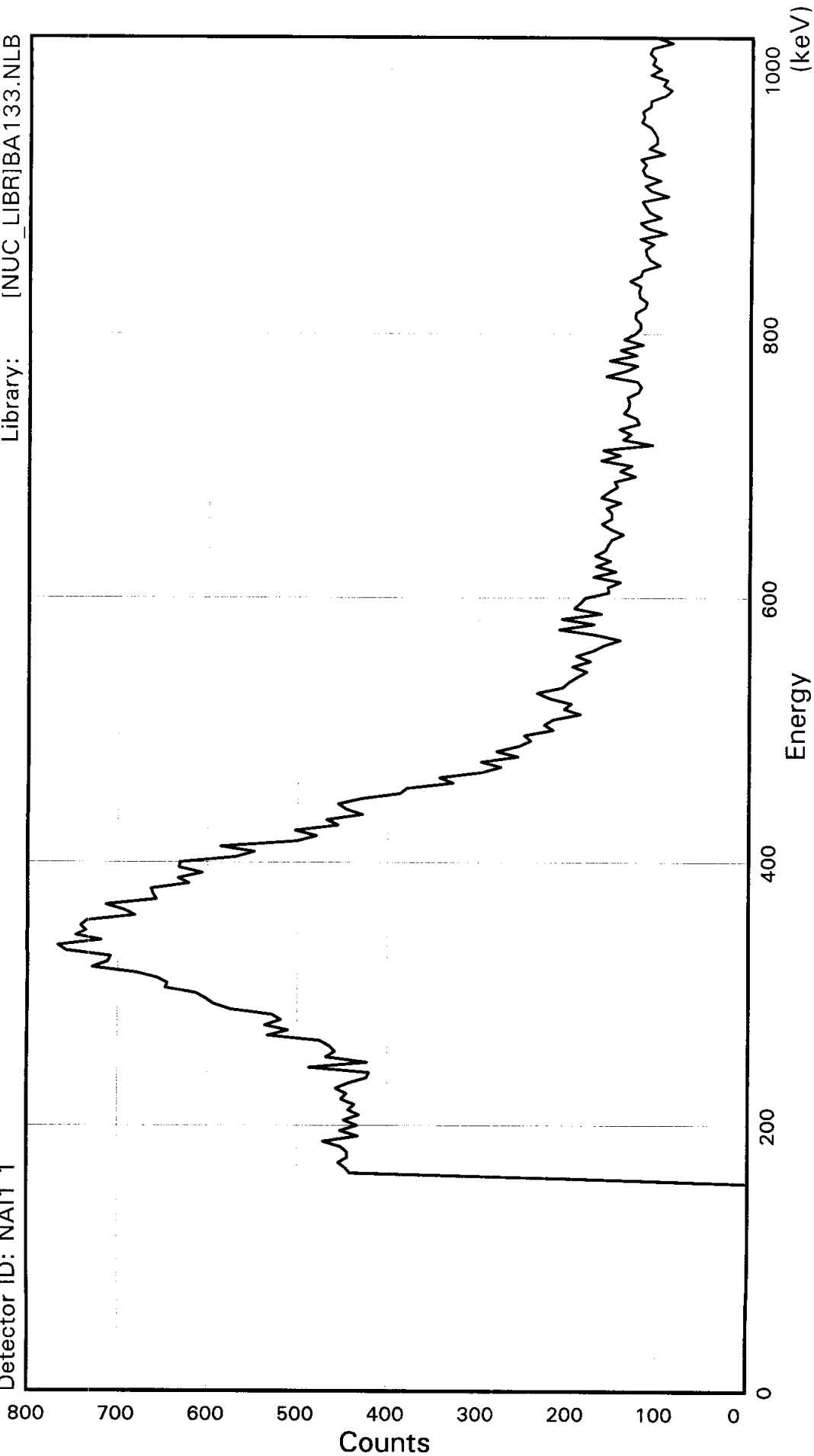
Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	750.	7.32
-----		
Total Activity :	750.	

TAL Richland WA.  
BA133

Sample ID: KF6EP1AE  
Detector ID: NAI1 1

BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB



Acquisition Start: 25-FEB-2008 18:49:21.9  
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: KF6EP1AE

CONFIGURATION ID: NAI1:KF6EP1AE\_250281849  
TITLE : BA133  
SAMPLE ID : KF6EP1AE

REPORT DATE: 25-FEB-08	SAMPLE DATE: 7-FEB-2008 12:00:00.00
ACQUIRE DATE: 25-FEB-08 18:49:21	CALIB DATE: 17-NOV-1993 10:39:59.60
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:	SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV	FWHM OFFSET: -.2302E+02 keV
ENERGY SLOPE: 4.0000E+00 keV/C	FWHM SLOPE: 5.7163E+00 sqr keV
ENERGY Q COEFF: 0.0000E+00 keV/C <sup>2</sup>	ITERATIONS: 5
PEAK SENSITIVITY: 5.000	GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %	HALF-LIFE RATIO: 8.00
ENERGY TOLERANCE: 20.000 keV	ACTIVITY MULTIPLIER: 2.2200E+06
VARIABLE PEAK WIDTH: 3.00	LIBRARY: [NUC_LIBR]BA133.NLB

Configuration : RDND06\$DKA100: [NAI1.SAMPLE] KF6EP1AE\_250281849.CNF;1  
Analyses by : NAI V3.0  
Sample title : BA133  
Sample date : 7-FEB-2008 12:00:00 Acquisition date : 25-FEB-2008 18:49:21  
Sample ID : KF6EP1AE Sample quantity : 1.0000 sampl  
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.66 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:	7.3	5.8	4.7	5.4	5.4	2.6	4.1	2.6
88:	2.2	1.6	-0.8	-0.9	0.4	-3.0	-0.7	0.2
96:	-2.0	-2.8	-2.6	-1.0	-2.5	-2.0	-3.4	-1.3
104:	-5.5	-6.4	-3.6	-3.5	-3.0	-4.7	-2.3	-1.7
112:	-2.1	-4.2						

List of Suspicious Channels

81 82 83 84 85 86 87

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	1.32E+01	0.00E+00	1.02E+00
2	7.26E+00	0.00E+00	1.04E+00
3	2.77E+00	0.00E+00	1.06E+00
4	1.16E+00	0.00E+00	1.07E+00

Brief Report

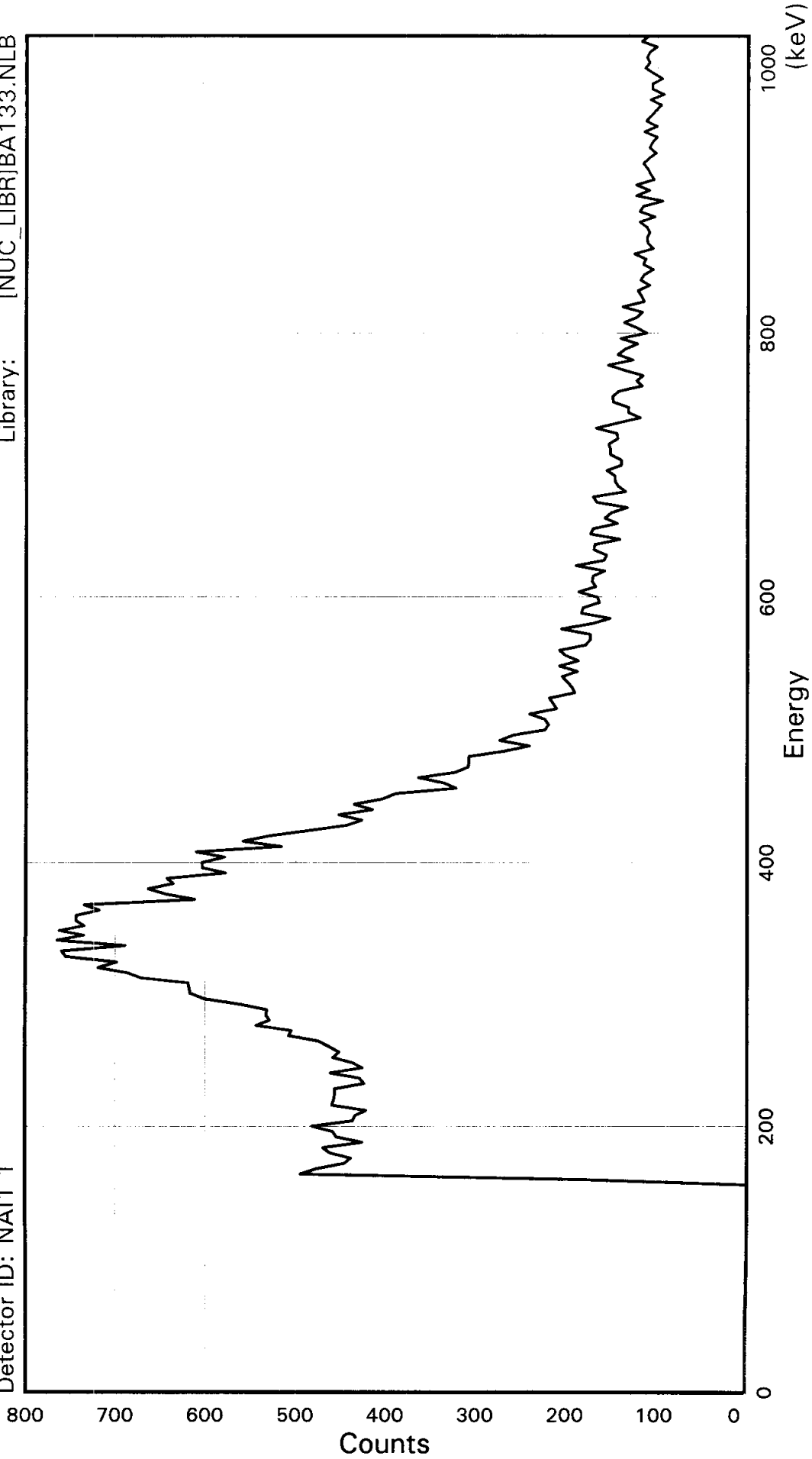
Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	710.	9.92
-----		
Total Activity :	710.	



TAL Richland WA.

BA133

Sample ID: KF6EQ1AE  
Detector ID: NAI1 1  
BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB



Acquisition Start: 25-FEB-2008 19:27:08.05  
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: KF6EQ1AE

CONFIGURATION ID: NAI1:KF6EQ1AE\_250281927  
TITLE : BA133  
SAMPLE ID : KF6EQ1AE

REPORT DATE: 25-FEB-08  
ACQUIRE DATE: 25-FEB-08 19:27:08  
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/C<sup>2</sup>  
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]KF6EQ1AE\_250281927.CNF;1  
Analyses by : NAI V3.0  
Sample title : BA133  
Sample date : 7-FEB-2008 12:00:00 Acquisition date : 25-FEB-2008 19:27:08  
Sample ID : KF6EQ1AE Sample quantity : 1.0000 sampl  
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.66 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:	7.2	5.5	6.6	5.5	2.7	4.6	3.4	3.6
88:	2.5	2.3	1.0	-0.3	1.3	-4.7	-1.7	-0.6
96:	-1.7	-2.1	-3.5	-1.8	-3.6	-2.4	-1.4	-4.1
104:	-2.7	-4.0	-4.9	-5.3	-5.3	-3.4	-4.7	-3.5
112:	-3.0	-3.6						

List of Suspicious Channels

81 82 83 84 85 86 87 88

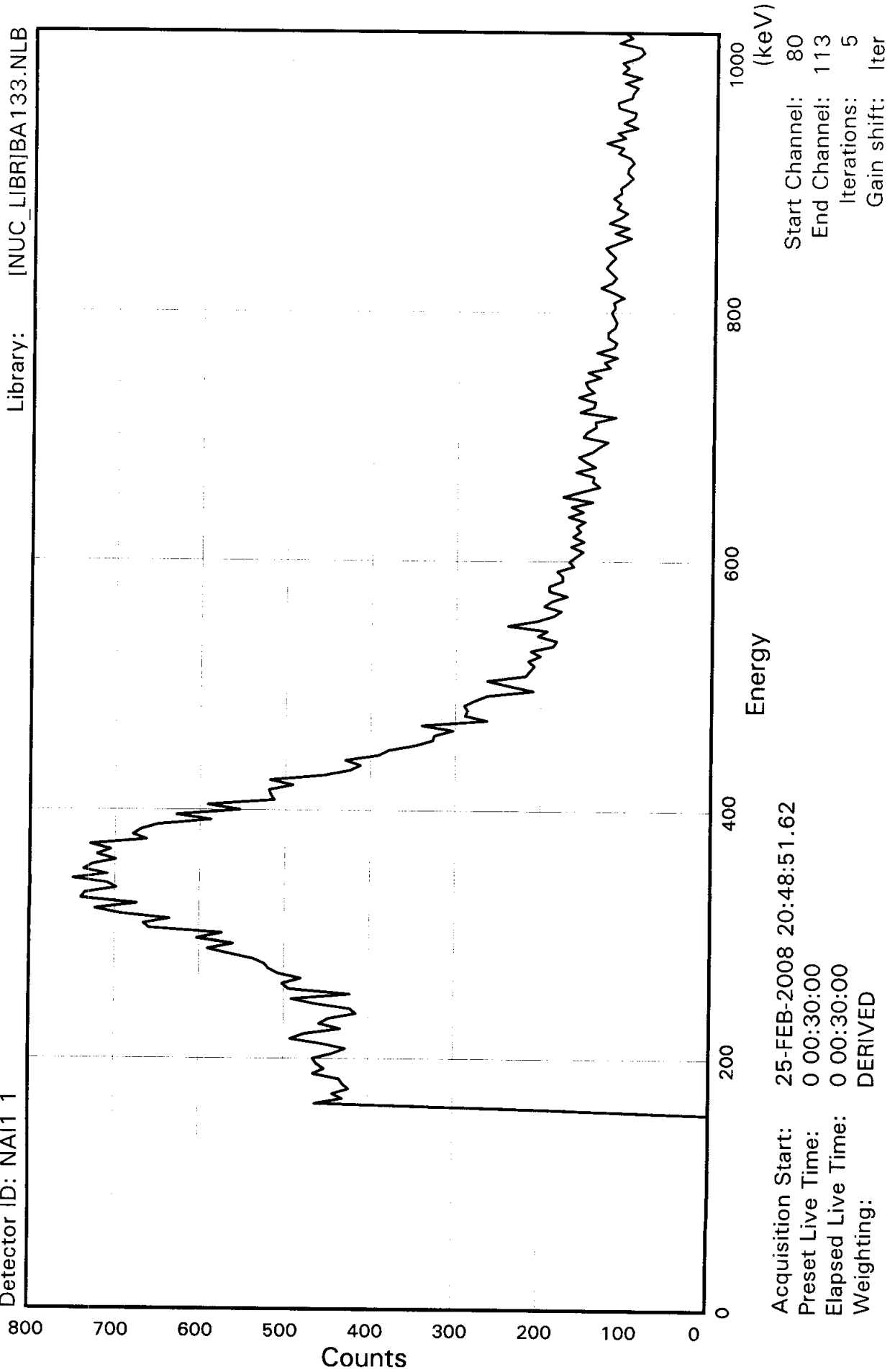
Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	1.34E+01	0.00E+00	1.02E+00
2	7.43E+00	0.00E+00	1.04E+00
3	3.56E+00	0.00E+00	1.06E+00
4	1.67E+00	0.00E+00	1.07E+00
5	1.17E+00	0.00E+00	1.08E+00

Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	713.	10.0
-----		
Total Activity :	713.	

TAL Richland WA.  
BA133

Sample ID: KF6ER1AE  
Detector ID: NAI1 1  
BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB



SAMPLE IDENTIFICATION: KF6ER1AE

CONFIGURATION ID: NAI1:KF6ER1AE\_250282048  
TITLE : BA133  
SAMPLE ID : KF6ER1AE

REPORT DATE: 25-FEB-08  
ACQUIRE DATE: 25-FEB-08 20:48:51  
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/C<sup>2</sup>  
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]KF6ER1AE\_250282048.CNF;1  
Analyses by : NAI V3.0  
Sample title : BA133  
Sample date : 7-FEB-2008 12:00:00 Acquisition date : 25-FEB-2008 20:48:51  
Sample ID : KF6ER1AE Sample quantity : 1.0000 sampl  
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.66 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:	7.3	3.6	6.0	5.2	3.0	2.3	4.3	1.7
88:	2.6	1.8	-0.3	0.0	0.2	-0.2	-0.9	0.2
96:	-0.1	-1.8	-3.7	-1.5	-5.0	-1.0	-5.1	-3.8
104:	-3.6	-5.0	-3.0	-4.3	-4.8	-4.5	-3.9	-5.5
112:	-4.5	-6.1						

List of Suspicious Channels

81      82      83      84      85



Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	1.24E+01	0.00E+00	1.03E+00
2	3.79E+00	0.00E+00	1.06E+00
3	1.36E+00	0.00E+00	1.07E+00
4	5.13E-01	0.00E+00	1.08E+00

Brief Report

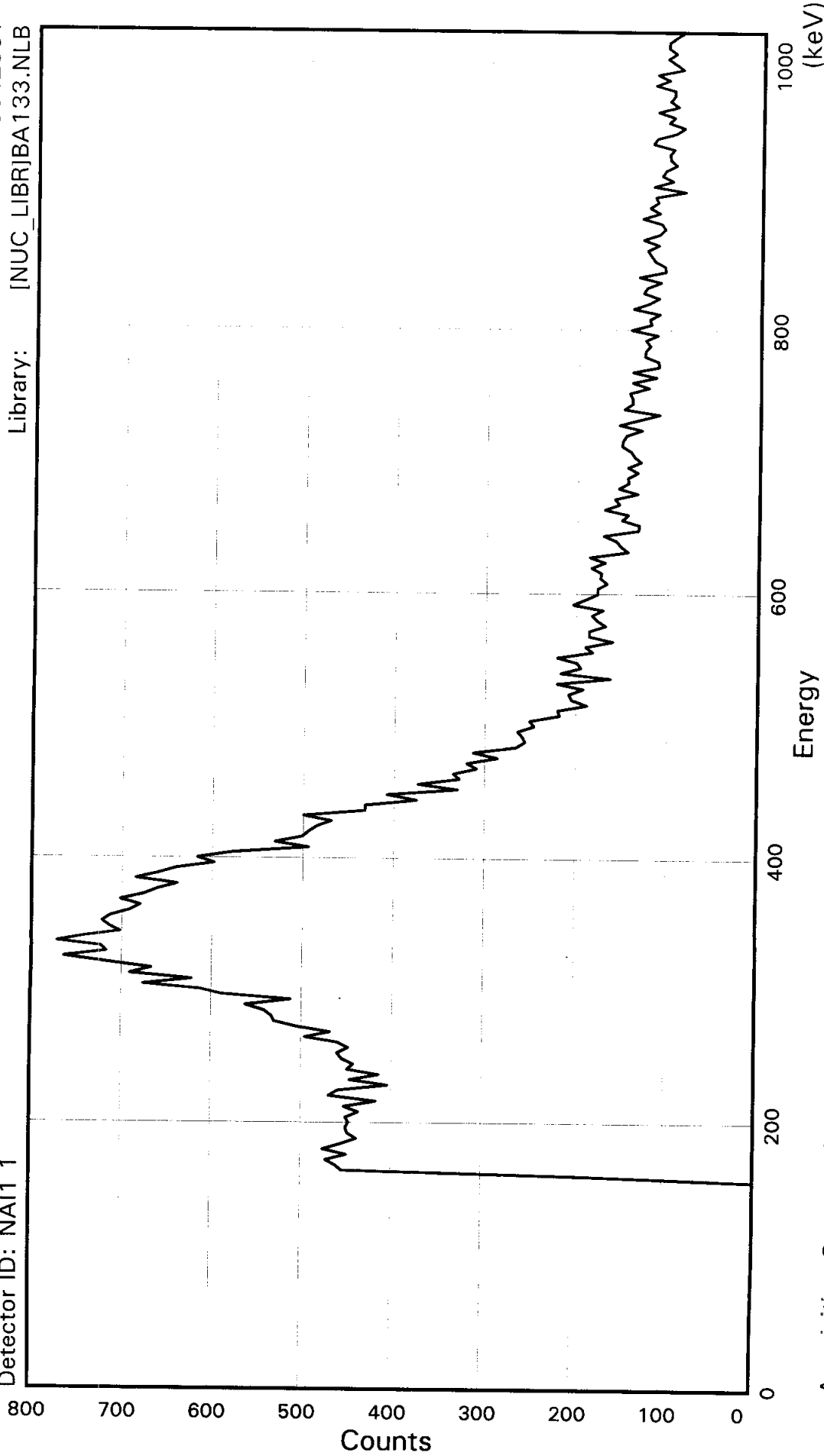
Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	704.	6.50
-----		
Total Activity :	704.	

TAL Richland WA.

BA133

Sample ID: KF6ET1AE  
Detector ID: NAI1 1

BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB



Acquisition Start: 25-FEB-2008 21:27:15.49  
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: KF6ET1AE

CONFIGURATION ID: NAI1:KF6ET1AE\_250282127  
TITLE : BA133  
SAMPLE ID : KF6ET1AE

REPORT DATE: 25-FEB-08	SAMPLE DATE: 7-FEB-2008 12:00:00.00
ACQUIRE DATE: 25-FEB-08 21:27:15	CALIB DATE: 17-NOV-1993 10:39:59.60
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:	SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV	FWHM OFFSET: -.2302E+02 keV
ENERGY SLOPE: 4.0000E+00 keV/C	FWHM SLOPE: 5.7163E+00 sqr keV
ENERGY Q COEFF: 0.0000E+00 keV/C <sup>2</sup>	ITERATIONS: 5
PEAK SENSITIVITY: 5.000	GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %	HALF-LIFE RATIO: 8.00
ENERGY TOLERANCE: 20.000 keV	ACTIVITY MULTIPLIER: 2.2200E+06
VARIABLE PEAK WIDTH: 3.00	LIBRARY: [NUC_LIBR]BA133.NLB

Configuration : RDND06\$DKA100:[NAI1.SAMPLE]KF6ET1AE\_250282127.CNF;1  
Analyses by : NAI V3.0  
Sample title : BA133  
Sample date : 7-FEB-2008 12:00:00 Acquisition date : 25-FEB-2008 21:27:15  
Sample ID : KF6ET1AE Sample quantity : 1.0000 sampl  
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.64 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:	6.5	7.8	5.1	4.4	6.2	3.5	1.8	2.0
88:	2.3	0.8	-0.8	-1.0	0.8	-2.1	-1.0	-1.3
96:	0.5	-1.3	-1.6	-2.7	-2.6	-1.7	-6.1	-3.9
104:	-5.0	-4.7	-4.2	-3.8	-1.1	-3.4	-3.7	-6.2
112:	-3.0	-6.8						

List of Suspicious Channels

81      82      83      84

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	1.52E+01	0.00E+00	1.02E+00
2	7.79E+00	0.00E+00	1.04E+00
3	3.71E+00	0.00E+00	1.06E+00
4	1.74E+00	0.00E+00	1.07E+00
5	7.05E-01	0.00E+00	1.08E+00

Brief Report

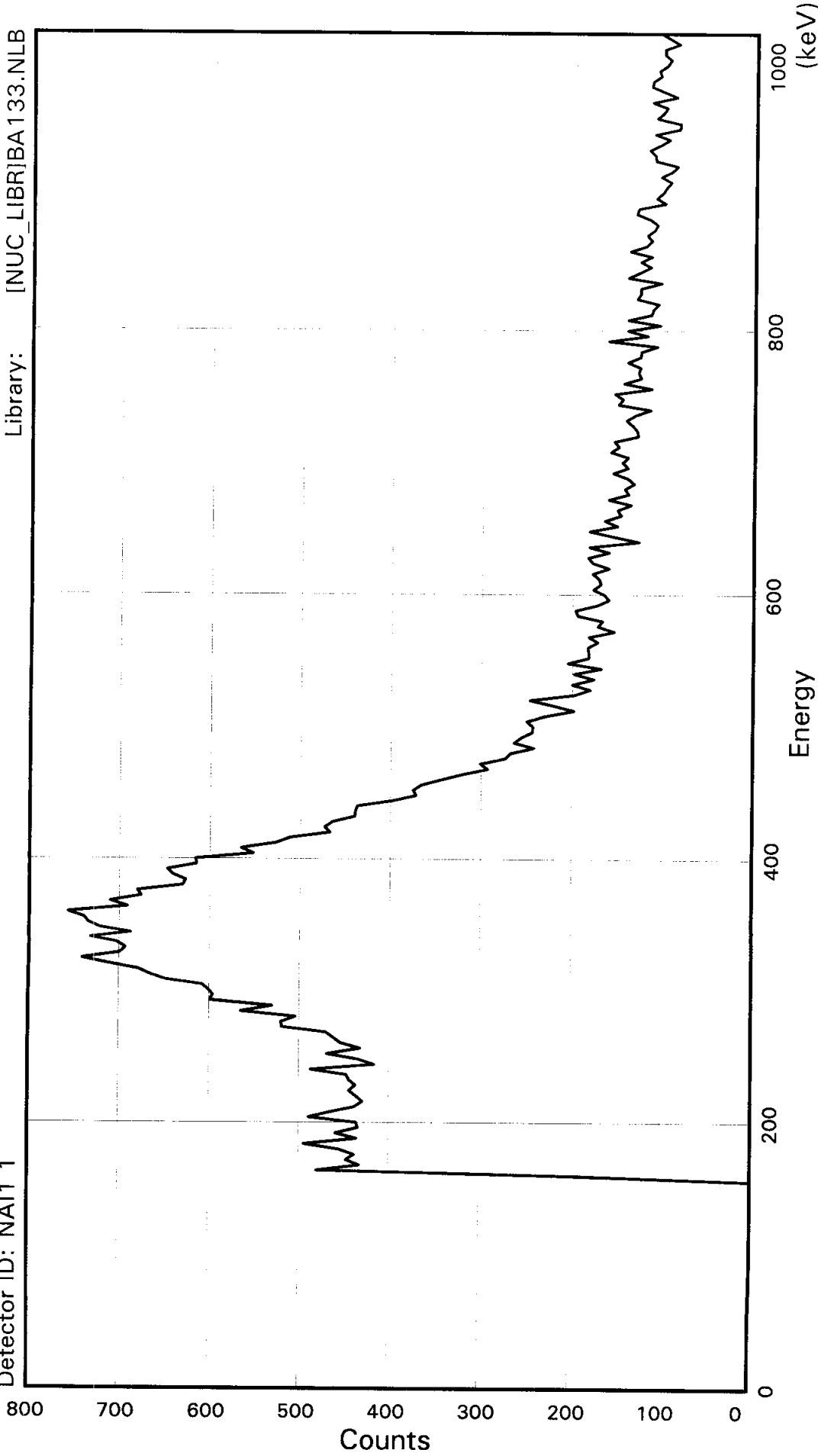
Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	705.	7.64
-----		
Total Activity :	705.	

TAL Richland WA.

BA133

Sample ID: KF6EV1AE  
Detector ID: NAI1 1

BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB



Acquisition Start: 25-FEB-2008 22:00:17.79  
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: KF6EV1AE

CONFIGURATION ID: NAI1:KF6EV1AE\_250282200  
TITLE : BA133  
SAMPLE ID : KF6EV1AE

REPORT DATE: 25-FEB-08	SAMPLE DATE: 7-FEB-2008 12:00:00.00
ACQUIRE DATE: 25-FEB-08 22:00:17	CALIB DATE: 17-NOV-1993 10:39:59.60
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:	SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV	FWHM OFFSET: -.2302E+02 keV
ENERGY SLOPE: 4.0000E+00 keV/C	FWHM SLOPE: 5.7163E+00 sqr keV
ENERGY Q COEFF: 0.0000E+00 keV/C <sup>2</sup>	ITERATIONS: 5
PEAK SENSITIVITY: 5.000	GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %	HALF-LIFE RATIO: 8.00
ENERGY TOLERANCE: 20.000 keV	ACTIVITY MULTIPLIER: 2.2200E+06
VARIABLE PEAK WIDTH: 3.00	LIBRARY: [NUC_LIBR]BA133.NLB

Configuration : RDND06\$DKA100:[NAI1.SAMPLE]KF6EV1AE\_250282200.CNF;1  
Analyses by : NAI V3.0  
Sample title : BA133  
Sample date : 7-FEB-2008 12:00:00 Acquisition date : 25-FEB-2008 22:00:17  
Sample ID : KF6EV1AE Sample quantity : 1.0000 sampl  
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.65 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:	7.4	7.5	4.5	3.4	3.8	3.6	1.8	2.7
88:	3.2	2.2	1.8	-0.7	0.8	-2.2	-0.3	-1.8
96:	-1.8	-1.8	-0.9	-1.8	-2.7	-2.5	-2.7	-3.7
104:	-4.9	-6.3	-4.8	-3.9	-4.2	-3.9	-3.5	-4.8
112:	-4.4	-4.7						

List of Suspicious Channels

81 82 83 84 88

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	1.16E+01	0.00E+00	1.03E+00
2	4.17E+00	0.00E+00	1.06E+00
3	1.34E+00	0.00E+00	1.07E+00
4	7.76E-01	0.00E+00	1.08E+00

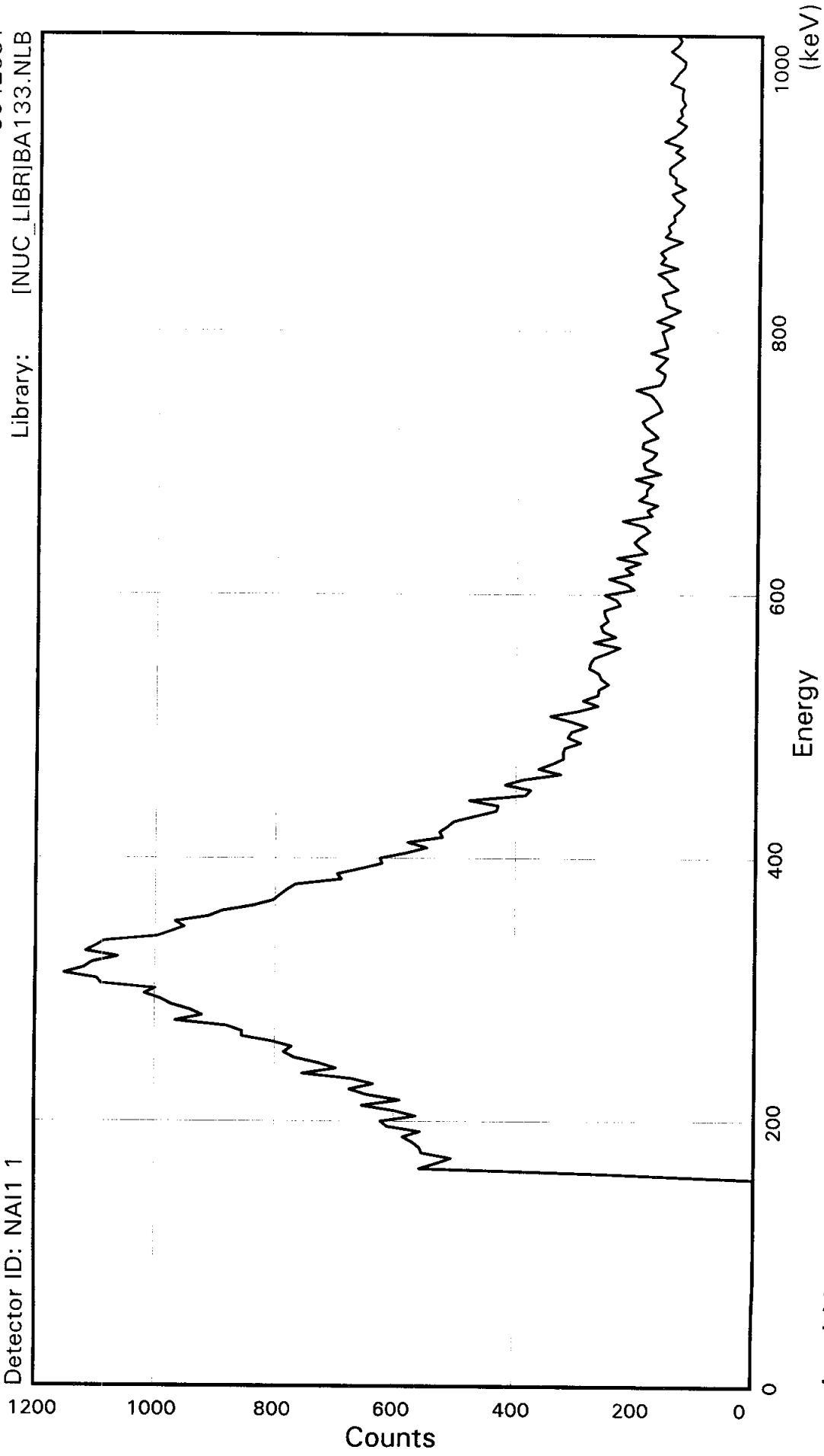
Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	698.	8.01
-----		
Total Activity :	698.	

TAL Richland WA.  
BA133

Sample ID: KF6EW1AE  
Detector ID: NAI1 1

BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB



Acquisition Start: 26-FEB-2008 05:08:23.89  
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: KF6EW1AE

CONFIGURATION ID: NAI1:KF6EW1AE\_260280508  
TITLE : BA133  
SAMPLE ID : KF6EW1AE

REPORT DATE: 26-FEB-08	SAMPLE DATE: 7-FEB-2008 12:00:00.00
ACQUIRE DATE: 26-FEB-08 05:08:23	CALIB DATE: 17-NOV-1993 10:39:59.60
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:	SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV	FWHM OFFSET: -.2302E+02 keV
ENERGY SLOPE: 4.0000E+00 keV/C	FWHM SLOPE: 5.7163E+00 sqr keV
ENERGY Q COEFF: 0.0000E+00 keV/C <sup>2</sup>	ITERATIONS: 5
PEAK SENSITIVITY: 5.000	GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %	HALF-LIFE RATIO: 8.00
ENERGY TOLERANCE: 20.000 keV	ACTIVITY MULTIPLIER: 2.2200E+06
VARIABLE PEAK WIDTH: 3.00	LIBRARY: [NUC_LIBR]BA133.NLB

```

Configuration      : RDND06$DKA100: [NAI1.SAMPLE] KF6EW1AE_260280508.CNF;1
Analyses by       : NAI V3.0
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date : 26-FEB-2008 05:08:23
Sample ID         : KF6EW1AE               Sample quantity  : 1.0000 sampl
Elapsed live time: 0 00:30:00.00          Elapsed real time: 0 00:30:00.85   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:	21.4	18.8	19.8	18.2	17.2	12.5	11.2	9.2
88:	8.9	5.8	4.3	2.7	2.0	-0.1	1.6	0.8
96:	-1.8	-2.2	-3.1	-4.0	-5.2	-3.9	-5.4	-3.8
104:	-6.4	-5.7	-5.0	-4.5	-5.2	-6.2	-5.6	-3.0
112:	-5.6	-5.6						

List of Suspicious Channels

80	81	82	83	84	85	86	87	88
89	90							

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	8.23E+01	0.00E+00	1.00E+00
2	8.24E+01	0.00E+00	1.00E+00



Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	822.	95.4
-----		
Total Activity :	822.	

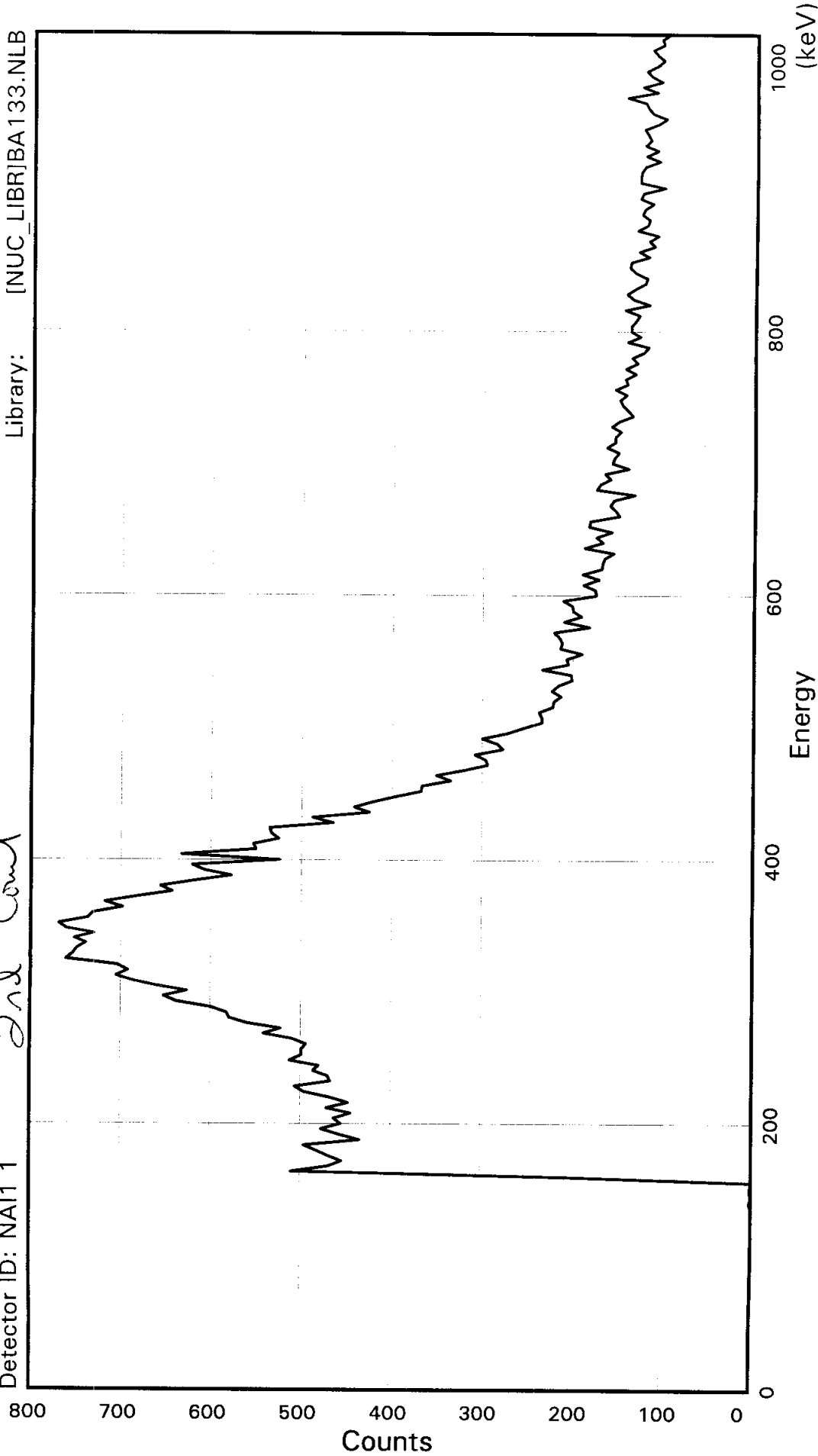
TAL Richland WA.

BA133

Sample ID: KF6E01AE  
Detector ID: NAI1 1

*2nd Count*

BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB



Acquisition Start: 26-FEB-2008 06:51:50.78  
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: KF6E01AE

CONFIGURATION ID: NAI1:KF6E01AE\_260280651  
TITLE : BA133  
SAMPLE ID : KF6E01AE

REPORT DATE: 26-FEB-08	SAMPLE DATE: 7-FEB-2008 12:00:00.00
ACQUIRE DATE: 26-FEB-08 06:51:50	CALIB DATE: 17-NOV-1993 10:39:59.60
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:	SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV	FWHM OFFSET: -.2302E+02 keV
ENERGY SLOPE: 4.0000E+00 keV/C	FWHM SLOPE: 5.7163E+00 sqr keV
ENERGY Q COEFF: 0.0000E+00 keV/C <sup>2</sup>	ITERATIONS: 5
PEAK SENSITIVITY: 5.000	GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %	HALF-LIFE RATIO: 8.00
ENERGY TOLERANCE: 20.000 keV	ACTIVITY MULTIPLIER: 2.2200E+06
VARIABLE PEAK WIDTH: 3.00	LIBRARY: [NUC_LIBR]BA133.NLB

```

Configuration      : RDND06$DKA100:[NAI1.SAMPLE]KF6E01AE_260280651.CNF;1
Analyses by       : NAI V3.0
Sample title      : BA133
Sample date       : 7-FEB-2008 12:00:00   Acquisition date : 26-FEB-2008 06:51:50
Sample ID         : KF6E01AE               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:	5.9	8.0	6.5	5.3	4.8	4.7	3.4	3.2
88:	2.6	1.0	0.5	-0.5	0.6	-2.3	-2.0	-1.6
96:	-2.5	-4.6	-3.1	-2.2	-6.9	0.4	-3.3	-2.8
104:	-4.3	-3.6	-2.6	-4.5	-2.8	-5.2	-3.8	-3.7
112:	-3.4	-4.6						

List of Suspicious Channels

81	82	83	84	85	86	87
----	----	----	----	----	----	----

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	1.36E+01	0.00E+00	1.02E+00
2	7.24E+00	0.00E+00	1.05E+00
3	2.77E+00	0.00E+00	1.07E+00
4	1.33E+00	0.00E+00	1.09E+00
5	8.77E-01	0.00E+00	1.10E+00

Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	741.	8.66
-----		
Total Activity :	741.	

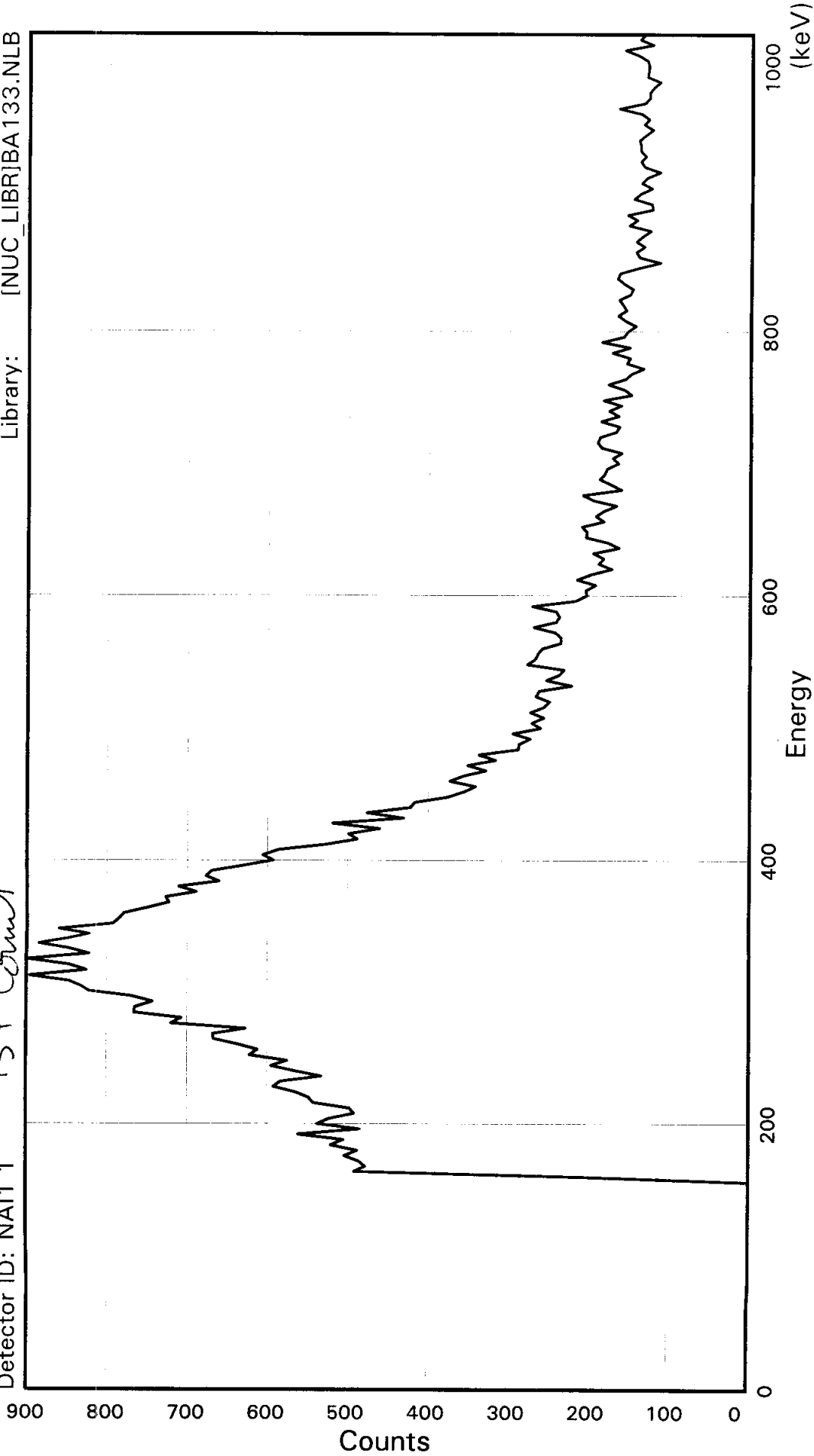
TAL Richland WA.

BA133

Sample ID: KF6E01AE  
Detector ID: NAI1 1

*1st Count*

BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB



Acquisition Start: 26-FEB-2008 05:41:49.59  
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: KF6E01AE

CONFIGURATION ID: NAI1:KF6E01AE\_260280541  
TITLE : BA133  
SAMPLE ID : KF6E01AE

REPORT DATE: 26-FEB-08	SAMPLE DATE: 7-FEB-2008 12:00:00.00
ACQUIRE DATE: 26-FEB-08 05:41:49	CALIB DATE: 17-NOV-1993 10:39:59.60
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:	SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV	FWHM OFFSET: -.2302E+02 keV
ENERGY SLOPE: 4.0000E+00 keV/C	FWHM SLOPE: 5.7163E+00 sqr keV
ENERGY Q COEFF: 0.0000E+00 keV/C <sup>2</sup>	ITERATIONS: 5
PEAK SENSITIVITY: 5.000	GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %	HALF-LIFE RATIO: 8.00
ENERGY TOLERANCE: 20.000 keV	ACTIVITY MULTIPLIER: 2.2200E+06
VARIABLE PEAK WIDTH: 3.00	LIBRARY: [NUC_LIBR]BA133.NLB



Configuration : RDND06\$DKA100:[NAI1.SAMPLE]KF6E01AE\_260280541.CNF;1  
Analyses by : NAI V3.0  
Sample title : BA133  
Sample date : 7-FEB-2008 12:00:00 Acquisition date : 26-FEB-2008 05:41:49  
Sample ID : KF6E01AE Sample quantity : 1.0000 sampl  
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.78 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:	8.9	10.5	6.2	5.9	6.9	4.4	3.1	4.0
88:	1.2	-0.3	-1.5	-1.9	-2.4	-4.3	-3.3	-2.3
96:	-3.9	-4.0	-3.4	-4.3	-7.3	-3.8	-4.6	-6.3
104:	-8.4	-7.5	-7.8	-4.5	-7.5	-5.1	-6.1	-5.4
112:	-6.2	-6.9						

List of Suspicious Channels

81 82 83 84 85 86

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	2.86E+01	0.00E+00	1.03E+00
2	1.82E+01	0.00E+00	1.07E+00
3	6.18E+00	0.00E+00	1.11E+00
4	2.40E+00	0.00E+00	1.12E+00
5	1.61E+00	0.00E+00	1.13E+00

Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	893.	12.7
	-----	
Total Activity :	893.	

TAL Richland WA.

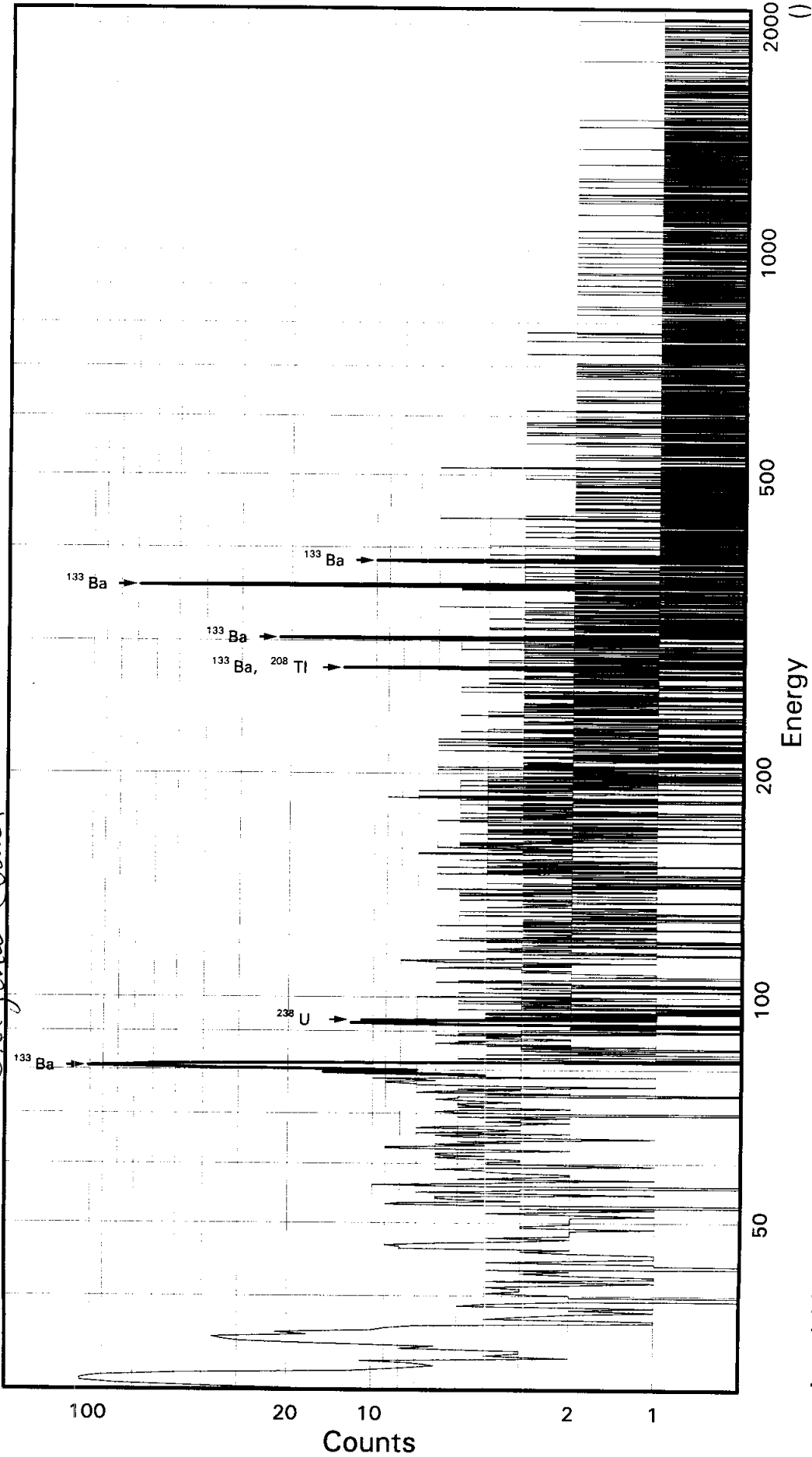
BA133

Sample ID: KF6E11AE

Detector ID: GER5 1

Batch ID: 8042381

*Original Count*



Acquisition Start: 26-FEB-2008 05:43:21.07  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:  
Offset: -3.59498E-01  
Slope: 2.49379E-01  
Quadrature: -3.84442E-09

SAMPLE IDENTIFICATION: KF6E11AE

CONFIGURATION ID: GER5:KF6E11AE\_260280543  
TITLE : BA133  
SAMPLE ID : KF6E11AE

REPORT DATE: 26-FEB-08	SAMPLE DATE: 7-FEB-2008 12:00:00.00
ACQUIRE DATE: 26-FEB-08 05:43:21	CALIB DATE: 26-FEB-2008 04:52:15.35
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: -.3595E+00 keV	FWHM OFFSET: 7.6258E-01 keV
ENERGY SLOPE: 2.4938E-01 keV/C	FWHM SLOPE: 2.5570E-02 sqr keV
ENERGY Q COEFF: -.3844E-08 keV/C <sup>2</sup>	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

VMS Peak Search Report V1.9 Generated 26-FEB-2008 11:12:10

Configuration : RDND06\$DKA100:[GER5.SAMPLE]KF6E11AE\_260280543.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 : 26-FEB-2008 05:43:21  
 Sample ID : KF6E11AE 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 : 19.59 End energy : 2042.29  
 Sensitivity : 5.00 Gaussian : 10.00  
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	31.01	491	100	1.09	125.77	117	19	2.73E-01	6.7	
2	0	35.33	160	49	1.17	143.11	136	17	8.86E-02	12.9	
3	0	46.70*	8	26	0.92	188.70	182	17	4.18E-03	173.2	
4	0	80.93	372	42	0.83	325.97	317	15	2.07E-01	6.3	
5	0	93.30*	13	23	1.12	375.59	365	20	7.45E-03	104.7	
6	0	276.28	53	8	0.69	1109.34	1102	15	2.92E-02	17.9	
7	0	302.93	89	9	0.98	1216.20	1210	14	4.95E-02	13.0	
8	0	355.92	314	4	1.05	1428.71	1420	16	1.74E-01	5.8	
9	0	384.03	47	7	1.67	1541.41	1534	14	2.61E-02	18.9	

Flag: "\*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.1 Generated 26-FEB-2008 11:12:10

Configuration : RDND06\$DKA100:[GER5.SAMPLE]KF6E11AE\_260280543.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 : 26-FEB-2008 05:43:21  
 Sample ID : KF6E11AE 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 propagatd: 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	Decay Corr	1-Sigma
					DPM/SAMPL	DPM/SAMPL	%Error
BA-133	81.00	372	33.00	1.919E+00	1.961E+03	1.967E+03	8.35
	276.40	53	6.90	2.071E+00	1.224E+03	1.229E+03	18.67
	302.84	89	17.80	2.074E+00	8.049E+02	8.076E+02	14.09
	356.00	314	62.05*	2.076E+00	8.116E+02	8.143E+02	7.93
	383.85	47	8.70	2.076E+00	8.675E+02	8.704E+02	19.61

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KF6E11AE

Page : 2  
Acquisition date : 26-FEB-2008 05:43:21

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	31.01	491	100	1.09	125.77	117	19	2.73E-01	6.7	1.68E+00	
0	35.33	160	49	1.17	143.11	136	17	8.86E-02	12.9	1.71E+00	
0	46.70	8	26	0.92	188.70	182	17	4.18E-03	****	1.79E+00	
0	93.30	13	23	1.12	375.59	365	20	7.45E-03	****	1.95E+00	T

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	1.242E+03	18.67	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	4.242E+02	104.85	Abun.
		% Abundances Found =		58.74			

Flag: "\*" = Keyline

```

Configuration      : RDND06$DKA100:[GER5.SAMPLE]KF6E11AE_260280543.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 : 26-FEB-2008 05:43:21
Sample ID        : KF6E11AE               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	8.143E+02	6.461E+01	4.395E+01	8.790E-01	18.528

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-7.769E+01	7.356E+01	2.582E+02	5.180E+00	-0.301
NA-22	-3.018E+00	4.352E+00	1.680E+01	3.562E-01	-0.180
NA-24	-7.104E+02	1.923E+03	Half-Life too short		
K-40	-3.545E+01	5.804E+01	2.952E+02	6.342E+00	-0.120
SC-46	2.122E+00	5.143E+00	2.359E+01	4.946E-01	0.090
CR-51	1.818E+02	1.497E+02	6.075E+02	1.215E+01	0.299
MN-54	5.619E+00	4.649E+00	2.300E+01	4.721E-01	0.244
CO-57	1.139E+02	1.293E+02	4.866E+02	1.006E+01	0.234
CO-58	-5.935E+00	4.444E+00	1.462E+01	2.996E-01	-0.406
FE-59	1.194E+01	6.923E+00	4.281E+01	8.962E-01	0.279
CO-60	5.093E+00	4.587E+00	2.254E+01	4.800E-01	0.226
ZN-65	-6.606E+00	8.415E+00	3.244E+01	6.800E-01	-0.204
SE-75	2.780E+01	1.948E+01	7.855E+01	1.576E+00	0.354
SR-85	-2.632E+01	1.190E+01	3.595E+01	7.225E-01	-0.732
Y-88	2.010E+00	2.013E+00	1.478E+01	3.256E-01	0.136
NB-94	-1.745E+00	4.408E+00	1.777E+01	3.658E-01	-0.098
NB-95	4.221E+00	6.572E+00	3.048E+01	6.225E-01	0.138
TC-95M	2.482E+01	2.273E+01	8.853E+01	1.790E+00	0.280
ZR-95	1.537E+00	1.155E+01	4.875E+01	9.952E-01	0.032
ZRNB-95	7.614E+00	1.119E+01	5.200E+01	1.062E+00	0.146
MO-99	-1.631E+03	1.603E+03	5.356E+03	1.105E+02	-0.304
RH-101	5.302E+00	1.557E+01	5.894E+01	1.193E+00	0.090
RH-102M	1.035E+01	6.431E+00	2.987E+01	5.992E-01	0.346
RU-103	-7.605E+00	9.780E+00	3.551E+01	7.131E-01	-0.214
RU-106DA	-9.277E+01	5.937E+01	1.850E+02	3.741E+00	-0.501
AG-108M	-2.232E+01	9.194E+00	2.684E+01	5.376E-01	-0.831
AG-110M	4.813E+00	6.864E+00	3.159E+01	6.508E-01	0.152

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SN-113DA	5.285E+00		1.466E+01	5.781E+01	1.157E+00	0.091
SB-124	-2.336E+00		4.725E+00	1.908E+01	3.854E-01	-0.122
SB-125	2.872E+01		2.271E+01	1.006E+02	2.015E+00	0.285
SN-126DA	2.405E-01		3.893E+00	1.752E+01	3.555E-01	0.014
I-131	8.291E+01		3.725E+01	1.815E+02	3.630E+00	0.457
CS-134	2.022E+00		5.853E+00	2.565E+01	5.250E-01	0.079
CS-137DA	2.207E+00		4.959E+00	2.299E+01	4.661E-01	0.096
LA-138	5.055E+00		5.224E+00	2.777E+01	5.955E-01	0.182
CE-139	-4.079E-01		1.708E+01	6.304E+01	1.288E+00	-0.006
BA-140	-2.022E+01		6.502E+01	2.515E+02	5.061E+00	-0.080
BALA-140	0.000E+00		5.036E-01	2.722E+01	5.903E-01	0.000
LA-140	0.000E+00		9.578E-05	Half-Life too short		
CE-141	-4.845E+00		3.842E+01	1.367E+02	2.814E+00	-0.035
CE-144	1.095E+01		1.222E+02	4.417E+02	9.144E+00	0.025
CEPR-144	2.060E+01		2.442E+02	8.828E+02	1.828E+01	0.023
PM-144	9.136E-01		6.232E+00	2.524E+01	5.104E-01	0.036
PM-146	4.023E+00		9.078E+00	3.843E+01	7.702E-01	0.105
EU-152	-1.104E+01		3.139E+01	1.143E+02	2.285E+00	-0.097
EU-154	-9.777E+00		1.186E+01	4.467E+01	9.471E-01	-0.219
EU-155	2.087E+01		5.973E+01	2.221E+02	4.684E+00	0.094
HF-181	1.566E+01		1.237E+01	5.295E+01	1.062E+00	0.296
BI-207	7.821E+00		6.478E+00	2.871E+01	5.788E-01	0.272
TL-208	-2.558E+00		8.615E+00	3.445E+01	6.951E-01	-0.074
BI-210M	1.167E+01		2.098E+01	8.035E+01	1.612E+00	0.145
BI-212	7.748E+01		8.167E+01	3.729E+02	1.140E+01	0.208
PB-212	1.073E+01		2.706E+01	1.078E+02	2.169E+00	0.099
BI-214	3.643E+01		1.805E+01	8.190E+01	1.655E+00	0.445
PB-214	6.414E+01		3.446E+01	1.287E+02	2.574E+00	0.498
RA-223	-6.701E+01		7.256E+01	2.504E+02	5.022E+00	-0.268
RA-224DA	1.093E+01		2.757E+01	1.099E+02	2.210E+00	0.099
RA-226DA	3.276E+01		1.840E+01	8.190E+01	1.655E+00	0.400
AC-227DA	-1.707E+02		1.046E+02	3.411E+02	6.863E+00	-0.500
AC-228	-1.249E+01		2.013E+01	8.280E+01	1.709E+00	-0.151
RA-228DA	-1.257E+01		2.025E+01	8.331E+01	1.720E+00	-0.151
TH-228DA	-7.255E+00		2.443E+01	9.770E+01	1.971E+00	-0.074
TH-232DA	5.725E+01		6.910E+01	2.764E+02	5.528E+00	0.207
TH-234DA	-1.174E+03		4.909E+02	6.937E+02	1.442E+01	-1.692
U-234DA	1.055E+01		5.893E+01	2.173E+02	4.352E+00	0.049
U-235HP	-1.621E+01		1.089E+02	3.903E+02	8.041E+00	-0.042
NP-237DA	1.785E+01		2.598E+01	1.016E+02	2.033E+00	0.176
U-238DA	6.414E+01		3.446E+01	1.287E+02	2.574E+00	0.498
U-238DHP	-6.505E+02		4.860E+02	1.752E+03	3.901E+01	-0.371
AM-241HP	-1.887E+01		4.575E+01	1.620E+02	3.635E+00	-0.116

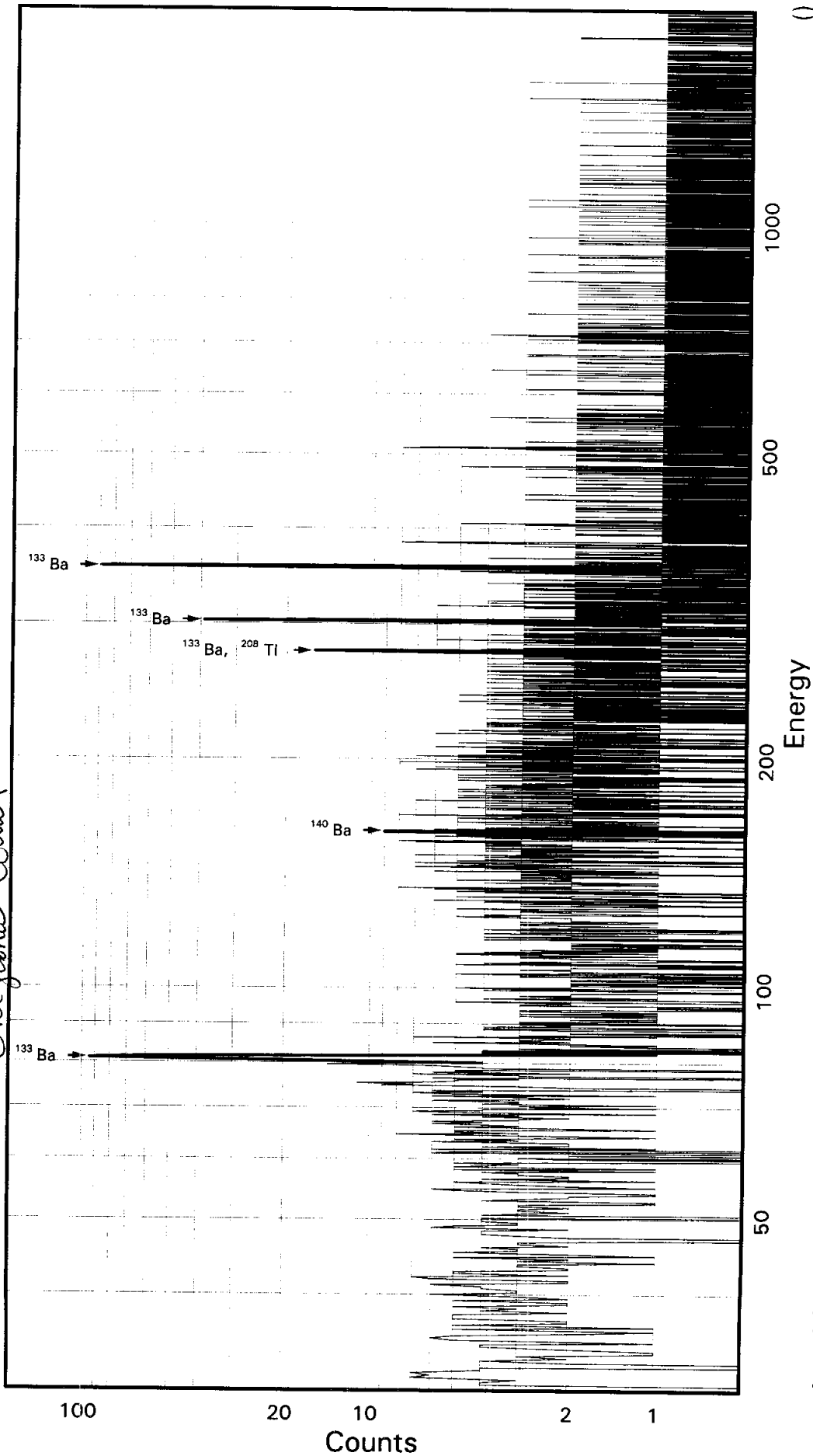
TAL Richland WA.

BA133

Sample ID: KF6E21AH  
Detector ID: GER11 1

Batch ID: 8042381

*Original Count*



Acquisition Start: 26-FEB-2008 05:43:47.63  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:  
Offset: -1.02763E+00  
Slope: 2.31726E-01  
Quadrature: 2.99654E-08

SAMPLE IDENTIFICATION: KF6E21AH

CONFIGURATION ID: GER11:KF6E21AH\_260280543  
TITLE : BA133  
SAMPLE ID : KF6E21AH

REPORT DATE: 26-FEB-08	SAMPLE DATE: 7-FEB-2008 12:00:00.00
ACQUIRE DATE: 26-FEB-08 05:43:47	CALIB DATE: 26-FEB-2008 04:53:04.78
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: -.1028E+01 keV	FWHM OFFSET: 2.1716E-01 keV
ENERGY SLOPE: 2.3173E-01 keV/C	FWHM SLOPE: 4.0024E-02 sqr keV
ENERGY Q COEFF: 2.9965E-08 keV/C <sup>2</sup>	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

VMS Peak Search Report V1.9 Generated 26-FEB-2008 11:12:49

```

Configuration      : $DISK1:[GER11.SAMPLE]KF6E21AH_260280543.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 : 26-FEB-2008 05:43:47
Sample ID        : KF6E21AH               Sample quantity  : 1.0000 SAMPL
Sample type      :                       Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.95   0.1%
Start energy     :      1.29              End energy      : 1899.28
Sensitivity      :      5.00              Gaussian       :      10.00
Critical level   : No
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	81.17	274	49	0.68	354.69	350	13	1.52E-01	8.3	
2	0	161.32	20	25	0.93	700.52	692	11	1.12E-02	52.9	
3	0	276.25	62	19	0.95	1196.38	1187	16	3.47E-02	20.3	
4	0	302.71	144	14	0.71	1310.53	1303	14	8.00E-02	10.0	
5	0	355.88	419	10	1.01	1539.90	1531	19	2.33E-01	5.2	

Flag: "\*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.0 Generated 26-FEB-2008 11:12:49

```

Configuration      : $DISK1:[GER11.SAMPLE]KF6E21AH_260280543.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 : 26-FEB-2008 05:43:47
Sample ID        : KF6E21AH               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00          Elapsed real time: 0 00:30:00.95   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	274	33.00	2.880E+00	9.614E+02	9.647E+02	9.89
	276.40	62	6.90	3.084E+00	9.770E+02	9.803E+02	21.04
	302.84	144	17.80	3.088E+00	8.734E+02	8.763E+02	11.35
	356.00	419	62.05*	3.090E+00	7.283E+02	7.308E+02	7.48
	383.85	-----	8.70	3.090E+00	-----	Line Not Found	-----

Flag: "\*" = Keyline

Unidentified Energy Lines

Sample ID : KF6E21AH

Acquisition date : 26-FEB-2008 05:43:47

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	161.32	20	25	0.93	700.52	692	11	1.12E-02	52.9	3.03E+00	T

Flags: "T" = Tentatively associated



Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (DPM/SAMPL)	1-Sigma %Error	Rejected by
BA-140	12.79D	1.47	162.64	6.70	9.126E+02	53.15	Abun.
			304.84	4.50	---	Not Found	---
			423.70	3.20	---	Not Found	---
			537.32*	25.00	---	Not Found	---
% Abundances Found =			17.01				
TL-208	1.41E+10Y	0.00	277.35	6.80	9.914E+02	21.04	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

VMS Nuclide Identification Report V3.0 Generated 26-FEB-2008 11:12:52

```

Configuration      : $DISK1:[GER11.SAMPLE]KF6E21AH_260280543.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 : 26-FEB-2008 05:43:47
Sample ID        : KF6E21AH               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.95   0.1%
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	7.308E+02	5.469E+01	3.098E+01	6.197E-01	23.585

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-2.788E+01	5.954E+01	2.205E+02	4.421E+00	-0.126
NA-22	-5.676E+00	2.960E+00	8.173E+00	1.723E-01	-0.695
K-40	-7.403E+01	4.191E+01	1.954E+02	4.167E+00	-0.379
SC-46	6.550E+00	3.965E+00	1.972E+01	4.115E-01	0.332
CR-51	7.958E-01	9.668E+01	3.650E+02	7.303E+00	0.002
MN-54	3.292E+00	3.773E+00	1.708E+01	3.498E-01	0.193
CO-57	-8.438E+00	8.003E+01	2.840E+02	5.850E+00	-0.030
CO-58	1.262E+00	3.922E+00	1.725E+01	3.526E-01	0.073
FE-59	4.678E-03	7.526E+00	3.194E+01	6.656E-01	0.000
CO-60	-1.106E+00	2.550E+00	1.066E+01	2.255E-01	-0.104
ZN-65	-9.448E+00	7.441E+00	2.515E+01	5.246E-01	-0.376
SE-75	7.018E+00	1.150E+01	4.574E+01	9.174E-01	0.153
SR-85	-2.059E+01	8.251E+00	2.375E+01	4.771E-01	-0.867
Y-88	5.400E+00	3.268E+00	1.752E+01	3.821E-01	0.308
NB-94	8.095E-01	3.641E+00	1.534E+01	3.149E-01	0.053
NB-95	8.999E-01	5.012E+00	2.144E+01	4.369E-01	0.042
TC-95M	-5.196E+00	1.514E+01	5.384E+01	1.088E+00	-0.097
ZR-95	2.389E-01	8.138E+00	3.380E+01	6.885E-01	0.007
ZRNB-95	1.171E+00	8.411E+00	3.586E+01	7.309E-01	0.033
MO-99	-8.366E+02	9.262E+02	3.231E+03	6.644E+01	-0.259
RH-101	4.859E-01	1.104E+01	4.111E+01	8.314E-01	0.012
RH-102M	-3.090E+00	4.831E+00	1.769E+01	3.547E-01	-0.175
RU-103	8.712E-02	7.330E+00	2.855E+01	5.731E-01	0.003
RU-106DA	-3.320E+01	3.784E+01	1.382E+02	2.793E+00	-0.240
AG-108M	-1.034E+01	5.160E+00	1.574E+01	3.153E-01	-0.657
AG-110M	4.533E+00	6.648E+00	2.787E+01	5.725E-01	0.163
SN-113DA	-1.834E+00	6.827E+00	2.706E+01	5.414E-01	-0.068

Sample ID : KF6E21AH

Acquisition date : 26-FEB-2008 05:43:47

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-124	2.821E-01		5.089E+00	2.071E+01	4.179E-01	0.014
SB-125	-2.853E+00		1.321E+01	5.256E+01	1.052E+00	-0.054
SN-126DA	1.813E+00		3.761E+00	1.613E+01	3.266E-01	0.112
I-131	-7.907E+01		2.923E+01	7.195E+01	1.439E+00	-1.099
CS-134	-1.317E+00		2.850E+00	1.196E+01	2.442E-01	-0.110
CS-137DA	-1.364E+00		4.655E+00	1.811E+01	3.666E-01	-0.075
LA-138	-7.097E+00		4.959E+00	1.598E+01	3.402E-01	-0.444
CE-139	-4.202E+00		9.697E+00	3.531E+01	7.197E-01	-0.119
BA-140	4.880E+01		3.913E+01	1.824E+02	3.668E+00	0.268
BALA-140	-6.303E+00		1.483E+01	6.227E+01	1.339E+00	-0.101
CE-141	3.258E+01		2.401E+01	9.667E+01	1.984E+00	0.337
CE-144	-8.844E+01		7.056E+01	2.297E+02	4.739E+00	-0.385
CEPR-144	-1.769E+02		1.411E+02	4.594E+02	9.478E+00	-0.385
PM-144	-1.052E+00		2.982E+00	1.225E+01	2.475E-01	-0.086
PM-146	2.781E+00		6.135E+00	2.593E+01	5.197E-01	0.107
EU-152	2.131E+01		2.011E+01	8.339E+01	1.668E+00	0.255
EU-154	-1.708E+01		8.014E+00	1.927E+01	4.061E-01	-0.886
EU-155	4.282E+01		3.040E+01	1.263E+02	2.651E+00	0.339
HF-181	1.049E+01		7.997E+00	3.456E+01	6.933E-01	0.303
BI-207	4.636E+00		2.741E+00	1.471E+01	2.963E-01	0.315
TL-208	5.274E+00		3.625E+00	1.820E+01	3.668E-01	0.290
BI-210M	1.605E+00		1.286E+01	4.920E+01	9.867E-01	0.033
BI-212	4.513E+01		4.420E+01	2.149E+02	6.565E+00	0.210
PB-212	-1.983E+00		1.616E+01	5.815E+01	1.169E+00	-0.034
BI-214	1.211E+01		9.633E+00	4.262E+01	8.604E-01	0.284
PB-214	1.100E+01		2.156E+01	7.572E+01	1.514E+00	0.145
RA-223	-4.461E+01		4.312E+01	1.515E+02	3.038E+00	-0.294
RA-224DA	-2.021E+00		1.647E+01	5.924E+01	1.191E+00	-0.034
RA-226DA	1.211E+01		9.633E+00	4.262E+01	8.604E-01	0.284
AC-227DA	-1.135E+01		6.158E+01	2.215E+02	4.454E+00	-0.051
AC-228	-1.262E+01		1.224E+01	4.310E+01	8.868E-01	-0.293
RA-228DA	-1.270E+01		1.232E+01	4.336E+01	8.923E-01	-0.293
TH-228DA	1.496E+01		1.028E+01	5.160E+01	1.040E+00	0.290
TH-232DA	1.009E+02		4.826E+01	2.083E+02	4.166E+00	0.485
TH-234DA	5.426E+02		5.623E+02	2.577E+03	5.336E+01	0.211
U-234DA	-2.557E+01		2.599E+01	9.366E+01	1.875E+00	-0.273
U-235HP	8.418E+01		7.282E+01	2.915E+02	5.986E+00	0.289
NP-237DA	2.955E+00		1.495E+01	5.827E+01	1.166E+00	0.051
U-238DA	1.100E+01		2.156E+01	7.572E+01	1.514E+00	0.145
U-238DHP	-2.343E+02		2.317E+02	7.566E+02	1.666E+01	-0.310
AM-241HP	-1.804E+01		2.126E+01	7.125E+01	1.580E+00	-0.253

TAL Richland WA.

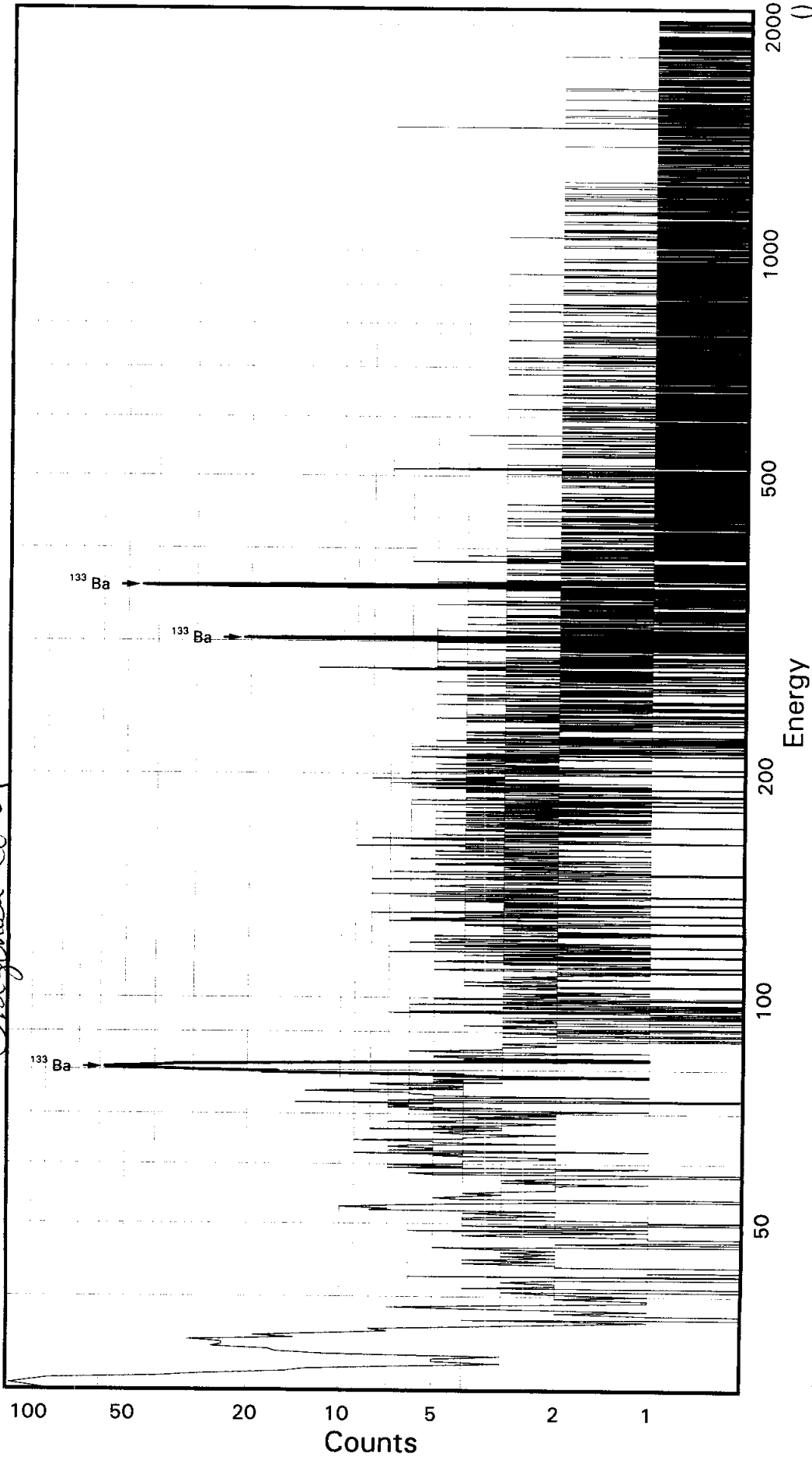
BA133

Sample ID: KF6E21AK

Detector ID: GER14 1

Batch ID: 8042381

*Assigned Count*



Acquisition Start: 26-FEB-2008 05:44:00.82  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:  
Offset: -7.02954E-01  
Slope: 2.48255E-01  
Quadrature: -4.45494E-09

SAMPLE IDENTIFICATION: KF6E21AK

CONFIGURATION ID: GER14:KF6E21AK\_260280544  
TITLE : BA133  
SAMPLE ID : KF6E21AK

REPORT DATE: 26-FEB-08	SAMPLE DATE: 7-FEB-2008 12:00:00.00
ACQUIRE DATE: 26-FEB-08 05:44:00	CALIB DATE: 26-FEB-2008 04:53:33.62
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: -.7030E+00 keV	FWHM OFFSET: 1.1393E+00 keV
ENERGY SLOPE: 2.4826E-01 keV/C	FWHM SLOPE: 2.3225E-02 sqr keV
ENERGY Q COEFF: -.4455E-08 keV/C <sup>2</sup>	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

VMS Peak Search Report V1.9 Generated 26-FEB-2008 11:13:07

Configuration : \$DISK1:[GER14.SAMPLE]KF6E21AK\_260280544.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 : 26-FEB-2008 05:44:00  
 Sample ID : KF6E21AK Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.43 0.0%  
 Start energy : 19.16 End energy : 2032.71  
 Sensitivity : 5.00 Gaussian : 10.00  
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	30.40	707	123	1.30	125.30	113	22	3.93E-01	5.5	
2	0	34.97	185	42	1.54	143.68	136	19	1.03E-01	11.8	
3	0	80.65	355	35	1.47	327.70	318	18	1.97E-01	6.6	
4	0	302.74	102	23	1.14	1222.34	1210	20	5.68E-02	13.9	
5	0	356.06	299	20	1.62	1437.12	1422	26	1.66E-01	6.6	

Flag: "\*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.0 Generated 26-FEB-2008 11:13:07

Configuration : \$DISK1:[GER14.SAMPLE]KF6E21AK\_260280544.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 : 26-FEB-2008 05:44:00  
 Sample ID : KF6E21AK Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.43 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 Decay Corr		1-Sigma %Error
					DPM/SAMPL	DPM/SAMPL	
BA-133	81.00	355	33.00	1.818E+00	1.971E+03	1.977E+03	8.57
	276.40	-----	6.90	1.945E+00	-----	Line Not Found	-----
	302.84	102	17.80	1.948E+00	9.830E+02	9.863E+02	14.93
	356.00	299	62.05*	1.949E+00	8.254E+02	8.282E+02	8.54
	383.85	-----	8.70	1.949E+00	-----	Line Not Found	-----

Flag: "\*" = Keyline

## Unidentified Energy Lines

Sample ID : KF6E21AK

Page : 2

Acquisition date : 26-FEB-2008 05:44:00

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	30.40	707	123	1.30	125.30	113	22	3.93E-01	5.5	1.61E+00	
0	34.97	185	42	1.54	143.68	136	19	1.03E-01	11.8	1.64E+00	

Flags: "T" = Tentatively associated



Rejected Report  
Sample ID : KF6E21AK

Page : 3  
Acquisition date : 26-FEB-2008 05:44:00

Flag: "\*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 26-FEB-2008 11:13:09

```

Configuration      : $DISK1:[GER14.SAMPLE]KF6E21AK_260280544.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 : 26-FEB-2008 05:44:00
Sample ID        : KF6E21AK               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.43   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	8.282E+02	7.073E+01	7.624E+01	1.525E+00	10.863

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-1.713E+01	9.158E+01	3.517E+02	7.053E+00	-0.049
NA-22	6.451E-02	5.143E+00	2.192E+01	4.616E-01	0.003
K-40	5.947E+01	1.077E+02	5.192E+02	1.106E+01	0.115
SC-46	6.886E+00	7.379E+00	3.438E+01	7.168E-01	0.200
CR-51	-3.274E+02	1.977E+02	6.317E+02	1.264E+01	-0.518
MN-54	-1.628E+01	7.969E+00	2.390E+01	4.892E-01	-0.681
CO-57	2.627E+02	1.666E+02	6.420E+02	1.322E+01	0.409
CO-58	-5.020E+00	8.273E+00	3.079E+01	6.292E-01	-0.163
FE-59	2.157E+01	1.389E+01	6.685E+01	1.392E+00	0.323
CO-60	-9.103E+00	4.841E+00	1.338E+01	2.827E-01	-0.680
ZN-65	-2.116E+01	1.144E+01	3.437E+01	7.163E-01	-0.616
SE-75	1.707E+00	2.562E+01	9.286E+01	1.862E+00	0.018
SR-85	-3.251E+01	1.692E+01	5.375E+01	1.080E+00	-0.605
Y-88	4.234E+00	3.003E+00	1.964E+01	4.278E-01	0.216
NB-94	1.729E+00	6.332E+00	2.632E+01	5.399E-01	0.066
NB-95	-4.077E+00	1.122E+01	4.241E+01	8.642E-01	-0.096
TC-95M	9.806E+00	3.152E+01	1.143E+02	2.308E+00	0.086
ZR-95	-6.102E+00	1.624E+01	6.174E+01	1.257E+00	-0.099
ZRNB-95	-7.922E+00	1.885E+01	7.085E+01	1.444E+00	-0.112
MO-99	9.096E+02	2.107E+03	7.751E+03	1.593E+02	0.117
RH-101	-1.825E+01	2.508E+01	8.631E+01	1.745E+00	-0.211
RH-102M	1.122E+01	8.592E+00	3.684E+01	7.387E-01	0.305
RU-103	-7.250E+00	1.351E+01	4.922E+01	9.878E-01	-0.147
RU-106DA	-4.281E+01	7.465E+01	2.739E+02	5.533E+00	-0.156
AG-108M	-3.240E-01	1.092E+01	4.114E+01	8.238E-01	-0.008
AG-110M	-2.511E-01	1.082E+01	4.232E+01	8.689E-01	-0.006
SN-113DA	-3.869E+00	2.046E+01	7.493E+01	1.499E+00	-0.052

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-124	-5.312E+00		1.091E+01	3.965E+01	8.000E-01	-0.134
SB-125	4.579E+01		2.861E+01	1.245E+02	2.492E+00	0.368
SN-126DA	-1.127E+01		6.519E+00	2.079E+01	4.211E-01	-0.542
I-131	-1.346E+02		7.026E+01	2.259E+02	4.518E+00	-0.596
CS-134	2.077E-01		7.726E+00	3.120E+01	6.370E-01	0.007
CS-137DA	-4.978E+00		8.379E+00	3.056E+01	6.187E-01	-0.163
LA-138	-9.869E-01		6.562E+00	2.816E+01	5.990E-01	-0.035
CE-139	6.404E+00		2.262E+01	8.251E+01	1.681E+00	0.078
BA-140	-3.499E+01		9.443E+01	3.488E+02	7.013E+00	-0.100
BALA-140	-1.236E+01		2.878E+01	1.143E+02	2.455E+00	-0.108
CE-141	-5.716E+01		5.082E+01	1.735E+02	3.558E+00	-0.329
CE-144	-1.205E+02		1.626E+02	5.675E+02	1.170E+01	-0.212
CEPR-144	-2.465E+02		3.249E+02	1.133E+03	2.336E+01	-0.218
PM-144	-8.233E+00		9.418E+00	3.273E+01	6.610E-01	-0.252
PM-146	-2.002E+01		1.584E+01	5.351E+01	1.072E+00	-0.374
EU-152	-2.568E+01		4.278E+01	1.494E+02	2.988E+00	-0.172
EU-154	1.799E-01		1.434E+01	6.112E+01	1.287E+00	0.003
EU-155	2.006E+01		7.635E+01	2.759E+02	5.784E+00	0.073
HF-181	-2.637E+00		1.089E+01	4.232E+01	8.489E-01	-0.062
BI-207	-2.183E+00		9.635E+00	3.559E+01	7.167E-01	-0.061
TL-208	1.405E+01		8.541E+00	3.850E+01	7.760E-01	0.365
BI-210M	8.976E+00		2.795E+01	1.025E+02	2.056E+00	0.088
BI-212	-9.899E+01		1.099E+02	3.945E+02	1.205E+01	-0.251
PB-212	1.925E+01		3.441E+01	1.268E+02	2.550E+00	0.152
BI-214	-4.280E+01		2.060E+01	7.257E+01	1.465E+00	-0.590
PB-214	1.496E+01		3.835E+01	1.324E+02	2.649E+00	0.113
RA-223	-2.440E+01		9.944E+01	3.542E+02	7.101E+00	-0.069
RA-224DA	1.961E+01		3.505E+01	1.292E+02	2.598E+00	0.152
RA-226DA	-4.280E+01		2.060E+01	7.257E+01	1.465E+00	-0.590
AC-227DA	1.977E+02		1.288E+02	4.994E+02	1.004E+01	0.396
AC-228	1.209E+01		2.333E+01	1.057E+02	2.175E+00	0.114
RA-228DA	1.217E+01		2.348E+01	1.064E+02	2.188E+00	0.114
TH-228DA	3.984E+01		2.422E+01	1.092E+02	2.201E+00	0.365
TH-232DA	1.032E+02		1.024E+02	3.922E+02	7.844E+00	0.263
TH-234DA	7.924E+02		8.257E+02	3.835E+03	7.935E+01	0.207
U-234DA	2.057E+01		6.612E+01	2.414E+02	4.833E+00	0.085
U-235HP	7.938E+01		1.588E+02	5.867E+02	1.204E+01	0.135
NP-237DA	-5.319E+01		3.657E+01	1.192E+02	2.384E+00	-0.446
U-238DA	1.496E+01		3.835E+01	1.324E+02	2.649E+00	0.113
U-238DHP	6.430E+02		6.048E+02	2.204E+03	4.845E+01	0.292
AM-241HP	-3.311E+01		5.656E+01	1.952E+02	4.320E+00	-0.170

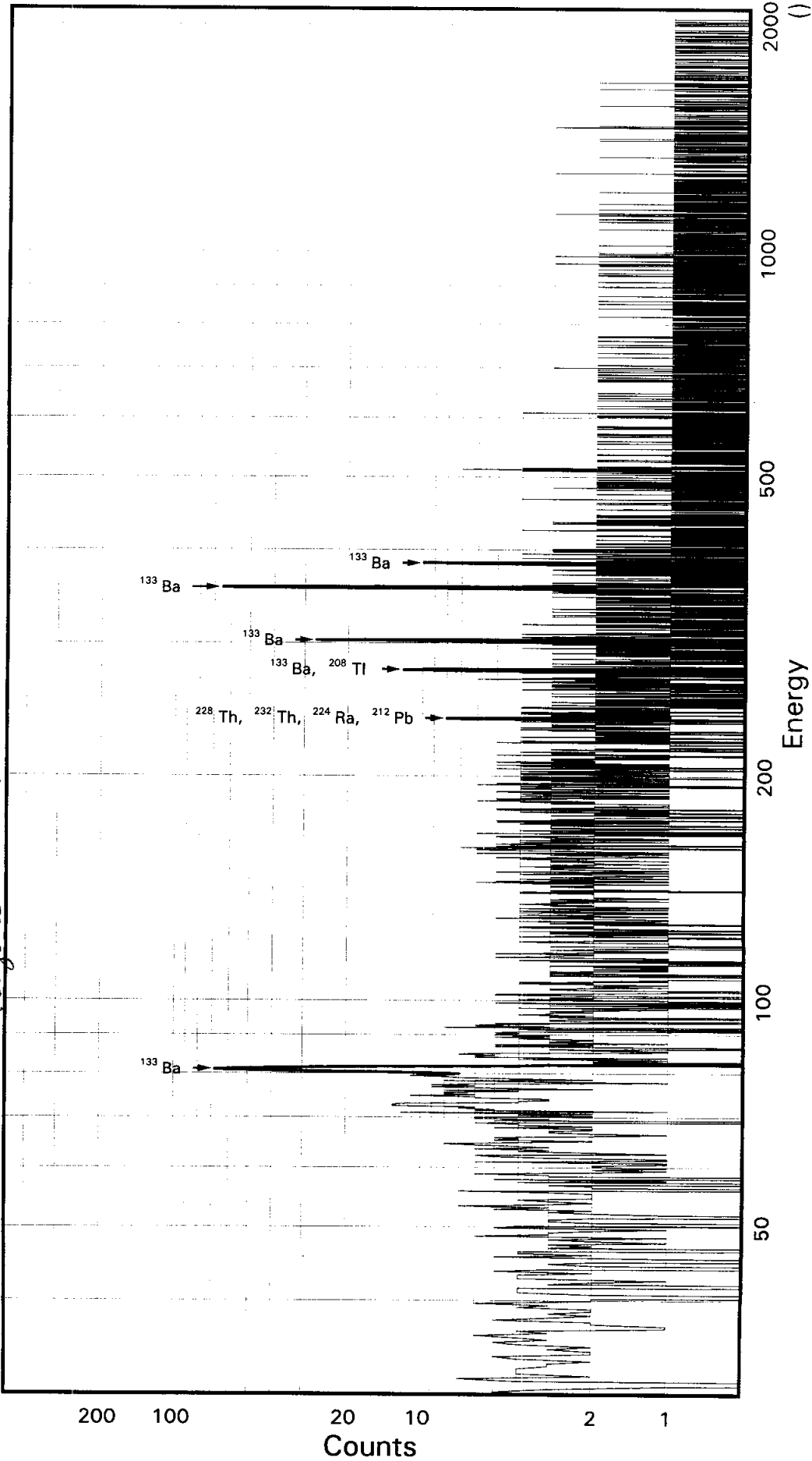
TAL Richland WA.

BA133

Sample ID: KF6E21AM  
Detector ID: GER4 1

Batch ID: 8042381

*Original Count*



Acquisition Start: 26-FEB-2008 05:44:06.07  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:  
Offset: -1.13203E-01  
Slope: 2.48749E-01  
Quadrature: 9.77908E-10

SAMPLE IDENTIFICATION: KF6E21AM

CONFIGURATION ID: GER4:KF6E21AM\_260280544  
TITLE : BA133  
SAMPLE ID : KF6E21AM

REPORT DATE: 26-FEB-08  
ACQUIRE DATE: 26-FEB-08 05:44:06  
ELAPSED LIVE TIME: 1800.0 Sec  
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00  
CALIB DATE: 26-FEB-2008 04:51:57.84  
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: -.1132E+00 keV  
ENERGY SLOPE: 2.4875E-01 keV/C  
ENERGY Q COEFF: 9.7791E-10 keV/C<sup>2</sup>  
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 3.4250E-01 keV  
FWHM SLOPE: 4.3049E-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 26-FEB-2008 11:13:41

Configuration : \$DISK1:[GER4.SAMPLE]KF6E21AM\_260280544.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 : 26-FEB-2008 05:44:06  
 Sample ID : KF6E21AM Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.40 0.0%  
 Start energy : 19.79 End energy : 2037.70  
 Sensitivity : 5.00 Gaussian : 10.00  
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	73.50*	58	75	3.93	295.95	285	23	3.23E-02	41.5	
2	0	81.12	212	57	0.77	326.59	321	12	1.18E-01	10.2	
3	0	238.71*	6	16	0.60	960.08	955	12	3.53E-03	138.3	
4	0	276.94	42	22	1.22	1113.77	1104	14	2.32E-02	28.1	
5	0	302.85	101	8	0.76	1217.93	1210	15	5.63E-02	11.6	
6	0	356.06	313	11	1.10	1431.86	1422	22	1.74E-01	6.3	
7	0	383.86	35	10	1.04	1543.60	1536	13	1.95E-02	25.0	

Flag: "\*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.0 Generated 26-FEB-2008 11:13:41

```

Configuration      : $DISK1:[GER4.SAMPLE]KF6E21AM_260280544.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  : 26-FEB-2008 05:44:06
Sample ID        : KF6E21AM               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.40   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	Decay Corr	1-Sigma
					DPM/SAMPL	DPM/SAMPL	%Error
BA-133	81.00	212	33.00	2.054E+00	1.042E+03	1.046E+03	11.63
	276.40	42	6.90	2.215E+00	9.104E+02	9.135E+02	28.63
	302.84	101	17.80	2.217E+00	8.561E+02	8.590E+02	12.80
	356.00	313	62.05*	2.220E+00	7.576E+02	7.601E+02	8.26
	383.85	35	8.70	2.219E+00	6.057E+02	6.077E+02	25.54

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected	Decay Corr	1-Sigma
					DPM/SAMPL	DPM/SAMPL	%Error
PB-212	238.63	6	44.60*	2.207E+00	2.154E+01	2.154E+01	138.43
	300.09	-----	3.41	2.217E+00	-----	Line Not Found	-----

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KF6E21AM

Page : 2  
Acquisition date : 26-FEB-2008 05:44:06

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	73.50	58	75	3.93	295.95	285	23	3.23E-02	41.5	2.03E+00	

Flags: "T" = Tentatively associated



Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity 1-Sigma (DPM/SAMPL)	%Error	Rejected by
TL-208	1.41E+10Y	0.00	277.35	6.80	9.238E+02	28.63	Abun.
			510.84	21.60	---	Not Found	---
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
% Abundances Found =			5.44				
RA-224DA	1.91Y	0.03	238.63*	44.60	2.194E+01	138.43	Abun.
			240.98	3.95	---	Not Found	---
			583.14	30.25	---	Not Found	---
			860.37	4.48	---	Not Found	---
% Abundances Found =			53.55				
TH-228DA	1.91Y	0.03	238.63	44.60	2.194E+01	138.43	Abun.
			240.98	3.95	---	Not Found	---
			583.14*	30.25	---	Not Found	---
			860.37	4.48	---	Not Found	---
% Abundances Found =			53.55				
TH-232DA	1.41E+10Y	0.00	238.63	44.60	2.154E+01	138.43	Abun.
			338.32*	12.40	---	Not Found	---
			583.14	30.25	---	Not Found	---
			911.07	27.70	---	Not Found	---
			964.60	5.20	---	Not Found	---
% Abundances Found =			32.61				

Flag: "\*" = Keyline

```

Configuration      : $DISK1:[GER4.SAMPLE]KF6E21AM_260280544.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  : 26-FEB-2008 05:44:06
Sample ID        : KF6E21AM               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.40   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	7.601E+02	6.280E+01	5.019E+01	1.007E+00	15.146
PB-212	2.154E+01	2.982E+01	8.348E+01	1.948E+00	0.258

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-6.833E+01	6.765E+01	2.415E+02	4.845E+00	-0.283
NA-22	1.467E+00	4.326E+00	1.937E+01	4.102E-01	0.076
K-40	-7.954E+01	6.902E+01	3.388E+02	7.269E+00	-0.235
SC-46	5.798E+00	7.512E+00	3.198E+01	6.700E-01	0.181
CR-51	-1.780E+02	1.217E+02	4.071E+02	9.450E+00	-0.437
MN-54	1.955E+00	5.226E+00	2.264E+01	4.646E-01	0.086
CO-57	3.410E+01	1.036E+02	3.886E+02	9.315E+00	0.088
CO-58	-9.932E-01	5.950E+00	2.381E+01	4.877E-01	-0.042
FE-59	1.089E+00	1.376E+01	5.609E+01	1.173E+00	0.019
CO-60	4.836E-01	4.505E+00	1.957E+01	4.163E-01	0.025
ZN-65	7.202E+00	9.246E+00	4.326E+01	9.060E-01	0.166
SE-75	-2.171E+01	1.769E+01	5.870E+01	1.366E+00	-0.370
SR-85	-2.894E+01	1.267E+01	3.873E+01	7.782E-01	-0.747
Y-88	-1.905E+00	1.907E+00	5.074E+00	1.116E-01	-0.375
NB-94	4.719E+00	4.064E+00	2.024E+01	4.164E-01	0.233
NB-95	-1.162E+01	7.556E+00	2.394E+01	4.888E-01	-0.485
TC-95M	-2.373E+01	2.015E+01	6.882E+01	1.615E+00	-0.345
ZR-95	-1.412E+01	1.093E+01	3.651E+01	7.451E-01	-0.387
ZRNB-95	-1.963E+01	1.276E+01	4.044E+01	8.257E-01	-0.485
MO-99	-1.096E+01	1.302E+03	4.769E+03	1.141E+02	-0.002
RH-101	1.294E+01	1.476E+01	5.849E+01	1.374E+00	0.221
RH-102M	3.326E-01	5.465E+00	2.262E+01	4.537E-01	0.015
RU-103	-1.367E+01	9.339E+00	3.088E+01	6.200E-01	-0.443
RU-106DA	4.412E+01	6.726E+01	2.834E+02	5.730E+00	0.156
AG-108M	1.219E+01	8.006E+00	3.441E+01	6.892E-01	0.354
AG-110M	1.169E+01	6.792E+00	3.400E+01	7.002E-01	0.344

---- Non-Identified Nuclides ----

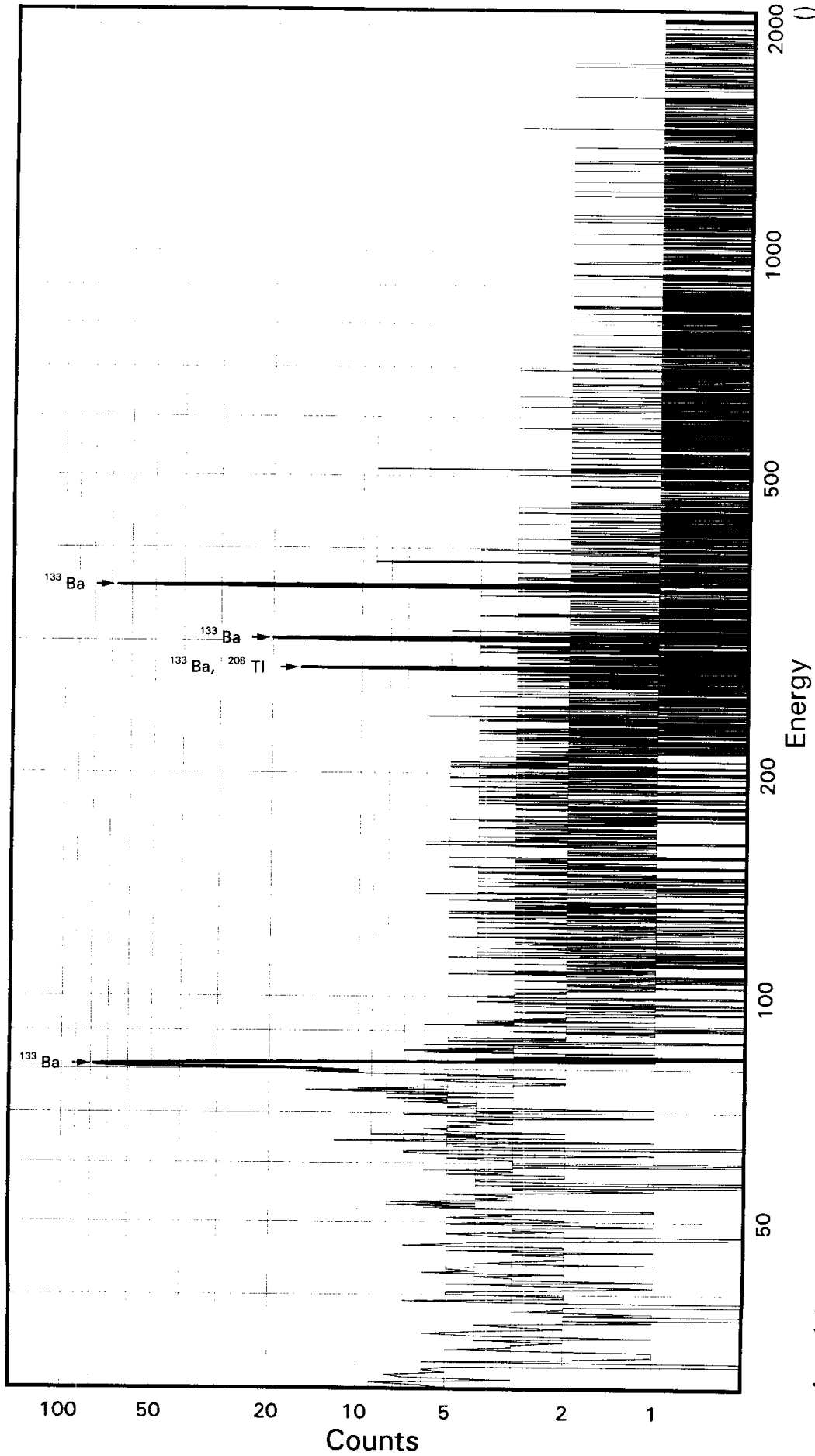
Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SN-113DA	-2.033E+01		1.315E+01	4.238E+01	8.479E-01	-0.480
SB-124	2.521E+00		8.306E+00	3.312E+01	6.689E-01	0.076
SB-125	1.533E+01		2.085E+01	8.777E+01	1.757E+00	0.175
SN-126DA	4.689E+00		4.539E+00	2.147E+01	4.354E-01	0.218
I-131	1.764E+00		4.194E+01	1.636E+02	3.272E+00	0.011
CS-134	-1.797E+00		3.317E+00	1.389E+01	2.843E-01	-0.129
CS-137DA	2.046E-01		4.994E+00	2.150E+01	4.358E-01	0.010
LA-138	-4.764E+00		4.801E+00	1.773E+01	3.799E-01	-0.269
CE-139	-7.074E+00		1.621E+01	5.627E+01	1.333E+00	-0.126
BA-140	1.739E+01		6.522E+01	2.663E+02	5.357E+00	0.065
BALA-140	9.408E+00		9.422E+00	6.918E+01	1.498E+00	0.136
CE-141	3.255E+01		3.345E+01	1.292E+02	3.085E+00	0.252
CE-144	-2.711E+01		1.056E+02	3.803E+02	9.130E+00	-0.071
CEPR-144	-5.301E+01		2.113E+02	7.613E+02	1.827E+01	-0.070
PM-144	3.745E+00		5.818E+00	2.522E+01	5.099E-01	0.148
PM-146	1.664E+01		8.341E+00	4.050E+01	8.117E-01	0.411
EU-152	2.185E+01		2.631E+01	1.095E+02	2.541E+00	0.200
EU-154	4.091E+00		1.206E+01	5.400E+01	1.144E+00	0.076
EU-155	7.014E+01		4.319E+01	1.828E+02	4.469E+00	0.384
HF-181	7.927E+00		1.008E+01	4.304E+01	8.636E-01	0.184
BI-207	1.196E+00		6.098E+00	2.458E+01	4.955E-01	0.049
TL-208	-2.746E+00		7.345E+00	3.027E+01	6.107E-01	-0.091
BI-210M	7.255E+00		2.032E+01	7.592E+01	1.767E+00	0.096
BI-212	2.723E+01		6.254E+01	2.841E+02	8.685E+00	0.096
BI-214	1.083E+01		1.491E+01	6.576E+01	1.329E+00	0.165
PB-214	5.163E+01		2.455E+01	9.787E+01	2.271E+00	0.528
RA-223	-1.109E+01		7.920E+01	2.843E+02	6.614E+00	-0.039
RA-224DA	2.194E+01	+	3.038E+01	9.697E+01	2.263E+00	0.226
RA-226DA	1.083E+01		1.491E+01	6.577E+01	1.329E+00	0.165
AC-227DA	-1.377E+02		1.080E+02	2.945E+02	6.875E+00	-0.467
AC-228	5.550E+00		2.338E+01	9.737E+01	2.009E+00	0.057
RA-228DA	5.584E+00		2.352E+01	9.797E+01	2.022E+00	0.057
TH-228DA	-7.788E+00		2.083E+01	8.585E+01	1.732E+00	-0.091
TH-232DA	2.493E+01		5.850E+01	2.343E+02	5.437E+00	0.106
TH-234DA	-1.709E+02		7.477E+02	2.996E+03	6.223E+01	-0.057
U-234DA	3.145E+01		4.367E+01	1.757E+02	4.081E+00	0.179
U-235HP	1.212E+02		1.047E+02	4.081E+02	9.749E+00	0.297
NP-237DA	-3.573E+01		2.009E+01	6.476E+01	1.504E+00	-0.552
U-238DA	5.163E+01		2.455E+01	9.787E+01	2.271E+00	0.528
U-238DHP	-1.298E+02		3.494E+02	1.248E+03	3.217E+01	-0.104
AM-241HP	1.595E+00		2.860E+01	1.067E+02	2.772E+00	0.015

TAL Richland WA.

BA133

Sample ID: KF6E51AE  
Detector ID: GER7 1

Batch ID: 8042381



Acquisition Start: 26-FEB-2008 05:44:12.07  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:  
Offset: 6.74902E-01  
Slope: 2.49142E-01  
Quadrature: 1.63405E-07

SAMPLE IDENTIFICATION: KF6E51AE

CONFIGURATION ID: GER7:KF6E51AE\_260280544  
TITLE : BA133  
SAMPLE ID : KF6E51AE

REPORT DATE: 26-FEB-08  
ACQUIRE DATE: 26-FEB-08 05:44:12  
ELAPSED LIVE TIME: 1800.0 Sec  
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00  
CALIB DATE: 26-FEB-2008 04:52:31.64  
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: 6.7490E-01 keV  
ENERGY SLOPE: 2.4914E-01 keV/C  
ENERGY Q COEFF: 1.6341E-07 keV/C<sup>2</sup>  
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 5.2803E-01 keV  
FWHM SLOPE: 3.8593E-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 26-FEB-2008 11:13:54

Configuration : \$DISK1:[GER7.SAMPLE]KF6E51AE\_260280544.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 : 26-FEB-2008 05:44:12  
 Sample ID : KF6E51AE Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.19 0.0%  
 Start energy : 20.61 End energy : 2052.61  
 Sensitivity : 5.00 Gaussian : 10.00  
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	81.16	279	80	0.92	323.00	317	14	1.55E-01	9.5	
2	0	276.39	50	6	0.46	1105.87	1099	12	2.78E-02	17.2	
3	0	302.65	101	3	1.60	1211.10	1205	13	5.59E-02	10.6	
4	0	355.89	326	5	0.93	1424.44	1414	19	1.81E-01	5.8	

Flag: "\*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.0 Generated 26-FEB-2008 11:13:54

Configuration : \$DISK1:[GER7.SAMPLE]KF6E51AE\_260280544.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 : 26-FEB-2008 05:44:12  
 Sample ID : KF6E51AE Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.19 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	279	33.00	1.909E+00	1.474E+03	1.479E+03	10.96
	276.40	50	6.90	2.061E+00	1.172E+03	1.176E+03	18.03
	302.84	101	17.80	2.064E+00	9.126E+02	9.157E+02	11.93
	356.00	326	62.05*	2.065E+00	8.474E+02	8.503E+02	7.89
	383.85	-----	8.70	2.065E+00	-----	Line Not Found	-----

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KF6E51AE

Page : 2  
Acquisition date : 26-FEB-2008 05:44:12

None

Flags: "T" = Tentatively associated



Rejected Report  
Sample ID : KF6E51AE

Page : 3  
Acquisition date : 26-FEB-2008 05:44:12

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	1.189E+03	18.03	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

VMS Nuclide Identification Report V3.0 Generated 26-FEB-2008 11:13:57

Configuration : \$DISK1:[GER7.SAMPLE]KF6E51AE\_260280544.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 : 26-FEB-2008 05:44:12  
 Sample ID : KF6E51AE Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.19 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	8.503E+02	6.712E+01	4.959E+01	9.919E-01	17.145

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-6.364E-01	2.847E+01	1.457E+02	2.923E+00	-0.004
NA-22	-2.369E-01	3.526E+00	1.596E+01	3.385E-01	-0.015
K-40	1.037E+02	6.813E+01	3.448E+02	7.409E+00	0.301
SC-46	1.544E-02	3.944E+00	1.833E+01	3.844E-01	0.001
CR-51	6.459E+01	1.226E+02	4.920E+02	9.844E+00	0.131
MN-54	2.081E+00	3.918E+00	1.900E+01	3.900E-01	0.110
CO-57	1.501E+02	1.147E+02	4.562E+02	9.430E+00	0.329
CO-58	5.899E+00	5.927E+00	2.796E+01	5.730E-01	0.211
FE-59	8.129E+00	1.128E+01	5.241E+01	1.097E+00	0.155
CO-60	-3.362E+00	2.384E+00	4.675E+00	9.956E-02	-0.719
ZN-65	-6.952E+00	8.586E+00	3.261E+01	6.836E-01	-0.213
SE-75	5.002E+00	1.637E+01	6.353E+01	1.275E+00	0.079
SR-85	-3.904E+01	1.158E+01	2.772E+01	5.571E-01	-1.408
Y-88	-8.168E+00	4.108E+00	5.462E+00	1.204E-01	-1.495
NB-94	1.630E+00	5.519E+00	2.341E+01	4.819E-01	0.070
NB-95	7.333E+00	7.075E+00	3.360E+01	6.863E-01	0.218
TC-95M	-2.037E+00	2.368E+01	8.407E+01	1.700E+00	-0.024
ZR-95	2.265E+00	9.116E+00	4.157E+01	8.486E-01	0.054
ZRNB-95	1.260E+01	1.199E+01	5.695E+01	1.163E+00	0.221
MO-99	-3.422E+03	1.347E+03	4.074E+03	8.405E+01	-0.840
RH-101	1.398E+01	1.717E+01	6.460E+01	1.308E+00	0.216
RH-102M	-5.385E+00	3.962E+00	1.268E+01	2.544E-01	-0.425
RU-103	-8.282E+00	7.841E+00	2.725E+01	5.471E-01	-0.304
RU-106DA	3.412E+01	6.440E+01	2.730E+02	5.520E+00	0.125
AG-108M	-7.145E+00	8.466E+00	3.002E+01	6.013E-01	-0.238
AG-110M	4.781E+00	5.933E+00	2.896E+01	5.966E-01	0.165
SN-113DA	1.315E+01	1.124E+01	4.960E+01	9.923E-01	0.265

---- Non-Identified Nuclides ----

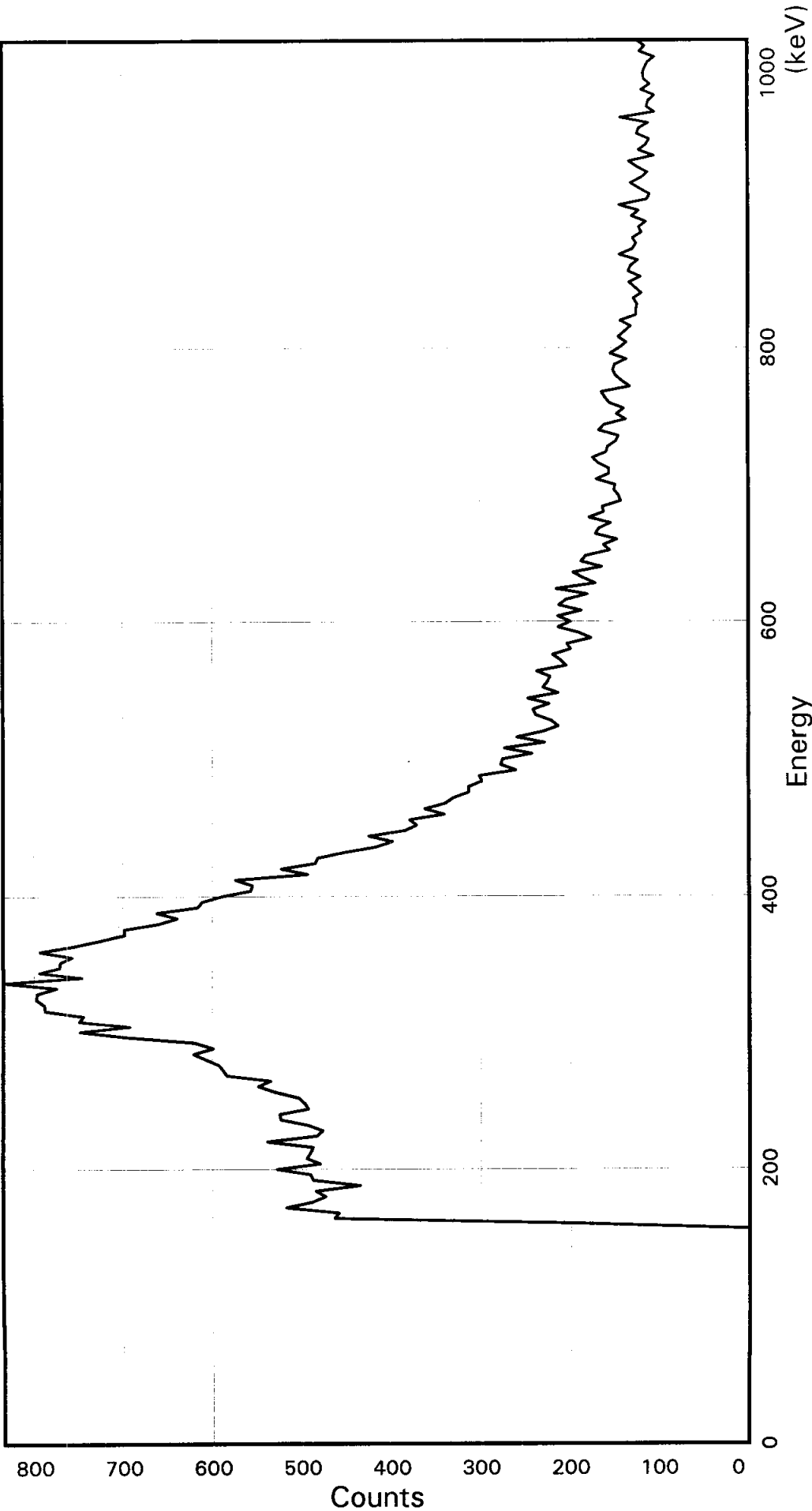
Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-124	-1.933E+00		6.157E+00	2.481E+01	5.011E-01	-0.078
SB-125	1.792E+00		2.251E+01	8.987E+01	1.800E+00	0.020
SN-126DA	-1.831E+00		5.491E+00	2.145E+01	4.352E-01	-0.085
I-131	-1.818E+01		4.731E+01	1.783E+02	3.565E+00	-0.102
CS-134	2.177E+00		5.836E+00	2.578E+01	5.278E-01	0.084
CS-137DA	-1.666E-01		6.140E+00	2.522E+01	5.114E-01	-0.007
LA-138	3.590E-03		3.667E+00	1.908E+01	4.093E-01	0.000
CE-139	2.347E+00		1.545E+01	5.711E+01	1.166E+00	0.041
BA-140	7.350E+01		5.030E+01	2.528E+02	5.088E+00	0.291
BALA-140	2.513E+01		2.628E+01	1.279E+02	2.774E+00	0.196
CE-141	-4.401E+01		3.523E+01	1.185E+02	2.438E+00	-0.372
CE-144	-2.026E+02		1.186E+02	3.865E+02	8.002E+00	-0.524
CEPR-144	-4.040E+02		2.373E+02	7.736E+02	1.602E+01	-0.522
PM-144	4.189E+00		6.472E+00	2.764E+01	5.590E-01	0.152
PM-146	1.661E+01		8.986E+00	4.295E+01	8.609E-01	0.387
EU-152	-1.168E+01		2.894E+01	1.057E+02	2.113E+00	-0.111
EU-154	-2.400E+00		9.393E+00	4.146E+01	8.792E-01	-0.058
EU-155	-7.338E+01		4.848E+01	1.634E+02	3.446E+00	-0.449
HF-181	2.378E+00		7.138E+00	3.189E+01	6.400E-01	0.075
BI-207	-6.512E+00		6.082E+00	2.151E+01	4.337E-01	-0.303
TL-208	3.364E+00		7.060E+00	3.001E+01	6.055E-01	0.112
BI-210M	1.092E+01		1.809E+01	7.139E+01	1.432E+00	0.153
BI-212	4.501E+01		8.063E+01	3.521E+02	1.076E+01	0.128
PB-212	1.130E+01		2.540E+01	1.007E+02	2.026E+00	0.112
BI-214	8.692E+00		1.505E+01	6.231E+01	1.259E+00	0.139
PB-214	3.081E+01		2.075E+01	9.270E+01	1.854E+00	0.332
RA-223	-3.784E+01		6.615E+01	2.382E+02	4.777E+00	-0.159
RA-224DA	1.152E+01		2.587E+01	1.026E+02	2.064E+00	0.112
RA-226DA	8.552E+00		1.503E+01	6.221E+01	1.257E+00	0.137
AC-227DA	-1.063E+02		9.701E+01	3.338E+02	6.717E+00	-0.318
AC-228	1.180E+01		1.484E+01	7.219E+01	1.490E+00	0.163
RA-228DA	1.187E+01		1.493E+01	7.263E+01	1.500E+00	0.163
TH-228DA	9.540E+00		2.002E+01	8.511E+01	1.717E+00	0.112
TH-232DA	-7.579E+00		5.704E+01	2.168E+02	4.335E+00	-0.035
TH-234DA	1.101E+01		3.572E+02	1.897E+03	3.943E+01	0.006
U-234DA	8.920E+01		5.411E+01	2.263E+02	4.531E+00	0.394
U-235HP	-3.952E+01		1.040E+02	3.750E+02	7.726E+00	-0.105
NP-237DA	-3.376E+01		2.018E+01	6.322E+01	1.265E+00	-0.534
U-238DA	3.081E+01		2.075E+01	9.270E+01	1.854E+00	0.332
U-238DHP	8.145E+01		4.519E+02	1.673E+03	3.725E+01	0.049
AM-241HP	-2.151E+01		4.073E+01	1.432E+02	3.214E+00	-0.150

TAL Richland WA.  
BA133

Sample ID: KF6E51AE  
Detector ID: NAI1 1

*2nd Count*

BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB



Acquisition Start: 26-FEB-2008 07:24:27.09  
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: KF6E51AE

CONFIGURATION ID: NAI1:KF6E51AE\_260280724  
TITLE : BA133  
SAMPLE ID : KF6E51AE

REPORT DATE: 26-FEB-08  
ACQUIRE DATE: 26-FEB-08 07:24:27  
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/C<sup>2</sup>  
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]KF6E51AE\_260280724.CNF;1  
Analyses by : NAI V3.0  
Sample title : BA133  
Sample date : 7-FEB-2008 12:00:00 Acquisition date : 26-FEB-2008 07:24:27  
Sample ID : KF6E51AE Sample quantity : 1.0000 sampl  
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.71 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:	7.8	7.2	6.9	5.7	7.4	2.9	4.4	2.5
88:	1.8	0.5	1.3	0.1	-0.4	-2.9	-0.8	-2.6
96:	-3.0	-2.9	-4.3	-4.0	-5.7	-3.7	-4.3	-3.2
104:	-6.6	-5.1	-5.8	-4.6	-4.9	-6.1	-6.2	-4.5
112:	-5.3	-5.0						

List of Suspicious Channels

81      82      83      84      85      86

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	2.02E+01	0.00E+00	1.03E+00
2	7.68E+00	0.00E+00	1.07E+00
3	1.68E+00	0.00E+00	1.10E+00
4	6.68E-01	0.00E+00	1.11E+00

Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	800.	7.63
-----		
Total Activity :	800.	



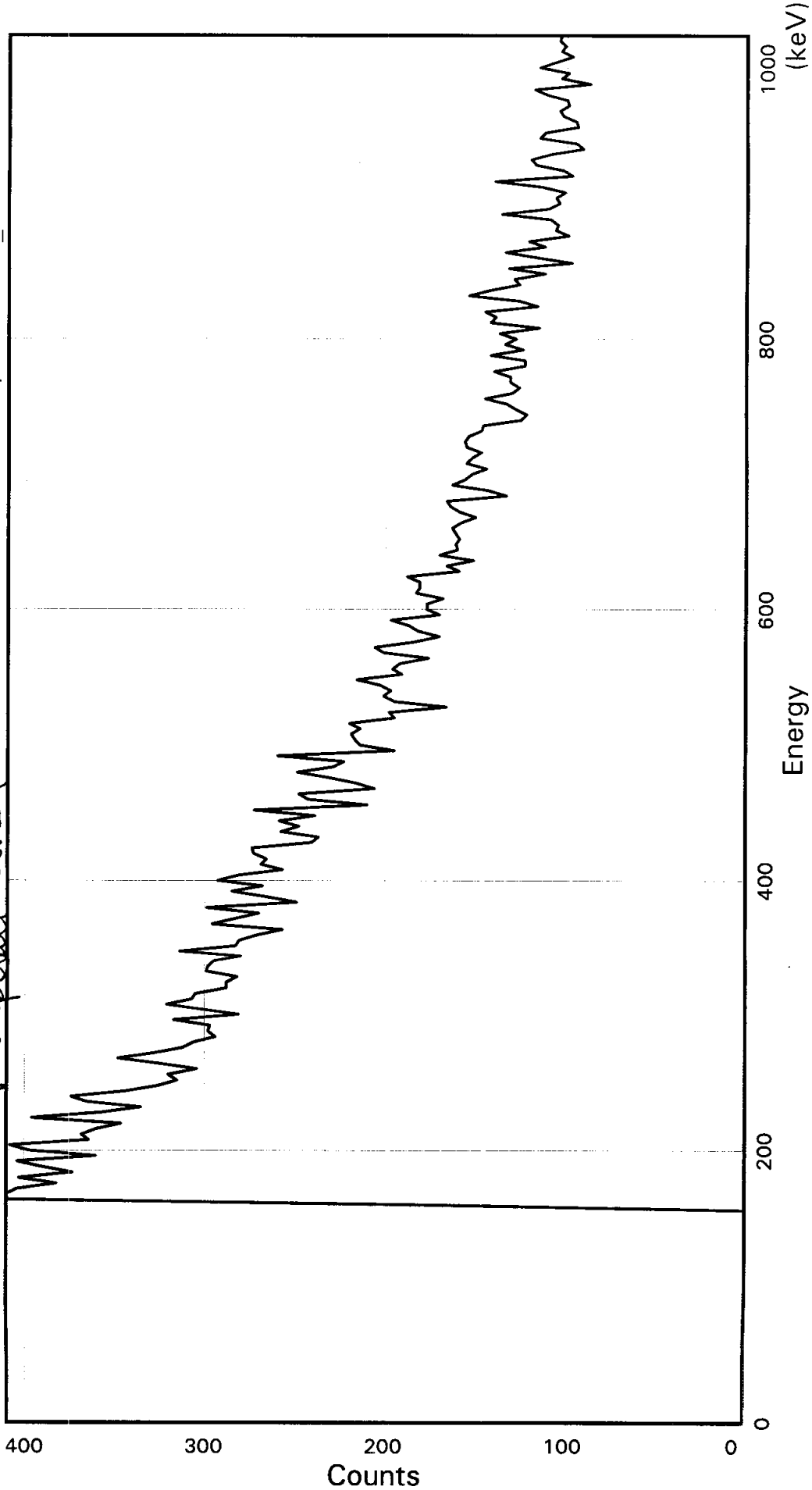
TAL Richland WA.

BA133

Sample ID: KF6E51AE  
Detector ID: NAI1 1

BatchID: 8042381  
Library: [NUC\_LIBR]BA133.NLB

*Precipitate Count*



Acquisition Start: 25-FEB-2008 11:45:25.89  
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: KF6E51AE

CONFIGURATION ID: NAI1:KF6E51AE\_250281145  
TITLE : BA133  
SAMPLE ID : KF6E51AE

REPORT DATE: 25-FEB-08	SAMPLE DATE: 7-FEB-2008 12:00:00.00
ACQUIRE DATE: 25-FEB-08 11:45:25	CALIB DATE: 17-NOV-1993 10:39:59.60
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:	SAMPLE TYPE:

ENERGY OFFSET: 0.0000E+00 keV	FWHM OFFSET: -.2302E+02 keV
ENERGY SLOPE: 4.0000E+00 keV/C	FWHM SLOPE: 5.7163E+00 sqr keV
ENERGY Q COEFF: 0.0000E+00 keV/C <sup>2</sup>	ITERATIONS: 5
PEAK SENSITIVITY: 5.000	GAUSSIAN SENSITIVITY: 35.00 %

ABUNDANCE LIMIT: 75.00 %	HALF-LIFE RATIO: 8.00
ENERGY TOLERANCE: 20.000 keV	ACTIVITY MULTIPLIER: 2.2200E+06
VARIABLE PEAK WIDTH: 3.00	LIBRARY: [NUC_LIBR]BA133.NLB

Configuration : RDND06\$DKA100:[NAI1.SAMPLE]KF6E51AE\_250281145.CNF;1  
Analyses by : NAI V3.0  
Sample title : BA133  
Sample date : 7-FEB-2008 12:00:00 Acquisition date : 25-FEB-2008 11:45:25  
Sample ID : KF6E51AE Sample quantity : 1.0000 sampl  
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.55 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:	0.4	0.5	0.0	1.0	1.3	0.9	0.1	2.4
88:	0.5	0.4	-0.3	-1.4	1.0	0.3	-0.4	1.4
96:	-1.5	-0.6	0.6	-0.2	1.4	1.0	-1.4	-0.1
104:	-0.2	-0.3	0.0	-1.7	-1.7	-0.7	-0.7	-0.5
112:	-1.0	0.3						

List of Suspicious Channels

None

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	9.19E-01	0.00E+00	9.97E-01

Brief Nuclide Activity Report  
Sample ID : KF6E51AE

Page : 3  
Acquisition date : 25-FEB-2008 11:45:25

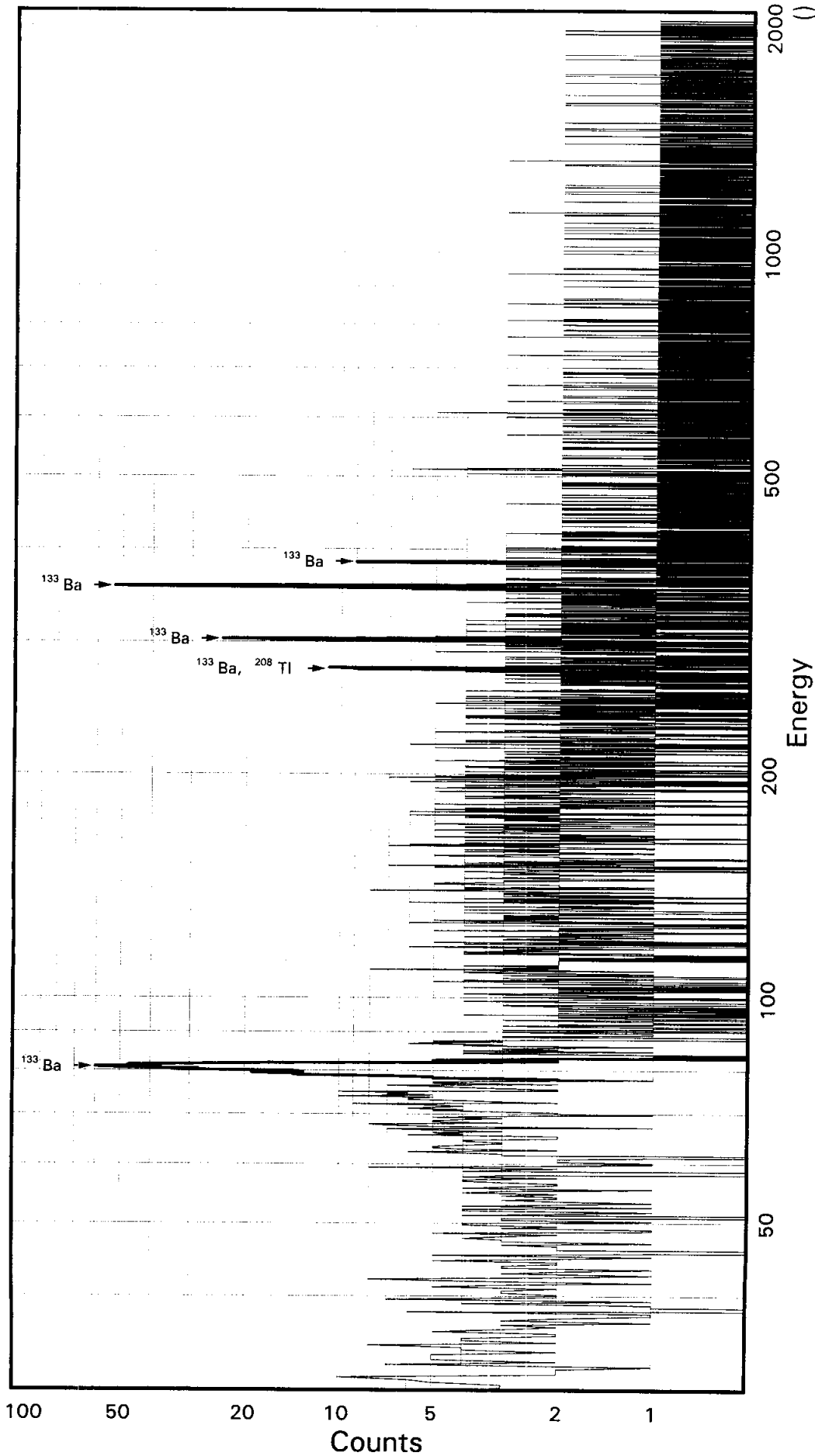
Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	5.18	5.60
-----		
Total Activity :	5.18	

TAL Richland WA.  
BA133

Batch ID: 8042381

Sample ID: KGXJA1AA  
Detector ID: GER10 1



Acquisition Start: 26-FEB-2008 05:44:17.98  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:  
Offset: 1.46425E+01  
Slope: 2.47248E-01  
Quadrature: 2.05587E-09

SAMPLE IDENTIFICATION: KGXJA1AA

CONFIGURATION ID: GER10:KGXJA1AA\_260280544  
TITLE : BA133  
SAMPLE ID : KGXJA1AA

REPORT DATE: 26-FEB-08  
ACQUIRE DATE: 26-FEB-08 05:44:17  
ELAPSED LIVE TIME: 1800.0 Sec  
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 7-FEB-2008 12:00:00.00  
CALIB DATE: 26-FEB-2008 05:34:18.65  
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: 1.4643E+01 keV  
ENERGY SLOPE: 2.4725E-01 keV/C  
ENERGY Q COEFF: 2.0559E-09 keV/C<sup>2</sup>  
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 1.2291E+00 keV  
FWHM SLOPE: 2.1883E-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 26-FEB-2008 11:14:07

Configuration : \$DISK1:[GER10.SAMPLE]KGXJA1AA\_260280544.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 : 26-FEB-2008 05:44:17  
 Sample ID : KGXJA1AA Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.23 0.0%  
 Start energy : 17.12 End energy : 2040.24  
 Sensitivity : 5.00 Gaussian : 10.00  
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	3	79.13	64	14	1.46	260.81	256	23	3.56E-02	19.2	2.58E+00
2	3	80.88	344	19	1.64	267.91	256	23	1.91E-01	6.5	
3	0	276.27	58	16	1.48	1058.14	1045	20	3.23E-02	19.6	
4	0	302.82	136	19	1.31	1165.51	1155	22	7.58E-02	10.9	
5	0	355.98	354	14	1.57	1380.54	1370	21	1.97E-01	5.8	
6	0	384.29	52	10	1.46	1495.03	1484	22	2.88E-02	19.5	

Flag: "\*" = Peak area was modified by background subtraction



```

Configuration      : $DISK1:[GER10.SAMPLE]KGXJA1AA_260280544.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  : 26-FEB-2008 05:44:17
Sample ID        : KGXJA1AA               Sample quantity   : 1.0000 SAMPL
Sample type      :                        Sample geometry   : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.23   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	344	33.00	2.478E+00	1.403E+03	1.408E+03	8.48
	276.40	58	6.90	2.637E+00	1.064E+03	1.068E+03	20.32
	302.84	136	17.80	2.640E+00	9.683E+02	9.716E+02	12.18
	356.00	354	62.05*	2.642E+00	7.202E+02	7.226E+02	7.89
	383.85	52	8.70	2.641E+00	7.531E+02	7.556E+02	20.21

Flag: "\*" = Keyline

Unidentified Energy Lines

Sample ID : KGXJA1AA

Acquisition date : 26-FEB-2008 05:44:17

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	79.13	64	14	1.46	260.81	256	23	3.56E-02	19.2	2.47E+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	1.080E+03	20.32	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]KGXJA1AA_260280544.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  : 26-FEB-2008 05:44:17
Sample ID        : KGXJA1AA               Sample quantity   : 1.0000 SAMPL
Sample type      :                         Sample geometry   : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.23   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	7.226E+02	5.701E+01	5.155E+01	1.031E+00	14.018

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-9.954E+01	6.747E+01	2.182E+02	4.375E+00	-0.456
NA-22	-2.750E+00	2.722E+00	9.869E+00	2.070E-01	-0.279
K-40	1.151E+01	4.592E+01	2.272E+02	4.817E+00	0.051
SC-46	9.225E+00	5.317E+00	2.550E+01	5.299E-01	0.362
CR-51	1.292E+02	1.322E+02	5.230E+02	1.046E+01	0.247
MN-54	3.924E+00	4.073E+00	1.894E+01	3.869E-01	0.207
CO-57	-1.120E+02	1.201E+02	4.087E+02	8.396E+00	-0.274
CO-58	6.088E+00	5.438E+00	2.466E+01	5.031E-01	0.247
FE-59	-9.011E+00	1.111E+01	4.063E+01	8.433E-01	-0.222
CO-60	7.360E-01	3.481E+00	1.545E+01	3.251E-01	0.048
ZN-65	-1.072E+01	8.579E+00	2.930E+01	6.088E-01	-0.366
SE-75	1.808E+00	1.463E+01	5.540E+01	1.111E+00	0.033
SR-85	-3.450E+00	1.270E+01	4.476E+01	8.988E-01	-0.077
Y-88	6.206E+00	3.122E+00	1.862E+01	4.030E-01	0.333
NB-94	-4.227E+00	4.761E+00	1.692E+01	3.464E-01	-0.250
NB-95	-1.701E+01	6.847E+00	1.729E+01	3.517E-01	-0.984
TC-95M	-5.239E+00	1.959E+01	6.913E+01	1.395E+00	-0.076
ZR-95	-1.407E-01	9.032E+00	3.723E+01	7.571E-01	-0.004
ZRNB-95	-2.874E+01	1.157E+01	2.920E+01	5.941E-01	-0.984
MO-99	2.278E+03	1.568E+03	5.943E+03	1.219E+02	0.383
RH-101	-3.312E-01	1.605E+01	6.022E+01	1.216E+00	-0.005
RH-102M	-1.079E+00	6.067E+00	2.301E+01	4.613E-01	-0.047
RU-103	7.174E+00	7.482E+00	3.270E+01	6.561E-01	0.219
RU-106DA	-6.445E+01	5.151E+01	1.763E+02	3.559E+00	-0.366
AG-108M	-3.280E+00	7.528E+00	2.736E+01	5.479E-01	-0.120
AG-110M	4.857E+00	7.332E+00	3.096E+01	6.343E-01	0.157
SN-113DA	1.498E+01	1.137E+01	4.758E+01	9.519E-01	0.315

Sample ID : KGXJA1AA

Acquisition date : 26-FEB-2008 05:44:17

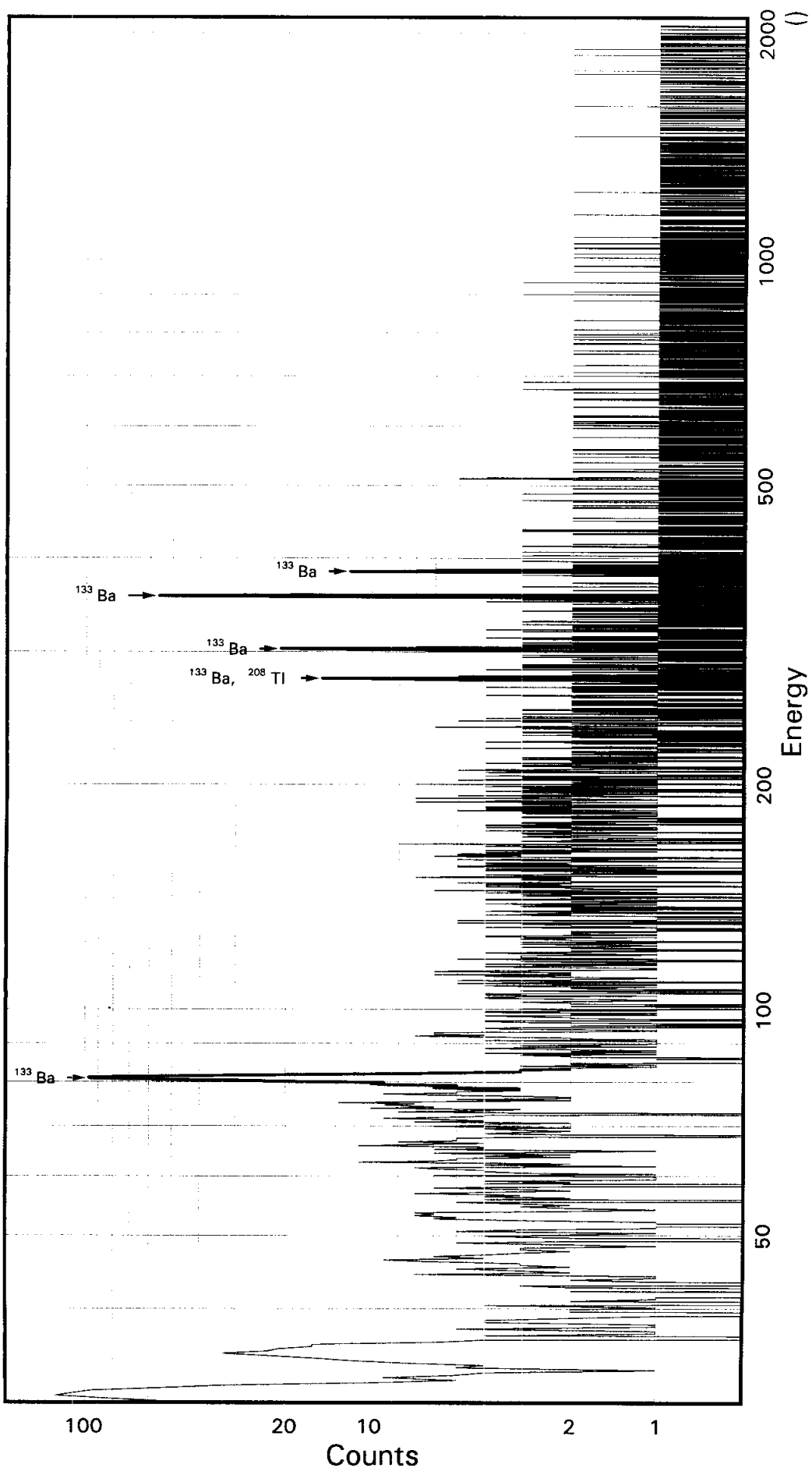
## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-124	1.480E+00		7.240E+00	2.885E+01	5.816E-01	0.051
SB-125	-2.667E+01		1.545E+01	4.731E+01	9.471E-01	-0.564
SN-126DA	7.332E+00		5.364E+00	2.374E+01	4.803E-01	0.309
I-131	4.377E+01		4.402E+01	1.780E+02	3.560E+00	0.246
CS-134	1.910E+00		6.058E+00	2.476E+01	5.046E-01	0.077
CS-137DA	3.349E+00		6.005E+00	2.517E+01	5.091E-01	0.133
LA-138	-1.626E-01		4.087E+00	1.858E+01	3.933E-01	-0.009
CE-139	-4.357E+00		1.647E+01	5.787E+01	1.177E+00	-0.075
BA-140	-2.209E+01		5.807E+01	2.221E+02	4.465E+00	-0.099
BALA-140	7.940E+00		1.343E+01	7.235E+01	1.545E+00	0.110
CE-141	-1.166E+01		3.647E+01	1.283E+02	2.628E+00	-0.091
CE-144	3.962E+01		1.060E+02	3.903E+02	8.029E+00	0.102
CEPR-144	7.620E+01		2.119E+02	7.795E+02	1.603E+01	0.098
PM-144	3.566E+00		5.036E+00	2.170E+01	4.378E-01	0.164
PM-146	3.406E+00		8.854E+00	3.542E+01	7.096E-01	0.096
EU-152	-4.507E+00		3.456E+01	1.257E+02	2.515E+00	-0.036
EU-154	-7.668E+00		7.588E+00	2.752E+01	5.771E-01	-0.279
EU-155	-7.460E+01		5.520E+01	1.846E+02	3.856E+00	-0.404
HF-181	9.840E+00		9.190E+00	3.905E+01	7.832E-01	0.252
BI-207	9.246E+00		5.618E+00	2.525E+01	5.082E-01	0.366
TL-208	2.775E-01		5.148E+00	2.127E+01	4.284E-01	0.013
BI-210M	2.048E+01		1.570E+01	6.385E+01	1.280E+00	0.321
BI-212	3.756E+01		6.741E+01	2.911E+02	8.887E+00	0.129
PB-212	7.584E+00		2.239E+01	8.371E+01	1.682E+00	0.091
BI-214	7.216E+00		1.502E+01	6.165E+01	1.243E+00	0.117
PB-214	4.131E+01		3.014E+01	1.063E+02	2.125E+00	0.389
RA-223	-1.306E+01		6.858E+01	2.283E+02	4.577E+00	-0.057
RA-224DA	7.727E+00		2.281E+01	8.529E+01	1.714E+00	0.091
RA-226DA	7.216E+00		1.502E+01	6.165E+01	1.243E+00	0.117
AC-227DA	-1.195E+02		8.762E+01	2.862E+02	5.752E+00	-0.418
AC-228	-1.073E+01		1.660E+01	6.123E+01	1.257E+00	-0.175
RA-228DA	-1.080E+01		1.671E+01	6.161E+01	1.264E+00	-0.175
TH-228DA	7.871E-01		1.460E+01	6.031E+01	1.215E+00	0.013
TH-232DA	-7.805E+00		6.791E+01	2.494E+02	4.989E+00	-0.031
TH-234DA	-1.144E+03		7.367E+02	2.404E+03	4.960E+01	-0.476
U-234DA	1.597E+01		4.756E+01	1.768E+02	3.540E+00	0.090
U-235HP	-5.036E+01		1.248E+02	4.347E+02	8.906E+00	-0.116
NP-237DA	2.776E+01		2.499E+01	9.801E+01	1.961E+00	0.283
U-238DA	4.131E+01		3.014E+01	1.063E+02	2.125E+00	0.389
U-238DHP	-2.418E+02		3.884E+02	1.356E+03	2.959E+01	-0.178
AM-241HP	-8.442E+01		3.895E+01	1.203E+02	2.642E+00	-0.702

TAL Richland WA.  
BA133

Batch ID: 8042381

Sample ID: KGXJA1AC  
Detector ID: GER8 1



Acquisition Start: 26-FEB-2008 05:44:35.41  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:  
Offset: 1.60532E-01  
Slope: 2.49936E-01  
Quadrature: 2.00131E-08

SAMPLE IDENTIFICATION: KGXJA1AC

CONFIGURATION ID: GER8:KGXJA1AC\_260280544  
TITLE : BA133  
SAMPLE ID : KGXJA1AC

REPORT DATE: 26-FEB-08  
ACQUIRE DATE: 26-FEB-08 05:44:35  
ELAPSED LIVE TIME: 1800.0 Sec  
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 21-JAN-2008 12:00:00.00  
CALIB DATE: 26-FEB-2008 04:52:48.76  
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: 1.6053E-01 keV  
ENERGY SLOPE: 2.4994E-01 keV/C  
ENERGY Q COEFF: 2.0013E-08 keV/C<sup>2</sup>  
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 9.7445E-01 keV  
FWHM SLOPE: 2.0293E-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 26-FEB-2008 11:15:12

```

Configuration      : $DISK1:[GER8.SAMPLE]KGXJA1AC_260280544.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title      : BA133
Sample date       : 21-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 05:44:35
Sample ID         : KGXJA1AC 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      : 20.16 End energy : 2048.98
Sensitivity       : 5.00 Gaussian : 10.00
Critical level    : No
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	3	30.80	563	76	1.14	122.57	113	34	3.13E-01	5.3	6.99E-01
2	3	35.04	149	39	1.46	139.56	113	34	8.29E-02	14.5	
3	0	80.98	425	65	0.93	323.36	313	20	2.36E-01	6.7	
4	0	276.73	36	25	0.86	1106.48	1099	14	1.97E-02	34.1	
5	0	302.81	100	13	0.96	1210.78	1202	18	5.54E-02	13.2	
6	0	356.01	293	5	1.11	1423.60	1414	17	1.63E-01	6.1	
7	0	383.88	56	0	1.05	1535.09	1527	16	3.11E-02	13.4	

Flag: "\*" = Peak area was modified by background subtraction



Configuration : \$DISK1:[GER8.SAMPLE]KGXJA1AC\_260280544.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3  
 Sample title : BA133  
 Sample date : 21-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 05:44:35  
 Sample ID : KGXJA1AC 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	425	33.00	2.140E+00	2.005E+03	2.018E+03	8.65
	276.40	36	6.90	2.306E+00	7.442E+02	7.490E+02	34.53
	302.84	100	17.80	2.309E+00	8.091E+02	8.143E+02	14.27
	356.00	293	62.05*	2.311E+00	6.817E+02	6.862E+02	8.11
	383.85	56	8.70	2.310E+00	9.287E+02	9.348E+02	14.41

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KGXJA1AC

Page : 2  
Acquisition date : 26-FEB-2008 05:44:35

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	30.80	563	76	1.14	122.57	113	34	3.13E-01	5.3	1.87E+00	
3	35.04	149	39	1.46	139.56	113	34	8.29E-02	14.5	1.91E+00	

Flags: "T" = Tentatively associated

Rejected Report  
Sample ID : KGXJA1AC

Page : 3  
Acquisition date : 26-FEB-2008 05:44:35

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity 1-Sigma (DPM/SAMPL)	%Error	Rejected by
TL-208	1.41E+10Y	0.00	277.35	6.80	7.551E+02	34.53	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:[GER8.SAMPLE]KGXJA1AC_260280544.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       : 21-JAN-2008 12:00:00 Acquisition date : 26-FEB-2008 05:44:35
Sample ID        : KGXJA1AC 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 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	6.862E+02	5.564E+01	3.560E+01	7.121E-01	19.272

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	2.809E+01	7.145E+01	3.111E+02	6.242E+00	0.090
NA-22	3.808E+00	3.329E+00	1.778E+01	3.764E-01	0.214
K-40	-2.686E+01	3.622E+01	1.740E+02	3.731E+00	-0.154
SC-46	2.400E-01	5.076E+00	2.436E+01	5.102E-01	0.010
CR-51	6.975E+01	2.159E+02	8.250E+02	1.651E+01	0.085
MN-54	-1.994E+00	5.434E+00	2.099E+01	4.305E-01	-0.095
CO-57	6.902E+01	1.078E+02	4.088E+02	8.443E+00	0.169
CO-58	3.995E+00	6.048E+00	2.763E+01	5.658E-01	0.145
FE-59	9.407E+00	1.136E+01	5.582E+01	1.167E+00	0.169
CO-60	5.244E+00	2.868E+00	1.747E+01	3.713E-01	0.300
ZN-65	-6.502E+00	6.553E+00	2.421E+01	5.068E-01	-0.269
SE-75	-1.394E+01	1.834E+01	6.484E+01	1.301E+00	-0.215
SR-85	-3.102E+01	1.391E+01	4.327E+01	8.696E-01	-0.717
Y-88	-2.024E+00	2.027E+00	5.438E+00	1.195E-01	-0.372
NB-94	3.278E+00	3.103E+00	1.646E+01	3.386E-01	0.199
NB-95	1.563E+01	9.196E+00	4.560E+01	9.308E-01	0.343
TC-95M	-1.028E+00	2.496E+01	9.187E+01	1.857E+00	-0.011
ZR-95	-4.351E+00	1.190E+01	4.703E+01	9.596E-01	-0.093
ZRNB-95	2.318E+01	1.342E+01	6.653E+01	1.358E+00	0.348
RH-101	4.005E+00	1.493E+01	5.613E+01	1.136E+00	0.071
RH-102M	-5.478E+00	5.222E+00	1.879E+01	3.769E-01	-0.291
RU-103	-4.924E+00	1.112E+01	4.305E+01	8.643E-01	-0.114
RU-106DA	-4.613E+01	5.699E+01	2.085E+02	4.216E+00	-0.221
AG-108M	-7.072E+00	8.807E+00	3.064E+01	6.136E-01	-0.231
AG-110M	2.075E+00	5.171E+00	2.437E+01	5.017E-01	0.085
SN-113DA	4.854E+00	1.315E+01	5.203E+01	1.041E+00	0.093
SB-124	2.489E+00	8.033E+00	3.371E+01	6.807E-01	0.074

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	-3.898E+01		1.878E+01	5.245E+01	1.050E+00	-0.743
SN-126DA	-1.457E+00		4.388E+00	1.756E+01	3.561E-01	-0.083
I-131	1.302E+02		1.435E+02	6.289E+02	1.258E+01	0.207
CS-134	1.718E+00		4.809E+00	2.155E+01	4.409E-01	0.080
CS-137DA	5.177E+00		5.170E+00	2.427E+01	4.919E-01	0.213
LA-138	-1.073E-01		3.350E+00	1.702E+01	3.644E-01	-0.006
CE-139	-1.064E+01		1.740E+01	5.994E+01	1.224E+00	-0.177
BA-140	2.942E+00		7.912E+01	3.738E+02	7.521E+00	0.008
BALA-140	2.269E+01		2.272E+01	1.668E+02	3.609E+00	0.136
CE-141	1.574E+01		5.529E+01	2.007E+02	4.127E+00	0.078
CE-144	-6.104E+01		1.075E+02	3.761E+02	7.779E+00	-0.162
CEPR-144	-1.233E+02		2.149E+02	7.516E+02	1.555E+01	-0.164
PM-144	5.805E+00		5.356E+00	2.449E+01	4.950E-01	0.237
PM-146	8.639E+00		7.968E+00	3.576E+01	7.167E-01	0.242
EU-152	-6.758E+00		2.965E+01	1.099E+02	2.197E+00	-0.062
EU-154	8.965E+00		8.820E+00	4.713E+01	9.978E-01	0.190
EU-155	-1.886E+01		5.898E+01	2.094E+02	4.410E+00	-0.090
HF-181	-1.107E+01		1.052E+01	3.780E+01	7.585E-01	-0.293
BI-207	-1.247E+00		4.872E+00	1.953E+01	3.936E-01	-0.064
TL-208	-1.089E+01		4.735E+00	1.349E+01	2.722E-01	-0.807
BI-210M	-1.593E+01		1.855E+01	6.491E+01	1.302E+00	-0.245
BI-212	-2.691E+01		7.424E+01	2.896E+02	8.853E+00	-0.093
PB-212	6.220E+00		2.370E+01	9.152E+01	1.841E+00	0.068
BI-214	-1.861E+01		1.346E+01	5.241E+01	1.059E+00	-0.355
PB-214	9.766E+00		2.362E+01	9.539E+01	1.908E+00	0.102
RA-223	-5.187E+01		6.403E+01	2.257E+02	4.525E+00	-0.230
RA-224DA	6.445E+00		2.456E+01	9.483E+01	1.907E+00	0.068
RA-226DA	-1.861E+01		1.346E+01	5.241E+01	1.059E+00	-0.355
AC-227DA	-6.717E+01		9.060E+01	3.194E+02	6.425E+00	-0.210
AC-228	-1.194E+01		1.430E+01	5.431E+01	1.120E+00	-0.220
RA-228DA	-1.209E+01		1.447E+01	5.495E+01	1.133E+00	-0.220
TH-228DA	-3.139E+01		1.366E+01	3.892E+01	7.850E-01	-0.807
TH-232DA	-2.150E+01		5.526E+01	2.049E+02	4.099E+00	-0.105
TH-234DA	1.261E+02		6.595E+02	2.877E+03	5.973E+01	0.044
U-234DA	-2.090E+01		4.501E+01	1.758E+02	3.519E+00	-0.119
U-235HP	-1.254E+01		1.161E+02	4.132E+02	8.504E+00	-0.030
NP-237DA	3.609E+01		2.575E+01	1.041E+02	2.082E+00	0.347
U-238DA	9.766E+00		2.362E+01	9.539E+01	1.908E+00	0.102
U-238DHP	-1.018E+03		4.743E+02	1.584E+03	3.516E+01	-0.642
AM-241HP	-1.051E+02		4.419E+01	1.388E+02	3.104E+00	-0.757

**Lot No., Due Date:** F8A260145; 02/25/2008  
**Client, Site:** 1418995; LANDWELL - Tronox Parcel H  
**QC Batch No., Method Test:** 8042387; RRA2267 Ra-226 by ASC-7  
**SDG, Matrix:** ; ;

- |                             |   |     |    |     |
|-----------------------------|---|-----|----|-----|
| <b>1.0 COC</b>              |   |     |    |     |
| 1.1                         | Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?           | Yes | No | N/A |
|                             |   | ✓   |    |     |
| <b>2.0 QC Batch</b>         |   |     |    |     |
| 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 |
|                             |   | ✓   |    |     |
| <b>3.0 QC &amp; Samples</b> |   |     |    |     |
| 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 |
|                             |   | ✓   |    |     |
| <b>4.0 Raw Data</b>         |   |     |    |     |
| 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 |
|                             |   | ✓   |    |     |
| <b>5.0 Other</b>            |   |     |    |     |
| 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 MEE **Date** 3-13-08

**Data Review Checklist**  
**RADIOCHEMISTRY**  
 Second Level Review

Batch Number: 8042387

Review Item	Yes (✓)	No (✓)	NA (✓)
<b>A. Sample Analysis</b>			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery 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?			✓
<b>C. Other</b>			
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: *Erika Ford* Date: 3/13/18

2/27/2008 1:46:19 PM

1418995, Landwell Company  
Landwell Company

Analyte Due Date: 02/22/2008

Batch: 8042387  
SEQ Batch, Test: 8042389, 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: , Barcot1

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:
1 KF6FA-1-AE		1.02g.in	RATA30240				G8	1817	3/3/08 8:00	
F8A260145-12-SAMP			02/07/08	7.4592 ✓	1.0000				1RH (002) Alpha	3-4-08 14:54 SB
				7.649						3-11-08 9:46 SB
01/25/2008 10:00										Beta:
2 KF6FD-1-AE		1.02g.in	RATA30241				G11	1118	3/3/08 8:00	
F8A260145-13-SAMP			02/07/08	7.4953 ✓	1.0000				ZMA (054) Alpha	3-4-08 14:54 SB
				8.452						3-11-08 9:34 SB
01/25/2008 10:30										Beta:
3 KF6FF-1-AE		1.02g.in	RATA30242				G13	1818	3/3/08 8:00	
F8A260145-14-SAMP			02/07/08	7.4333 ✓	1.0595				3RC (027) Alpha	3-4-08 14:54 SB
				7.016						3-11-08 9:47 SB
01/25/2008 10:40										Beta:
4 KF6FJ-1-AE		1.01g.in	RATA30243				G10	1818	3/3/08 8:00	
F8A260145-15-SAMP			02/07/08	7.4747 ✓	1.1033				4HC (028) Alpha	3-4-08 14:54 SB
				6.775						3-11-08 9:46 SB
01/25/2008 10:40										Beta:



2/27/2008 1:46:20 PM **Sample Preparation/Analysis** Balance Id:1120373922 G  
 1418995, Landwell Company D9 Ra-226/228 PprRC5013/5032, SepRC5005 Pipet #:  
 Landwell Company TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow  
**AnalyteDueDate: 02/22/2008** 01 STANDARD TEST SET Sep1 DT/Tm Tech:  
 Batch: 8042387 PM, Quote: JAE, 78254 Sep2 DT/Tm Tech:

SEQ Batch, Test: 8042389, D9TF pCi/g

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 KF6FK-1-AE	1.00g.in	1.00g.in	RATA30244 02/07/08				G7	1818	3/3/08 0800	3-4-08 14:54 SB
F8A260145-16-SAMP		7.4953 = 1.0000								7.614
01/25/2008 11:30	AmtRec: 500SL	#Containers: 1	RATA30245 02/07/08				G4	1818	3/3/08 0800	Beta:
6 KF6FL-1-AE	1.00g.in	1.00g.in	RATA30245 02/07/08							3-4-08 14:54 SB
F8A260145-17-SAMP		7.4902 = 1.0989								6.816
01/25/2008 11:37	AmtRec: 500SL	#Containers: 1	RATA30246 02/07/08				G14	1819	3/3/08 0800	Beta:
7 KF6FM-1-AH	1.03g.in	1.03g.in	RATA30246 02/07/08							3-4-08 14:54 SB
F8A260145-18-SAMP		7.4850 = 1.0532								7.107
01/25/2008 11:50	AmtRec: 2X500SL	#Containers: 2	RATA30247 02/07/08				G5	1819	3/3/08 0800	Beta:
8 KGXJM-1-AA-B	1.01g.in	1.01g.in	RATA30247 02/07/08							3-4-08 14:54 SB
J8B110000-387-BLK		7.4850 = 1.0000								8.220
01/25/2008 10:00	AmtRec:	#Containers: 1								3-4-08 14:54 SB
										8 HA 3-11-08 9:43 SB
										(923) Alpha: Beta:

2/27/2008 1:46:20 PM

### Sample Preparation/Analysis

Balance Id:1120373922

G

D9 Ra-226/228 PrpRC5013/5032, SepRC5005  
TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow  
01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 02/22/2008

Sep1 DT/Tm Tech:

Batch: 8042387

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:
9 KGXJM-1-AC-C		1.01g.in	RASC4700				94	1820	3/3/08	
J8B110000-387-LCS		7.5529 - 1.0000	01/21/08						3-408	14:26 SB
		7.83							9MA 3-11-08	10:33 SB

1.01g.in

94

1820

3/3/08

7.5529 - 1.0000

7.83

3-408

14:26

SB

9MA 3-11-08

10:33

SB

01/25/2008 10:00

Amt/Rec:

#Containers: 1

Scr:

(13)

Beta:

### Comments:

All Clients for Batch:  
1418995, Landwell Company

Landwell Company, JAE, 78254

### KF6FA1AE-SAMP Constituent List:

RDL:	RDL:	pCi/g	pCi/g	LCL:20	LCL:20	UCL:115	UCL:115	RPD:35	RPD:35	Ra-226	Ra-226	RDL:1	RDL:1	pCi/g	pCi/g	LCL:70	LCL:70	UCL:130	UCL:130	RPD:35	RPD:35	
Ba-133	Ba-133																					
KF6FA1AE-SAMP Calc Info:																						
Uncert Level (#s): 4																						
Decay to SaDt: N																						
Blk Subt.: N																						
Sci.Not.: N																						
ODRs: B																						
KGXJM1AA-BLK:																						
Uncert Level (#s): 4																						
Decay to SaDt: N																						
Blk Subt.: N																						
Sci.Not.: N																						
ODRs: B																						
KGXJM1AC-LCS:																						
Uncert Level (#s): 4																						
Decay to SaDt: N																						
Blk Subt.: N																						
Sci.Not.: N																						
ODRs: B																						

Approved By

Date:

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

ISV - Insufficient Volume for Analysis

WO Cnt: 9

Prep SamplePrep v4.8.32

# ICOC Fraction Transfer/Status Report

ByDate: 3/14/2007, 3/18/2008, Batch: '8042387', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
<b>8042387</b>				
AC	Rev1C	Barcotl	2/27/2008 1:50:36 PM	
SC		wagarr	IsBatched	2/12/2008 7:52:00 AM
SC		Barcotl	InPrep	2/27/2008 1:50:36 PM
SC		Barcotl	Prep1C	2/27/2008 1:50:54 PM
SC		LucasD	Sep1C	3/3/2008 3:38:59 PM
SC		DAWKINSO	InCnt1	3/3/2008 5:35:49 PM
SC		DAWKINSO	Cnt1C	3/3/2008 10:10:49 PM
SC		BairdS	InSep2	3/4/2008 3:08:18 PM
SC		BairdS	CalcC	3/11/2008 4:36:26 PM
SC		mcginnist	Rev1C	3/13/2008 12:35:54 PM
AC		<b>Barcotl</b>	2/27/2008 1:50:54 PM	
AC		<b>LucasD</b>	3/3/2008 3:38:59 PM	
AC		<b>DAWKINSO</b>	3/3/2008 5:35:49 PM	
AC		<b>DAWKINSO</b>	3/3/2008 10:10:49 PM	
AC		<b>BairdS</b>	3/4/2008 3:08:18 PM	
AC		<b>BairdS</b>	3/11/2008 4:36:26 PM	
AC		<b>mcginnist</b>	3/13/2008 12:35:54	

AC: Accepting Entry; SC: Status Change

TAL Richland

Richland Wa.

# Rpt DB Transfer log (Batch Results)

SDG or Batch Isotope	Rpt Db Id Method	LotSample RTst Qc Analysis Date	Client Id Result	Matrix Cnt Uncert	Received Date Tot uncert	Sample Date Units	Expected Yield	Volumes		
<b>8030213</b>	<b>9KF6FA10</b>	<b>F8A26014512</b>	TSB-HR-02-10'	SOLID	1/26/2008 10:15:00	1/25/2008 10:00:00 AM				
RA-226	D9TE	0	3/11/2008 1:46:00 PM	2.4607E+00	1.212E-01	2.821E-01	1.441E-01	pCi/g	1.0	1.02E+0
RA-226	TBD	0	3/11/2008 1:46:00 PM	2.4607E+00	1.212E-01	2.821E-01	1.441E-01	pCi/g	1.0	1.02E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	1.7892E+00	1.558E-01	2.113E-01	6.492E-02	pCi/g	0.903	1.0E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	2.8084E+00	1.924E-01	2.954E-01	6.315E-02	pCi/g	0.903	1.0E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	1.78E+00	1.532E-01	2.089E-01	6.315E-02	pCi/g	0.903	1.0E+0
U-234	KWSR	0	2/22/2008 2:23:12 PM	3.5173E+00	1.469E-01	3.276E-01	3.058E-02	PCI/G	0.93	1.0E+0
U-235	KWSR	0	2/22/2008 2:23:12 PM	1.589E-01	3.126E-02	3.395E-02	2.468E-02	PCI/G	0.93	1.0E+0
U-238	KWSR	0	2/22/2008 2:23:12 PM	2.5666E+00	1.255E-01	2.478E-01	3.274E-02	PCI/G	0.93	1.0E+0
<b>8030213</b>	<b>9KF6FD10</b>	<b>F8A26014513</b>	TSB-HJ-11-0'	SOLID	1/26/2008 10:15:00	1/25/2008 10:30:00 AM				
RA-226	D9TE	0	3/11/2008 1:34:00 PM	1.2552E+00	8.426E-02	1.558E-01	7.537E-02	pCi/g	1.0	1.02E+0
RA-226	TBD	0	3/11/2008 1:34:00 PM	1.2552E+00	8.426E-02	1.558E-01	7.537E-02	pCi/g	1.0	1.02E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	2.9151E+00	1.864E-01	2.986E-01	5.703E-02	pCi/g	0.719	1.02E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	1.5245E+00	1.331E-01	1.806E-01	6.546E-02	pCi/g	0.719	1.02E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	2.7431E+00	1.783E-01	2.828E-01	5.548E-02	pCi/g	0.719	1.02E+0
U-234	KWSR	0	2/22/2008 2:23:29 PM	1.2867E+00	9.001E-02	1.403E-01	3.358E-02	PCI/G	0.959	1.03E+0
U-235	KWSR	0	2/22/2008 2:23:29 PM	5.6075E-02	1.887E-02	1.944E-02	2.531E-02	PCI/G	0.959	1.03E+0
U-238	KWSR	0	2/22/2008 2:23:29 PM	1.1673E+00	8.574E-02	1.299E-01	3.358E-02	PCI/G	0.959	1.03E+0
<b>8030213</b>	<b>9KF6FF10</b>	<b>F8A26014514</b>	TSB-HJ-11-10'	SOLID	1/26/2008 10:15:00	1/25/2008 10:40:00 AM				
RA-226	D9TE	0	3/11/2008 1:47:00 PM	2.3229E+00	1.311E-01	2.641E-01	9.426E-02	pCi/g	0.944	1.02E+0
RA-226	TBD	0	3/11/2008 1:47:00 PM	2.3229E+00	1.311E-01	2.641E-01	9.426E-02	pCi/g	0.944	1.02E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	2.0864E+00	1.655E-01	2.347E-01	6.285E-02	pCi/g	0.813	1.03E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	3.0227E+00	1.965E-01	3.111E-01	6.114E-02	pCi/g	0.813	1.03E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	1.6211E+00	1.439E-01	1.935E-01	6.114E-02	pCi/g	0.813	1.03E+0
U-234	KWSR	0	2/22/2008 2:23:43 PM	2.6778E+00	1.356E-01	2.619E-01	2.765E-02	PCI/G	1.057	9.9E-1
U-235	KWSR	0	2/22/2008 2:23:43 PM	1.0988E-01	2.748E-02	2.897E-02	2.765E-02	PCI/G	1.057	9.9E-1
U-238	KWSR	0	2/22/2008 2:23:43 PM	1.7919E+00	1.11E-01	1.865E-01	2.765E-02	PCI/G	1.057	9.9E-1
<b>8030213</b>	<b>9KF6FJ10</b>	<b>F8A26014515</b>	TSB-HJ-11-10' FD	SOLID	1/26/2008 10:15:00	1/25/2008 10:40:00 AM				
RA-226	D9TE	0	3/11/2008 1:46:00 PM	1.5527E+00	9.949E-02	1.783E-01	1.359E-01	pCi/g	0.906	1.01E+0
RA-226	TBD	0	3/11/2008 1:46:00 PM	1.5527E+00	9.949E-02	1.783E-01	1.359E-01	pCi/g	0.906	1.01E+0
TH-228	D2S1	0	2/22/2008 6:16:09 AM	1.8722E+00	1.419E-01	2.062E-01	5.153E-02	pCi/g	0.758	1.03E+0
TH-230	D2S1	0	2/22/2008 6:16:09 AM	1.4863E+00	1.247E-01	1.722E-01	5.013E-02	pCi/g	0.758	1.03E+0
TH-232	D2S1	0	2/22/2008 6:16:09 AM	1.9866E+00	1.443E-01	2.145E-01	5.013E-02	pCi/g	0.758	1.03E+0
U-234	KWSR	0	2/22/2008 2:23:57 PM	1.3584E+00	1.087E-01	1.601E-01	4.902E-02	PCI/G	1.014	1.01E+0
U-235	KWSR	0	2/22/2008 2:23:57 PM	1.6655E-02	1.229E-02	1.237E-02	3.492E-02	PCI/G	1.014	1.01E+0
U-238	KWSR	0	2/22/2008 2:23:57 PM	1.3005E+00	1.062E-01	1.548E-01	3.492E-02	PCI/G	1.014	1.01E+0
<b>8030213</b>	<b>9KF6FK10</b>	<b>F8A26014516</b>	TSB-HR-01-0'	SOLID	1/26/2008 10:15:00	1/25/2008 11:30:00 AM				
RA-226	D9TE	0	3/11/2008 1:45:00 PM	8.0655E-01	7.937E-02	1.123E-01	1.589E-01	pCi/g	1.0	1.0E+0
RA-226	TBD	0	3/11/2008 1:45:00 PM	8.0655E-01	7.937E-02	1.123E-01	1.589E-01	pCi/g	1.0	1.0E+0
TH-228	D2S1	0	2/22/2008 6:16:29 AM	1.9142E+00	1.437E-01	2.099E-01	5.157E-02	pCi/g	0.752	1.01E+0
TH-230	D2S1	0	2/22/2008 6:16:29 AM	1.2464E+00	1.143E-01	1.516E-01	5.016E-02	pCi/g	0.752	1.01E+0
TH-232	D2S1	0	2/22/2008 6:16:29 AM	2.0214E+00	1.455E-01	2.175E-01	5.016E-02	pCi/g	0.752	1.01E+0
U-234	KWSR	0	2/22/2008 2:24:09 PM	9.8332E-01	8.003E-02	1.143E-01	3.119E-02	PCI/G	1.1	1.01E+0
U-235	KWSR	0	2/22/2008 2:24:09 PM	2.4746E-02	1.309E-02	1.325E-02	3.119E-02	PCI/G	1.1	1.01E+0
U-238	KWSR	0	2/22/2008 2:24:09 PM	8.3875E-01	7.397E-02	1.016E-01	3.119E-02	PCI/G	1.1	1.01E+0
<b>8030213</b>	<b>9KF6FL10</b>	<b>F8A26014517</b>	TSB-HR-01-10'	SOLID	1/26/2008 10:15:00	1/25/2008 11:37:00 AM				
RA-226	D9TE	0	3/11/2008 1:47:00 PM	1.7996E+00	1.06E-01	2.212E-01	1.085E-01	pCi/g	0.91	1.0E+0
RA-226	TBD	0	3/11/2008 1:47:00 PM	1.7996E+00	1.06E-01	2.212E-01	1.085E-01	pCi/g	0.91	1.0E+0
TH-228	D2S1	0	2/22/2008 6:16:38 AM	1.6007E+00	1.409E-01	1.902E-01	6.981E-02	pCi/g	0.857	1.0E+0
TH-230	D2S1	0	2/22/2008 6:16:38 AM	1.8864E+00	1.506E-01	2.13E-01	5.756E-02	pCi/g	0.857	1.0E+0
TH-232	D2S1	0	2/22/2008 6:16:38 AM	1.7302E+00	1.442E-01	1.997E-01	5.756E-02	pCi/g	0.857	1.0E+0
U-234	KWSR	0	2/25/2008 6:17:05 AM	2.2548E+00	1.15E-01	2.196E-01	2.923E-02	PCI/G	0.954	1.02E+0

8042387, \*\*Samples Inserted | Updated | NotUpdated => 0 | 0 | 9,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 7 | 0 | 0 | 2.  
 \*\*Diff RptDb | Qtims => \*wo:KGXJM1AA=> , mat:SOIL | Solid \*wo:KGXJM1AC=> , mat:SOIL | Solid.

SDG or Batch	Rpt Db Id	LotSample	Client Id	Matrix	Received Date	Sample Date					
Isotope	Method	RTst Qc	Analysis Date	Result	Cnt Uncert	Tot uncert	µg/g	Units	Expected Yield	Volumes	
U-235	KWSR	0	2/25/2008 6:17:05 AM	5.7197E-02	1.855E-02	1.915E-02	2.923E-02	PCI/G	0.954	1.02E+0	
U-238	KWSR	0	2/25/2008 6:17:05 AM	1.7855E+00	1.024E-01	1.801E-01	3.13E-02	PCI/G	0.954	1.02E+0	
<b>8030213</b>	<b>9KF6FM10</b>		<b>F8A26014518</b>	TSB-HJ-01-0'	SOLID	1/26/2008 10:15:00	1/25/2008 11:50:00 AM				
RA-226	D9TE	0	3/11/2008 1:52:00 PM	1.0126E+00	9.92E-02	1.457E-01	2.084E-01	pCi/g	0.949	1.03E+0	
RA-226	TBD	0	3/11/2008 1:52:00 PM	1.0126E+00	9.92E-02	1.457E-01	2.084E-01	pCi/g	0.949	1.03E+0	
TH-228	D2S1	0	2/22/2008 6:16:41 AM	1.7296E+00	1.114E-01	1.773E-01	4.046E-02	pCi/g	0.878	1.02E+0	
TH-230	D2S1	0	2/22/2008 6:16:41 AM	1.2243E+00	9.24E-02	1.344E-01	3.336E-02	pCi/g	0.878	1.02E+0	
TH-232	D2S1	0	2/22/2008 6:16:41 AM	1.5461E+00	1.038E-01	1.611E-01	3.336E-02	pCi/g	0.878	1.02E+0	
U-234	KWSR	0	2/25/2008 6:17:14 AM	1.0488E+00	8.036E-02	1.185E-01	3.282E-02	PCI/G	1.04	1.01E+0	
U-235	KWSR	0	2/25/2008 6:17:14 AM	2.4086E-02	1.23E-02	1.246E-02	2.474E-02	PCI/G	1.04	1.01E+0	
U-238	KWSR	0	2/25/2008 6:17:14 AM	1.0918E+00	8.198E-02	1.222E-01	3.282E-02	PCI/G	1.04	1.01E+0	
<b>8030213</b>	<b>KGXJM1AB</b>		<b>J8B110000387</b>	INTRA-LAB BLANK	SOIL	1/26/2008 10:15:00	1/25/2008 10:00:00 AM				
RA-226	D9TE	0 B	3/11/2008 1:43:00 PM	-6.694E-02	4.744E-02	4.791E-02	1.922E-01	pCi/g	1.0	1.01E+0	
<b>8030213</b>	<b>KGXJM1CS</b>		<b>J8B110000387</b>	INTRA-LAB CHECK	SOIL	1/26/2008 10:15:00	1/25/2008 10:00:00 AM				
RA-226	D9TE	0 S	3/11/2008 2:33:01 PM	1.2013E+00	8.028E-02	1.404E-01	7.152E-02	pCi/g	1.3545E+00	1.0	1.01E+0

8042387, \*\*Samples Inserted | Updated | NotUpdated => 0 | 0 | 9,

\*\*Results Inserted | ReTestInserted | Updated | NotInserted => 7 | 0 | 2.

\*\*Diff RptDb | Qtims => \*wo:KGXJM1AA=>, mat:SOIL | Solid \*wo:KGXJM1AC=>, mat:SOIL | Solid.

# 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	KF6FA1AE	RA-226	2.46E+00	(2.82E-01)		pCi/g	R	6.48E-02	1.44E-01 ✓	100%	
Calc	TE	SOIL	KF6FD1AE	RA-226	1.26E+00	(1.56E-01)		pCi/g	R	3.04E-02	7.54E-02 ✓	100%	
Calc	TE	SOIL	KF6FF1AE	RA-226	2.32E+00	(2.64E-01)		pCi/g	R	3.74E-02	9.43E-02 ✓	94%	
Calc	TE	SOIL	KF6FJ1AE	RA-226	1.55E+00	(1.78E-01)		pCi/g	R	6.04E-02	1.36E-01 ✓	91%	
Calc	TE	SOIL	KF6FK1AE	RA-226	8.07E-01	(1.12E-01)		pCi/g	R	7.19E-02	1.59E-01 ✓	100%	
Calc	TE	SOIL	KF6FL1AE	RA-226	1.80E+00	(2.21E-01)		pCi/g	R	4.64E-02	1.09E-01 ✓	91%	
Calc	TE	SOIL	KF6FM1AH	RA-226	1.01E+00	(1.46E-01)		pCi/g	R	9.52E-02	2.08E-01 ✓	95%	
Calc	TE	SOIL	KGXJM1AA	RA-226	-6.69E-02	(4.79E-02)	U4	pCi/g	R	8.83E-02	1.92E-01 ✓ B	100%	
Calc	TE	SOIL	KGXJM1AC	RA-226	1.20E+00	(1.40E-01)		pCi/g	R	2.88E-02	7.15E-02 ✓ S	100%	89% <i>JL</i>

Tom D. M.

3/13/08

( ) - (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

Page 1

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

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	TE SOIL	*STLE	Ra226WoBS	KF6FA1AE	pCi/g		01/25/08 10:00	03/11/08 13:46	03/04/08 14:54	RATA30240	1	g	1.02 g	✓	
					F8A260145-12	SOIL				03/11/08 09:46	RATA30240	Alq	100%			
Sq	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay
0	RA-226	483	✓	ASC1RH	ASC	N	N	2.3890E+00	1.0000E+00	N	100%	N	1.4585E+00	1.4585E+00	4.5045E-01	1.0000E+00
		50				Y		(9.341E-02)	(0.000E+00)		8%		(0.000E+00)	0.980392		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Q	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EntFct	LCSYld,EFctU	IDC/LcC	BIKlC/MDC	StdDvMdc/LcC	
	03/11/08	RA-226	R	2.460738		9.12667E+00		5.571842	5.571842	1.02 G	100%		0.144099			
				(0.28211)		(4.4954E-01)		(0.566987)	(0.566987)	(0.017321)			0.064781			
2	Calc	TE SOIL	*STLE	Ra226WoBS	KF6FD1AE	pCi/g		01/25/08 10:30	03/11/08 13:34	03/04/08 14:54	RATA30241	✓	g	1.02 G	✓	
					F8A260145-13	SOIL				03/11/08 09:34	RATA30241	Alq	100%			
Sq	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay
0	RA-226	238	✓	ASC2MA	ASC	N	N	2.3842E+00	1.0000E+00	N	100%	N	1.4594E+00	1.4594E+00	4.5045E-01	1.0000E+00
		50				Y		(1.042E-01)	(0.000E+00)		8%		(0.000E+00)	0.980392		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Q	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EntFct	LCSYld,EFctU	IDC/LcC	BIKlC/MDC	StdDvMdc/LcC	
	03/11/08	RA-226	R	1.255234		4.64333E+00		2.842224	2.842224	1.02 G	100%		0.075373			
				(0.155848)		(3.1168E-01)		(0.321754)	(0.321754)	(0.0102)			0.030378			
3	Calc	TE SOIL	*STLE	Ra226WoBS	KF6FF1AE	pCi/g		01/25/08 10:40	03/11/08 13:47	03/04/08 14:54	RATA30242	✓	g	1.02 G	✓	
					F8A260145-14	SOIL				03/11/08 09:47	RATA30242	Alq	94%			
Sq	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay
0	RA-226	328	✓	ASC3RC	ASC	N	N	1.8979E+00	1.0000E+00	N	94%	N	1.4584E+00	1.4584E+00	4.5045E-01	1.0000E+00
		50				Y		(5.162E-02)	(0.000E+00)		8%		(0.000E+00)	0.980392		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Q	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EntFct	LCSYld,EFctU	IDC/LcC	BIKlC/MDC	StdDvMdc/LcC	
	03/11/08	RA-226	R	2.322855		6.46000E+00		5.259633	5.259633	1.02 G	94%		0.094264			
				(0.264068)		(3.6451E-01)		(0.534408)	(0.534408)	(0.0102)			0.03741			
4	Calc	TE SOIL	*STLE	Ra226WoBS	KF6FJ1AE	pCi/g		01/25/08 10:40	03/11/08 13:46	03/04/08 14:54	RATA30243	✓	g	1.01 G	✓	
					F8A260145-15	SOIL				03/11/08 09:46	RATA30243	Alq	91%			
Sq	Parameter	Sample Cnt	Bkgrnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay
0	RA-226	300	✓	ASC4HC	ASC	N	N	2.5731E+00	1.0000E+00	N	91%	N	1.4585E+00	1.4585E+00	4.5045E-01	1.0000E+00
		50				Y		(2.372E-02)	(0.000E+00)		7%		(0.000E+00)	0.990099		
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total U	Q	Net Cnt Rt	Q	Dpm Wo Blk	Dpm-Blk	Vol Used	TrcYld,EntFct	LCSYld,EFctU	IDC/LcC	BIKlC/MDC	StdDvMdc/LcC	
	03/11/08	RA-226	R	2.322855		6.46000E+00		5.259633	5.259633	1.02 G	94%		0.094264			
				(0.264068)		(3.6451E-01)		(0.534408)	(0.534408)	(0.0102)			0.03741			

( ) - (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

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
03/11/08	RA-226	R	1.552668	5.56667E+00	3.481234	(0.178324)	(0.358256)	3.481234	(0.0101)	91%	0.135861	0.060407		
Protocol Equation Set Wk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Trc Yld Fct Ent Blk Value Ingr Fct Conv Fct/VolAdj Decay Abn *STLE Ra226WoBS KF6FK1AE pCi/g SOIL 01/25/08 11:30 03/11/08 13:45 RATA30244 1 100% 1.4586E+00 4.5045E-01 1.0000E+00 .F8A260145-16 SOIL 03/11/08 09:45 RATA30244 Alq 100% 1.00 G														
0	03/11/08 13:45	RA-226	173	36	ASC5HB ASC	N	N	2.3299E+00	1.0000E+00	100%	N	1.4586E+00	4.5045E-01	1.0000E+00
			50	60		Y		(6.151E-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 Blk	Dpm-Blk	Vol Used	TrcYld,EnFct	LCSYld,EFctU	IDC/ILcC	BikLcC/MDC	StdDvMdc/LcC
03/11/08	RA-226	R	0.806554	2.86000E+00	1.790468	(0.112281)	(0.23193)	1.790468	(0.01)	100%	0.158937	0.071869		
Protocol Equation Set Wk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Trc Yld Fct Ent Blk Value Ingr Fct Conv Fct/VolAdj Decay Abn *STLE Ra226WoBS KF6FL1AE pCi/g SOIL 01/25/08 11:37 03/11/08 13:47 RATA30245 1 100% 1.4584E+00 4.5045E-01 1.0000E+00 .F8A260145-17 SOIL 03/11/08 09:47 RATA30245 Alq 91% 1.00 G														
0	03/11/08 13:47	RA-226	320	14	ASC6MA ASC	N	N	2.4740E+00	1.0000E+00	91%	N	1.4584E+00	4.5045E-01	1.0000E+00
			50	60		Y		(1.272E-01)	(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/ILcC	BikLcC/MDC	StdDvMdc/LcC
03/11/08	RA-226	R	1.799567	6.16667E+00	3.994857	(0.221209)	(0.446821)	3.994857	(0.01)	91%	0.108515	0.046377		
Protocol Equation Set Wk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Trc Yld Fct Ent Blk Value Ingr Fct Conv Fct/VolAdj Decay Abn *STLE Ra226WoBS KF6FM1AH pCi/g SOIL 01/25/08 11:50 03/11/08 13:52 RATA30246 1 100% 1.4581E+00 4.5045E-01 1.0000E+00 .F8A260145-18 SOIL 03/11/08 09:52 RATA30246 Alq 95% 1.03 G														
0	03/11/08 13:52	RA-226	189	45	ASC7RH ASC	N	N	2.0096E+00	1.0000E+00	95%	N	1.4581E+00	4.5045E-01	1.0000E+00
			50	60		Y		(9.204E-02)	(0.000E+00)	8%		(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	BikLcC/MDC	StdDvMdc/LcC
03/11/08	RA-226	R	1.012616	3.03000E+00	2.315342	(0.145668)	(0.311443)	2.315342	(0.0103)	95%	0.208441	0.09522		
Protocol Equation Set Wk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Trc Yld Fct Ent Blk Value Ingr Fct Conv Fct/VolAdj Decay Abn *STLE Ra226WoBS KGXJM1AA pCi/g SOIL 01/25/08 10:00 03/11/08 13:43 RATA30247 1 100% 1.4581E+00 4.5045E-01 1.0000E+00 .J8B110000-387 SOIL 03/11/08 09:43 RATA30247 Alq 100% 1.01 G														
0	03/11/08 13:43	RA-226	189	45	ASC7RH ASC	N	N	2.0096E+00	1.0000E+00	95%	N	1.4581E+00	4.5045E-01	1.0000E+00
			50	60		Y		(9.204E-02)	(0.000E+00)	8%		(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	BikLcC/MDC	StdDvMdc/LcC
03/11/08	RA-226	R	1.012616	3.03000E+00	2.315342	(0.145668)	(0.311443)	2.315342	(0.0103)	95%	0.208441	0.09522		
Protocol Equation Set Wk Ord Units/Matrix QC/BB Sa/On Date AnalysisDate/PptWt Trc Yld Fct Ent Blk Value Ingr Fct Conv Fct/VolAdj Decay Abn *STLE Ra226WoBS KGXJM1AA pCi/g SOIL 01/25/08 10:00 03/11/08 13:43 RATA30247 1 100% 1.4581E+00 4.5045E-01 1.0000E+00 .J8B110000-387 SOIL 03/11/08 09:43 RATA30247 Alq 100% 1.01 G														



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	StdDwMdc/LcC				
0	03/11/08 13:43	RA-226	31	51	✓	ASC8HA ASC	N	N	2.2354E+00	1.0000E+00	N	100%	8%	1.4587E+00 (0.0000E+00)	4.5045E-01 0.9900099	1.0000E+00		
			50	60		Y	(7.444E-02)	(0.000E+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	BIKLC/MDC	StdDwMdc/LcC				
	03/11/08	RA-226	R	-0.06694 (0.047913)	U4	-2.30000E-01 (1.6299E-01)	-0.150086 (0.107153)	-0.150086 (0.107153)	1.01 G (0.0101)	100%		0.192231 0.08828						
Sq	Status Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol			
9	Calc	TE SOIL	*STLE	Ra226WoBS	KGXJM1AC	pci/g	S	01/25/08 10:00	03/11/08 14:33	03/04/08 14:26	✓	RASC4700	✓	1	g			
										03/11/08 10:33		RASC4700	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 14:33	RA-226	240	✓	7	ASC9MA ASC	N	N	2.5263E+00	1.0000E+00	N	100%	N	1.4529E+00 (0.000E+00)	4.5045E-01 0.9900099	1.0000E+00		
			50	60		Y	(3.512E-02)	(0.000E+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	BIKLC/MDC	StdDwMdc/LcC				
	03/11/08	RA-226	R	1.201287 (0.140395)		4.68333E+00 (3.1296E-01)	2.693404 (0.283239)	2.693404 (0.283239)	1.01 G (0.0101)	100%		89%	0.071517 0.028824					

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6FA1AE                      Isotope: RA-226  
Client: STL                                Matrix Code: 341  
Batch Nbr: 8042387                      Activity Unit: PCI/G                      Multiplier: 1.0  
Technician: SB  
Analysis Size: 1.02                      Analysis Unit: G  
    Report Date: 11-MAR-2008 14:36:00.86  
    First Separation Date: 4-MAR-2008 14:54:00.00  
    Second Separation Date: 11-MAR-2008 09:46:00.00  
Detector ID: 1                              Cell ID: 1RH  
Bkg Date: 6-MAR-2008 08:31:07.70  
    Bkg Counts: 000032                      Bkg Duration: 000060.0  
Count Date: 11-MAR-2008 13:46:00.35  
    Counts: 000483                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6FD1AE                      Isotope: RA-226  
Client: STL                                Matrix Code: 341  
Batch Nbr: 8042387                      Activity Unit: PCI/G                      Multiplier: 1.0  
Technician: SB

Analysis Size: 1.02                      Analysis Unit: G

                    Report Date: 11-MAR-2008 14:24:00.66  
                    First Separation Date: 4-MAR-2008 14:54:00.00  
                    Second Separation Date: 11-MAR-2008 09:34:00.00

Detector ID: 2                              Cell ID: 2MA

Bkg Date: 5-MAR-2008 08:54:14.12  
                    Bkg Counts: 000007                      Bkg Duration: 000060.0

Count Date: 11-MAR-2008 13:34:00.31  
                    Counts: 000238                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6FF1AE                      Isotope: RA-226  
Client: STL                                Matrix Code: 341  
Batch Nbr: 8042387                      Activity Unit: PCI/G                      Multiplier: 1.0595  
Technician: SB  
Analysis Size: 1.02                      Analysis Unit: G  
                    Report Date: 11-MAR-2008 14:37:00.78  
                    First Separation Date: 4-MAR-2008 14:54:00.00  
                    Second Separation Date: 11-MAR-2008 09:47:00.00  
Detector ID: 3                              Cell ID: 3RC  
Bkg Date: 5-MAR-2008 08:54:28.34  
                    Bkg Counts: 000006                      Bkg Duration: 000060.0  
Count Date: 11-MAR-2008 13:47:00.33  
                    Counts: 000328                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6FJ1AE                      Isotope: RA-226  
Client: STL                                Matrix Code: 341  
Batch Nbr: 8042387                      Activity Unit: PCI/G                      Multiplier: 1.1033  
Technician: SB

Analysis Size: 1.01                      Analysis Unit: G

Report Date: 11-MAR-2008 14:36:00.77  
First Separation Date: 4-MAR-2008 14:54:00.00  
Second Separation Date: 11-MAR-2008 09:46:00.00

Detector ID: 4                            Cell ID: 4HC

Bkg Date: 6-MAR-2008 08:31:35.05  
Bkg Counts: 000026                      Bkg Duration: 000060.0

Count Date: 11-MAR-2008 13:46:00.32  
Counts: 000300                          Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6FK1AE                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042387                      Activity Unit: PCI/G                      Multiplier: 1.0  
Technician: SB  
Analysis Size: 1.00                      Analysis Unit: G  
   Report Date: 11-MAR-2008 14:35:00.68  
   First Separation Date: 4-MAR-2008 14:54:00.00  
   Second Separation Date: 11-MAR-2008 09:45:00.00  
Detector ID: 5                                  Cell ID: 5HB  
Bkg Date: 5-MAR-2008 08:54:43.55  
   Bkg Counts: 000036                      Bkg Duration: 000060.0  
Count Date: 11-MAR-2008 13:45:00.25  
   Counts: 000173                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6FL1AE                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042387                      Activity Unit: PCI/G                      Multiplier: 1.0989  
Technician: SB  
Analysis Size: 1.00                      Analysis Unit: G  
    Report Date: 11-MAR-2008 14:37:00.85  
    First Separation Date: 4-MAR-2008 14:54:00.00  
    Second Separation Date: 11-MAR-2008 09:47:00.00  
Detector ID: 6                              Cell ID: 6MA  
Bkg Date: 26-FEB-2008 10:46:45.05  
    Bkg Counts: 000014                      Bkg Duration: 000060.0  
Count Date: 11-MAR-2008 13:47:00.38  
    Counts: 000320                      Count Duration: 000050.0

End of Report    ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6FM1AH                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042387                      Activity Unit: PCI/G                      Multiplier: 1.0532  
Technician: SB  
Analysis Size: 1.03                      Analysis Unit: G  
   Report Date: 11-MAR-2008 14:42:00.59  
   First Separation Date: 4-MAR-2008 14:54:00.00  
   Second Separation Date: 11-MAR-2008 09:52:00.00  
Detector ID: 7                                  Cell ID: 7RH  
Bkg Date: 7-JAN-2008 09:21:11.22  
   Bkg Counts: 000045                      Bkg Duration: 000060.0  
Count Date: 11-MAR-2008 13:52:00.23  
   Counts: 000189                      Count Duration: 000050.0

End of Report ✓



ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KGXJM1AA                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042387                      Activity Unit: PCI/G                      Multiplier: 1.0  
Technician: SB  
Analysis Size: 1.01                      Analysis Unit: G  
    Report Date: 11-MAR-2008 14:33:01.27  
    First Separation Date: 4-MAR-2008 14:54:00.00  
    Second Separation Date: 11-MAR-2008 09:43:00.00  
Detector ID: 8                              Cell ID: 8HA  
Bkg Date: 6-MAR-2008 08:32:34.04  
    Bkg Counts: 000051                      Bkg Duration: 000060.0  
Count Date: 11-MAR-2008 13:43:00.22  
    Counts: 000031                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KGXJM1AC                      Isotope: RA-226  
Client: STL                                  Matrix Code: 341  
Batch Nbr: 8042387                      Activity Unit: PCI/G                      Multiplier: 1.0  
Technician: SB  
Analysis Size: 1.01                      Analysis Unit: G  
Report Date: 11-MAR-2008 15:23:01.78  
First Separation Date: 4-MAR-2008 14:26:00.00  
Second Separation Date: 11-MAR-2008 10:33:00.00  
Detector ID: 9                              Cell ID: 9MA  
Bkg Date: 5-MAR-2008 08:55:32.15  
Bkg Counts: 000007                      Bkg Duration: 000060.0  
Count Date: 11-MAR-2008 14:33:00.92  
Counts: 000240                              Count Duration: 000050.0

End of Report ✓

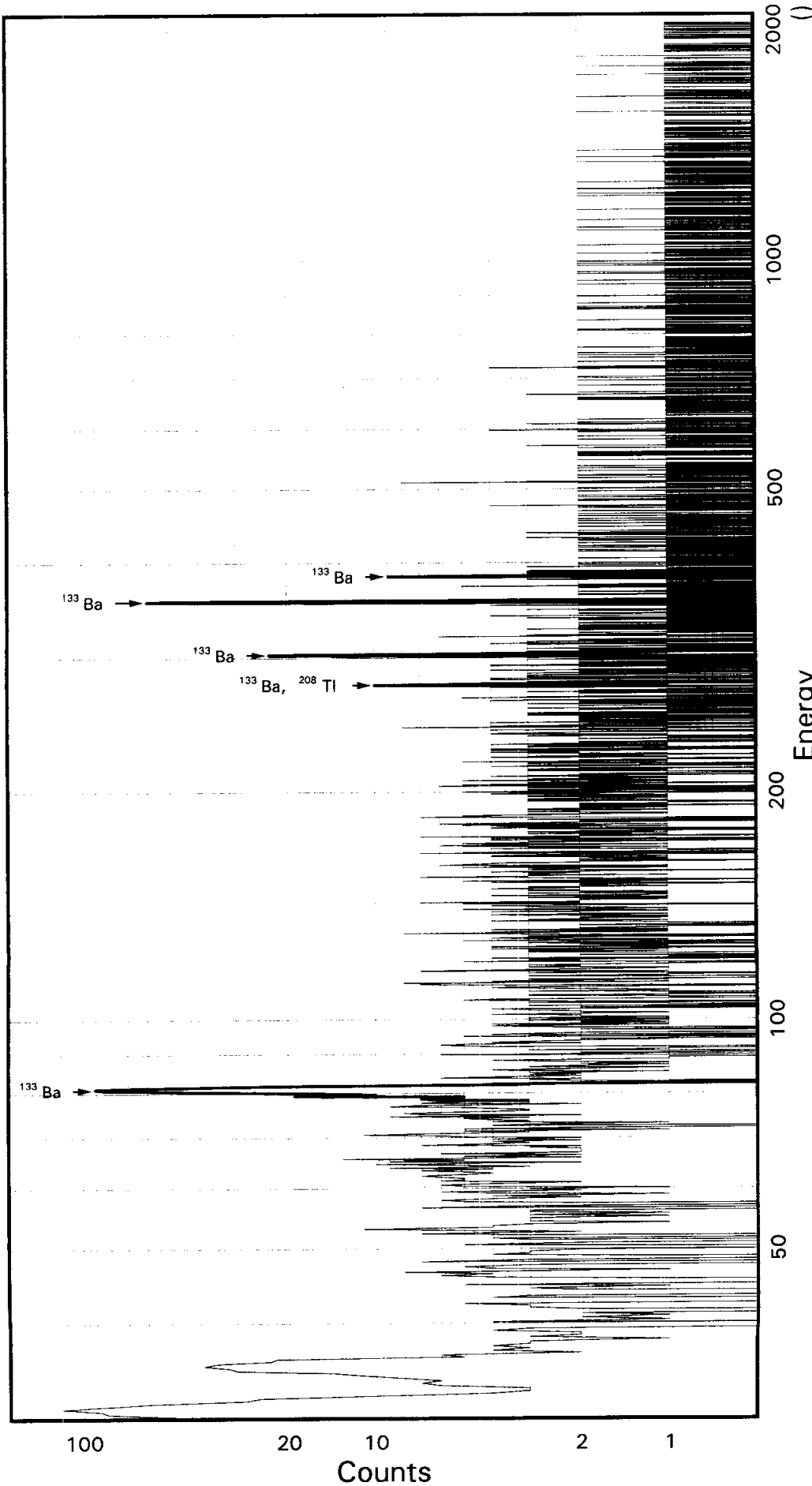
TAL Richland WA.

BA133

Batch ID: 8042387

Sample ID: KF6FA1AE

Detector ID: GER8 1



Energy Coefficients:  
Offset: 1.58736E-01  
Slope: 2.49896E-01  
Quadrature: 2.38032E-08

Acquisition Start: 3-MAR-2008 18:22:53.28  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KF6FA1AE

CONFIGURATION ID: GER8:KF6FA1AE\_030381822  
TITLE : BA133  
SAMPLE ID : KF6FA1AE

REPORT DATE: 03-MAR-08  
ACQUIRE DATE: 03-MAR-08 18:22:53  
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 05:00:18.38  
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: 1.5874E-01 keV  
ENERGY SLOPE: 2.4990E-01 keV/C  
ENERGY Q COEFF: 2.3803E-08 keV/C<sup>2</sup>  
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 9.3792E-01 keV  
FWHM SLOPE: 2.3386E-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:[GER8.SAMPLE]KF6FA1AE\_030381822.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 18:22:53  
 Sample ID : KF6FA1AE 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 : 20.15 End energy : 2048.91  
 Sensitivity : 5.00 Gaussian : 10.00  
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	30.82	532	96	1.29	122.68	114	35	2.96E-01	5.9	9.12E-01
2	2	35.09	177	65	1.30	139.79	114	35	9.84E-02	13.8	
3	0	80.94	445	52	1.03	323.25	312	19	2.47E-01	6.0	
4	0	111.97	30	15	0.73	447.42	440	14	1.67E-02	34.2	
5	0	276.34	43	3	0.97	1105.07	1099	12	2.39E-02	17.2	
6	0	302.89	131	6	1.10	1211.28	1202	21	7.29E-02	9.8	
7	0	356.03	328	27	1.44	1423.86	1414	17	1.82E-01	6.6	
8	0	383.86	34	8	1.05	1535.21	1524	16	1.89E-02	25.3	

Flag: "\*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER8.SAMPLE]KF6FA1AE\_030381822.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 18:22:53  
 Sample ID : KF6FA1AE 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	445	33.00	2.140E+00	2.099E+03	2.109E+03	8.14
	276.40	43	6.90	2.306E+00	9.024E+02	9.065E+02	18.04
	302.84	131	17.80	2.309E+00	1.065E+03	1.069E+03	11.16
	356.00	328	62.05*	2.311E+00	7.615E+02	7.649E+02	8.50
	383.85	34	8.70	2.310E+00	5.639E+02	5.665E+02	25.87

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KF6FA1AE

Page : 2  
Acquisition date : 3-MAR-2008 18:22:53

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
2	30.82	532	96	1.29	122.68	114	35	2.96E-01	5.9	1.87E+00	
2	35.09	177	65	1.30	139.79	114	35	9.84E-02	13.8	1.92E+00	
0	111.97	30	15	0.73	447.42	440	14	1.67E-02	34.2	2.21E+00	

Flags: "T" = Tentatively associated

Rejected Report  
Sample ID : KF6FA1AE

Page : 3  
Acquisition date : 3-MAR-2008 18:22:53

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	9.156E+02	18.04	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:[GER8.SAMPLE]KF6FA1AE_030381822.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 18:22:53
Sample ID        : KF6FA1AE               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	7.649E+02	6.500E+01	3.577E+01	7.154E-01	21.384

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	8.190E+01	6.649E+01	3.074E+02	6.166E+00	0.266
NA-22	1.658E+00	3.436E+00	1.674E+01	3.544E-01	0.099
K-40	1.600E+00	3.641E+01	1.899E+02	4.072E+00	0.008
SC-46	3.723E+00	2.640E+00	1.727E+01	3.617E-01	0.216
CR-51	2.346E+02	1.596E+02	6.593E+02	1.319E+01	0.356
MN-54	5.095E+00	4.171E+00	2.082E+01	4.270E-01	0.245
CO-57	5.798E+01	1.109E+02	4.146E+02	8.563E+00	0.140
CO-58	-3.380E+00	5.888E+00	2.284E+01	4.678E-01	-0.148
FE-59	-1.231E+01	9.064E+00	2.906E+01	6.076E-01	-0.423
CO-60	3.129E+00	3.082E+00	1.664E+01	3.537E-01	0.188
ZN-65	9.487E+00	7.211E+00	3.836E+01	8.030E-01	0.247
SE-75	2.463E+01	1.647E+01	6.818E+01	1.368E+00	0.361
SR-85	-3.241E+01	1.088E+01	2.959E+01	5.947E-01	-1.095
Y-88	3.759E+00	2.666E+00	1.744E+01	3.832E-01	0.216
NB-94	3.395E+00	4.222E+00	1.977E+01	4.066E-01	0.172
NB-95	-4.292E+00	7.449E+00	2.903E+01	5.925E-01	-0.148
TC-95M	8.367E+00	2.424E+01	9.013E+01	1.822E+00	0.093
ZR-95	8.393E+00	1.165E+01	5.131E+01	1.047E+00	0.164
ZRNB-95	-6.482E+00	1.192E+01	4.664E+01	9.522E-01	-0.139
RH-101	-4.092E+00	1.585E+01	5.743E+01	1.163E+00	-0.071
RH-102M	5.340E-01	6.806E+00	2.695E+01	5.406E-01	0.020
RU-103	2.879E+00	8.323E+00	3.579E+01	7.187E-01	0.080
RU-106DA	-1.142E+02	4.730E+01	1.070E+02	2.162E+00	-1.068
AG-108M	-2.075E+01	8.560E+00	2.549E+01	5.104E-01	-0.814
AG-110M	-8.476E+00	6.859E+00	2.360E+01	4.859E-01	-0.359
SN-113DA	-1.738E+01	1.258E+01	4.105E+01	8.212E-01	-0.423
SB-124	-6.318E+00	6.614E+00	2.363E+01	4.773E-01	-0.267

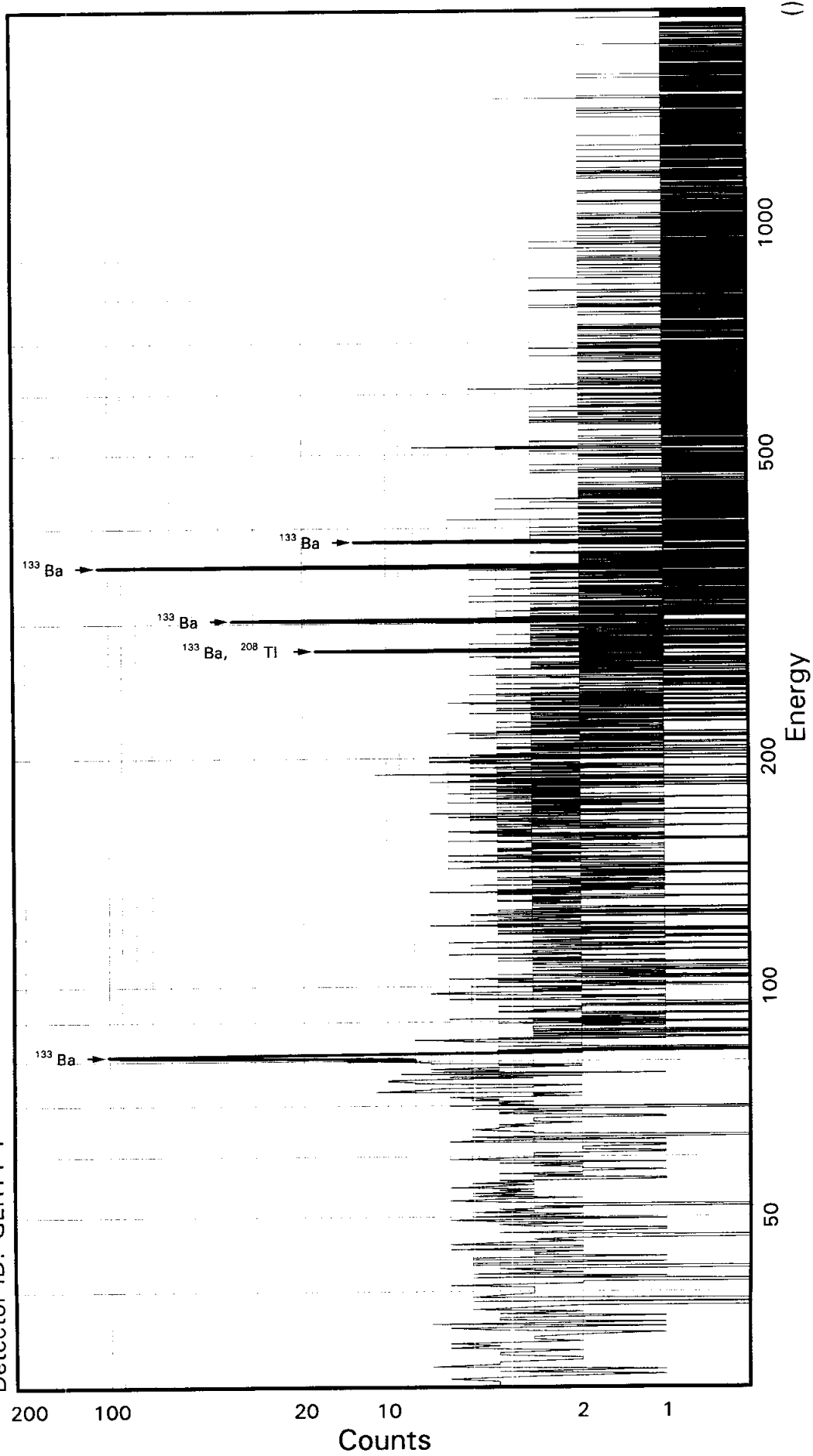
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	-1.894E+00		2.339E+01	9.081E+01	1.818E+00	-0.021
SN-126DA	6.996E+00		4.876E+00	2.304E+01	4.671E-01	0.304
I-131	8.084E+01		7.738E+01	3.204E+02	6.409E+00	0.252
CS-134	-6.784E+00		3.412E+00	4.780E+00	9.779E-02	-1.419
CS-137DA	-7.133E-01		4.839E+00	2.003E+01	4.059E-01	-0.036
LA-138	4.630E+00		3.283E+00	2.148E+01	4.598E-01	0.216
CE-139	1.328E+01		1.600E+01	6.029E+01	1.231E+00	0.220
BA-140	1.475E+00		7.176E+01	2.992E+02	6.020E+00	0.005
BALA-140	0.000E+00		0.000E+00	3.476E+01	7.521E-01	0.000
CE-141	-7.180E+01		4.408E+01	1.415E+02	2.910E+00	-0.507
CE-144	-2.254E+02		1.130E+02	3.521E+02	7.284E+00	-0.640
CEPR-144	-4.544E+02		2.258E+02	7.025E+02	1.453E+01	-0.647
PM-144	1.231E+01		5.401E+00	2.688E+01	5.433E-01	0.458
PM-146	-1.893E+01		8.997E+00	2.688E+01	5.388E-01	-0.704
EU-152	-1.553E+00		2.602E+01	9.916E+01	1.983E+00	-0.016
EU-154	1.025E+01		8.958E+00	4.843E+01	1.025E+00	0.212
EU-155	1.265E+01		5.264E+01	1.956E+02	4.120E+00	0.065
HF-181	1.340E+00		9.831E+00	4.030E+01	8.086E-01	0.033
BI-207	2.996E+00		5.159E+00	2.236E+01	4.506E-01	0.134
TL-208	-5.210E+00		5.746E+00	2.074E+01	4.183E-01	-0.251
BI-210M	-1.357E+01		1.657E+01	5.839E+01	1.171E+00	-0.232
BI-212	-3.056E+01		8.861E+01	3.349E+02	1.024E+01	-0.091
PB-212	2.580E+01		2.304E+01	9.274E+01	1.865E+00	0.278
BI-214	1.207E+01		1.592E+01	6.998E+01	1.414E+00	0.172
PB-214	4.152E+00		2.354E+01	8.810E+01	1.762E+00	0.047
RA-223	-1.991E+01		5.814E+01	2.143E+02	4.297E+00	-0.093
RA-224DA	2.646E+01		2.363E+01	9.510E+01	1.913E+00	0.278
RA-226DA	1.219E+01		1.593E+01	7.005E+01	1.415E+00	0.174
AC-227DA	-6.947E+01		8.378E+01	2.940E+02	5.915E+00	-0.236
AC-228	-2.667E+00		9.939E+00	4.487E+01	9.255E-01	-0.059
RA-228DA	-2.689E+00		1.002E+01	4.524E+01	9.332E-01	-0.059
TH-228DA	-1.487E+01		1.640E+01	5.920E+01	1.194E+00	-0.251
TH-232DA	1.616E+01		5.732E+01	2.241E+02	4.482E+00	0.072
TH-234DA	-4.673E+02		5.676E+02	2.138E+03	4.438E+01	-0.219
U-234DA	-5.389E+01		4.644E+01	1.655E+02	3.314E+00	-0.326
U-235HP	2.130E+00		1.188E+02	4.251E+02	8.750E+00	0.005
NP-237DA	3.113E+01		2.423E+01	9.820E+01	1.965E+00	0.317
U-238DA	4.152E+00		2.354E+01	8.810E+01	1.762E+00	0.047
U-238DHP	-2.026E+02		5.006E+02	1.810E+03	4.019E+01	-0.112
AM-241HP	-3.771E+01		4.511E+01	1.558E+02	3.484E+00	-0.242

TAL Richland WA.  
BA133

Batch ID: 8042387

Sample ID: KF6FD1AE  
Detector ID: GER11 1



Energy Coefficients:  
Offset: -1.01800E+00  
Slope: 2.31722E-01  
Quadrature: 3.06988E-08

Acquisition Start: 3-MAR-2008 17:48:00.43  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KF6FD1AE

CONFIGURATION ID: GER11:KF6FD1AE\_030381748  
TITLE : BA133  
SAMPLE ID : KF6FD1AE

REPORT DATE: 03-MAR-08  
ACQUIRE DATE: 03-MAR-08 17:48:00  
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 05:00:34.29  
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: -.1018E+01 keV  
ENERGY SLOPE: 2.3172E-01 keV/C  
ENERGY Q COEFF: 3.0699E-08 keV/C<sup>2</sup>  
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

VMS Peak Search Report V1.9 Generated 3-MAR-2008 18:18:20

Configuration : \$DISK1:[GER11.SAMPLE]KF6FD1AE\_030381748.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 17:48:00  
 Sample ID : KF6FD1AE Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.98 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	81.19	281	62	0.59	354.75	350	12	1.56E-01	8.6	
2	0	276.38	76	12	1.06	1196.94	1189	16	4.23E-02	15.3	
3	0	302.77	151	43	1.07	1310.79	1303	21	8.41E-02	13.0	
4	0	355.81	484	8	0.93	1539.58	1532	16	2.69E-01	4.7	
5	0	383.80	53	16	1.06	1660.33	1653	13	2.93E-02	21.0	

Flag: "\*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER11.SAMPLE]KF6FD1AE\_030381748.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 17:48:00  
 Sample ID : KF6FD1AE Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.98 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	281	33.00	2.880E+00	9.839E+02	9.884E+02	10.14
	276.40	76	6.90	3.084E+00	1.193E+03	1.199E+03	16.23
	302.84	151	17.80	3.088E+00	9.185E+02	9.227E+02	14.06
	356.00	484	62.05*	3.090E+00	8.414E+02	8.452E+02	7.17
	383.85	53	8.70	3.090E+00	6.529E+02	6.559E+02	21.64

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KF6FD1AE

Page : 2  
Acquisition date : 3-MAR-2008 17:48:00

None

Flags: "T" = Tentatively associated

Rejected Report  
Sample ID : KF6FD1AE

Page : 3  
Acquisition date : 3-MAR-2008 17:48:00

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	1.211E+03	16.23	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]KF6FD1AE\_030381748.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 17:48:00  
 Sample ID : KF6FD1AE Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.98 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	8.452E+02	6.058E+01	4.102E+01	8.203E-01	20.607

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-2.053E+01	5.944E+01	2.251E+02	4.514E+00	-0.091
NA-22	2.363E+00	3.263E+00	1.518E+01	3.199E-01	0.156
K-40	1.699E+00	4.734E+01	2.343E+02	4.998E+00	0.007
SC-46	6.416E+00	3.003E+00	1.762E+01	3.676E-01	0.364
CR-51	1.056E+02	1.041E+02	4.301E+02	8.604E+00	0.246
MN-54	8.172E+00	3.900E+00	1.945E+01	3.982E-01	0.420
CO-57	7.341E+00	6.822E+01	2.516E+02	5.184E+00	0.029
CO-58	-4.154E+00	4.684E+00	1.705E+01	3.485E-01	-0.244
FE-59	9.062E+00	7.904E+00	3.891E+01	8.107E-01	0.233
CO-60	3.447E+00	2.585E+00	1.382E+01	2.924E-01	0.249
ZN-65	-8.984E+00	7.021E+00	2.347E+01	4.897E-01	-0.383
SE-75	2.816E+00	1.081E+01	4.264E+01	8.551E-01	0.066
SR-85	-2.244E+01	9.371E+00	2.746E+01	5.516E-01	-0.817
Y-88	0.000E+00	0.000E+00	3.770E+00	8.224E-02	0.000
NB-94	-2.373E+00	3.882E+00	1.450E+01	2.976E-01	-0.164
NB-95	-6.753E+00	6.151E+00	2.178E+01	4.439E-01	-0.310
TC-95M	-3.124E+01	1.546E+01	4.821E+01	9.739E-01	-0.648
ZR-95	-1.223E+01	8.438E+00	2.809E+01	5.722E-01	-0.435
ZRNB-95	-1.064E+01	9.817E+00	3.483E+01	7.099E-01	-0.306
RH-101	3.175E+01	1.240E+01	5.108E+01	1.033E+00	0.622
RH-102M	-2.564E+00	4.942E+00	1.828E+01	3.666E-01	-0.140
RU-103	1.100E+01	8.164E+00	3.570E+01	7.165E-01	0.308
RU-106DA	5.114E+01	4.711E+01	2.059E+02	4.160E+00	0.248
AG-108M	-1.654E+01	6.060E+00	1.668E+01	3.341E-01	-0.991
AG-110M	8.004E+00	5.967E+00	2.726E+01	5.599E-01	0.294
SN-113DA	3.595E+00	7.388E+00	3.134E+01	6.270E-01	0.115
SB-124	-7.611E+00	5.639E+00	1.899E+01	3.833E-01	-0.401

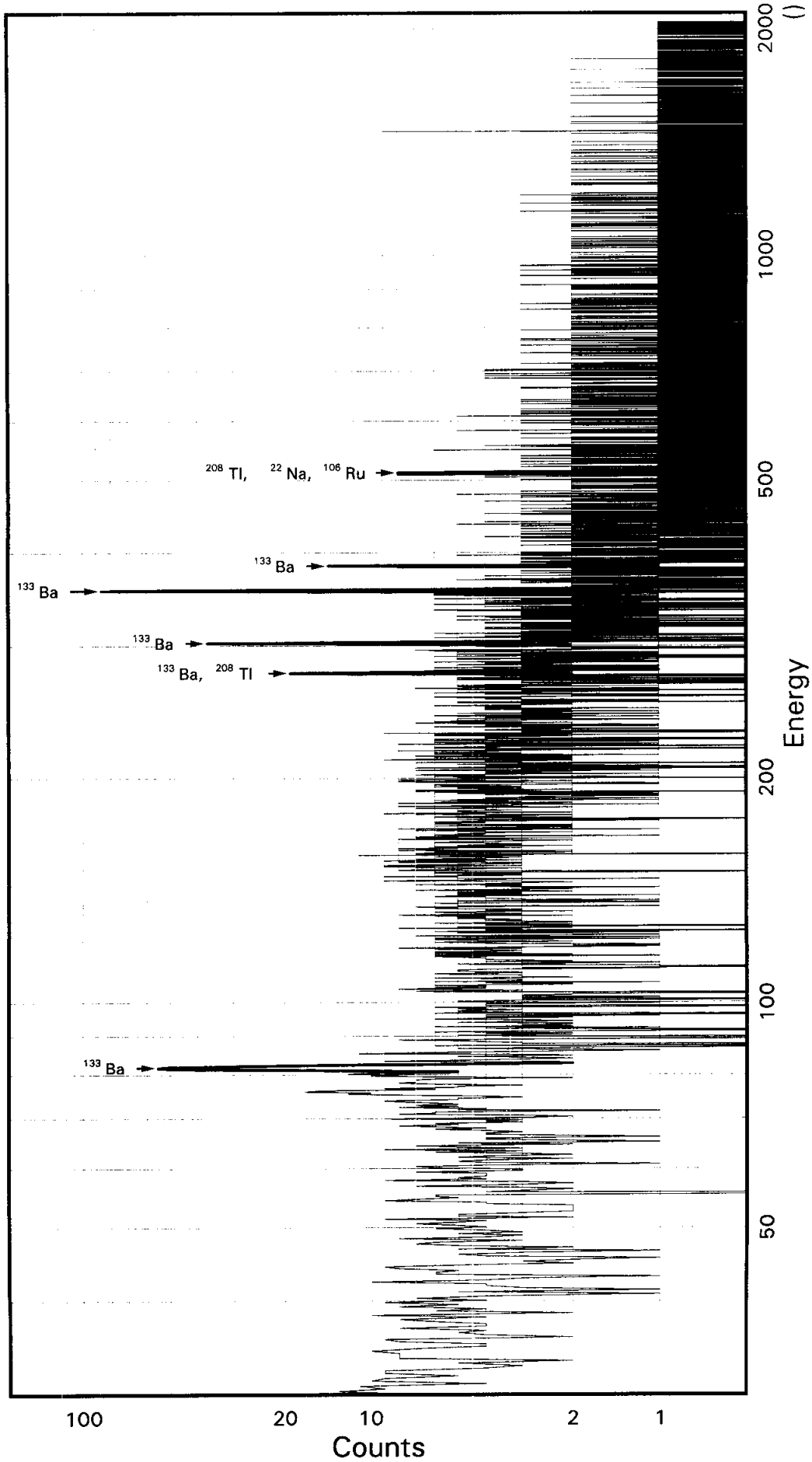
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	-9.182E-01		1.144E+01	4.753E+01	9.517E-01	-0.019
SN-126DA	1.530E+00		4.064E+00	1.691E+01	3.425E-01	0.090
I-131	-1.172E+01		5.889E+01	2.183E+02	4.367E+00	-0.054
CS-134	-1.132E+00		2.945E+00	1.244E+01	2.539E-01	-0.091
CS-137DA	-2.854E+00		5.814E+00	2.140E+01	4.334E-01	-0.133
LA-138	-5.445E+00		3.987E+00	1.266E+01	2.696E-01	-0.430
CE-139	4.522E-01		1.207E+01	4.460E+01	9.090E-01	0.010
BA-140	2.832E+01		6.077E+01	2.558E+02	5.144E+00	0.111
BALA-140	1.909E+01		2.341E+01	1.146E+02	2.464E+00	0.167
CE-141	-5.328E+00		2.517E+01	8.951E+01	1.837E+00	-0.060
CE-144	1.613E+02		7.138E+01	2.979E+02	6.145E+00	0.541
CEPR-144	3.244E+02		1.429E+02	5.965E+02	1.231E+01	0.544
PM-144	1.524E+00		4.771E+00	1.943E+01	3.924E-01	0.078
PM-146	6.722E+00		5.300E+00	2.513E+01	5.035E-01	0.268
EU-152	-7.174E+00		2.156E+01	7.891E+01	1.578E+00	-0.091
EU-154	6.566E+00		9.068E+00	4.218E+01	8.890E-01	0.156
EU-155	1.975E+00		2.931E+01	1.120E+02	2.350E+00	0.018
HF-181	-2.661E-01		7.466E+00	2.964E+01	5.946E-01	-0.009
BI-207	4.785E+00		4.653E+00	2.018E+01	4.065E-01	0.237
TL-208	2.990E-01		4.752E+00	1.937E+01	3.905E-01	0.015
BI-210M	-4.157E+00		1.163E+01	4.348E+01	8.720E-01	-0.096
BI-212	4.378E+01		6.623E+01	2.775E+02	8.477E+00	0.158
PB-212	-2.056E+00		1.526E+01	5.525E+01	1.111E+00	-0.037
BI-214	2.376E+01		1.154E+01	5.144E+01	1.038E+00	0.462
PB-214	2.995E+00		2.087E+01	7.273E+01	1.455E+00	0.041
RA-223	-1.002E+00		4.561E+01	1.735E+02	3.478E+00	-0.006
RA-224DA	-2.108E+00		1.565E+01	5.665E+01	1.139E+00	-0.037
RA-226DA	2.376E+01		1.154E+01	5.144E+01	1.038E+00	0.462
AC-227DA	5.194E+01		6.142E+01	2.377E+02	4.779E+00	0.219
AC-228	-1.716E+01		1.306E+01	4.310E+01	8.868E-01	-0.398
RA-228DA	-1.731E+01		1.317E+01	4.346E+01	8.943E-01	-0.398
TH-228DA	8.534E-01		1.356E+01	5.530E+01	1.115E+00	0.015
TH-232DA	1.632E+01		4.154E+01	1.647E+02	3.294E+00	0.099
TH-234DA	5.277E+02		5.120E+02	2.421E+03	5.011E+01	0.218
U-234DA	-4.802E+00		3.272E+01	1.221E+02	2.445E+00	-0.039
U-235HP	5.290E+01		6.504E+01	2.511E+02	5.157E+00	0.211
NP-237DA	9.018E+00		1.720E+01	6.719E+01	1.345E+00	0.134
U-238DA	2.995E+00		2.087E+01	7.273E+01	1.455E+00	0.041
U-238DHP	2.009E+02		1.972E+02	7.679E+02	1.691E+01	0.262
AM-241HP	2.686E+01		1.997E+01	8.042E+01	1.783E+00	0.334

TAL Richland WA.  
BA133

Batch ID: 8042387

Sample ID: KF6FF1AE  
Detector ID: GER13 1



Energy Coefficients:  
Offset: -5.63981E-01  
Slope: 2.50883E-01  
Quadrature: -1.19039E-07

Acquisition Start: 3-MAR-2008 17:48:11.07  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KF6FF1AE

CONFIGURATION ID: GER13:KF6FF1AE\_030381748  
TITLE : BA133  
SAMPLE ID : KF6FF1AE

REPORT DATE: 03-MAR-08  
ACQUIRE DATE: 03-MAR-08 17:48:11  
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/C<sup>2</sup>  
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 18:18:35

Configuration : \$DISK1:[GER13.SAMPLE]KF6FF1AE\_030381748.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 17:48:11  
 Sample ID : KF6FF1AE 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	176	68	0.88	328.64	323	11	9.80E-02	11.9	
2	0	276.18	90	31	0.96	1103.67	1093	21	4.98E-02	18.9	
3	0	302.73	146	25	0.73	1209.61	1203	15	8.14E-02	11.2	
4	0	355.82	374	31	1.02	1421.46	1411	21	2.08E-01	6.4	
5	3	382.87	22	15	1.39	1529.45	1525	16	1.21E-02	41.5	2.39E+00
6	3	383.76	39	26	1.28	1533.00	1525	16	2.18E-02	33.1	
7	4	511.83*	31	2	1.85	2044.33	2031	20	1.73E-02	30.0	9.42E-01

Flag: "\*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER13.SAMPLE]KF6FF1AE\_030381748.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 17:48:11  
 Sample ID : KF6FF1AE 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	176	33.00	2.677E+00	6.655E+02	6.686E+02	13.08
	276.40	90	6.90	2.869E+00	1.511E+03	1.518E+03	19.62
	302.84	146	17.80	2.872E+00	9.548E+02	9.592E+02	12.44
	356.00	374	62.05*	2.875E+00	6.984E+02	7.016E+02	8.36
	383.85	39	8.70	2.874E+00	5.229E+02	5.253E+02	33.52

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KF6FF1AE

Page : 2  
Acquisition date : 3-MAR-2008 17:48:11

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	382.87	22	15	1.39	1529.45	1525	16	1.21E-02	41.5	2.87E+00	
4	511.83	31	2	1.85	2044.33	2031	20	1.73E-02	30.0	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	2.060E+01	30.43	Abun.
			1274.54*	99.94	---	Not Found	---
		% Abundances	Found =	64.26			
RU-106DA	368.20D	0.07	511.85	20.60	1.850E+02	30.43	Abun.
			621.84*	9.80	---	Not Found	---
		% Abundances	Found =	67.76			
TL-208	1.41E+10Y	0.00	277.35	6.80	1.533E+03	19.62	Abun.
			510.84	21.60	1.682E+02	30.43	
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
		% Abundances	Found =	22.71			

Flag: "\*" = Keyline



Configuration : \$DISK1:[GER13.SAMPLE]KF6FF1AE\_030381748.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 17:48:11  
 Sample ID : KF6FF1AE 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	7.016E+02	5.863E+01	5.675E+01	1.135E+00	12.363

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	1.726E+01	8.285E+01	3.171E+02	6.360E+00	0.054
NA-22	-6.859E-02	4.760E+00	1.888E+01	3.983E-01	-0.004
K-40	-8.753E+01	9.319E+01	4.423E+02	9.446E+00	-0.198
SC-46	-3.673E+00	7.061E+00	2.807E+01	5.862E-01	-0.131
CR-51	-4.749E+01	1.528E+02	5.481E+02	1.097E+01	-0.087
MN-54	-3.347E+00	5.983E+00	2.166E+01	4.436E-01	-0.155
CO-57	-1.232E+02	1.164E+02	3.857E+02	7.950E+00	-0.319
CO-58	-2.052E+01	7.546E+00	2.001E+01	4.092E-01	-1.026
FE-59	-1.384E+00	1.218E+01	4.837E+01	1.009E+00	-0.029
CO-60	5.035E+00	3.488E+00	1.746E+01	3.699E-01	0.288
ZN-65	1.012E+00	1.135E+01	4.485E+01	9.363E-01	0.023
SE-75	4.949E+01	1.882E+01	7.692E+01	1.543E+00	0.643
SR-85	3.410E+01	1.102E+01	4.486E+01	9.012E-01	0.760
Y-88	-1.598E+00	2.659E+00	1.105E+01	2.414E-01	-0.145
NB-94	4.333E+00	5.401E+00	2.261E+01	4.642E-01	0.192
NB-95	8.650E+00	1.005E+01	4.093E+01	8.345E-01	0.211
TC-95M	-2.739E+01	2.300E+01	7.673E+01	1.550E+00	-0.357
ZR-95	1.111E+01	1.314E+01	5.453E+01	1.111E+00	0.204
ZRNB-95	1.341E+01	1.597E+01	6.498E+01	1.325E+00	0.206
RH-101	1.565E+01	1.567E+01	5.843E+01	1.182E+00	0.268
RH-102M	1.334E+00	6.885E+00	2.620E+01	5.254E-01	0.051
RU-103	4.434E-01	1.044E+01	3.955E+01	7.939E-01	0.011
RU-106DA	-1.634E+01	5.521E+01	2.081E+02	4.204E+00	-0.079
AG-108M	-9.071E+00	8.685E+00	2.968E+01	5.943E-01	-0.306
AG-110M	-4.476E+00	8.280E+00	3.065E+01	6.298E-01	-0.146
SN-113DA	3.594E+00	1.211E+01	4.678E+01	9.359E-01	0.077
SB-124	1.103E+01	8.363E+00	3.498E+01	7.060E-01	0.315

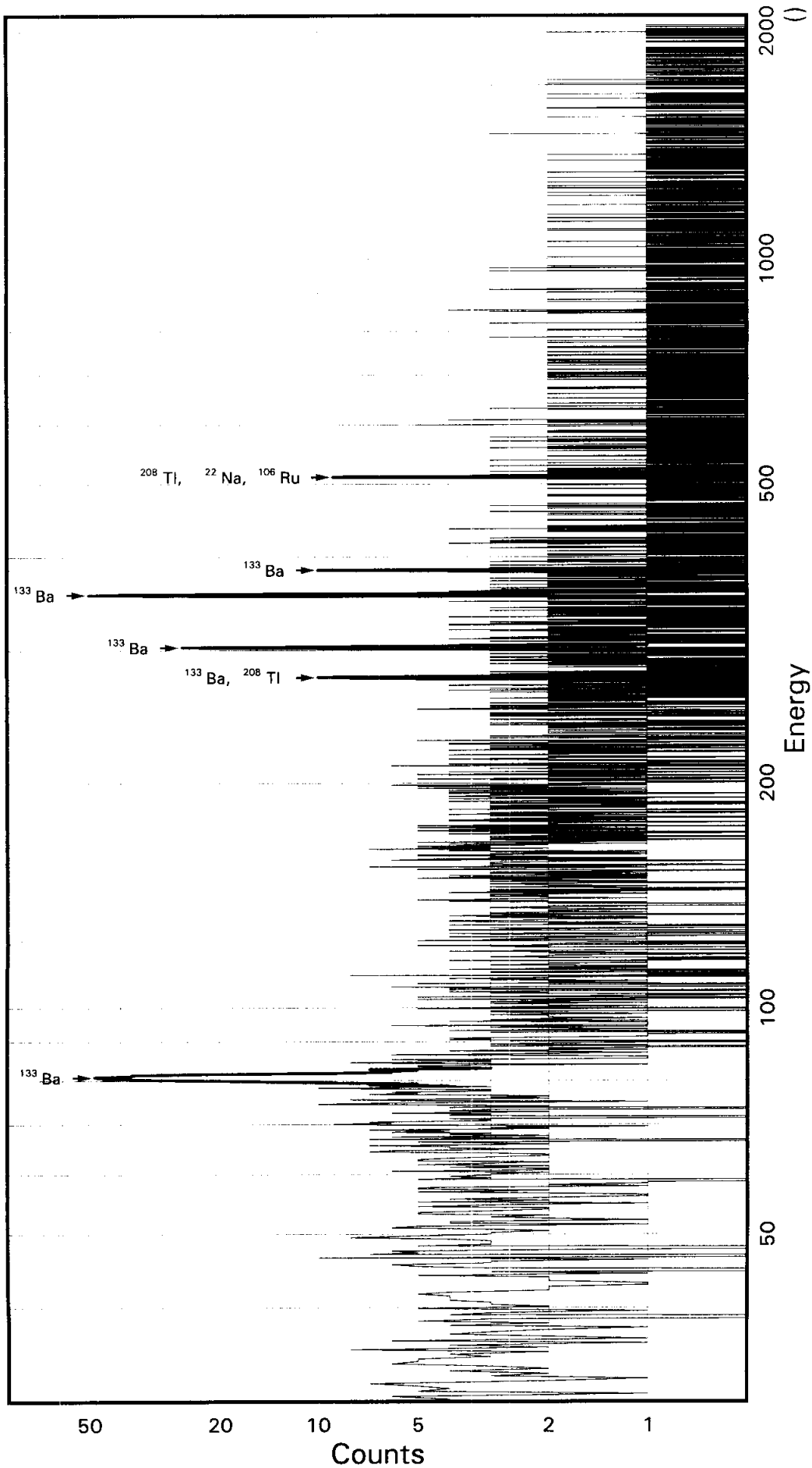
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	-1.059E+01		2.248E+01	8.168E+01	1.635E+00	-0.130
SN-126DA	6.421E+00		5.872E+00	2.429E+01	4.921E-01	0.264
I-131	1.418E+02		7.560E+01	3.152E+02	6.304E+00	0.450
CS-134	6.153E+00		6.473E+00	2.715E+01	5.546E-01	0.227
CS-137DA	1.166E+01		7.310E+00	3.091E+01	6.260E-01	0.377
LA-138	-1.185E+00		6.246E+00	2.496E+01	5.322E-01	-0.047
CE-139	1.524E+01		1.669E+01	6.242E+01	1.273E+00	0.244
BA-140	1.023E+02		1.071E+02	4.314E+02	8.675E+00	0.237
BALA-140	-5.531E+00		2.345E+01	1.014E+02	2.185E+00	-0.055
CE-141	-1.119E+01		4.061E+01	1.400E+02	2.875E+00	-0.080
CE-144	-5.552E+01		1.178E+02	4.040E+02	8.340E+00	-0.137
CEPR-144	-1.073E+02		2.359E+02	8.093E+02	1.671E+01	-0.133
PM-144	-1.294E+01		7.145E+00	2.248E+01	4.541E-01	-0.576
PM-146	-2.422E+01		1.116E+01	3.386E+01	6.786E-01	-0.715
EU-152	-3.576E+01		3.484E+01	1.169E+02	2.338E+00	-0.306
EU-154	2.307E+00		1.355E+01	5.457E+01	1.151E+00	0.042
EU-155	7.591E+00		5.156E+01	1.877E+02	3.942E+00	0.040
HF-181	-6.034E+00		1.012E+01	3.642E+01	7.305E-01	-0.166
BI-207	2.420E-01		5.837E+00	2.257E+01	4.546E-01	0.011
TL-208	8.279E+00		7.518E+00	3.234E+01	6.520E-01	0.256
BI-210M	6.220E+00		1.865E+01	6.952E+01	1.394E+00	0.089
BI-212	1.310E+01		7.226E+01	2.924E+02	8.934E+00	0.045
PB-212	-2.575E+00		2.476E+01	8.814E+01	1.772E+00	-0.029
BI-214	-1.051E+01		1.812E+01	7.082E+01	1.430E+00	-0.148
PB-214	2.029E+01		3.154E+01	1.092E+02	2.185E+00	0.186
RA-223	-4.024E+01		6.383E+01	2.263E+02	4.537E+00	-0.178
RA-224DA	-2.641E+00		2.539E+01	9.038E+01	1.817E+00	-0.029
RA-226DA	-1.041E+01		1.813E+01	7.087E+01	1.431E+00	-0.147
AC-227DA	-8.034E+01		9.988E+01	3.359E+02	6.755E+00	-0.239
AC-228	-4.627E-01		2.480E+01	1.018E+02	2.097E+00	-0.005
RA-228DA	-4.666E-01		2.501E+01	1.027E+02	2.114E+00	-0.005
TH-228DA	2.363E+01		2.146E+01	9.230E+01	1.861E+00	0.256
TH-232DA	-9.637E+01		6.725E+01	2.193E+02	4.387E+00	-0.439
TH-234DA	1.436E+03		6.412E+02	3.190E+03	6.608E+01	0.450
U-234DA	1.050E+02		5.317E+01	2.130E+02	4.266E+00	0.493
U-235HP	-9.476E+01		1.057E+02	3.524E+02	7.241E+00	-0.269
NP-237DA	1.857E+01		2.595E+01	9.749E+01	1.951E+00	0.190
U-238DA	2.029E+01		3.154E+01	1.092E+02	2.185E+00	0.186
U-238DHP	3.837E+02		2.743E+02	1.055E+03	2.327E+01	0.364
AM-241HP	2.180E+01		3.094E+01	1.145E+02	2.544E+00	0.190

TAL Richland WA.  
BA133

Batch ID: 8042387

Sample ID: KF6FJ1AE  
Detector ID: GER10 1



Energy Coefficients:  
Offset: 1.46448E+01  
Slope: 2.47302E-01  
Quadrature: -6.39859E-09

Acquisition Start: 3-MAR-2008 17:48:26.27  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KF6FJ1AE

CONFIGURATION ID: GER10:KF6FJ1AE\_030381748  
TITLE : BA133  
SAMPLE ID : KF6FJ1AE

REPORT DATE: 03-MAR-08  
ACQUIRE DATE: 03-MAR-08 17:48:26  
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/C<sup>2</sup>  
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

VMS Peak Search Report V1.9 Generated 3-MAR-2008 18:18:52

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Configuration      : $DISK1:[GER10.SAMPLE]KF6FJ1AE_030381748.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 17:48:26
Sample ID        : KF6FJ1AE               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.23   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	80.82	297	61	1.53	267.59	259	19	1.65E-01	8.6	
2	0	276.27	52	14	1.27	1057.95	1047	17	2.91E-02	19.7	
3	0	302.76	155	17	1.15	1165.06	1152	26	8.60E-02	10.2	
4	0	356.03	332	17	1.72	1380.50	1369	26	1.84E-01	6.2	
5	0	384.20	46	19	0.93	1494.42	1480	22	2.56E-02	24.9	
6	0	510.81*	4	13	1.50	2006.43	1995	21	1.99E-03	310.8	

Flag: "\*" = Peak area was modified by background subtraction

```

Configuration      : $DISK1:[GER10.SAMPLE]KF6FJ1AE_030381748.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 17:48:26
Sample ID        : KF6FJ1AE               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.23   0.0%
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
    
```

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	297	33.00	2.477E+00	1.210E+03	1.215E+03	10.18
	276.40	52	6.90	2.637E+00	9.597E+02	9.641E+02	20.39
	302.84	155	17.80	2.640E+00	1.099E+03	1.104E+03	11.49
	356.00	332	62.05*	2.642E+00	6.744E+02	6.775E+02	8.22
	383.85	46	8.70	2.641E+00	6.695E+02	6.726E+02	25.49

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KF6FJ1AE

Page : 2  
Acquisition date : 3-MAR-2008 17:48:26

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	510.81	4	13	1.50	2006.43	1995	21	1.99E-03	****	2.63E+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	2.567E+00	310.87	Abun.
			1274.54*	99.94	---	Not Found	---
		% Abundances	Found =	64.26			
RU-106DA	368.20D	0.07	511.85	20.60	2.305E+01	310.87	Abun.
			621.84*	9.80	---	Not Found	---
		% Abundances	Found =	67.76			
TL-208	1.41E+10Y	0.00	277.35	6.80	9.738E+02	20.39	Abun.
			510.84	21.60	2.096E+01	310.87	
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
		% Abundances	Found =	22.71			

Flag: "\*" = Keyline



```

Configuration      : $DISK1:[GER10.SAMPLE]KF6FJ1AE_030381748.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 17:48:26
Sample ID        : KF6FJ1AE               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.23   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	6.775E+02	5.568E+01	5.812E+01	1.162E+00	11.657

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-7.457E+01	6.911E+01	2.369E+02	4.749E+00	-0.315
NA-22	5.471E-02	2.670E+00	1.251E+01	2.625E-01	0.004
K-40	7.753E+01	5.253E+01	2.596E+02	5.504E+00	0.299
SC-46	1.121E+01	5.422E+00	2.691E+01	5.592E-01	0.417
CR-51	-2.873E+01	1.510E+02	5.579E+02	1.116E+01	-0.051
MN-54	-3.894E+00	4.407E+00	1.621E+01	3.311E-01	-0.240
CO-57	-1.601E+02	1.073E+02	3.574E+02	7.344E+00	-0.448
CO-58	-1.390E+00	4.286E+00	1.783E+01	3.638E-01	-0.078
FE-59	-4.275E+00	1.251E+01	4.813E+01	9.990E-01	-0.089
CO-60	1.406E+00	4.424E+00	1.888E+01	3.974E-01	0.074
ZN-65	-2.014E+01	9.484E+00	2.574E+01	5.349E-01	-0.782
SE-75	1.692E+01	1.657E+01	6.446E+01	1.292E+00	0.263
SR-85	2.090E+01	1.309E+01	4.713E+01	9.464E-01	0.443
Y-88	-1.606E+00	2.797E+00	1.190E+01	2.575E-01	-0.135
NB-94	-7.450E+00	4.406E+00	1.389E+01	2.845E-01	-0.536
NB-95	5.141E+00	6.983E+00	3.097E+01	6.301E-01	0.166
TC-95M	3.007E+01	1.969E+01	7.745E+01	1.563E+00	0.388
ZR-95	-3.439E+00	8.218E+00	3.280E+01	6.670E-01	-0.105
ZRNB-95	7.371E+00	1.100E+01	4.858E+01	9.885E-01	0.152
RH-101	2.382E+01	1.532E+01	5.925E+01	1.197E+00	0.402
RH-102M	-3.073E+00	4.798E+00	1.773E+01	3.555E-01	-0.173
RU-103	1.207E+01	9.515E+00	4.133E+01	8.292E-01	0.292
RU-106DA	6.843E+01	4.525E+01	2.160E+02	4.360E+00	0.317
AG-108M	2.765E+00	7.275E+00	2.846E+01	5.698E-01	0.097
AG-110M	-3.561E+00	5.961E+00	2.292E+01	4.697E-01	-0.155
SN-113DA	-5.368E+00	1.394E+01	5.044E+01	1.009E+00	-0.106
SB-124	5.846E+00	8.683E+00	3.517E+01	7.092E-01	0.166

Sample ID : KF6FJ1AE

Acquisition date : 3-MAR-2008 17:48:26

## ---- Non-Identified Nuclides ----

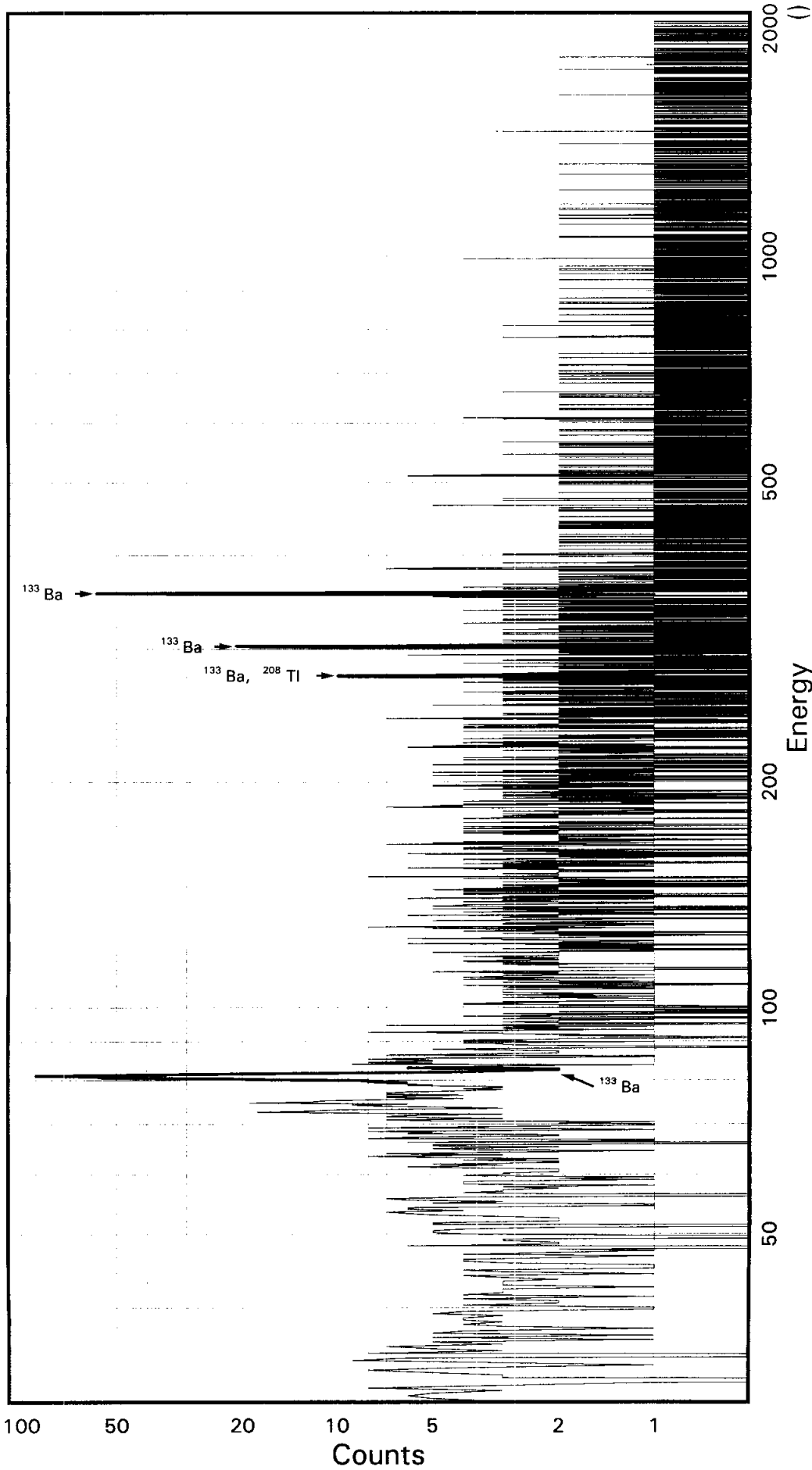
Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	-2.997E+01		1.859E+01	5.917E+01	1.185E+00	-0.507
SN-126DA	-1.345E+00		5.282E+00	2.025E+01	4.096E-01	-0.066
I-131	-1.344E+02		9.081E+01	2.998E+02	5.996E+00	-0.448
CS-134	1.034E+00		4.672E+00	1.993E+01	4.063E-01	0.052
CS-137DA	-7.596E-02		5.628E+00	2.251E+01	4.553E-01	-0.003
LA-138	-4.054E+00		4.035E+00	1.472E+01	3.117E-01	-0.275
CE-139	1.792E+01		1.726E+01	6.476E+01	1.318E+00	0.277
BA-140	1.535E+02		8.747E+01	3.943E+02	7.926E+00	0.389
BALA-140	-2.374E+01		2.784E+01	1.029E+02	2.198E+00	-0.231
CE-141	-6.596E+01		3.837E+01	1.255E+02	2.569E+00	-0.526
CE-144	8.394E+01		1.032E+02	3.929E+02	8.083E+00	0.214
CEPR-144	1.700E+02		2.065E+02	7.867E+02	1.618E+01	0.216
PM-144	1.148E+00		4.414E+00	1.875E+01	3.783E-01	0.061
PM-146	5.707E+00		7.168E+00	3.116E+01	6.242E-01	0.183
EU-152	-2.060E+01		3.258E+01	1.154E+02	2.308E+00	-0.179
EU-154	1.523E-01		7.419E+00	3.477E+01	7.293E-01	0.004
EU-155	1.252E+01		5.427E+01	1.959E+02	4.092E+00	0.064
HF-181	2.714E+01		1.152E+01	5.179E+01	1.039E+00	0.524
BI-207	8.152E+00		6.836E+00	2.847E+01	5.731E-01	0.286
TL-208	-2.751E+00		5.972E+00	2.265E+01	4.562E-01	-0.121
BI-210M	6.738E+00		1.829E+01	6.778E+01	1.359E+00	0.099
BI-212	4.629E+01		7.495E+01	3.168E+02	9.670E+00	0.146
PB-212	2.129E+00		1.993E+01	7.317E+01	1.470E+00	0.029
BI-214	2.257E+01		1.294E+01	5.714E+01	1.153E+00	0.395
PB-214	-3.834E+01		2.890E+01	8.312E+01	1.662E+00	-0.461
RA-223	1.121E+01		6.578E+01	2.316E+02	4.642E+00	0.048
RA-224DA	2.183E+00		2.044E+01	7.502E+01	1.508E+00	0.029
RA-226DA	2.269E+01		1.295E+01	5.721E+01	1.154E+00	0.397
AC-227DA	1.715E+01		7.394E+01	2.757E+02	5.542E+00	0.062
AC-228	3.978E+01		1.784E+01	8.622E+01	1.769E+00	0.461
RA-228DA	4.011E+01		1.799E+01	8.694E+01	1.784E+00	0.461
TH-228DA	-7.853E+00		1.705E+01	6.464E+01	1.302E+00	-0.121
TH-232DA	-4.378E+01		6.626E+01	2.351E+02	4.702E+00	-0.186
TH-234DA	1.477E+01		5.708E+02	2.425E+03	5.003E+01	0.006
U-234DA	6.268E+01		4.685E+01	1.818E+02	3.639E+00	0.345
U-235HP	-1.003E+02		1.046E+02	3.600E+02	7.375E+00	-0.279
NP-237DA	2.185E+01		2.236E+01	8.881E+01	1.777E+00	0.246
U-238DA	-3.834E+01		2.890E+01	8.312E+01	1.662E+00	-0.461
U-238DHP	7.393E+01		3.920E+02	1.396E+03	3.047E+01	0.053
AM-241HP	-2.747E+01		3.765E+01	1.294E+02	2.841E+00	-0.212

TAL Richland WA.

BA133

Batch ID: 8042387

Sample ID: KF6FK1AE  
Detector ID: GER7 1



Energy Coefficients:  
Offset: 6.72111E-01  
Slope: 2.49186E-01  
Quadrature: 1.59922E-07

Acquisition Start: 3-MAR-2008 17:48:47.52  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KF6FK1AE

CONFIGURATION ID: GER7:KF6FK1AE\_030381748  
TITLE : BA133  
SAMPLE ID : KF6FK1AE

REPORT DATE: 03-MAR-08 SAMPLE DATE: 7-FEB-2008 12:00:00.00  
ACQUIRE DATE: 03-MAR-08 17:48:47 CALIB DATE: 3-MAR-2008 05:18:53.96  
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: 6.7211E-01 keV FWHM OFFSET: 5.4343E-01 keV  
ENERGY SLOPE: 2.4919E-01 keV/C FWHM SLOPE: 3.5511E-02 sqr keV  
ENERGY Q COEFF: 1.5992E-07 keV/C<sup>2</sup> 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

VMS Peak Search Report V1.9 Generated 3-MAR-2008 18:19:08

```

Configuration      : $DISK1:[GER7.SAMPLE]KF6FK1AE_030381748.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 17:48:47
Sample ID        : KF6FK1AE               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	72.91*	12	43	0.58	289.84	283	10	6.48E-03	116.3	
2	0	81.07	266	85	0.77	322.57	316	16	1.48E-01	10.0	
3	0	276.78	39	27	1.20	1107.25	1098	19	2.16E-02	36.5	
4	0	302.74	93	9	1.20	1211.26	1205	12	5.17E-02	12.2	
5	0	356.01	291	18	1.08	1424.71	1414	23	1.62E-01	6.9	

Flag: "\*" = Peak area was modified by background subtraction

```

Configuration      : $DISK1:[GER7.SAMPLE]KF6FK1AE_030381748.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 17:48:47
Sample ID         : KF6FK1AE               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	266	33.00	1.909E+00	1.409E+03	1.415E+03	11.35
	276.40	39	6.90	2.061E+00	9.114E+02	9.156E+02	36.90
	302.84	93	17.80	2.064E+00	8.447E+02	8.485E+02	13.34
	356.00	291	62.05*	2.065E+00	7.579E+02	7.614E+02	8.78
	383.85	-----	8.70	2.065E+00	-----	Line Not Found	-----

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KF6FK1AE

Page : 2  
Acquisition date : 3-MAR-2008 17:48:47

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	72.91	12	43	0.58	289.84	283	10	6.48E-03	****	1.89E+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	9.248E+02	36.90	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]KF6FK1AE\_030381748.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 17:48:47  
 Sample ID : KF6FK1AE 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 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	7.614E+02	6.684E+01	6.393E+01	1.279E+00	11.909

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	4.405E+01	8.045E+01	3.418E+02	6.857E+00	0.129
NA-22	1.046E+01	4.309E+00	2.458E+01	5.212E-01	0.426
X-40	-1.663E+01	6.022E+01	3.164E+02	6.798E+00	-0.053
SC-46	-3.945E+00	7.466E+00	2.938E+01	6.161E-01	-0.134
CR-51	7.837E+01	1.545E+02	6.150E+02	1.231E+01	0.127
MN-54	-2.188E+00	5.405E+00	2.103E+01	4.318E-01	-0.104
CO-57	1.098E+02	1.253E+02	4.837E+02	1.000E+01	0.227
CO-58	4.006E+00	6.120E+00	2.791E+01	5.719E-01	0.144
FE-59	-3.129E-01	9.013E+00	4.107E+01	8.599E-01	-0.008
CO-60	1.771E-01	2.526E+00	1.318E+01	2.806E-01	0.013
ZN-65	3.433E+00	6.290E+00	3.322E+01	6.963E-01	0.103
SE-75	6.716E+00	1.886E+01	7.280E+01	1.461E+00	0.092
SR-85	-4.181E+01	1.498E+01	4.294E+01	8.630E-01	-0.974
Y-88	-2.411E+00	5.695E+00	2.268E+01	4.997E-01	-0.106
NB-94	3.115E+00	3.944E+00	1.953E+01	4.020E-01	0.160
NB-95	-3.003E+00	8.258E+00	3.266E+01	6.670E-01	-0.092
TC-95M	4.675E+00	2.143E+01	7.961E+01	1.610E+00	0.059
ZR-95	-1.828E+01	1.345E+01	4.448E+01	9.079E-01	-0.411
ZRNB-95	-4.784E+00	1.316E+01	5.202E+01	1.063E+00	-0.092
RH-101	7.975E+00	1.716E+01	6.366E+01	1.289E+00	0.125
RH-102M	-3.329E+00	6.898E+00	2.599E+01	5.214E-01	-0.128
RU-103	-1.054E-01	1.139E+01	4.504E+01	9.043E-01	-0.002
RU-106DA	1.756E+01	5.087E+01	2.256E+02	4.564E+00	0.078
AG-108M	-2.790E+00	8.648E+00	3.260E+01	6.528E-01	-0.086
AG-110M	-4.639E+00	4.783E+00	1.806E+01	3.722E-01	-0.257
SN-113DA	1.128E+01	1.245E+01	5.329E+01	1.066E+00	0.212
SB-124	5.288E+00	8.709E+00	3.709E+01	7.493E-01	0.143

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	1.904E+01		1.857E+01	8.530E+01	1.708E+00	0.223
SN-126DA	-4.517E+00		5.837E+00	2.155E+01	4.370E-01	-0.210
I-131	3.187E+01		9.574E+01	3.680E+02	7.361E+00	0.087
CS-134	7.000E+00		5.521E+00	2.714E+01	5.556E-01	0.258
CS-137DA	1.016E+01		5.842E+00	2.927E+01	5.936E-01	0.347
LA-138	-8.754E-02		3.732E+00	1.908E+01	4.093E-01	-0.005
CE-139	-1.959E-01		1.779E+01	6.468E+01	1.321E+00	-0.003
BA-140	4.743E+01		8.950E+01	3.830E+02	7.706E+00	0.124
BALA-140	5.761E+01		2.898E+01	1.729E+02	3.749E+00	0.333
CE-141	1.006E+01		4.071E+01	1.529E+02	3.148E+00	0.066
CE-144	4.283E+01		1.178E+02	4.455E+02	9.224E+00	0.096
CEPR-144	8.567E+01		2.357E+02	8.910E+02	1.845E+01	0.096
PM-144	1.581E+00		4.408E+00	2.028E+01	4.101E-01	0.078
PM-146	-9.420E+00		1.050E+01	3.760E+01	7.537E-01	-0.251
EU-152	2.241E+01		3.288E+01	1.305E+02	2.609E+00	0.172
EU-154	2.427E+01		1.287E+01	6.830E+01	1.448E+00	0.355
EU-155	2.891E+01		5.692E+01	2.126E+02	4.485E+00	0.136
HF-181	-2.863E+00		1.063E+01	4.165E+01	8.357E-01	-0.069
BI-207	2.945E+00		5.891E+00	2.501E+01	5.043E-01	0.118
TL-208	2.220E+00		6.738E+00	2.901E+01	5.854E-01	0.077
BI-210M	-2.836E+01		1.812E+01	5.984E+01	1.200E+00	-0.474
BI-212	-8.023E-01		1.001E+02	3.961E+02	1.211E+01	-0.002
PB-212	-2.232E+01		2.467E+01	9.299E+01	1.871E+00	-0.240
BI-214	-1.799E+00		1.618E+01	6.857E+01	1.386E+00	-0.026
PB-214	4.846E+01		2.900E+01	1.147E+02	2.293E+00	0.423
RA-223	-3.390E+01		6.893E+01	2.510E+02	5.034E+00	-0.135
RA-224DA	-2.289E+01		2.530E+01	9.536E+01	1.918E+00	-0.240
RA-226DA	-1.800E+00		1.618E+01	6.857E+01	1.386E+00	-0.026
AC-227DA	-1.958E+01		9.317E+01	3.453E+02	6.949E+00	-0.057
AC-228	-2.428E+01		1.623E+01	6.469E+01	1.336E+00	-0.375
RA-228DA	-2.448E+01		1.637E+01	6.523E+01	1.347E+00	-0.375
TH-228DA	6.336E+00		1.923E+01	8.281E+01	1.671E+00	0.077
TH-232DA	4.179E+01		6.663E+01	2.659E+02	5.318E+00	0.157
TH-234DA	2.562E+02		5.779E+02	2.775E+03	5.768E+01	0.092
U-234DA	5.043E+01		4.745E+01	1.928E+02	3.861E+00	0.262
U-235HP	1.722E+02		1.115E+02	4.482E+02	9.233E+00	0.384
NP-237DA	-8.971E+00		2.300E+01	8.466E+01	1.694E+00	-0.106
U-238DA	4.846E+01		2.900E+01	1.147E+02	2.293E+00	0.423
U-238DHP	-2.375E+02		4.175E+02	1.483E+03	3.302E+01	-0.160
AM-241HP	-2.713E+01		3.815E+01	1.335E+02	2.996E+00	-0.203

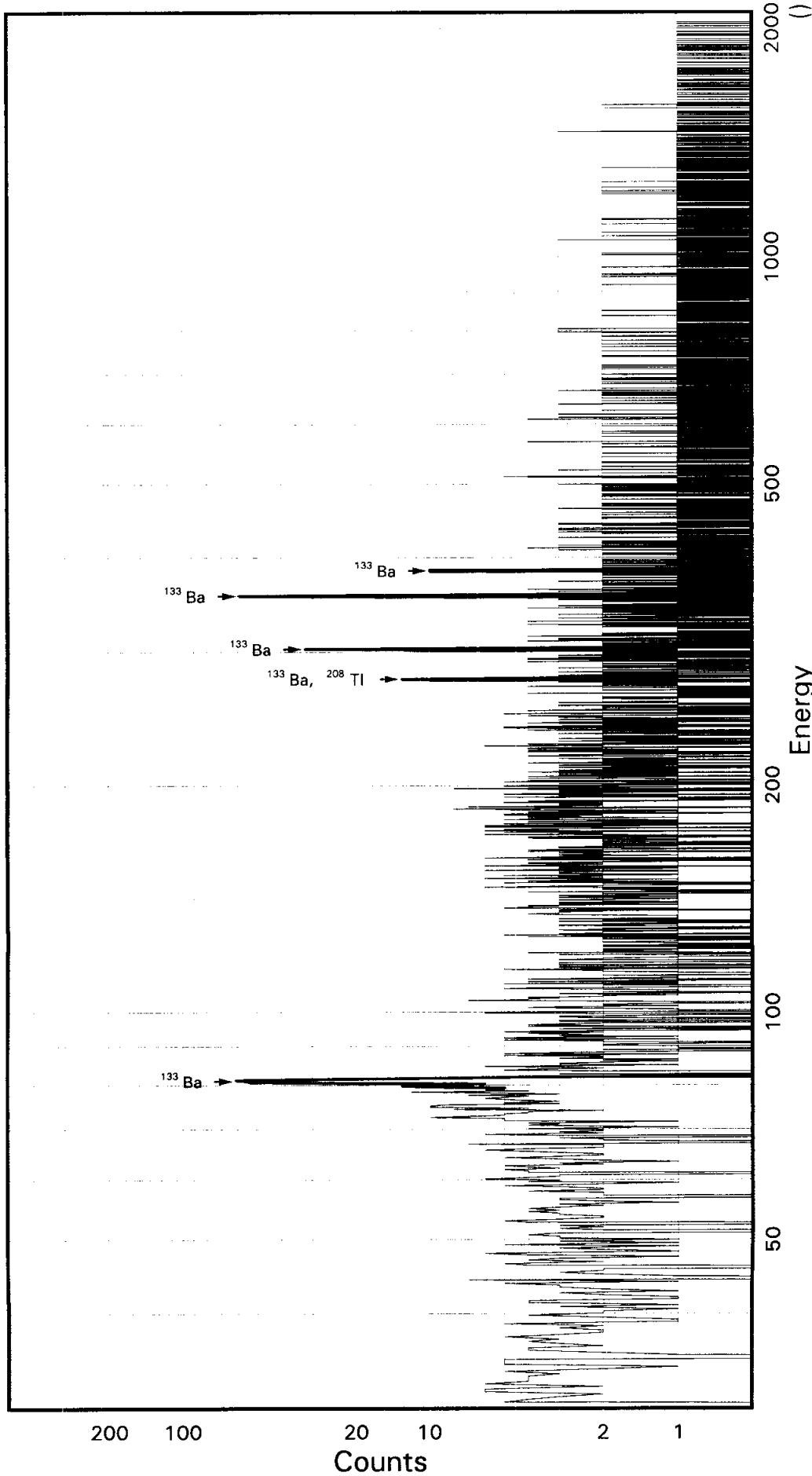
TAL Richland WA.

BA133

Batch ID: 8042387

Sample ID: KF6FL1AE

Detector ID: GER4 1



Energy Coefficients:  
Offset: 1.27597E-02  
Slope: 2.48601E-01  
Quadrature: 2.10830E-08

Acquisition Start: 3-MAR-2008 17:48:58.17  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KF6FL1AE

CONFIGURATION ID: GER4:KF6FL1AE\_030381748  
TITLE : BA133  
SAMPLE ID : KF6FL1AE

REPORT DATE: 03-MAR-08  
ACQUIRE DATE: 03-MAR-08 17:48:58  
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/C<sup>2</sup>  
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

VMS Peak Search Report V1.9 Generated 3-MAR-2008 18:19:24

Configuration : \$DISK1:[GER4.SAMPLE]KF6FL1AE\_030381748.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 17:48:58  
 Sample ID : KF6FL1AE Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.40 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	81.04	238	43	0.87	325.91	318	14	1.32E-01	8.7	
2	0	276.62	43	29	1.24	1112.53	1104	17	2.38E-02	32.9	
3	0	302.82	105	14	0.66	1217.94	1211	14	5.85E-02	12.3	
4	0	355.87	280	9	1.03	1431.25	1424	16	1.56E-01	6.4	
5	0	384.12	49	6	1.50	1544.87	1538	13	2.70E-02	18.0	

Flag: "\*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER4.SAMPLE]KF6FL1AE\_030381748.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 17:48:58  
 Sample ID : KF6FL1AE Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.40 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	238	33.00	2.054E+00	1.168E+03	1.173E+03	10.35
	276.40	43	6.90	2.215E+00	9.327E+02	9.370E+02	33.40
	302.84	105	17.80	2.217E+00	8.897E+02	8.938E+02	13.48
	356.00	280	62.05*	2.220E+00	6.784E+02	6.816E+02	8.37
	383.85	49	8.70	2.219E+00	8.388E+02	8.427E+02	18.75

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KF6FL1AE

Page : 2  
Acquisition date : 3-MAR-2008 17:48:58

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	9.465E+02	33.40	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]KF6FL1AE\_030381748.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 17:48:58  
 Sample ID : KF6FL1AE Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.40 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	6.816E+02	5.704E+01	5.042E+01	1.012E+00	13.517

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	2.171E+01	6.605E+01	2.827E+02	5.671E+00	0.077
NA-22	5.277E-02	3.216E+00	1.504E+01	3.187E-01	0.004
K-40	-8.600E+01	6.862E+01	3.377E+02	7.246E+00	-0.255
SC-46	6.763E+00	6.286E+00	3.074E+01	6.440E-01	0.220
CR-51	-2.764E+02	1.123E+02	3.057E+02	7.096E+00	-0.904
MN-54	3.409E+00	6.485E+00	2.714E+01	5.570E-01	0.126
CO-57	5.018E+00	1.082E+02	3.994E+02	9.574E+00	0.013
CO-58	-5.598E+00	6.475E+00	2.378E+01	4.872E-01	-0.235
FE-59	-1.513E+00	1.143E+01	4.774E+01	9.986E-01	-0.032
CO-60	-3.237E+00	3.235E+00	1.185E+01	2.521E-01	-0.273
ZN-65	-1.021E+01	8.911E+00	3.089E+01	6.469E-01	-0.331
SE-75	5.545E+00	1.409E+01	5.556E+01	1.293E+00	0.100
SR-85	-4.519E+01	1.258E+01	3.105E+01	6.240E-01	-1.455
Y-88	2.288E-02	2.753E+00	1.440E+01	3.167E-01	0.002
NB-94	-6.215E+00	3.814E+00	1.136E+01	2.337E-01	-0.547
NB-95	-6.747E+00	8.149E+00	3.038E+01	6.203E-01	-0.222
TC-95M	3.467E+00	1.846E+01	7.059E+01	1.656E+00	0.049
ZR-95	-4.605E+00	1.125E+01	4.372E+01	8.921E-01	-0.105
ZRNB-95	-1.075E+01	1.298E+01	4.840E+01	9.882E-01	-0.222
RH-101	1.599E+01	1.492E+01	5.885E+01	1.382E+00	0.272
RH-102M	6.567E+00	5.561E+00	2.556E+01	5.127E-01	0.257
RU-103	5.913E+00	1.246E+01	5.013E+01	1.006E+00	0.118
RU-106DA	-1.006E+02	6.681E+01	2.206E+02	4.460E+00	-0.456
AG-108M	-1.312E+01	9.329E+00	3.154E+01	6.317E-01	-0.416
AG-110M	-4.722E+00	7.278E+00	2.742E+01	5.647E-01	-0.172
SN-113DA	-9.683E+00	1.321E+01	4.678E+01	9.359E-01	-0.207
SB-124	-5.225E+00	6.140E+00	2.294E+01	4.633E-01	-0.228

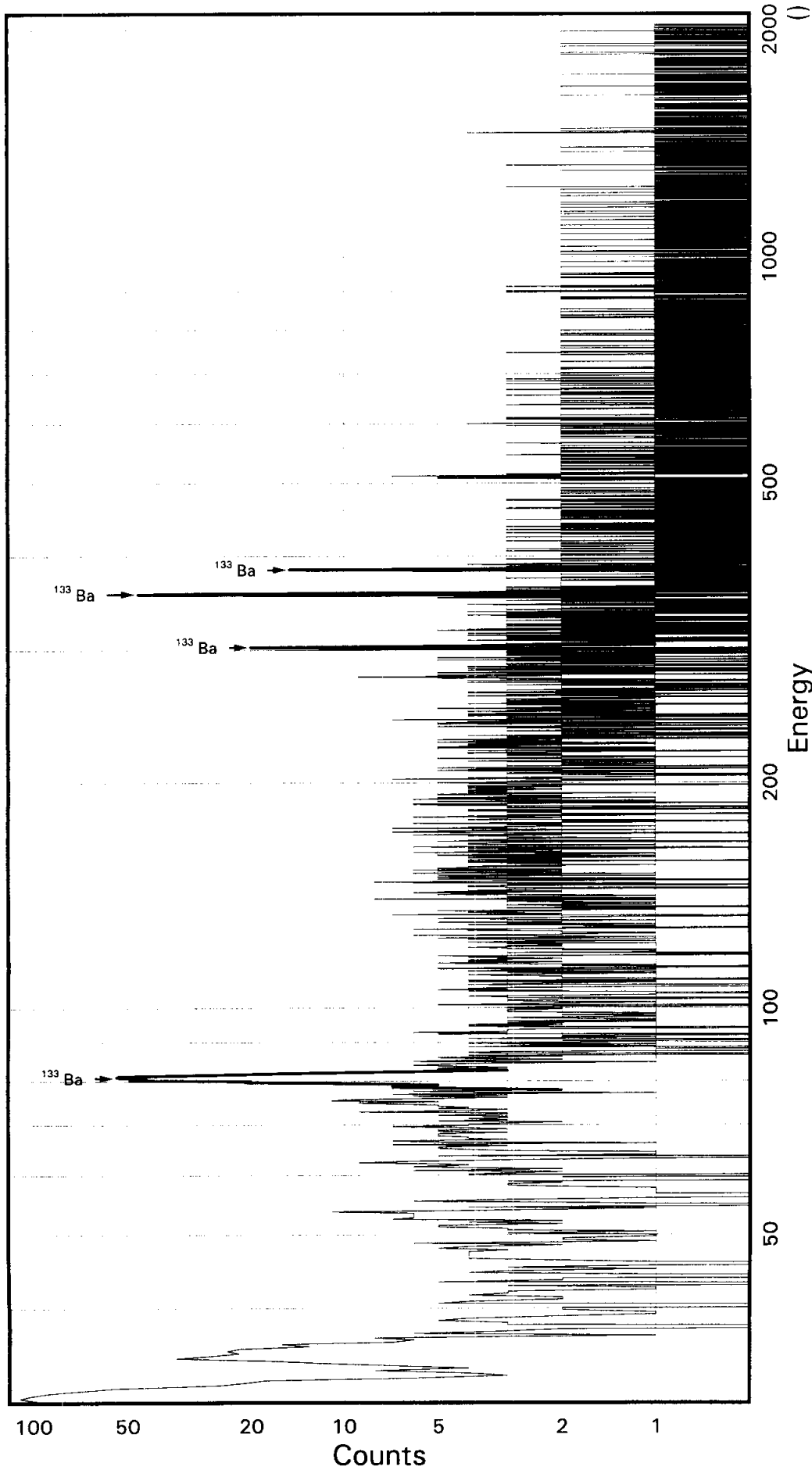
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	-4.717E+01		2.138E+01	6.348E+01	1.271E+00	-0.743
SN-126DA	1.274E+00		5.014E+00	2.123E+01	4.305E-01	0.060
I-131	-1.433E+01		7.201E+01	2.747E+02	5.494E+00	-0.052
CS-134	1.233E+01		7.445E+00	3.406E+01	6.969E-01	0.362
CS-137DA	-1.192E+01		6.552E+00	2.001E+01	4.056E-01	-0.596
LA-138	-5.081E+00		4.960E+00	1.773E+01	3.799E-01	-0.287
CE-139	-3.567E+00		1.334E+01	4.802E+01	1.137E+00	-0.074
BA-140	-8.406E+01		7.929E+01	2.759E+02	5.551E+00	-0.305
BALA-140	-1.357E-02		1.894E+01	9.841E+01	2.131E+00	0.000
CE-141	-2.090E-01		3.132E+01	1.173E+02	2.799E+00	-0.002
CE-144	-1.169E+02		8.896E+01	2.990E+02	7.178E+00	-0.391
CEPR-144	-2.325E+02		1.780E+02	5.988E+02	1.438E+01	-0.388
PM-144	8.383E+00		6.943E+00	3.024E+01	6.113E-01	0.277
PM-146	4.709E+00		9.117E+00	3.841E+01	7.698E-01	0.123
EU-152	1.812E+01		3.157E+01	1.246E+02	2.891E+00	0.145
EU-154	1.470E-01		8.937E+00	4.180E+01	8.855E-01	0.004
EU-155	-7.837E+01		5.148E+01	1.740E+02	4.255E+00	-0.450
HF-181	1.657E+01		8.720E+00	4.360E+01	8.749E-01	0.380
BI-207	8.774E+00		6.318E+00	2.804E+01	5.652E-01	0.313
TL-208	-4.718E+00		7.398E+00	2.996E+01	6.044E-01	-0.157
BI-210M	9.932E+00		1.291E+01	5.384E+01	1.253E+00	0.184
BI-212	-2.741E+01		7.114E+01	2.789E+02	8.526E+00	-0.098
PB-212	-7.194E+00		2.422E+01	9.230E+01	2.154E+00	-0.078
BI-214	6.555E+00		1.520E+01	6.743E+01	1.362E+00	0.097
PB-214	2.431E+01		2.352E+01	9.505E+01	2.205E+00	0.256
RA-223	-1.110E+01		5.546E+01	2.061E+02	4.795E+00	-0.054
RA-224DA	-7.377E+00		2.483E+01	9.464E+01	2.209E+00	-0.078
RA-226DA	6.424E+00		1.518E+01	6.735E+01	1.361E+00	0.095
AC-227DA	-8.913E+01		8.626E+01	2.952E+02	6.890E+00	-0.302
AC-228	-1.696E+01		1.577E+01	6.801E+01	1.403E+00	-0.249
RA-228DA	-1.710E+01		1.591E+01	6.857E+01	1.415E+00	-0.249
TH-228DA	-1.347E+01		2.112E+01	8.551E+01	1.725E+00	-0.157
TH-232DA	-3.525E+01		6.221E+01	2.266E+02	5.258E+00	-0.156
TH-234DA	-1.371E+03		8.148E+02	2.581E+03	5.361E+01	-0.531
U-234DA	1.170E+01		4.833E+01	1.855E+02	4.310E+00	0.063
U-235HP	-4.201E+01		8.308E+01	2.993E+02	7.150E+00	-0.140
NP-237DA	2.175E+01		2.268E+01	9.274E+01	2.153E+00	0.234
U-238DA	2.431E+01		2.352E+01	9.505E+01	2.205E+00	0.256
U-238DHP	-3.395E+02		3.127E+02	1.124E+03	2.899E+01	-0.302
AM-241HP	3.581E+01		3.163E+01	1.256E+02	3.263E+00	0.285

TAL Richland WA.  
BA133

Batch ID: 8042387

Sample ID: KF6FM1AH  
Detector ID: GER14 1



Acquisition Start: 3-MAR-2008 17:49:11.42  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:  
Offset: -6.54434E-01  
Slope: 2.48234E-01  
Quadrature: -9.45127E-10

SAMPLE IDENTIFICATION: KF6FM1AH

CONFIGURATION ID: GER14:KF6FM1AH\_030381749  
TITLE : BA133  
SAMPLE ID : KF6FM1AH

REPORT DATE: 03-MAR-08  
ACQUIRE DATE: 03-MAR-08 17:49:11  
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/C<sup>2</sup>  
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]KF6FM1AH_030381749.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 17:49:11
Sample ID         : KF6FM1AH               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	30.66	613	118	1.42	126.16	119	16	3.41E-01	5.8	
2	0	35.09	175	58	1.31	143.98	137	19	9.70E-02	13.7	
3	0	80.83	333	93	1.50	328.25	316	22	1.85E-01	9.2	
4	0	302.79	81	37	1.62	1222.42	1212	22	4.50E-02	19.6	
5	0	356.16	257	27	1.23	1437.42	1427	22	1.43E-01	7.7	
6	0	383.69	62	9	0.56	1548.31	1537	20	3.46E-02	16.4	

Flag: "\*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER14.SAMPLE]KF6FM1AH\_030381749.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 17:49:11  
 Sample ID : KF6FM1AH 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 Decay Corr		1-Sigma %Error
					DPM/SAMPL	DPM/SAMPL	
BA-133	81.00	333	33.00	1.818E+00	1.850E+03	1.858E+03	10.70
	276.40	-----	6.90	1.945E+00	-----	Line Not Found	-----
	302.84	81	17.80	1.948E+00	7.781E+02	7.817E+02	20.36
	356.00	257	62.05*	1.949E+00	7.074E+02	7.107E+02	9.40
	383.85	62	8.70	1.949E+00	1.223E+03	1.229E+03	17.28

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KF6FM1AH

Page : 2  
Acquisition date : 3-MAR-2008 17:49:11

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	30.66	613	118	1.42	126.16	119	16	3.41E-01	5.8	1.61E+00	
0	35.09	175	58	1.31	143.98	137	19	9.70E-02	13.7	1.64E+00	

Flags: "T" = Tentatively associated

Rejected Report  
Sample ID : KF6FM1AH

Page : 3  
Acquisition date : 3-MAR-2008 17:49:11

Flag: "\*" = Keyline



```

Configuration      : $DISK1:[GER14.SAMPLE]KF6FM1AH_030381749.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 17:49:11
Sample ID        : KF6FM1AH               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	7.107E+02	6.683E+01	7.900E+01	1.580E+00	8.996

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-7.327E+01	1.196E+02	4.295E+02	8.614E+00	-0.171
NA-22	-4.007E+00	5.315E+00	1.974E+01	4.157E-01	-0.203
K-40	8.874E+01	1.041E+02	5.090E+02	1.084E+01	0.174
SC-46	2.120E+00	7.943E+00	3.297E+01	6.874E-01	0.064
CR-51	-1.248E+01	2.494E+02	8.949E+02	1.790E+01	-0.014
MN-54	1.488E+01	7.994E+00	3.625E+01	7.419E-01	0.410
CO-57	-9.443E+01	1.601E+02	5.485E+02	1.129E+01	-0.172
CO-58	-3.618E+00	7.395E+00	2.834E+01	5.791E-01	-0.128
FE-59	-3.986E-02	1.617E+01	6.574E+01	1.369E+00	-0.001
CO-60	1.196E-01	3.588E+00	1.692E+01	3.576E-01	0.007
ZN-65	2.429E-01	1.201E+01	4.977E+01	1.037E+00	0.005
SE-75	2.444E+01	2.465E+01	9.476E+01	1.901E+00	0.258
SR-85	-1.425E+01	1.964E+01	6.737E+01	1.353E+00	-0.212
Y-88	-4.241E+00	4.335E+00	1.624E+01	3.537E-01	-0.261
NB-94	2.725E+00	6.620E+00	2.749E+01	5.639E-01	0.099
NB-95	-6.029E+00	1.227E+01	4.559E+01	9.290E-01	-0.132
TC-95M	-4.116E+01	3.160E+01	1.057E+02	2.135E+00	-0.389
ZR-95	-9.953E+00	1.645E+01	6.085E+01	1.239E+00	-0.164
ZRNB-95	-9.605E+00	1.955E+01	7.264E+01	1.480E+00	-0.132
RH-101	2.884E+00	2.387E+01	8.578E+01	1.734E+00	0.034
RH-102M	5.243E+00	9.232E+00	3.689E+01	7.397E-01	0.142
RU-103	7.371E+00	1.237E+01	5.147E+01	1.033E+00	0.143
RU-106DA	-6.171E+01	5.854E+01	2.093E+02	4.228E+00	-0.295
AG-108M	-1.782E+00	1.218E+01	4.477E+01	8.965E-01	-0.040
AG-110M	1.638E+00	1.153E+01	4.515E+01	9.270E-01	0.036
SN-113DA	-2.612E+01	1.898E+01	6.356E+01	1.272E+00	-0.411
SB-124	-1.668E+01	1.041E+01	3.411E+01	6.882E-01	-0.489

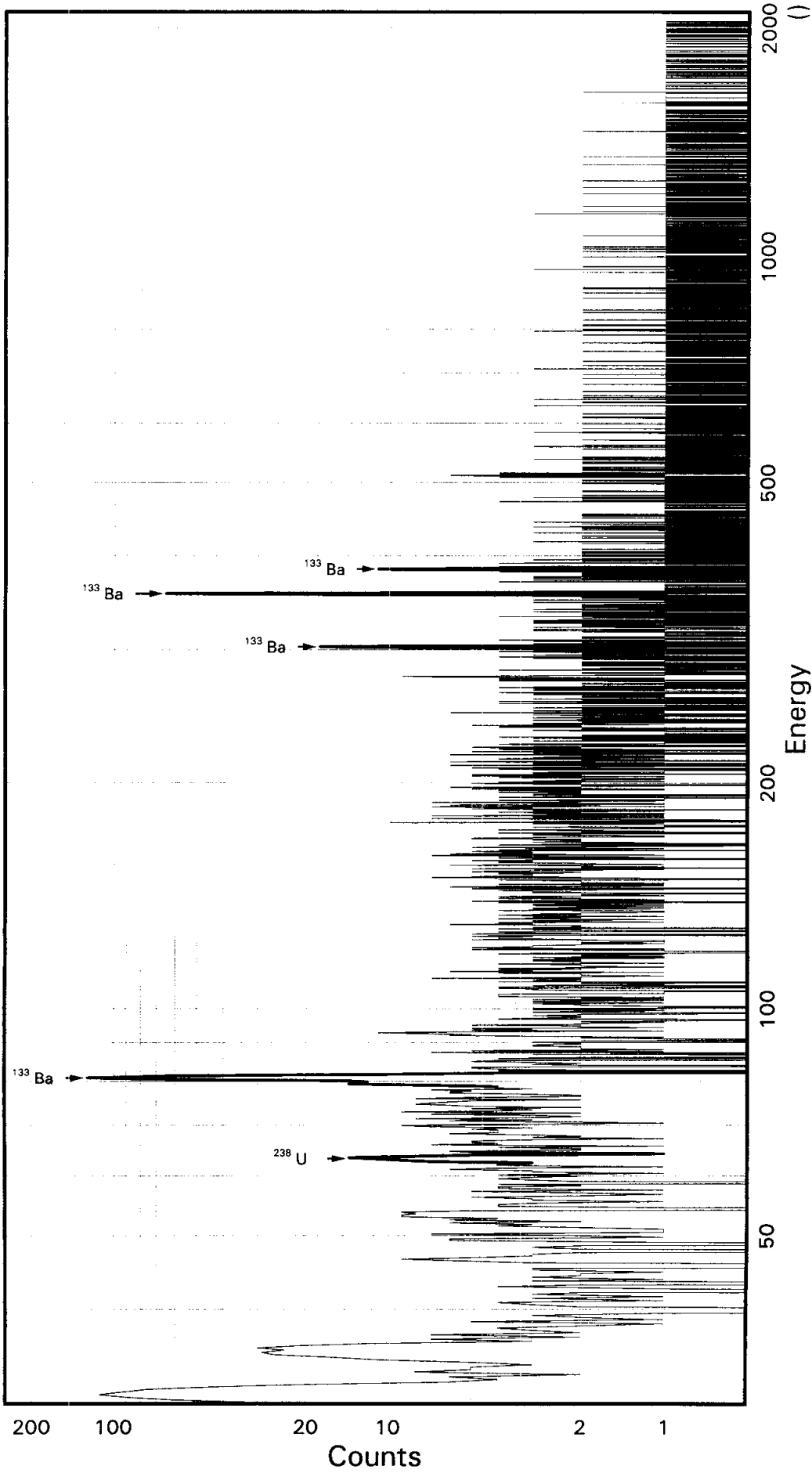
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-125	-1.242E+01		3.124E+01	1.150E+02	2.301E+00	-0.108
SN-126DA	-1.110E+01		7.551E+00	2.499E+01	5.061E-01	-0.444
I-131	6.677E+01		1.054E+02	4.179E+02	8.358E+00	0.160
CS-134	3.998E+00		7.304E+00	3.139E+01	6.409E-01	0.127
CS-137DA	8.594E+00		1.031E+01	4.220E+01	8.543E-01	0.204
LA-138	8.194E-02		5.413E+00	2.530E+01	5.382E-01	0.003
CE-139	-2.026E+00		2.404E+01	8.616E+01	1.755E+00	-0.024
BA-140	1.439E+01		1.429E+02	5.433E+02	1.092E+01	0.026
BALA-140	3.023E+01		2.144E+01	1.403E+02	3.013E+00	0.216
CE-141	-3.009E+01		6.156E+01	2.171E+02	4.454E+00	-0.139
CE-144	1.550E+02		1.620E+02	5.995E+02	1.236E+01	0.259
CEPR-144	3.101E+02		3.239E+02	1.199E+03	2.472E+01	0.259
PM-144	5.845E+00		6.997E+00	3.045E+01	6.149E-01	0.192
PM-146	7.390E+00		1.478E+01	5.785E+01	1.159E+00	0.128
EU-152	-3.170E+01		4.388E+01	1.555E+02	3.110E+00	-0.204
EU-154	-5.848E+00		1.378E+01	5.486E+01	1.155E+00	-0.107
EU-155	-1.235E+01		7.388E+01	2.625E+02	5.503E+00	-0.047
HF-181	2.832E+01		1.454E+01	6.510E+01	1.306E+00	0.435
BI-207	-1.890E+01		8.238E+00	2.312E+01	4.657E-01	-0.818
TL-208	1.548E+01		9.751E+00	4.265E+01	8.597E-01	0.363
BI-210M	-1.743E+01		2.546E+01	8.840E+01	1.773E+00	-0.197
BI-212	1.586E+02		1.060E+02	4.787E+02	1.462E+01	0.331
PB-212	2.731E+01		3.536E+01	1.312E+02	2.637E+00	0.208
BI-214	6.971E+01		2.389E+01	1.079E+02	2.178E+00	0.646
PB-214	1.648E+01		4.235E+01	1.398E+02	2.796E+00	0.118
RA-223	-7.485E+01		8.961E+01	3.083E+02	6.181E+00	-0.243
RA-224DA	2.800E+01		3.626E+01	1.345E+02	2.704E+00	0.208
RA-226DA	6.956E+01		2.388E+01	1.079E+02	2.177E+00	0.645
AC-227DA	-2.278E-01		1.240E+02	4.482E+02	9.012E+00	-0.001
AC-228	5.860E+01		3.145E+01	1.386E+02	2.850E+00	0.423
RA-228DA	5.909E+01		3.171E+01	1.397E+02	2.874E+00	0.423
TH-228DA	4.417E+01		2.783E+01	1.217E+02	2.454E+00	0.363
TH-232DA	-2.532E+01		9.438E+01	3.451E+02	6.902E+00	-0.073
TH-234DA	1.094E+03		6.671E+02	3.565E+03	7.376E+01	0.307
U-234DA	-6.525E-01		7.229E+01	2.593E+02	5.192E+00	-0.003
U-235HP	3.850E+01		1.733E+02	6.127E+02	1.258E+01	0.063
NP-237DA	3.458E+01		3.718E+01	1.408E+02	2.817E+00	0.246
U-238DA	1.648E+01		4.235E+01	1.398E+02	2.796E+00	0.118
U-238DHP	1.817E+02		5.147E+02	1.863E+03	4.095E+01	0.098
AM-241HP	-2.623E+01		4.591E+01	1.612E+02	3.567E+00	-0.163

TAL Richland WA.  
BA133

Batch ID: 8042387

Sample ID: KGXJM1AA  
Detector ID: GER5 1



Acquisition Start: 3-MAR-2008 17:49:53.90  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:  
Offset: -3.45528E-01  
Slope: 2.49358E-01  
Quadrature: 1.90135E-10

SAMPLE IDENTIFICATION: KGXJM1AA

CONFIGURATION ID: GER5:KGXJM1AA\_030381749  
TITLE : BA133  
SAMPLE ID : KGXJM1AA

REPORT DATE: 03-MAR-08  
ACQUIRE DATE: 03-MAR-08 17:49:53  
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/C<sup>2</sup>  
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 18:20:09

Configuration : RDND06\$DKA100:[GER5.SAMPLE]KGXJM1AA\_030381749.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 17:49:53  
 Sample ID : KGXJM1AA Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.23 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	30.89	499	62	1.13	125.28	119	14	2.77E-01	5.6	
2	0	35.34	151	47	1.35	143.12	137	15	8.41E-02	12.9	
3	0	63.29*	18	28	0.81	255.20	250	10	1.00E-02	65.2	
4	0	80.92	445	49	0.81	325.90	317	16	2.47E-01	5.9	
5	0	302.72	89	13	1.29	1215.39	1205	16	4.95E-02	13.7	
6	0	355.94	316	18	1.16	1428.83	1418	19	1.76E-01	6.5	
7	0	383.91	50	10	1.27	1540.99	1535	14	2.78E-02	19.7	

Flag: "\*" = Peak area was modified by background subtraction

Configuration : RDND06\$DKA100:[GER5.SAMPLE]KGXJM1AA\_030381749.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 17:49:53  
 Sample ID : KGXJM1AA Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.23 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	445	33.00	1.919E+00	2.342E+03	2.352E+03	8.02
	276.40	-----	6.90	2.072E+00	-----	Line Not Found	-----
	302.84	89	17.80	2.074E+00	8.043E+02	8.080E+02	14.76
	356.00	316	62.05*	2.076E+00	8.183E+02	8.220E+02	8.45
	383.85	50	8.70	2.076E+00	9.238E+02	9.280E+02	20.38

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KGXJM1AA

Page : 2  
Acquisition date : 3-MAR-2008 17:49:53

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	30.89	499	62	1.13	125.28	119	14	2.77E-01	5.6	1.68E+00	
0	35.34	151	47	1.35	143.12	137	15	8.41E-02	12.9	1.71E+00	
0	63.29	18	28	0.81	255.20	250	10	1.00E-02	65.2	1.87E+00	T

Flags: "T" = Tentatively associated

Rejected Report  
Sample ID : KGXJM1AA

Page : 3  
Acquisition date : 3-MAR-2008 17:49:53

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (DPM/SAMPL)	1-Sigma %Error	Rejected by
U-238DHP	4.47E+09Y	0.00	63.28*	3.80	8.476E+02	65.43	Abun.
			92.59	5.41	---	Not Found	---
% Abundances Found =			41.26				

Flag: "\*" = Keyline



```

Configuration      : RDND06$DKA100:[GER5.SAMPLE]KGXJM1AA_030381749.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 17:49:53
Sample ID        : KGXJM1AA               Sample quantity  : 1.0000 SAMPL
Sample type      :                        Sample geometry  : BA133T15
Elapsed live time: 0 00:30:00.00         Elapsed real time: 0 00:30:00.23   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	8.220E+02	6.947E+01	5.671E+01	1.134E+00	14.495

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	8.206E+01	1.009E+02	4.164E+02	8.353E+00	0.197
NA-22	-9.724E-02	3.519E+00	1.610E+01	3.413E-01	-0.006
NA-24	-7.253E+05	1.379E+06	Half-Life	too short	
K-40	-5.324E+01	5.480E+01	2.814E+02	6.045E+00	-0.189
SC-46	6.237E+00	4.643E+00	2.489E+01	5.220E-01	0.251
CR-51	-1.289E+02	1.771E+02	6.160E+02	1.232E+01	-0.209
MN-54	-3.640E+00	4.337E+00	1.617E+01	3.320E-01	-0.225
CO-57	-1.369E+02	1.332E+02	4.432E+02	9.162E+00	-0.309
CO-58	-2.337E+00	7.702E+00	2.986E+01	6.120E-01	-0.078
FE-59	-1.015E-01	8.698E+00	4.050E+01	8.479E-01	-0.003
CO-60	-3.661E+00	3.561E+00	1.268E+01	2.700E-01	-0.289
ZN-65	-7.002E+00	8.683E+00	3.305E+01	6.926E-01	-0.212
SE-75	-1.058E+01	2.031E+01	7.195E+01	1.444E+00	-0.147
SR-85	-2.533E+01	1.722E+01	5.630E+01	1.131E+00	-0.450
Y-88	-1.588E-01	4.274E+00	1.946E+01	4.287E-01	-0.008
NB-94	3.141E+00	4.735E+00	2.165E+01	4.456E-01	0.145
NB-95	5.406E+00	9.382E+00	4.061E+01	8.296E-01	0.133
TC-95M	2.721E+01	2.554E+01	9.853E+01	1.993E+00	0.276
ZR-95	-7.744E+00	1.101E+01	4.190E+01	8.552E-01	-0.185
ZRNB-95	1.297E+01	1.433E+01	6.474E+01	1.322E+00	0.200
MO-99	3.530E-03	3.676E-03	Half-Life	too short	
RH-101	1.154E+00	1.892E+01	6.888E+01	1.395E+00	0.017
RH-102M	-1.205E+01	8.363E+00	2.752E+01	5.521E-01	-0.438
RU-103	-7.562E+00	1.050E+01	3.838E+01	7.707E-01	-0.197
RU-106DA	5.461E+01	5.139E+01	2.448E+02	4.952E+00	0.223
AG-108M	2.211E-01	8.719E+00	3.365E+01	6.740E-01	0.007
AG-110M	1.457E+01	6.988E+00	3.667E+01	7.555E-01	0.397

---- Non-Identified Nuclides ----

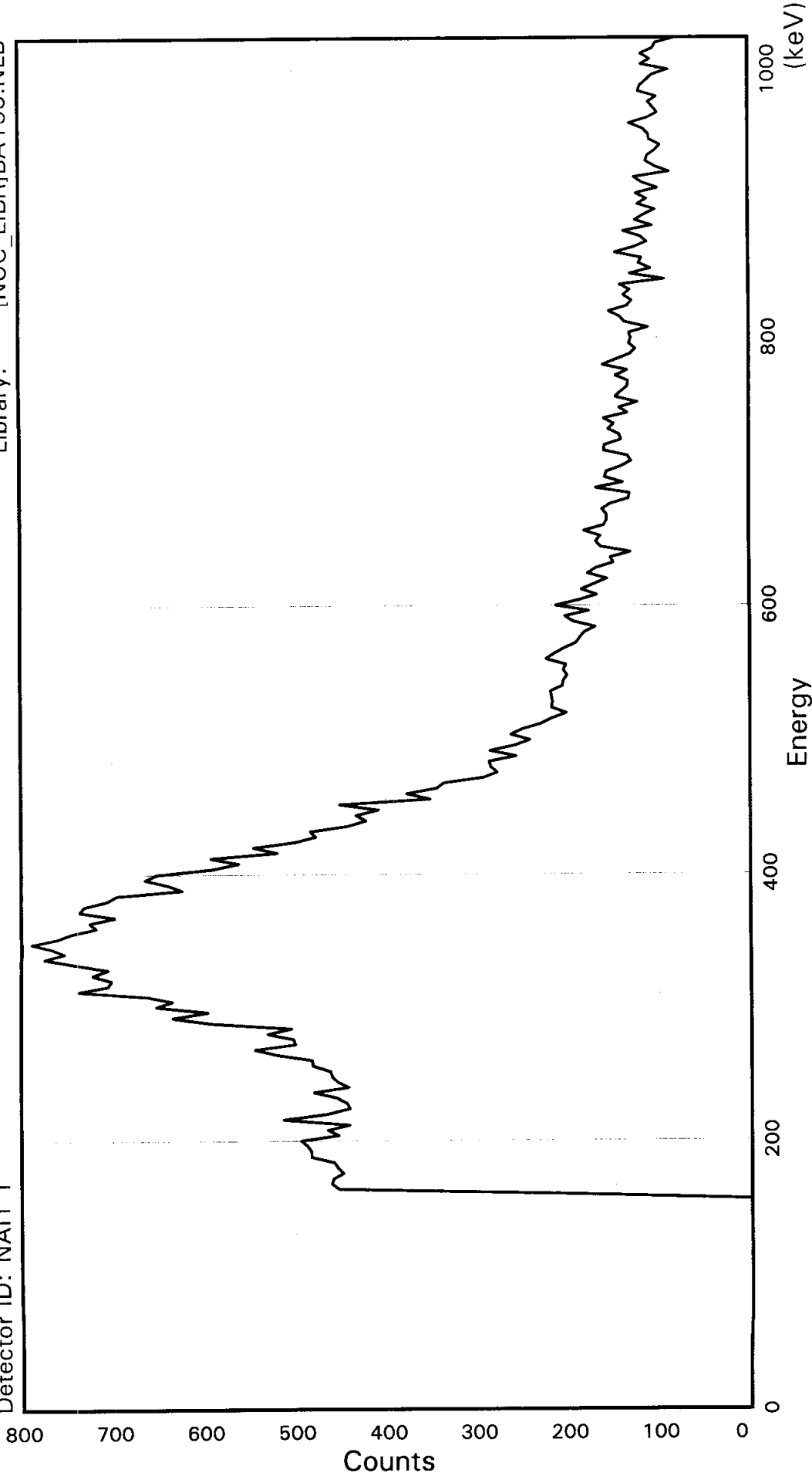
Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SN-113DA	3.059E+01		1.363E+01	6.209E+01	1.242E+00	0.493
SB-124	3.892E+00		6.693E+00	3.024E+01	6.108E-01	0.129
SB-125	-1.174E+01		2.056E+01	7.746E+01	1.551E+00	-0.152
SN-126DA	2.632E-01		5.069E+00	2.134E+01	4.329E-01	0.012
I-131	2.356E+01		6.181E+01	2.630E+02	5.259E+00	0.090
CS-134	5.790E+00		7.665E+00	3.280E+01	6.714E-01	0.177
CS-137DA	1.367E+01		7.390E+00	3.472E+01	7.041E-01	0.394
LA-138	1.742E-01		5.076E+00	2.395E+01	5.137E-01	0.007
CE-139	-2.197E+01		1.841E+01	6.289E+01	1.284E+00	-0.349
BA-140	2.215E+02		1.237E+02	5.406E+02	1.088E+01	0.410
BALA-140	1.450E+01		3.785E+01	1.720E+02	3.729E+00	0.084
LA-140	2.856E-02		7.458E-02	Half-Life too short		
CE-141	4.552E+01		4.538E+01	1.763E+02	3.629E+00	0.258
CE-144	-2.178E+01		1.324E+02	4.672E+02	9.672E+00	-0.047
CEPR-144	-4.356E+01		2.649E+02	9.343E+02	1.934E+01	-0.047
PM-144	7.208E+00		5.383E+00	2.586E+01	5.229E-01	0.279
PM-146	7.176E+00		9.618E+00	4.127E+01	8.271E-01	0.174
EU-152	-3.587E+01		3.066E+01	1.065E+02	2.131E+00	-0.337
EU-154	-2.702E-01		9.778E+00	4.473E+01	9.485E-01	-0.006
EU-155	8.417E+01		5.762E+01	2.288E+02	4.827E+00	0.368
HF-181	-1.222E+01		1.390E+01	4.896E+01	9.824E-01	-0.250
BI-207	8.043E+00		5.593E+00	2.629E+01	5.301E-01	0.306
TL-208	5.821E+00		8.796E+00	3.745E+01	7.555E-01	0.155
BI-210M	2.538E+01		1.966E+01	7.939E+01	1.593E+00	0.320
BI-212	1.100E+02		7.211E+01	3.595E+02	1.099E+01	0.306
PB-212	4.659E+01		2.680E+01	1.132E+02	2.277E+00	0.412
BI-214	1.443E+01		1.282E+01	5.796E+01	1.171E+00	0.249
PB-214	-2.210E+01		2.760E+01	8.616E+01	1.723E+00	-0.256
RA-223	-1.033E+02		7.471E+01	2.457E+02	4.928E+00	-0.421
RA-224DA	4.777E+01		2.748E+01	1.161E+02	2.334E+00	0.412
RA-226DA	1.471E+01		1.286E+01	5.818E+01	1.176E+00	0.253
AC-227DA	9.006E+01		1.018E+02	3.927E+02	7.901E+00	0.229
AC-228	1.221E+00		2.224E+01	9.417E+01	1.944E+00	0.013
RA-228DA	1.231E+00		2.243E+01	9.496E+01	1.960E+00	0.013
TH-228DA	1.662E+01		2.511E+01	1.069E+02	2.156E+00	0.155
TH-232DA	2.432E+01		7.433E+01	2.896E+02	5.792E+00	0.084
TH-234DA	-4.010E+02		5.210E+02	2.069E+03	4.300E+01	-0.194
U-234DA	-4.238E+01		5.842E+01	2.016E+02	4.038E+00	-0.210
U-235HP	-1.005E+02		1.240E+02	4.367E+02	8.996E+00	-0.230
NP-237DA	-9.189E+00		2.471E+01	8.922E+01	1.786E+00	-0.103
U-238DA	-2.210E+01		2.760E+01	8.616E+01	1.723E+00	-0.256
U-238DHP	8.476E+02	+	5.546E+02	2.013E+03	4.482E+01	0.421
AM-241HP	-1.771E+01		4.313E+01	1.417E+02	3.180E+00	-0.125

TAL Richland WA.

BA133

Sample ID: KGXJM1AC  
Detector ID: NAI1 1

BatchID: 8042387  
Library: [NUC\_LIBR]BA133.NLB



Acquisition Start: 3-MAR-2008 17:50:30.47  
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: KGXJM1AC

CONFIGURATION ID: NAI1:KGXJM1AC\_030381750  
TITLE : BA133  
SAMPLE ID : KGXJM1AC

REPORT DATE: 03-MAR-08  
ACQUIRE DATE: 03-MAR-08 17:50:30  
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/C<sup>2</sup>  
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]KGXJM1AC\_030381750.CNF;1  
Analyses by : NAI V3.0  
Sample title : BA133  
Sample date : 21-JAN-2008 12:00:00 Acquisition date : 3-MAR-2008 17:50:30  
Sample ID : KGXJM1AC 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:	5.5	5.4	3.4	4.3	5.8	3.5	4.3	3.8
88:	1.9	0.6	-1.2	-0.6	-1.1	-0.8	1.1	0.6
96:	-0.6	-3.7	-2.8	-1.3	-2.6	-2.0	-3.3	-1.7
104:	-5.8	-4.3	-4.0	-3.2	-3.4	-4.4	-5.0	-4.0
112:	-3.9	-1.4						

List of Suspicious Channels

81	82	83	84	85	86
----	----	----	----	----	----

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	1.07E+01	0.00E+00	1.02E+00
2	6.11E+00	0.00E+00	1.04E+00
3	1.85E+00	0.00E+00	1.06E+00
4	1.13E+00	0.00E+00	1.07E+00

Brief Report

Nuclide	Activity DPM/sampl	1-Sigma Error
BA-133	783.	9.56
-----		
Total Activity :	783.	

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	
RASC4699	RA-226	3.0308E+00 ± 4.664E-02 DPM	0.1443 g	1/21/2008 1/21/2008	Armstron	2.1003E+01 ± 3.225E-01 DPM/G

3.0308E+000 ± 3.031E+000 ( 1)                      3.0308E+000 , 3.0308E+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	± 1.482E+01	DPM/G	
RASC4699	RA-228	1.1167E+01 ± 3.708E-01 DPM	0.0408 g	1/21/2008 1/21/2008	Armstron	2.7370E+02 ± 9.038E+00 DPM/G
		1.1167E+001 ± 1.117E+001 ( 1)	1.1167E+001 , 1.1167E+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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>new source</u></b>		
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>4.4881E+02</u></b>	±	<b><u>1.482E+01</u></b>
12) Total Uncertainty	<u>3.302</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>RA22806A000</u></b>		<b><u>6076</u></b>
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 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
-----					
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
------------------	-----------	----------------	-------	-------------	-----

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
------------------	-----------	----------------	-------	-------------	-----

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
-----				
6-MAR-2008 16:39	count		0.0000	

## Quality Assurance Report.

Generated 26-MAR-2008 15:01:48.28

QA Filename : \$DISK1:[SCINT13.QA]CHK.QAF;1

## -- Multi-Test Full Report --

Description : 10 min check, ascint-13

Parameter Units : counts Parameter Type : Generic

## ---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 16153.000000 Upper Bound : 22813.000000

Investigate Level : 2.000000 Action Level : 3.000000

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

Start Date : 1-MAR-2007 00:00 End Date : 1-JUL-2007 00:00

Mean : 20390.955078 Std Deviation : 693.898804

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:12	count		19136.0000		
12-FEB-2008 06:57	count		19179.0000		
13-FEB-2008 06:14	count		19117.0000		
14-FEB-2008 06:46	count		19136.0000		
18-FEB-2008 08:32	count		19076.0000		
19-FEB-2008 06:21	count		18527.0000	In	
20-FEB-2008 05:53	count		18854.0000	In	
21-FEB-2008 06:14	count		18910.0000	In	
25-FEB-2008 06:19	count		18687.0000	In	
26-FEB-2008 06:13	count		18552.0000	In	
27-FEB-2008 07:19	count		18873.0000	In	
28-FEB-2008 05:28	count		19205.0000		
3-MAR-2008 06:09	count		18417.0000	In	
4-MAR-2008 06:28	count		18554.0000	In	
5-MAR-2008 06:21	count		18462.0000	In	
6-MAR-2008 06:09	count		18658.0000	In	
10-MAR-2008 06:51	count		18797.0000	In	
11-MAR-2008 06:41	count		18726.0000	In	
12-MAR-2008 06:43	count		18779.0000	In	
13-MAR-2008 06:39	count		18511.0000	In	
17-MAR-2008 06:29	count		18856.0000	In	

18-MAR-2008 06:06	count	18930.0000	In
19-MAR-2008 06:39	count	18617.0000	In
20-MAR-2008 06:29	count	19326.0000	
24-MAR-2008 06:15	count	18886.0000	In
25-MAR-2008 06:07	count	18945.0000	In

Quality Assurance Report.                      Generated 26-MAR-2008 15:01:48.64

QA Filename        : \$DISK1:[SCINT13.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description        : 1000 min bkg, ascint-13  
Parameter Units   : counts                      Parameter Type :

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 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 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
------------------	-----------	----------------	-------	-------------	-----

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 14:17:33.96

QA Filename : \$DISK1:[SCINT9.QA]CHK.QAF;1

## -- Multi-Test Full Report --

Description : 10 min check, ascint-9

Parameter Units : counts Parameter Type : Generic

## ---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 380458.000000 Upper Bound : 424024.000000

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 : 402241.093750 Std Deviation : 7261.176758

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:52	count		404826.0000		
12-FEB-2008 07:26	count		411959.0000		
13-FEB-2008 06:52	count		402490.0000		
14-FEB-2008 08:16	count		394933.0000		
18-FEB-2008 09:06	count		413183.0000		
19-FEB-2008 06:46	count		438067.0000	Ab Ac	
19-FEB-2008 07:12	count		431535.0000	Ab Ac	
20-FEB-2008 06:22	count		426542.0000	Ab Ac	
20-FEB-2008 06:38	count		425445.0000	Ab Ac	
21-FEB-2008 07:55	count		422912.0000	In	
25-FEB-2008 06:49	count		423480.0000	In	
26-FEB-2008 06:59	count		412899.0000		
27-FEB-2008 08:00	count		425682.0000	Ab Ac	
27-FEB-2008 09:11	count		419320.0000	In	
28-FEB-2008 06:19	count		423122.0000	In	
3-MAR-2008 06:40	count		421192.0000	In	
4-MAR-2008 06:56	count		423716.0000	In	
5-MAR-2008 06:59	count		414341.0000		
6-MAR-2008 06:57	count		419545.0000	In	
10-MAR-2008 07:20	count		428548.0000	Ab Ac	
10-MAR-2008 08:12	count		433902.0000	Ab Ac	

11-MAR-2008 07:19	count	421668.0000	In
12-MAR-2008 07:09	count	429228.0000	Ab Ac
12-MAR-2008 07:59	count	422424.0000	In
13-MAR-2008 07:16	count	430011.0000	Ab Ac
13-MAR-2008 07:29	count	429797.0000	Ab Ac
17-MAR-2008 07:26	count	422483.0000	In
18-MAR-2008 06:58	count	426008.0000	Ab Ac
18-MAR-2008 07:15	count	421019.0000	In
19-MAR-2008 07:11	count	420269.0000	In
20-MAR-2008 06:56	count	421484.0000	In
24-MAR-2008 06:45	count	422535.0000	In
25-MAR-2008 06:32	count	421408.0000	In

Quality Assurance Report.                      Generated 26-MAR-2008 14:17:34.35

QA Filename     : \$DISK1:[SCINT9.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description     : 1000 min bkg, ascint-9

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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20-FEB-2008 09:03	count		0.0000		
6-MAR-2008 16:38	count		0.0000		

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 14:10:21.08

QA Filename : \$DISK1:[SCINT7.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-7

Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 395176.000000 Upper Bound : 430269.000000

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 : 412722.750000 Std Deviation : 5848.966797

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:12	count		415949.0000		
12-FEB-2008 06:57	count		414995.0000		
13-FEB-2008 06:14	count		415586.0000		
14-FEB-2008 06:45	count		414168.0000		
18-FEB-2008 08:32	count		417533.0000		
19-FEB-2008 06:21	count		415762.0000		
20-FEB-2008 05:52	count		423845.0000		
21-FEB-2008 06:14	count		415313.0000		
25-FEB-2008 06:19	count		409528.0000		
26-FEB-2008 06:13	count		411861.0000		
27-FEB-2008 07:19	count		412878.0000		
28-FEB-2008 05:28	count		414842.0000		
3-MAR-2008 06:09	count		420481.0000		
4-MAR-2008 06:28	count		408866.0000		
5-MAR-2008 06:21	count		412728.0000		
6-MAR-2008 06:09	count		423250.0000		
10-MAR-2008 06:51	count		428553.0000	In	
11-MAR-2008 06:41	count		417826.0000		
12-MAR-2008 06:43	count		413893.0000		
13-MAR-2008 06:39	count		420460.0000		
17-MAR-2008 06:29	count		413212.0000		

18-MAR-2008 06:06	count	412766.0000	
19-MAR-2008 06:39	count	412779.0000	
20-MAR-2008 06:29	count	425178.0000	In
24-MAR-2008 06:15	count	402298.0000	
25-MAR-2008 06:07	count	414514.0000	

Quality Assurance Report.                      Generated 26-MAR-2008 14:10:21.45

QA Filename     : \$DISK1:[SCINT7.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description     : 1000 min bkg, ascint-7

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            : 0.857143                      Std Deviation   : 2.267787

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 14:08:18.97

QA Filename : \$DISK1:[SCINT6.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-6

Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 23463.000000 Upper Bound : 25491.000000

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 : 24477.566406 Std Deviation : 338.038757

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 06:52	count		24680.0000		
12-FEB-2008 07:26	count		24290.0000		
13-FEB-2008 06:52	count		24478.0000		
14-FEB-2008 08:16	count		24281.0000		
18-FEB-2008 09:06	count		24739.0000		
19-FEB-2008 06:46	count		24567.0000		
20-FEB-2008 06:22	count		24772.0000		
21-FEB-2008 06:44	count		24492.0000		
25-FEB-2008 06:49	count		24552.0000		
26-FEB-2008 06:59	count		24281.0000		
27-FEB-2008 07:59	count		24461.0000		
28-FEB-2008 06:19	count		24335.0000		
3-MAR-2008 06:40	count		24682.0000		
4-MAR-2008 06:56	count		24468.0000		
5-MAR-2008 06:59	count		24528.0000		
6-MAR-2008 06:57	count		24090.0000		
10-MAR-2008 07:20	count		24376.0000		
11-MAR-2008 07:19	count		24624.0000		
12-MAR-2008 07:09	count		24634.0000		
13-MAR-2008 07:16	count		24453.0000		
17-MAR-2008 07:25	count		24492.0000		



18-MAR-2008 06:58	count	24562.0000	
19-MAR-2008 07:11	count	24298.0000	
20-MAR-2008 06:56	count	24473.0000	
24-MAR-2008 06:45	count	24648.0000	
25-MAR-2008 06:32	count	24629.0000	

Quality Assurance Report.                      Generated 26-MAR-2008 14:08:19.35

QA Filename     : \$DISK1:[SCINT6.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description     : 1000 min bkg, ascint-6  
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            : 2.000000            Std Deviation   : 1.603567

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
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6-MAR-2008 16:38	count		1.0000	
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Quality Assurance Report.

Generated 26-MAR-2008 14:05:37.91

QA Filename : \$DISK1:[SCINT5.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-5

Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 16529.000000 Upper Bound : 19187.000000

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 : 17858.449219 Std Deviation : 443.435150

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

11-FEB-2008 06:39	count		17802.0000		
12-FEB-2008 07:12	count		18267.0000		
13-FEB-2008 06:37	count		18031.0000		
14-FEB-2008 07:12	count		18175.0000		
18-FEB-2008 08:49	count		17860.0000		
19-FEB-2008 06:34	count		17895.0000		
20-FEB-2008 06:05	count		17977.0000		
21-FEB-2008 06:27	count		18286.0000		
25-FEB-2008 06:31	count		17955.0000		
26-FEB-2008 06:34	count		18176.0000		
27-FEB-2008 07:33	count		18171.0000		
28-FEB-2008 06:07	count		18237.0000		
3-MAR-2008 06:22	count		18071.0000		
4-MAR-2008 06:40	count		18177.0000		
5-MAR-2008 06:36	count		17827.0000		
6-MAR-2008 06:40	count		17706.0000		
10-MAR-2008 07:06	count		17722.0000		
11-MAR-2008 06:54	count		17958.0000		
12-MAR-2008 06:56	count		18384.0000		
13-MAR-2008 07:03	count		18261.0000		
17-MAR-2008 07:01	count		18109.0000		

18-MAR-2008 06:40	count	18149.0000	
19-MAR-2008 06:58	count	17973.0000	
20-MAR-2008 06:42	count	18360.0000	
24-MAR-2008 06:27	count	18103.0000	
25-MAR-2008 06:19	count	18105.0000	

Quality Assurance Report.                      Generated 26-MAR-2008 14:05:38.29

QA Filename     : \$DISK1:[SCINT5.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description     : 1000 min bkg, ascint-5  
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            : 3557.376709            Std Deviation   : 36780.128906

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS Rej
-----				
6-MAR-2008 16:38	count		0.0000	

Quality Assurance Report.

Generated 26-MAR-2008 14:03:29.79

QA Filename : \$DISK1:[SCINT4.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-4

Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 23800.000000 Upper Bound : 25900.000000

Investigate Level : 2.000000 Action Level : 3.000000

---- Trend Test Test Parameters ----

N Mean Samples : 10 M Slope Samples: 10

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

Start Date : 1-JUL-2007 00:00 End Date : 1-JAN-2008 00:00

Mean : 24822.316406 Std Deviation : 338.039825

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:12	count		25461.0000		
11-FEB-2008 07:06	count		25802.0000	[In]	
12-FEB-2008 06:57	count		25424.0000		
12-FEB-2008 07:39	count		25481.0000		
13-FEB-2008 06:14	count		25334.0000		
14-FEB-2008 06:45	count		25380.0000		
14-FEB-2008 08:28	count		25421.0000		
18-FEB-2008 08:32	count		25423.0000		
18-FEB-2008 09:23	count		25370.0000		
19-FEB-2008 06:21	count		24574.0000		
20-FEB-2008 05:52	count		24939.0000		
21-FEB-2008 06:14	count		25060.0000		
25-FEB-2008 06:19	count		24824.0000		
26-FEB-2008 06:13	count		24642.0000		
27-FEB-2008 07:19	count		24548.0000		
28-FEB-2008 05:28	count		24866.0000		
3-MAR-2008 06:09	count		24564.0000		
4-MAR-2008 06:28	count		24308.0000		

5-MAR-2008 06:21	count	24676.0000			
6-MAR-2008 06:09	count	24899.0000			
10-MAR-2008 06:50	count	24583.0000			
11-MAR-2008 06:41	count	24649.0000			
12-MAR-2008 06:42	count	24718.0000			
13-MAR-2008 06:39	count	24524.0000			
17-MAR-2008 06:29	count	24531.0000			
18-MAR-2008 06:06	count	24831.0000			
19-MAR-2008 06:39	count	24747.0000			
20-MAR-2008 06:29	count	24662.0000			
24-MAR-2008 06:15	count	24947.0000			
25-MAR-2008 06:07	count	24822.0000			

Quality Assurance Report. Generated 26-MAR-2008 14:03:30.72

QA Filename : \$DISK1:[SCINT4.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description : 1000 min bkg, ascint-4  
 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 : 4.084337 Std Deviation : 15.499178

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 13:59:41.55

QA Filename : \$DISK1:[SCINT3.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-3

Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 254392.000000 Upper Bound : 270567.000000

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 : 262480.093750 Std Deviation : 2695.693359

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
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11-FEB-2008 06:52	count		256721.0000	In	
12-FEB-2008 07:26	count		257369.0000		
13-FEB-2008 06:52	count		257803.0000		
14-FEB-2008 08:16	count		256607.0000	In	
18-FEB-2008 09:06	count		256133.0000	In	
19-FEB-2008 06:46	count		256680.0000	In	
20-FEB-2008 06:22	count		261761.0000		
21-FEB-2008 06:44	count		260015.0000		
25-FEB-2008 06:49	count		256984.0000	In	
26-FEB-2008 06:59	count		256351.0000	In	
27-FEB-2008 08:00	count		256659.0000	In	
28-FEB-2008 06:19	count		257809.0000		
3-MAR-2008 06:40	count		255932.0000	In	
4-MAR-2008 06:56	count		256207.0000	In	
5-MAR-2008 06:59	count		255094.0000	In	
6-MAR-2008 06:57	count		254613.0000	In	
10-MAR-2008 07:06	count		256581.0000	In	
11-MAR-2008 07:19	count		256952.0000	In	
12-MAR-2008 07:09	count		257608.0000		
13-MAR-2008 07:16	count		258989.0000		
17-MAR-2008 07:25	count		258492.0000		

18-MAR-2008 06:58	count	258594.0000	
19-MAR-2008 07:11	count	256717.0000	In
20-MAR-2008 06:56	count	259465.0000	
24-MAR-2008 06:45	count	257779.0000	
25-MAR-2008 06:32	count	257803.0000	

Quality Assurance Report.                      Generated 26-MAR-2008 13:59:41.93

QA Filename        : \$DISK1:[SCINT3.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description        : 1000 min bkg, ascint-3  
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 13:48:26.51

QA Filename : \$DISK1:[SCINT2.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-2

Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 258046.000000 Upper Bound : 272954.000000

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 : 265500.343750 Std Deviation : 2484.659180

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

11-FEB-2008 06:39	count		261565.0000		
12-FEB-2008 07:12	count		262223.0000		
13-FEB-2008 06:37	count		264036.0000		
14-FEB-2008 07:12	count		260734.0000		
18-FEB-2008 08:49	count		260513.0000	In	
19-FEB-2008 06:34	count		260501.0000	In	
20-FEB-2008 06:05	count		262768.0000		
21-FEB-2008 06:27	count		265538.0000		
25-FEB-2008 06:31	count		261092.0000		
26-FEB-2008 06:34	count		260457.0000	In	
27-FEB-2008 07:33	count		261775.0000		
28-FEB-2008 06:07	count		262532.0000		
3-MAR-2008 06:22	count		259442.0000	In	
4-MAR-2008 06:40	count		262134.0000		
5-MAR-2008 06:36	count		258660.0000	In	
6-MAR-2008 06:39	count		260309.0000	In	
10-MAR-2008 06:50	count		264148.0000		
11-MAR-2008 06:54	count		260553.0000		
12-MAR-2008 06:56	count		262134.0000		
13-MAR-2008 07:03	count		265013.0000		
17-MAR-2008 07:01	count		263087.0000		



18-MAR-2008 06:40	count	263858.0000	
19-MAR-2008 06:58	count	261911.0000	
20-MAR-2008 06:42	count	264970.0000	
24-MAR-2008 06:27	count	262408.0000	
25-MAR-2008 06:19	count	262829.0000	

Quality Assurance Report.                      Generated 26-MAR-2008 13:48:26.88

QA Filename     : \$DISK1:[SCINT2.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description     : 1000 min bkg, ascint-2  
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 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
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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	

THORIUM  
SAMPLE AND QC DATA

Lot No., Due Date: F8A260145; 02/12/2008  
 Client, Site: 1418995; LANDWELL - Tronox Parcel H  
 QC Batch No., Method Test: 8030210; RTHISO Thiso by ALP  
 SDG, Matrix: ; *Water*

1.0 COC

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

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?  Yes  No  N/A

2.2 Are the QC appropriate for the analysis included in the batch?  Yes  No  N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?  Yes  No  N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample?  Yes  No  N/A

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits?  Yes  No  N/A

3.2 Is the LCS result, yield, and MDA within contract limits?  Yes  No  N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits?  Yes  No  N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits?  Yes  No  N/A

3.5 Are the sample yields and MDAs within contract limits?  Yes  No  N/A

4.0 Raw Data

4.1 Were results calculated in the correct units?  Yes  No  N/A

4.2 Were analysis volumes entered correctly?  Yes  No  N/A

4.3 Were Yields entered correctly?  Yes  No  N/A

4.4 Were spectra reviewed/meet contractual requirements?  Yes  No  N/A

4.5 Were raw counts reviewed for anomalies?  Yes  No  N/A

5.0 Other

5.1 Are all nonconformances included and noted?  Yes  No  N/A

5.2 Are all required forms filled out?  Yes  No  N/A

5.3 Was the correct methodology used?  Yes  No  N/A

5.4 Was transcription checked?  Yes  No  N/A

5.5 Were all calculations checked at a minimum frequency?  Yes  No  N/A

5.6 Are worksheet entries complete and correct?  Yes  No  N/A

6.0 Comments on any No response:

First Level Review *John Norton*

Date *2-11-8*

## Data Review Checklist RADIOCHEMISTRY Second Level Review

Batch Number: SB30210

Review Item	Yes (✓)	No (✓)	NA (✓)
<b>A. Sample Analysis</b>			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery 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?	✓		
<b>C. Other</b>			
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: Erika Jord Date: 3/26/18

2/6/2008 3:29:38 PM

1418995, Landwell Company  
Landwell Company

### Sample Preparation/Analysis

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

Balance Id:1120482733

Pipet #:

Analysis Date: 02/06/2008

Sep1 DT/Tm Tech:

Batch: 8030210

PM, Quote: JAE, 78254

Sep2 DT/Tm Tech:

SEO 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)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst Init/Date	Comments:
----------------------------	-----------------	----------------------	--------------------------	-----------------------------	---------------------	----------------	-------------	------------------------------	----------------------	-----------

1 KF6FN-1-AD			200.10g.in	200.10g	THTC12212	200				
F8A260145-19-SAMP					02/04/08,pd					
01/25/2008 15:00				#Containers: 2	11/29/07,r			Alpha: 1.73E-04 uCi/Sa		Beta: 2.62E-05 uCi/Sa

2 KF6FN-1-AG-X			200.20g.in	200.20g	THTC12213					
F8A260145-19-DUP					02/04/08,pd					
01/25/2008 15:00				#Containers: 2	11/29/07,r			Alpha: 1.73E-04 uCi/Sa		Beta: 2.62E-05 uCi/Sa

3 KGAFJ-1-AA-B			200.20g.in	200.20g	THTC12214					
J8A300000-210-BLK					02/04/08,pd					
01/25/2008 15:00				#Containers: 1	11/29/07,r			Alpha:		Beta:

4 KGAFJ-1-AC-C			200.10g.in	200.10g	THS11144					
J8A300000-210-LCS					01/16/08,pd					
01/25/2008 15:00				#Containers: 1	11/29/07,r			Alpha:		Beta:

Comments: KF6FN-SAMP "Comments: ISV for DUP-DL 2/1/08"

*Handwritten:* 8420.0. Out 2/16/08

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

KF6FN1AD-SAMP Constituent List:

KGAFJ1AA-BLK:	RDL:1	pCi/L	LCL:	pCi/L	RDL:1	PCi/L	LCL:	PCi/L	RPD:
Th-228									
Th-232	RDL:1	pCi/L	LCL:	pCi/L	RDL:1	PCi/L	LCL:20	PCi/L	RPD:20

KGAFJ1AC-LCS:

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-Cocktailed Added

ISV - Insufficient Volume for Analysis

WO Cnt: 4  
 Prep SamplePrep v4.8.32

2/6/2008 3:29:39 PM

### Sample Preparation/Analysis

Balance Id:1120482733

9N Thiso PpRc5016, SepRC5084(5003)  
S1 Thorium-228,230,232 by Alpha Spec  
01 STANDARD TEST SET

Pipet #:

AnalytDueDate: 02/06/2008

Sep1 DT/Tm Tech:

Batch: 8030210

pCi/L

Sep2 DT/Tm Tech:

SEO 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	Th-234	RDL:	pCi/L	LCL:20	UCL:115	RPD:20

KF6FN1AD-SAMP Calc Info:

Uncert Level (#s): 4    Decay to SaDt: N    Blk Subt.: N    Sci.Not.: N    ODRs: B  
 KGAFJ1AA-BLK:  
 Uncert Level (#s): 4    Decay to SaDt: N    Blk Subt.: N    Sci.Not.: N    ODRs: B  
 KGAFJ1AC-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: '8030210', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
8030210				
AC	Rev1C	HarrisD	2/6/2008 3:25:16 PM	
SC		wagarr	IsBatched	1/30/2008 12:05:38 PM
SC		HarrisD	InPrep	2/6/2008 3:25:16 PM
SC		HarrisD	Prep1C	2/6/2008 3:29:41 PM
SC		AshworthA	Sep1C	2/7/2008 7:26:53 PM
SC		AshworthA	Sep2C	2/8/2008 1:38:38 PM
SC		ClarkR	InCnt1	2/8/2008 1:42:35 PM
SC		BlackCL	CalcC	2/11/2008 7:01:04 AM
SC		nortonj	Rev1C	2/11/2008 10:57:51 AM
AC		HarrisD	2/6/2008 3:29:41 PM	
AC		AshworthA	2/7/2008 7:26:53 PM	
AC		AshworthA	2/8/2008 1:38:38 PM	
AC		ClarkR	2/8/2008 1:42:35 PM	
AC		BlackCL	2/11/2008 7:01:04	
AC		nortonj	2/11/2008 10:57:51	

AC: Accepting Entry; SC: Status Change

TAL Richland

Richland Wa.

Page 1

Grp Rec Cnt: 7

ICOCFractions v4.8.32

## 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
<b>8030210</b>	<b>9KF6FN10</b>		<b>F8A26014519</b>	RINSATE-1	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM			
TH-228	9NS1	0	2/8/2008 4:46:41 PM	-2.9354E-02	5.176E-02	5.181E-02	3.087E-01	pCi/L	0.824	2.001E-1
TH-230	9NS1	0	2/8/2008 4:46:41 PM	1.4469E-01	8.409E-02	8.484E-02	2.31E-01	pCi/L	0.824	2.001E-1
TH-232	9NS1	0	2/8/2008 4:46:41 PM	0.0E+00	0.0E+00	4.919E-02	2.31E-01	pCi/L	0.824	2.001E-1
<b>8030210</b>	<b>KF6FN1GR</b>		<b>F8A26014519</b>	RINSATE-1 DUP	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM			
TH-228	9NS1	0 R	2/8/2008 4:48:56 PM	-3.5139E-02	6.197E-02	6.203E-02	3.696E-01	pCi/L	0.891	2.002E-1
TH-230	9NS1	0 R	2/8/2008 4:48:56 PM	5.7739E-02	5.888E-02	5.905E-02	2.766E-01	pCi/L	0.891	2.002E-1
TH-232	9NS1	0 R	2/8/2008 4:48:56 PM	0.0E+00	0.0E+00	5.888E-02	2.766E-01	pCi/L	0.891	2.002E-1
<b>8030210</b>	<b>KGAFJ1AB</b>		<b>J8A300000210</b>	INTRA-LAB BLANK	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM			
TH-228	9NS1	0 B	2/8/2008 4:50:37 PM	0.0E+00	0.0E+00	3.705E-02	1.74E-01	pCi/L	0.87	2.002E-1
TH-230	9NS1	0 B	2/8/2008 4:50:37 PM	6.4481E-02	5.116E-02	5.141E-02	1.716E-01	pCi/L	0.87	2.002E-1
TH-232	9NS1	0 B	2/8/2008 4:50:37 PM	-7.1643E-03	3.653E-02	3.654E-02	1.716E-01	pCi/L	0.87	2.002E-1
<b>8030210</b>	<b>KGAFJ1CS</b>		<b>J8A300000210</b>	INTRA-LAB CHECK	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM			
TH-230	9NS1	0 S	2/8/2008 4:51:52 PM	1.1378E+01	6.287E-01	1.089E+00	1.663E-01	pCi/L	1.1288E+01 0.913	2.001E-1

8030210, \*\*Samples Inserted | Updated | NotUpdated => 4 | 0 | 0,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 10 | 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
Thlso by ALP															
Richland Standard Alplso Wo Blk Subt. *CntU: 0+1, + *SystU, *MDCConst:2.71															
Calc	S1	WATER	KF6FN1AD	TH-228	-2.94E-02	(5.18E-02)	U4	pCi/L	R	8.81E-02	3.09E-01		82%		
Calc	S1	WATER	KF6FN1AD	TH-230	1.45E-01	(8.48E-02)		pCi/L	R	5.02E-02	2.31E-01		82%		
Calc	S1	WATER	KF6FN1AD	TH-232	0.00E+00	(4.92E-02)	U4	pCi/L	R	5.02E-02	2.31E-01		82%		
Calc	S1	WATER	KF6FN1AG	TH-228	-3.51E-02	(6.20E-02)	U4	pCi/L	R	1.06E-01	3.70E-01	R	89%		
Calc	S1	WATER	KF6FN1AG	TH-230	5.77E-02	(5.91E-02)	U4	pCi/L	R	6.01E-02	2.77E-01	R	89%		
Calc	S1	WATER	KF6FN1AG	TH-232	0.00E+00	(5.89E-02)	U4	pCi/L	R	6.01E-02	2.77E-01	R	89%		
Calc	S1	WATER	KGAFJ1AA	TH-228	0.00E+00	(3.70E-02)	U4	pCi/L	R	3.78E-02	1.74E-01	B	87%		
Calc	S1	WATER	KGAFJ1AA	TH-230	6.45E-02	(5.14E-02)	U4	pCi/L	R	3.73E-02	1.72E-01	B	87%		
Calc	S1	WATER	KGAFJ1AA	TH-232	-7.16E-03	(3.65E-02)	U4	pCi/L	R	3.73E-02	1.72E-01	B	87%		
Calc	S1	WATER	KGAFJ1AC	TH-228	-1.41E-02	(3.66E-02)	U4	pCi/L	R	5.18E-02	1.99E-01	S	91%		
Calc	S1	WATER	KGAFJ1AC	TH-230	1.14E+01	(1.09E+00)		pCi/L	R	3.61E-02	1.66E-01	S	91%		101%
Calc	S1	WATER	KGAFJ1AC	TH-232	2.78E-02	(3.55E-02)	U4	pCi/L	R	3.61E-02	1.66E-01	S	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

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	KF6FNIAD	1	pCi/L	01/25/08 15:00	02/08/08 16:46	1035.05	1	Alq	200.10	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	02/08/08 15:06	TH-228	0	3	ALP113	COP	N	N	2.8313E-01		N	82%	N	1.0000E+00	4.5045E+02	1.0141E+00		
			200.0833333	1000.1166			Y		(8.494E-03)			4%		(0.000E+00)	0.004998			
1	02/08/08 15:06	TH-230	3	0	ALP113	COP	N	N	2.8313E-01		N	82%	N	1.0000E+00	4.5045E+02	1.0000E+00		
			200.0833333	1000.1166			Y		(8.494E-03)			4%		(0.000E+00)	0.004998			
2	02/08/08 15:06	TH-232	0	0	ALP113	COP	N	N	2.8313E-01		N	82%	N	1.0000E+00	4.5045E+02	1.0000E+00		
			200.0833333	1000.1166			Y		(8.494E-03)			4%		(0.000E+00)	0.004998			
3	02/08/08 14:09	Th-234	7711	681	GPC30A	COP	Y	N	4.5050E-01		N	100%	N	1.0000E+00	4.5045E+02	1.0000E+00		
			20	500			Y		(1.802E-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,EnFct	LCSYld,EFctU	IDC/LcC	BIK-LcC/MDC	StdDvMdc/LcC				
	02/11/08	TH-228	R	-0.029354	U4	-2.99965E-03	-0.012859	-0.012859	0.2001 L	82%	0.308731							
	2.330E+03			(0.051812)		(5.2895E-03)	(0.022688)	(0.022688)	(0.173205)		0.088147							
	02/11/08	TH-230	R	0.144691	U4	1.49938E-02	0.064275	0.064275	0.2001 L	82%	0.231017							
	2.330E+03			(0.084841)		(8.7142E-03)	(0.037551)	(0.037551)	(0.173205)		0.050186							
	02/11/08	TH-232	R	0.00500	U4	0.00000E+00	0.00E00	0.00E00	0.2001 L	82%	0.231017							
	2.330E+03			(0.049186)		(5.0970E-03)	(0.02185)	(0.02185)	(0.173205)		0.050186							
	02/11/08	Th-234	R	1919.766916	U4	3.84188E+02	852.803552	852.803552	0.2001 L	82%								
	2.330E+03			(124.878937)		(4.3909E+00)	(35.477288)	(35.477288)	(0.173205)									
Sq	Calc	Method	Matrix	Protocol	Equation <td>Set</td> <td>Wrk Ord</td> <td>Units/Matrix</td> <td>QC/BB</td> <td>Sa/On Date</td> <td>AnalysisDate/PptWt</td> <td>Sep1/Sep2 Date</td> <td>QC/Tracer</td> <td>Vial</td> <td>Mult/EntYld</td> <td>Total/Analy Vol</td> <td>Final/Count Vol</td>	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	1418995	S1	WATER	*STLE	AlpIsoWoBS	KF6FNIAG	1	pCi/L	01/25/08 15:00	02/08/08 16:46	1038.02	1	Alq	200.20	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	02/08/08 15:08	TH-228	0	3	ALP116	COP	N	N	2.1858E-01		N	89%	N	1.0000E+00	4.5045E+02	1.0141E+00		
			200.0666666	1000.0833			Y		(6.557E-03)			5%		(0.000E+00)	0.004998			
1	02/08/08 15:08	TH-230	1	0	ALP116	COP	N	N	2.1858E-01		N	89%	N	1.0000E+00	4.5045E+02	1.0000E+00		
			200.0666666	1000.0833			Y		(6.557E-03)			5%		(0.000E+00)	0.004998			
2	02/08/08 15:08	TH-232	0	0	ALP116	COP	N	N	2.1858E-01		N	89%	N	1.0000E+00	4.5045E+02	1.0000E+00		
			200.0666666	1000.0833			Y		(6.557E-03)			5%		(0.000E+00)	0.004998			
3	02/08/08 14:09	Th-234	8128	760	GPC30B	COP	Y	N	4.3771E-01		N	100%	N	1.0000E+00	4.5045E+02	1.0000E+00		
			20	500			Y		(1.751E-02)					(0.000E+00)	0.004998			

( ) - (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: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	Trc Yld,EnFct	LCSYld,EFctU	IDC/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
02/11/08	TH-228	R	-0.035139	U4	-2.99975E-03	-0.015401	-0.015401	0.2002 L	89%	0.369589				
2.336E+03			(0.062025)		(5.2899E-03)	(0.027174)	(0.027174)	(0.173205)		0.105521				
02/11/08	TH-230	R	0.057739	U4	4.99833E-03	0.025662	0.025662	0.2002 L	89%	0.276556				
2.336E+03			(0.059053)		(5.0974E-03)	(0.026214)	(0.026214)	(0.173205)		0.060078				
02/11/08	TH-232	R	0.00E00	U4	0.00000E+00	0.00E00	0.00E00	0.2002 L	89%	0.276556				
2.336E+03			(0.058883)		(5.0974E-03)	(0.02617)	(0.02617)	(0.173205)		0.060078				
02/11/08	Th-234	R	2081.236249		4.04880E+02	924.993889	924.993889	0.2002 L	89%					
2.336E+03			(135.275938)		(4.5081E+00)	(38.406472)	(38.406472)	(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	KGAFJIAA	pci/L	B	01/25/08 15:00	02/08/08 16:50	1043.10	Alq	1	200.20 g	
0	INTR	LAB	BLANK												

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	02/08/08 15:10	TH-228	0	0	ALP117	COP	N	N	3.6088E-01		N	87%	N	1.0000E+00	4.5045E+02	1.0141E+00	
			200.03333333	1000.2			Y		(1.083E-02)			4%		(0.000E+00)	0.004995		
1	02/08/08 15:10	TH-230	2	1	ALP117	COP	N	N	3.6088E-01		N	87%	N	1.0000E+00	4.5045E+02	1.0000E+00	
			200.03333333	1000.2			Y		(1.083E-02)			4%		(0.000E+00)	0.004995		
2	02/08/08 15:10	TH-232	0	1	ALP117	COP	N	N	3.6088E-01		N	87%	N	1.0000E+00	4.5045E+02	1.0000E+00	
			200.03333333	1000.2			Y		(1.083E-02)			4%		(0.000E+00)	0.004995		
3	02/08/08 14:09	Th-234	7993	701	GPC30C	COP	Y	N	4.3880E-01		N	100%	N	1.0000E+00	4.5045E+02	1.0000E+00	
			20	500			Y		(1.755E-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	Trc Yld,EnFct	LCSYld,EFctU	IDC/ILcC	BIK/LcC/MDC	StdDvMdc/LcC
02/11/08	TH-228	R	0.00E00	U4	0.00000E+00	0.00E00	0.00E00	0.2002 L	87%	0.173985				
2.347E+03			(0.037046)		(5.0982E-03)	(0.016236)	(0.016236)	(0.173205)		0.037793				
02/11/08	TH-230	R	0.064481	U4	8.99853E-03	0.028658	0.028658	0.2002 L	87%	0.171572				
2.347E+03			(0.051409)		(7.1402E-03)	(0.022803)	(0.022803)	(0.173205)		0.037269				
02/11/08	TH-232	R	-0.007164	U4	-9.99800E-04	-0.003184	-0.003184	0.2002 L	87%	0.171572				
2.347E+03			(0.036536)		(5.0982E-03)	(0.016237)	(0.016237)	(0.173205)		0.037269				
02/11/08	Th-234	R	2042.064722		3.98248E+02	907.584321	907.584321	0.2002 L	87%					
2.347E+03			(132.76182)		(4.4705E+00)	(37.705837)	(37.705837)	(0.173205)						

4 Calc S1 WATER \*STLE AlpIsoWoBS KGAFJIAA pci/L S 01/25/08 15:00 02/08/08 16:51 5.0144 1 1  
 0,INTR-LAB CHECK ,JBA300000-210 WATER 609.01 Alq 200.10 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 02/08/08 15:11 TH-228 0 2 ALP118 COP N N 3.5511E-01 (1.065E-02) N 91% N 1.0000E+00 4.5045E+02 1.0141E+00  
 200.1 1000.0833 Y (1.065E-02) 5% (0.000E+00) 0.004998

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 hr:mm, 24hr Time

RecCnt:4 RADCALC v4.8.29  
 TA Richland

Alpha Spec, Thlso by ALP , Calculated Results

2/11/2008 6:59:14 AM

Batch Nbr: 8030210

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	02/08/08 15:11	TH-230	328	1	1000.0833	ALP118 COP	N	3.5511E-01	N	91%	N	1.0000E+00	4.5045E+02	1.0000E+00
			200.1				Y	(1.065E-02)		5%		(0.000E+00)	0.004998	
2	02/08/08 15:11	TH-232	1	1	1000.0833	ALP118 COP	N	3.5511E-01	N	91%	N	1.0000E+00	4.5045E+02	1.0000E+00
			200.1				Y	(1.065E-02)		5%		(0.000E+00)	0.004998	
3	02/08/08 14:09	Th-234	4920	597		GPC30D COP	Y	4.4042E-01	N	100%	N	1.0000E+00	4.5045E+02	1.0000E+00
			20	500			Y	(1.762E-02)				(0.000E+00)	0.004998	
	02/11/08	TH-228	R	-0.014085	U4	-1.99983E-03	-0.00617	-0.00617	0.2001 L	91%		0.198923		
	1.371E+03			(0.036597)		(5.1937E-03)	(0.016029)	(0.016029)	(0.173205)			0.051799		
	02/11/08	TH-230	R	11.377935		1.63818E+00	5.054332	5.054332	0.2001 L	91%	101%	0.16626		
	1.371E+03			(1.088893)		(9.0514E-02)	(0.412421)	(0.412421)	(0.173205)			0.036119		
	02/11/08	TH-232	R	0.027765	U4	3.99758E-03	0.012334	0.012334	0.2001 L	91%		0.16626		
	1.371E+03			(0.035464)		(5.0966E-03)	(0.015742)	(0.015742)	(0.173205)			0.036119		
	02/11/08	Th-234	R	1251.280072		2.44806E+02	555.846692	555.846692	0.2001 L	91%				
	1.371E+03			(82.10942)		(3.5075E+00)	(23.617136)	(23.617136)	(0.173205)					

( ) - (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 hhr:mm, 24hr Time

RecCnt: 4

RADCALC v4.8.29  
 TA Richland

Page 3

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>
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>
08-FEB-2008 09:10:23.00	12534	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>
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 14:09:58.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6FN1AD	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 14:09:58.00	7711	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	668	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 14:09:58.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KF6FN1AG	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 14:09:58.00	8128	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	668	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 14:09:58.00

LBPRINT - Rev#: 2.5

<b>Sample ID</b>	<b>Isotope</b>	<b>Geometry</b>
KGAFJ1AA	COP	COP

<b>Sample Count Date/Time</b>	<b>Beta Counts</b>	<b>Count Duration*</b>	<b>Beta Bkg Counts</b>	<b>Bkg Count Duration*</b>	<b>Instr ID</b>
08-FEB-2008 14:09:58.00	7993	20.00	701	500.00	30C

<b>Alpha Counts</b>	<b>Alpha Bkg Counts</b>	<b>Guard Counts</b>	<b>HV</b>	<b>Bkg Count Date/Time</b>
2	21	668	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 14:09:58.00

LBPRINT - Rev#: 2.5

<u>Sample ID</u>	<u>Isotope</u>	<u>Geometry</u>
KGAFJ1AC	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 14:09:58.00	4920	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>
5	11	668	1492	08-FEB-2008 04:59:56.00

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

\* Count Durations in Minutes.

2/6/08 1831

# THORIUM ISOTOPIC COUNTING REQUEST

C.R. Technician pc  
Date Counted 2/6/08

Counting Time 200 Minutes  
Sample 200

SOP's  
Operating: RICHRD008

C.R. Analyst CB  
Date Analyzed 07/08

Background See Alpha Analysis Report  
Review: RICHRD0016

Review: 07/25/08  
LAN 8030210

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)		
KF6FN1AD	10		0		See Alpha Analysis Report for ROI Information			113	
KF6FN1AG	10		0		See Alpha Analysis Report for ROI Information			116	
KGAFJ1AA	10		0		See Alpha Analysis Report for ROI Information			117	
KGAFJ1AC	10		0		See Alpha Analysis Report for ROI Information			118	
	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: KF6FN1AD

Detector: ALP113 1  
Report Date: 09-Feb-08 06:48 AM  
Acquire Date: 8-FEB-2008 15:06:38.81  
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	0	3	-0.003	5423.2	152.1	333	353
TH-230	3	0	0.015	4687.7	152.5	236	256
TH-232	0	0	0.000	4013.0	152.8	148	168

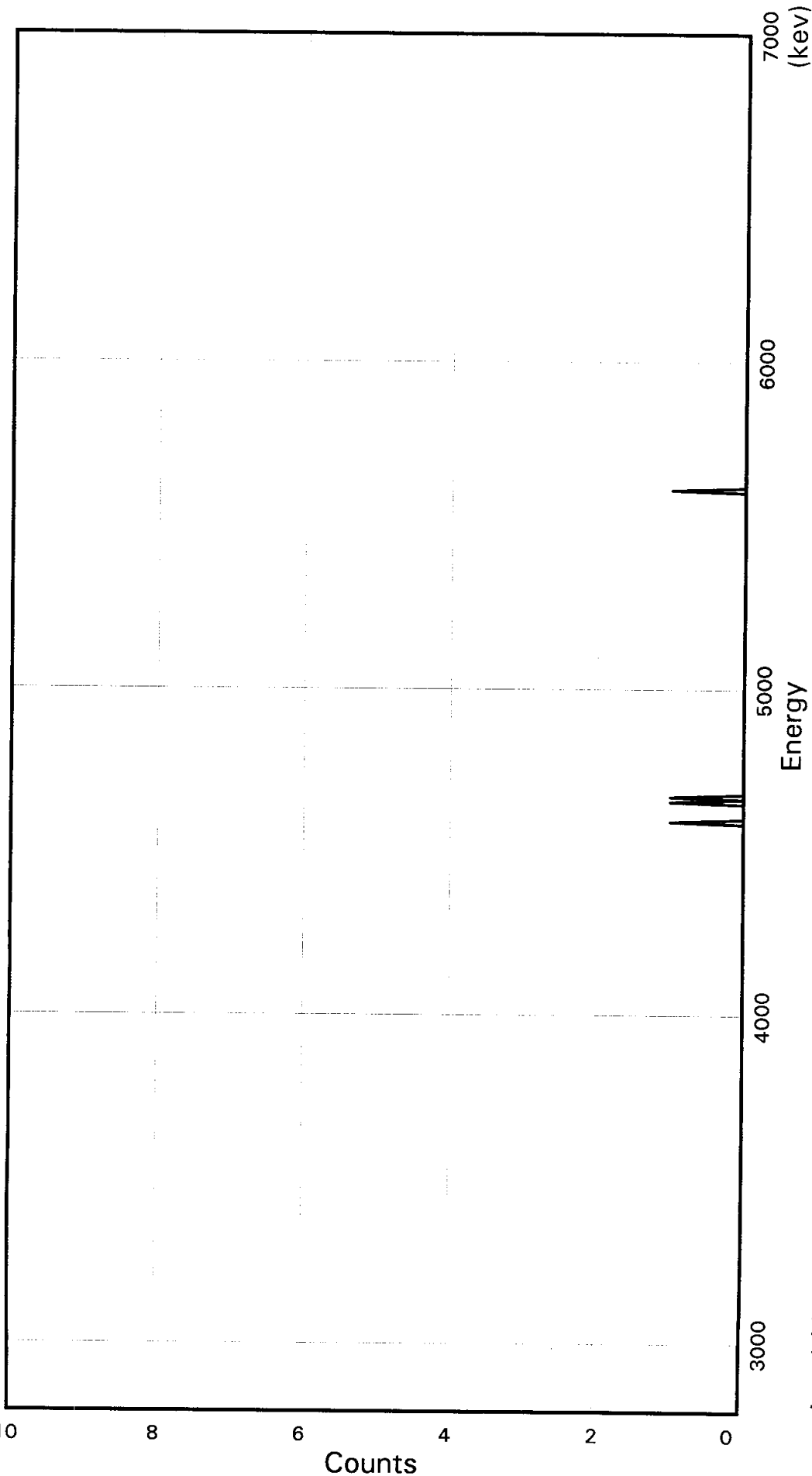
End of Alpha Region Report  
(Produced by ANAL Report)



TAL Richland WA.  
TH LAN

Batch ID: 8030210

Sample ID: KF6FN1AD  
Detector ID: ALP113 1



Acquisition Start: 8-FEB-2008 15:06:38.81  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:05.00

Energy Coefficients:  
Offset: 2.76838E + 03  
Slope: 7.67306E + 00  
Quadrature: -1.00209E-04

SAMPLE IDENTIITY: KF6FN1AD

TITLE : TH LAN

DETECTOR : ALP113 1  
CONFIGURATION NAME : RDND06\$DKA100:[ALP113.SAMPLE]KF6FN1AD\_080281  
506.CNF;1  
ACQUIRE DATE of BACKGROUND: 09-JAN-2008 06:26:36

REPORT DATE : 08-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 08-FEB-2008 15:06:38 CALIB DATE : 09-JAN-2008 01:33:32

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

OFFSET : 2768.38 keV CONSTANT FWHM : 5.50000 Channels  
SLOPE : 7.67306 keV/C SENSITIVITY : 6.00000 Std Dev's  
QUAD COEFF : -.100209E-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: KP6FN1AD

Flags Key

Detector: ALP113 1

Report Date: 08 Feb-08 06:26 PM

Intersect Region: \*

Acquire Date: 8 FEB 2008 15:06:38.81

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	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	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	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	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	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	1		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	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	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	1		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	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	1		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	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 0 500



VMS Peak Search Report V1.9 Generated 8-FEB-2008 18:26:48

Configuration : RDND06\$DKA100:[ALP113.SAMPLE]KF6FN1AD\_080281506.CNF;1  
Analyses by : ALPHA V1.8  
Sample title : TH LAN  
Sample date : 25-JAN-2008 12:00:00 Acquisition date : 8-FEB-2008 15:06:38  
Sample ID : KF6FN1AD Sample quantity : 0.00000E+00 PCI  
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 : 2791.40 kev End energy : 6670.72 kev  
Sensitivity : 6.00 Sum Sensitivity : 0.10  
No peaks were found

Error Report (Date: 08-Feb-08 06:26 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: KF6FN1AG

Detector: ALP116 1

Report Date: 09-Feb-08 06:48 AM

Acquire Date: 8-FEB-2008 15:08:53.59

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	150.7	325	345
TH-230	1	0	0.005	4687.7	151.0	228	248
TH-232	0	0	0.000	4013.0	151.3	138	158

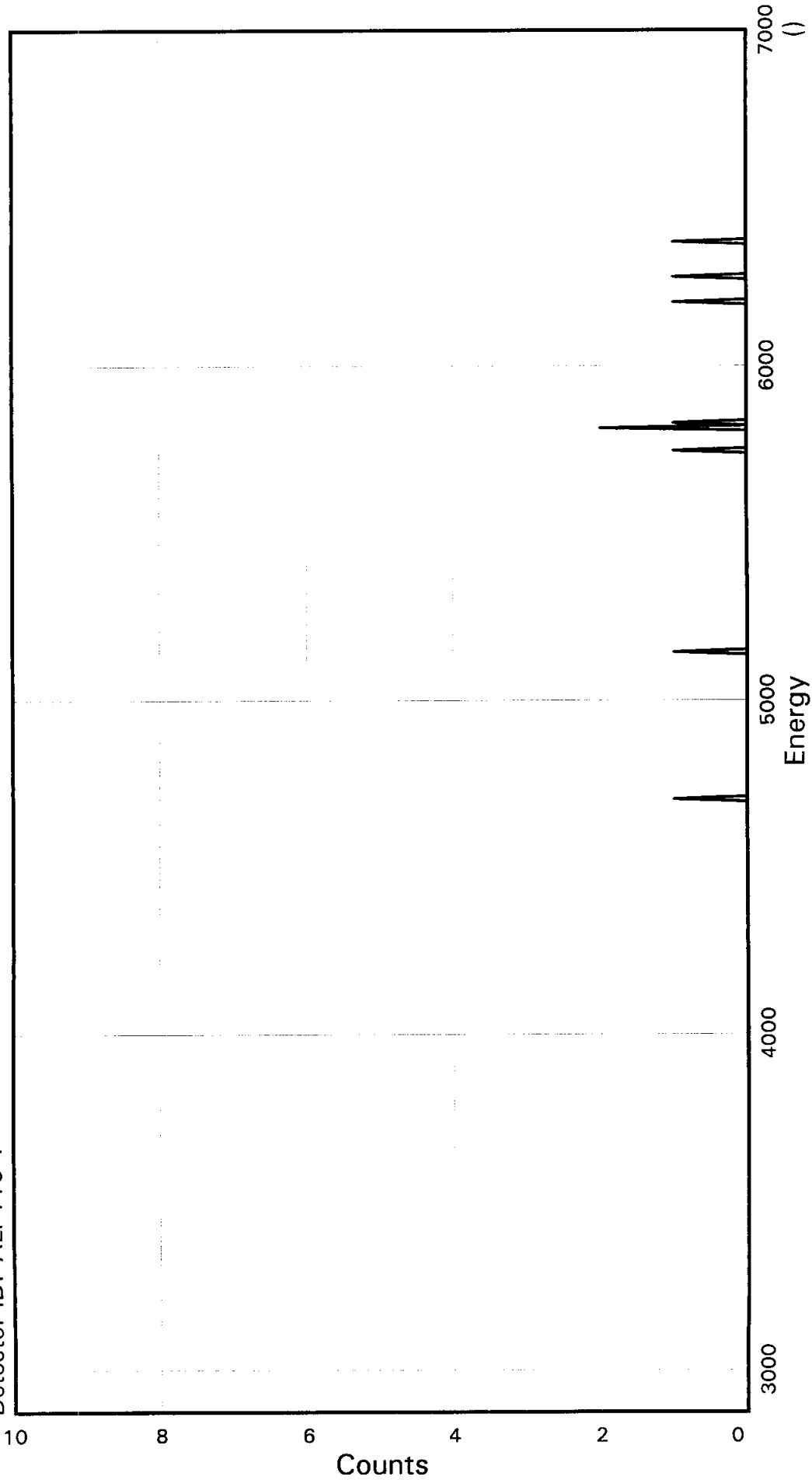
End of Alpha Region Report  
(Produced by ANAL Report)



TAL Richland WA.  
TH LAN

Batch ID: 8030210

Sample ID: KF6FN1AG  
Detector ID: ALP116 1



Acquisition Start: 8-FEB-2008 15:08:53.59  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:04.00

Energy Coefficients:  
Offset: 2.85172E + 03  
Slope: 7.58882E + 00  
Quadrature: -8.28731E-05

SAMPLE IDENTIITY: KF6FN1AG

TITLE : TH LAN

DETECTOR : ALP116 1  
CONFIGURATION NAME : RDND06\$DKA100: [ALP116.SAMPLE] KF6FN1AG\_080281  
508.CNF;1  
ACQUIRE DATE of BACKGROUND: 09-JAN-2008 06:26:38

REPORT DATE : 08-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 08-FEB-2008 15:08:53 CALIB DATE : 09-JAN-2008 01:56:33

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

OFFSET : 2851.72 keV CONSTANT FWHM : 9.00000 Channels  
SLOPE : 7.58882 keV/C SENSITIVITY : 6.00000 Std Dev's  
QUAD COEFF : -.828731E-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: KF6FN1AG

Flags Key

Detector: ALP116 1

Report Date: 08-Feb-08 06:28 PM

Intersect Region: @

Acquire Date: 8-FEB-2008 15:08:53.59

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	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	1		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	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	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	1		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	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	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			
C		31	0		81	0		131	0		181	0		231	0		281	0		331	0		381	0		431	0		481			
C		32	0		82	0		132	0		182	0		232	0		282	0		332	0		382	0		432	0		482			
C		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	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			
C		41	0		91	0		141	0		191	0		241	0		291	0		341	0		391	0		441	0		491			
C		42	0		92	0		142	0		192	0		242	0		292	0		342	2		392	1		442	0		492			
C		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	1		394	0		444	0		494			
C		45	0		95	0		145	0		195	1		245	0		295	0		345	0		395	0		445	0		495			
C		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



Configuration : RDND06\$DKA100:[ALP116.SAMPLE]KF6FN1AG\_080281508.CNF;1  
Analyses by : ALPHA V1.8  
Sample title : TH LAN  
Sample date : 25-JAN-2008 12:00:00 Acquisition date : 8-FEB-2008 15:08:53  
Sample ID : KF6FN1AG Sample quantity : 0.00000E+00 PCI  
Sample type : disk Sample geometry :  
Detector name : ALP116 Detector geometry:  
Elapsed live time: 0 03:20:04.00 Elapsed real time: 0 03:20:04.00 0.0%  
Start energy : 2874.48 End energy : 6715.47  
Sensitivity : 6.00 Sum Sensitivity : 0.10  
No peaks were found

Error Report (Date: 08-Feb-08 06:29 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: KGAFJ1AA

Detector: ALP117 1  
Report Date: 09-Feb-08 06:48 AM  
Acquire Date: 8-FEB-2008 15:10:35.78  
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	0	0	0.000	5423.2	150.4	330	350
TH-230	2	1	0.009	4687.7	150.1	232	252
TH-232	0	1	-0.001	4013.0	149.9	142	162

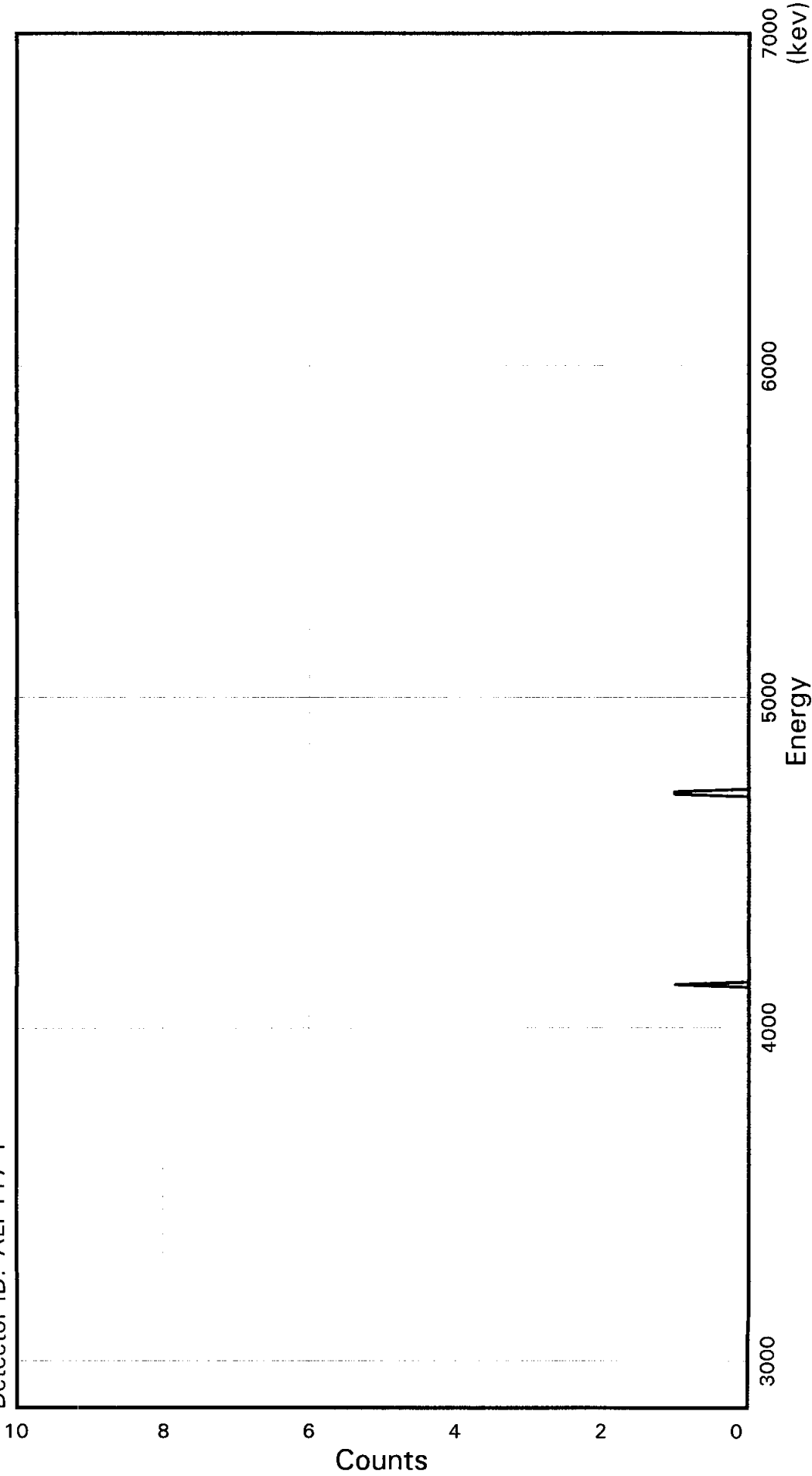
End of Alpha Region Report  
(Produced by ANAL Report)



TAL Richland WA.  
TH LAN

Batch ID: 8030210

Sample ID: KGAFJ1AA  
Detector ID: ALP117 1



Energy Coefficients:  
Offset: 2.83661E +03  
Slope: 7.47592E +00  
Quadrature: 6.26620E-05

Acquisition Start: 8-FEB-2008 15:10:35.78  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:02.00

SAMPLE IDENTIITY: KGAFJ1AA

TITLE : TH LAN

DETECTOR : ALP117 1

CONFIGURATION NAME : RDND06\$DKA100: [ALP117.SAMPLE] KGAFJ1AA\_080281  
510.CNF;1

ACQUIRE DATE of BACKGROUND: 09-JAN-2008 06:26:40

REPORT DATE : 08-Feb-08

SAMPLE DATE: 25-JAN-2008 12:00:00

ACQUIRE DATE: 08-FEB-2008 15:10:35

CALIB DATE : 09-JAN-2008 01:56:29

PRESET LIVE TIME: 0 03:20:00

ELAPSED LIVE TIME: 0 03:20:02

OFFSET : 2836.61 keV

CONSTANT FWHM : 8.00000 Channels

SLOPE : 7.47592 keV/C

SENSITIVITY : 3.00000 Std Dev's

QUAD COEFF : 6.266200E-05 keV/C^2

SUM SENSITIVITY: 1.00000 %

Alpha Spectrum Listing  
for Spectra Not Processed by A'p\_rgn\_cnts  
(Version: 1 Apr 07)

Sample Identity: KGAFJ1AA

Flags Key

Detector: ALP117 1

Report Date: 08-Feb-08 06:30 PM

Intersect Region: @

Acquire Date: 8-FEB 2008 15:10:35.78

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	1		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	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	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	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	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	1		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	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	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	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			

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



VMS Peak Search Report V1.9 Generated 8-FEB-2008 18:30:40

Configuration : RDND06\$DKA100:[ALP117.SAMPLE]KGAFJ1AA\_080281510.CNF;1  
Analyses by : ALPHA V1.8  
Sample title : TH LAN  
Sample date : 25-JAN-2008 12:00:00 Acquisition date : 8-FEB-2008 15:10:35  
Sample ID : KGAFJ1AA Sample quantity : 0.00000E+00 PCI  
Sample type : disk Sample geometry :  
Detector name : ALP117 Detector geometry:  
Elapsed live time: 0 03:20:02.00 Elapsed real time: 0 03:20:02.00 0.0%  
Start energy : 2859.03 kev End energy : 6680.70 kev  
Sensitivity : 3.00 Sum Sensitivity : 1.00  
No peaks were found

Error Report (Date: 08-Feb-08 06:30 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: KGAFJ1AC

Detector: ALP118 1

Report Date: 09-Feb-08 06:49 AM

Acquire Date: 8-FEB-2008 15:11:49.47

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	0	2	-0.002	5423.2	151.6	326	346
TH-230	328	1	1.638	4687.7	182.3	226	250
TH-232	1	1	0.004	4013.0	152.2	140	160

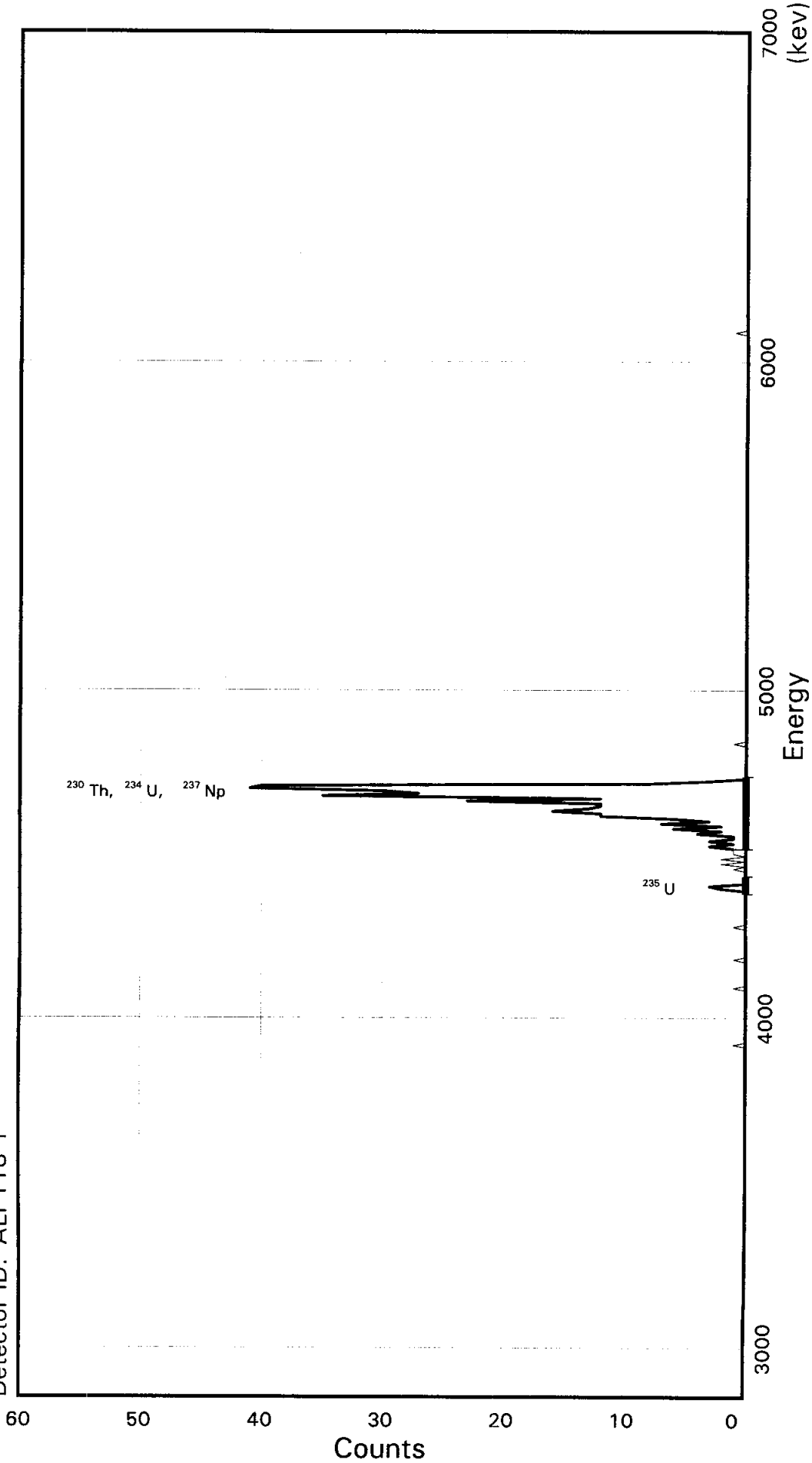
End of Alpha Region Report  
(Produced by ANAL Report)



TAL Richland WA.  
TH LAN

Batch ID: 8030210

Sample ID: KGAFJ1AC  
Detector ID: ALP118 1



Acquisition Start: 8-FEB-2008 15:11:49.47  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:06.00

Energy Coefficients:  
Offset: 2.82794E + 03  
Slope: 7.63878E + 00  
Quadrature: -8.87683E-05

SAMPLE IDENTIITY: KGAFJ1AC

TITLE : TH LAN

DETECTOR : ALP118 1  
CONFIGURATION NAME : RDND06\$DKA100: [ALP118.SAMPLE] KGAFJ1AC\_080281  
511.CNF;1  
ACQUIRE DATE of BACKGROUND: 09-JAN-2008 06:26:42

REPORT DATE : 08-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 08-FEB-2008 15:11:49 CALIB DATE : 09-JAN-2008 01:56:46

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

OFFSET : 2827.94 keV CONSTANT FWHM : 8.00000 Channels  
SLOPE : 7.63878 keV/C SENSITIVITY : 3.00000 Std Dev's  
QUAD COEFF : -.887683E-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: KGAFJ1AC

Flags Key

Detector: ALP118 1

Report Date: 08-Feb-08 06:31 PM

Intersect Region: @

Acquire Date: 8 FEB 2008 15:11:49.47

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	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	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	0		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	2		206	0		256	0		306	0		356	0		406	0		456	0		506
0		7	0		57	0		107	0		157	3		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	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	1		214	1		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	1		166	2		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	2		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	1		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	3		223	0		273	0		323	0		373	0		423	0		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	3		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	1		177	1		227	0		277	0		327	0		377	0		427	0		477			
0		28	0		78	0		128	0		178	4		228	0		278	0		328	0		378	0		428	0		478			
0		29	0		79	0		129	0		179	2		229	0		279	0		329	0		379	1		429	0		479			
0		30	0		80	0		130	0		180	6		230	0		280	0		330	0		380	0		430	0		480			
0		31	0		81	0		131	0		181	2		231	0		281	0		331	0		381	0		431	0		481			
0		32	0		82	0		132	0		182	7		232	0		282	0		332	0		382	0		432	0		482			
0		33	0		83	0		133	0		183	3		233	0		283	0		333	0		383	0		433	0		483			
0		34	0		84	0		134	0		184	6		234	0		284	0		334	0		384	0		434	0		484			
0		35	0		85	0		135	0		185	12		235	0		285	0		335	0		385	0		435	0		485			
0		36	0		86	0		136	0		186	12		236	0		286	0		336	0		386	0		436	0		486			
0		37	0		87	0		137	0		187	16		237	0		287	0		337	0		387	0		437	0		487			
0		38	0		88	0		138	0		188	13		238	0		288	0		338	0		388	0		438	0		488			
0		39	0		89	0		139	0		189	12		239	0		289	0		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	12		240	0		290	0		340	0		390	0		440	0		490			
0		41	0		91	0		141	1		191	23		241	0		291	0		341	0		391	0		441	0		491			
0		42	0		92	0		142	0		192	12		242	0		292	0		342	0		392	0		442	0		492			
0		43	0		93	1		143	0		193	35		243	0		293	0		343	0		393	0		443	0		493			
0		44	0		94	0		144	0		194	27		244	0		294	0		344	0		394	0		444	0		494			
0		45	0		95	0		145	0		195	30		245	0		295	0		345	0		395	0		445	0		495			
0		46	0		96	0		146	0		196	41		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	0		197	40		247	0		297	0		347	0		397	0		447	0		497			
0		48	0		98	0		148	0		198	8		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 0 250 0 300 0 350 0 400 0 450 0 500



```

Configuration      : RDND06$DKA100:[ALP118.SAMPLE]KGAFJ1AC_080281511.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : TH LAN
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 8-FEB-2008 15:11:49
Sample ID         : KGAFJ1AC Sample quantity : 0.000000E+00 PCI
Sample type       : disk Sample geometry :
Detector name     : ALP118 Detector geometry:
Elapsed live time: 0 03:20:06.00 Elapsed real time: 0 03:20:06.00 0.0%
Start energy      : 2850.85 kev End energy : 6715.72 kev
Sensitivity       : 3.00 Sum Sensitivity : 1.00
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4399.28	6	0	22.92	206.20	204	7	5.00E-04	40.8	
2	0	4691.89	335	0	45.83	244.71	222	29	2.79E-02	5.5	

Error Report (Date: 08-Feb-08 06:31 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: 2/ 8/07 to 2/10/08,SMFractionIdentifier Between THTC12212 and THTC12214, 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	
THTC12212	Th-234	4.9700E+02 ± 3.597E+01 CPM	0.8355 g	2/4/2008 2/4/2008	Armstron	5.9486E+02 ± 4.306E+01 CPM/G
THTC12213	Th-234	4.9843E+02 ± 3.608E+01 CPM	0.8379 g	2/4/2008 2/4/2008	Armstron	5.9486E+02 ± 4.305E+01 CPM/G
THTC12214	Th-234	5.0087E+02 ± 3.625E+01 CPM	0.842 g	2/4/2008 2/4/2008	Armstron	5.9485E+02 ± 4.305E+01 CPM/G

4.9877E+002 ± 1.954E+000 ( 3) 0.392% 4.9700E+002 , 5.0087E+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
<b>THSI1144</b>	Th-234	<b>5.0430E+02 ± 3.650E+01</b> CPM	0.4916 g	1/16/2008 1/16/2008	Armstron	1.0258E+03 ± 7.425E+01 CPM/G
		5.0430E+002 ± 5.043E+002 ( 1)	5.0430E+002 , 5.0430E+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

Th-230 Isotopic Counts

Vial	Th-230		Background		Expected			
	Counts	Min	Counts	Min	Net cpm	Det. Eff	dpm	Yield
CAL6537	6616	999	5	999	6.618	0.2847	25.187	0.9229
CAL6538	6728	999	3	999	6.732	0.2878	25.024	0.9347
CAL6539	7153	999	3	999	7.157	0.2926	24.972	0.9795
CAL6540	5502	999	1	999	5.507	0.2616	24.946	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	1.2454	0.9229	4169.80	CAL6537
29-Nov-07	12:25	96274	20	726	500	4812.25	1.2533	0.9347	4107.84	CAL6538
29-Nov-07	12:25	95463	20	566	500	4772.02	1.2472	0.9795	3906.19	CAL6539
29-Nov-07	12:25	92146	20	675	500	4605.95	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 <sup>TDA</sup> 11/29/07

Sample ID	Isotopes of interest	Sample Date
CAL6537	Th 234076300 #6265	
CAL6538	Th 230023160 #6031	
CAL6539	...	
CAL6540		
CAL6541	Th 234 only	
CAL6542	Purity check	

ADDITIONAL INSTRUCTIONS:

#1070177                    COPRECIPITATE PLEASE

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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

Sample ID	Isotope	Geometry
CAL6537	COP	COP

Sample Count Date/Time	Beta Counts	Count Duration*	Beta Bkg Counts	Bkg Count Duration*	Instr ID
29-NOV-2007 12:25:10.00	95877	20.00	675	500.00	30A

Alpha Counts	Alpha Bkg Counts	Guard Counts	HV	Bkg Count Date/Time
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:

Approved by: S

Date: 11/30/07

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

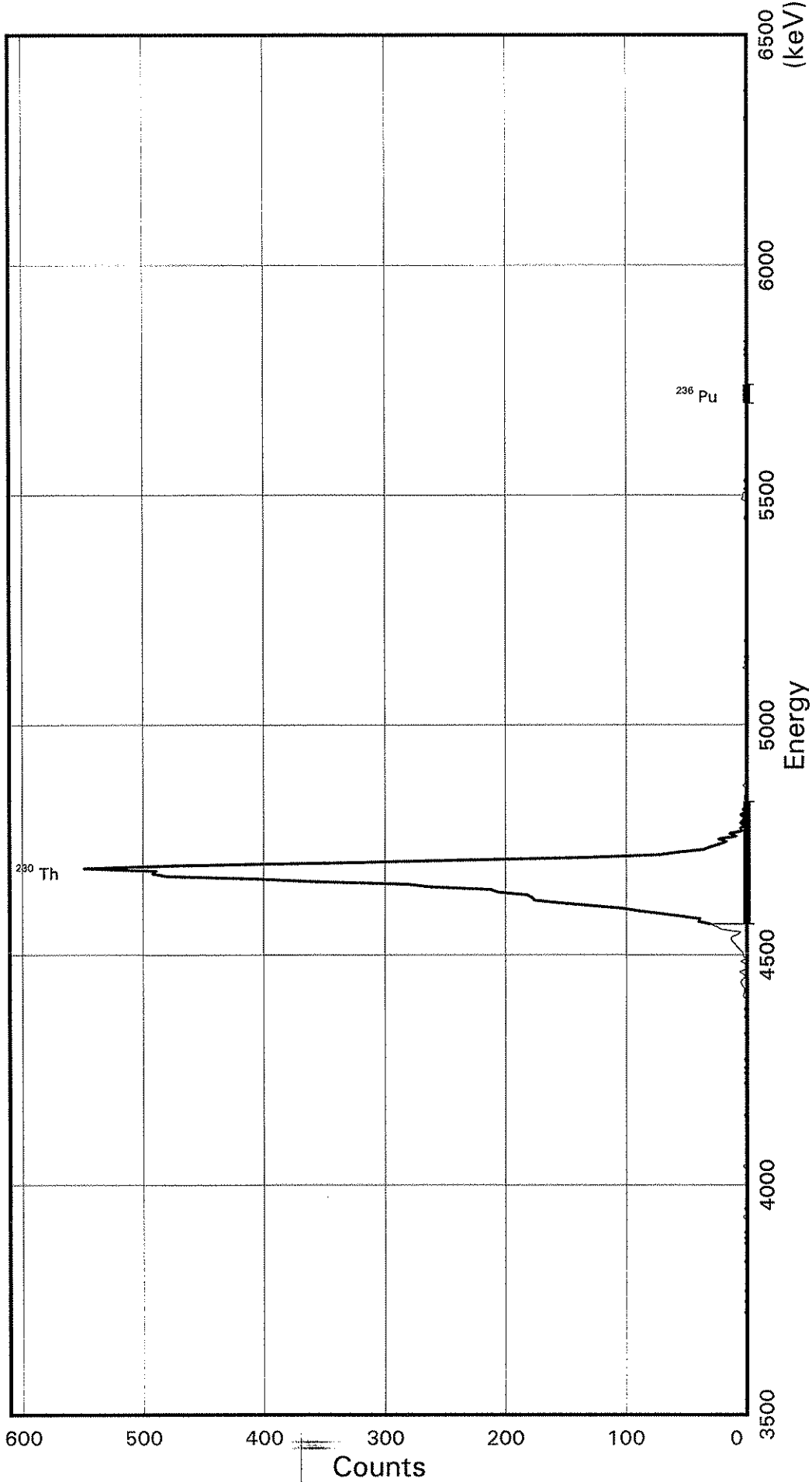
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	5	1	0.004	5423.2	116.4	316	336
TH-230	6616	5	6.618	4687.7	336.2	171	229
TH-232	18	0	0.018	4013.0	115.5	73	93

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
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

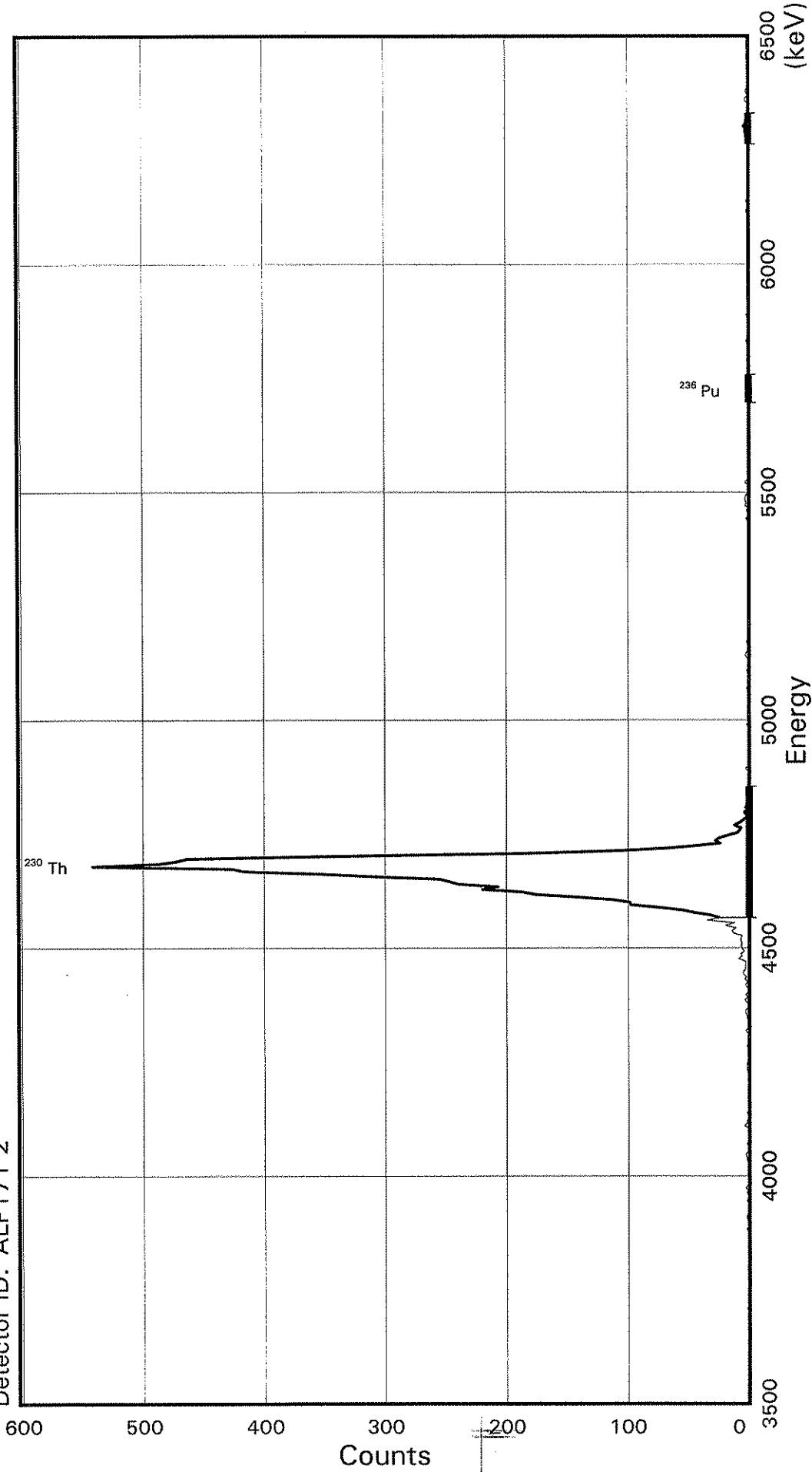
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	4	2	0.002	5423.2	113.1	321	341
TH-230	6728	3	6.732	4687.7	327.5	172	230
TH-232	18	0	0.018	4013.0	112.8	71	91

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
		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

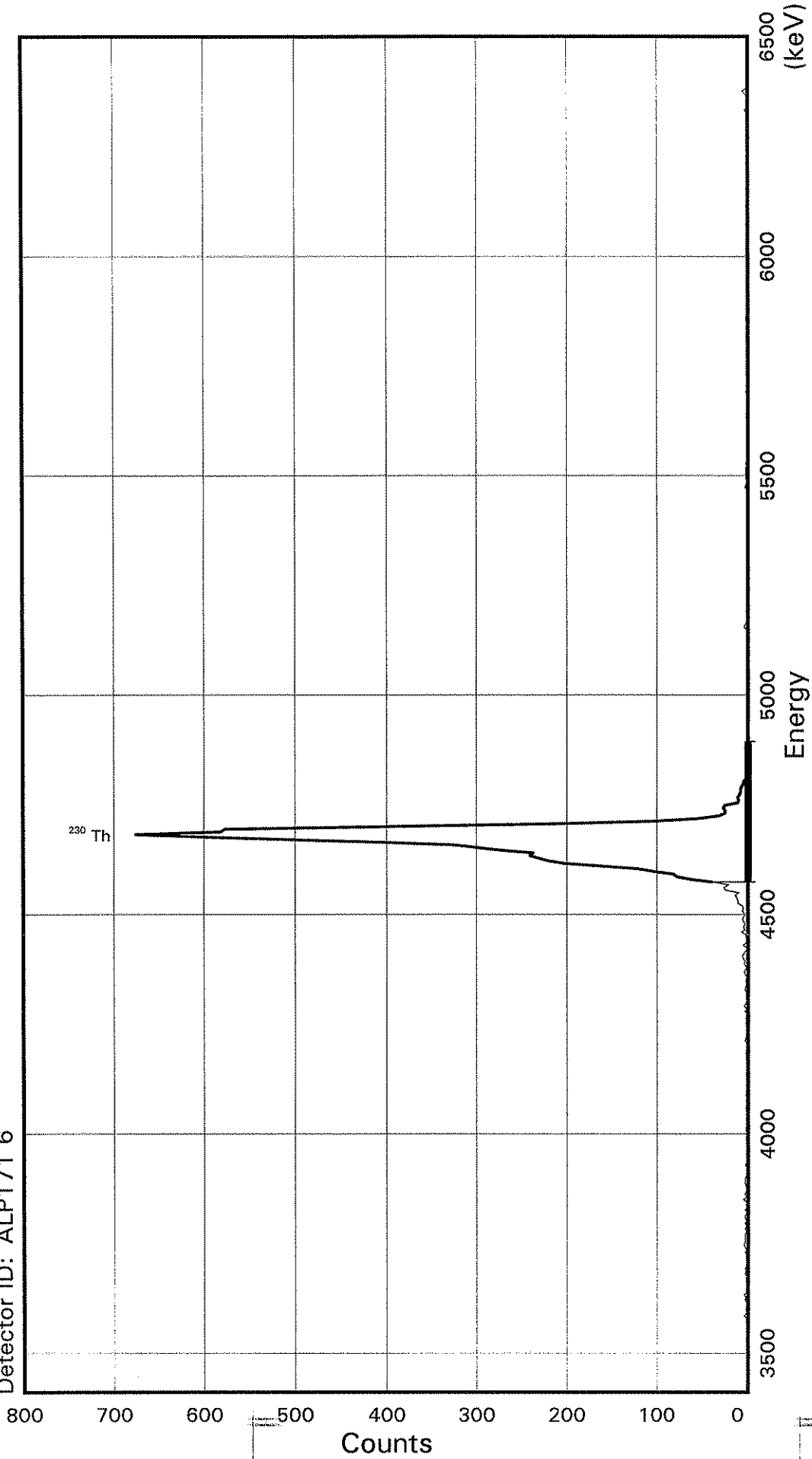
End of Alpha Region Report  
(Produced by ANAL Report)



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

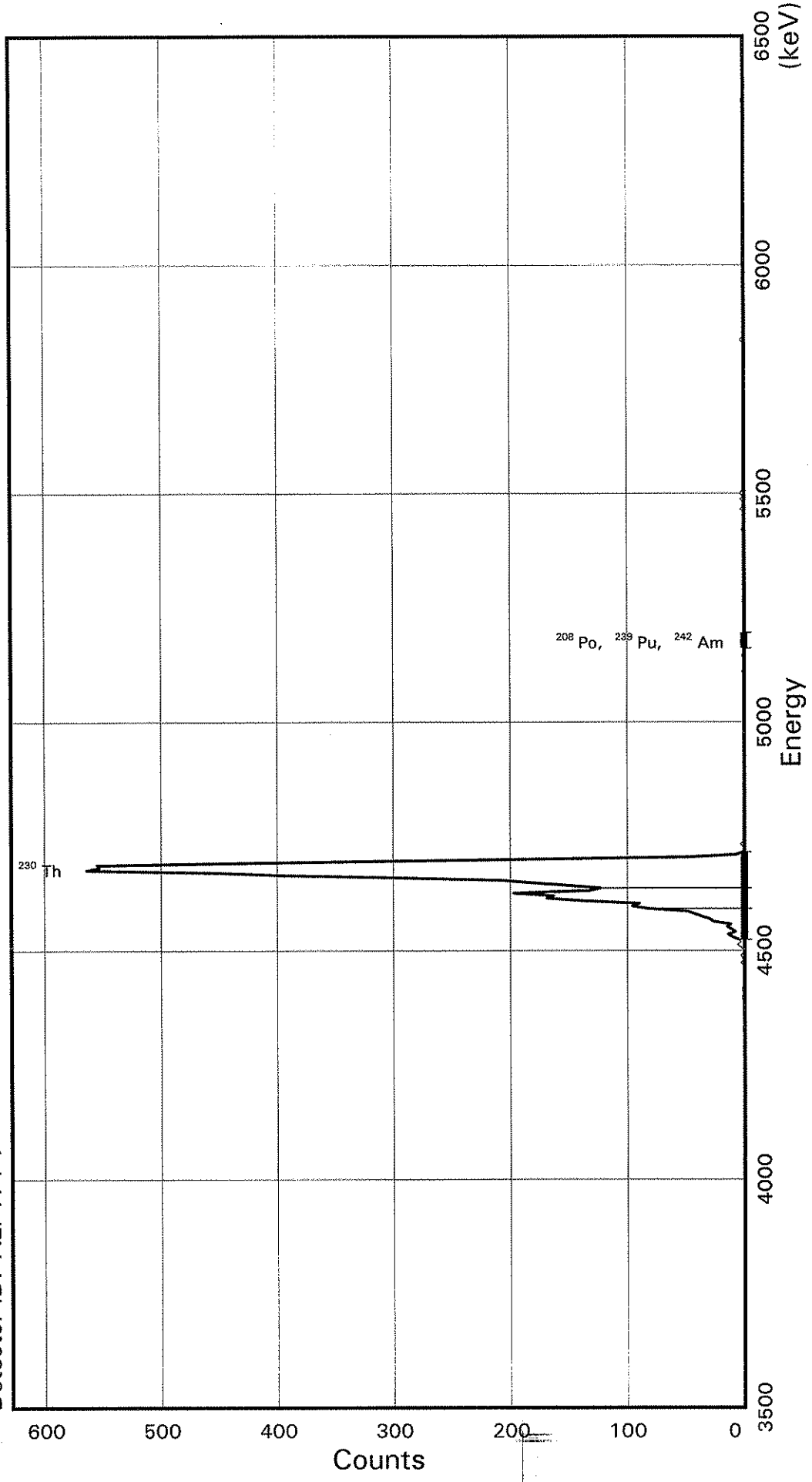
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	7	0	0.007	5423.2	112.6	311	331
TH-230	5502	1	5.507	4687.7	282.2	155	205
TH-232	2	0	0.002	4013.0	113.1	61	81

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  
Detector: ALP171 7

Flags Key

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

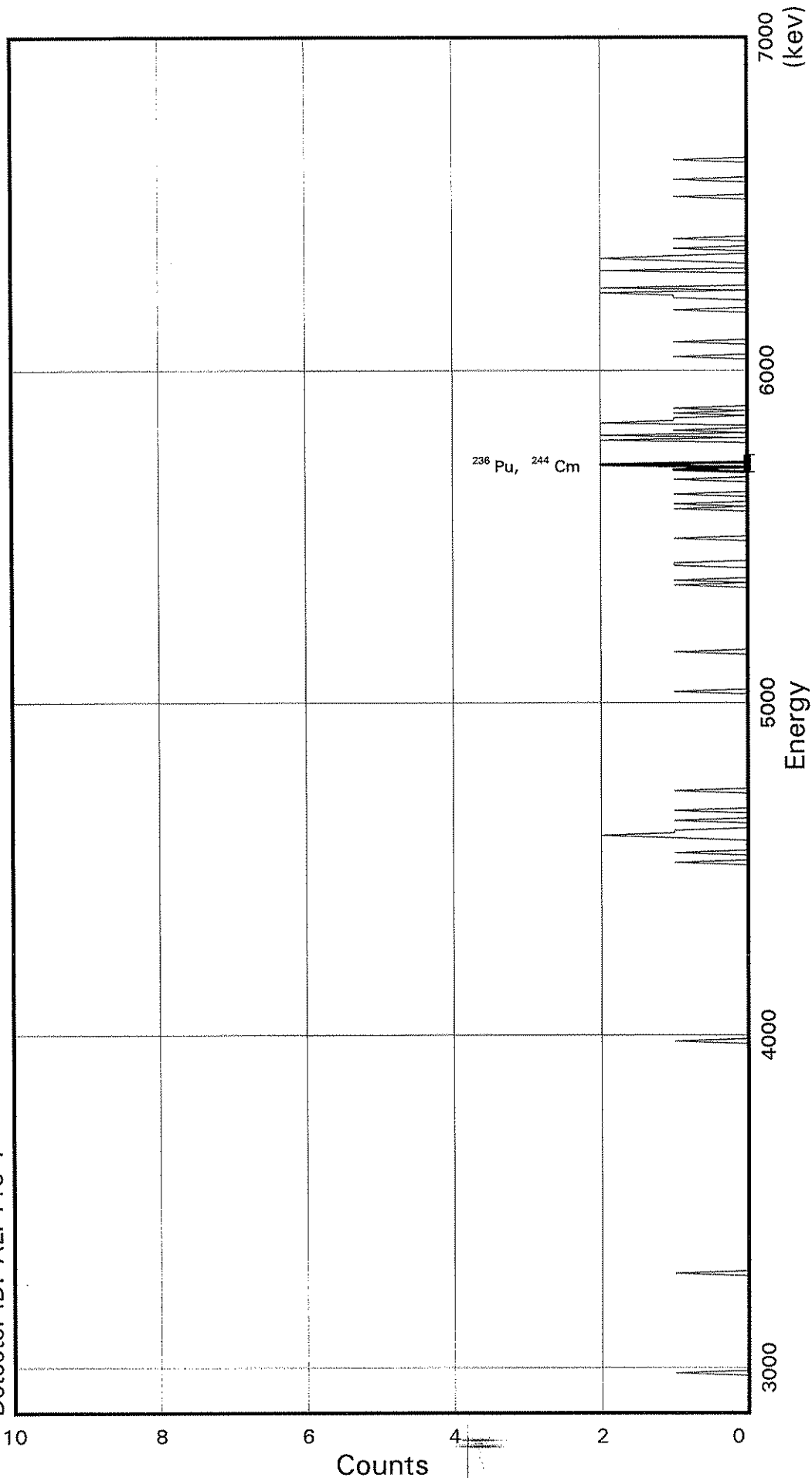
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Right Chnl
TH-228	4	3	0.001	5423.2	148.4	331	351
TH-230	7	0	0.007	4687.7	149.0	232	252
TH-232	1	0	0.001	4013.0	149.6	141	161

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	Cnt	F	Chn									
0		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

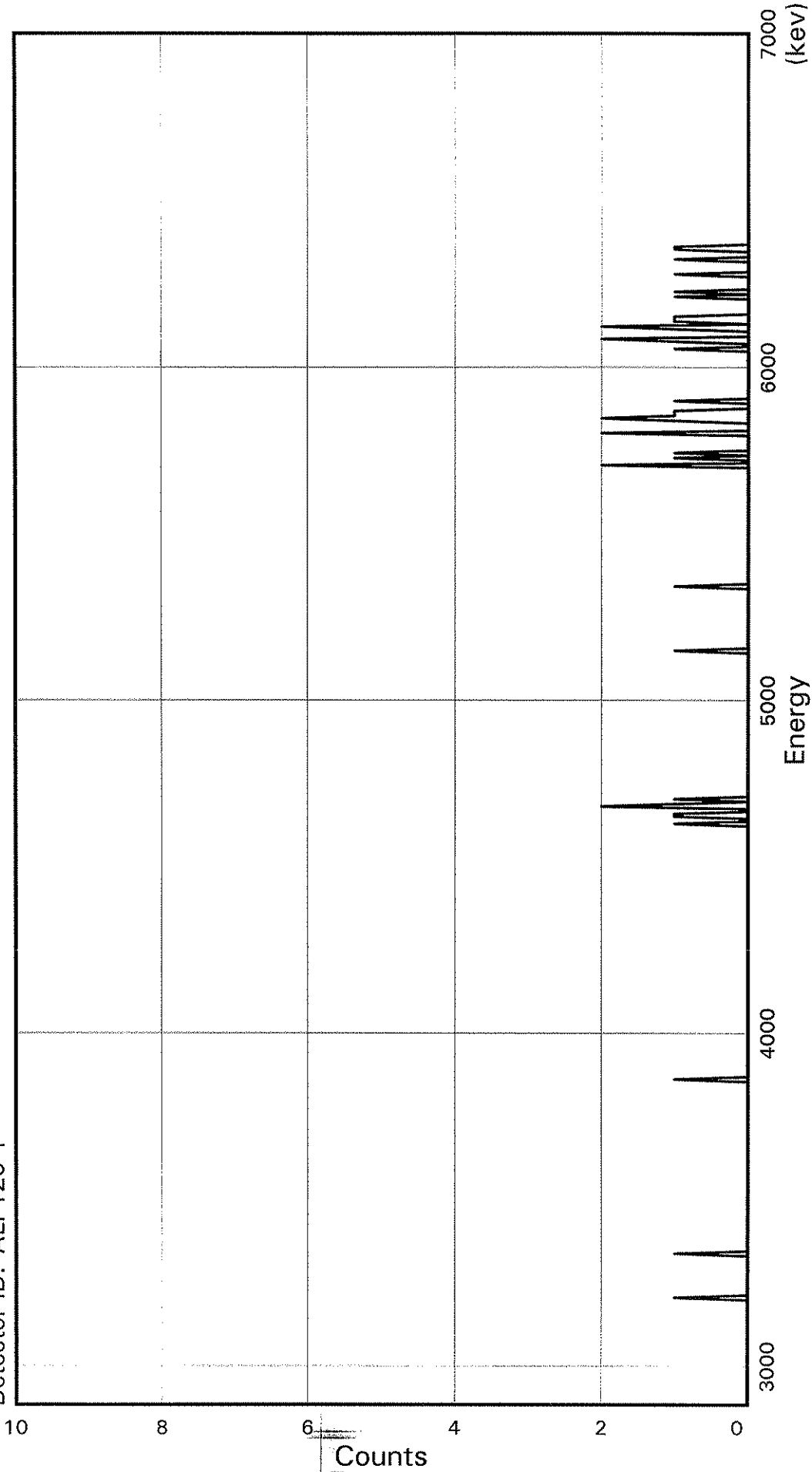
Nuclide	Smpl	Bkg	Count	Centrd	Region		
Name	Count	Count	Rate	Energy	Width	Left	Right
			C/Min	keV	keV	Chnl	Chnl
TH-228	1	2	-0.001	5423.2	148.6	332	352
TH-230	7	1	0.006	4687.7	148.0	233	253
TH-232	0	0	0.000	4013.0	147.4	142	162

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/C<sup>2</sup> 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

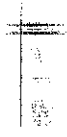
Intersect Region: @

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	ct. time	alpha	alpha	ct. time	alpha	ct. time	CPM	CPM	CPM	CPM	beta	beta
RDQC9008	9995		20	20	630	500	500	4	50	50	19	500	498.49	0.042	0.042	4.98		
RDQC9009	10100		20	20	557	500	500	1	50	50	13	500	503.886	-0.006	-0.006	5.04		
RDQC9010	9004		20	20	542	500	500	3	50	50	15	500	449.116	0.03	0.03	4.49		
RDQC9011	9903		20	20	503	500	500	5	50	50	15	500	494.144	0.07	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

<b>SEVERN TREND SERVICES</b>			BATCH # T070176 T123407B300 # 6265			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	
R08c9008		0.1128	11/28/07 075	26A		20 min		11280.3	
R08c9009		0.1166		26B					
R08c9010		0.1161		26C					
R08c9011		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)

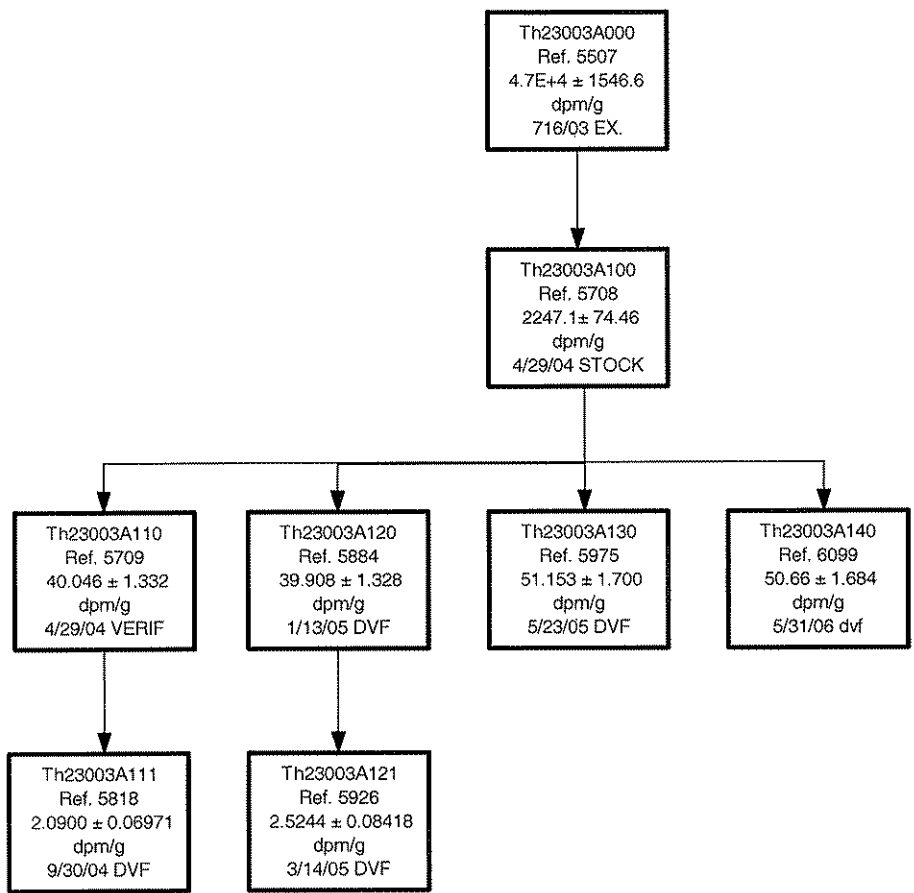
Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00015	0500	0.03	00000	1000	28-NOV-2007 06:39:39.65

# Standard Material Fractions (Vials)

Vial Prep: 2/ 8/07 to 2/10/08,SMFractionIdentifier Like: THSI1144%, 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	
<b>THSI1144</b>	Th-230	<b>5.0144E+00 ± 1.664E-01</b> DPM	0.099 g	1/16/2008 1/16/2008	Armstron	5.0651E+01 ± 1.679E+00 DPM/G
		5.0144E+000 ± 5.014E+000 ( 1)		5.0144E+000 , 5.0144E+000		

Th23003A



**ISOTOPE DILUTION RECORD**

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>5/31/2006</u>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A100</u></b>	<b><u>5708</u></b>	
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>		%
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>5.0667E+01</u></b>	<b>±</b>	<b><u>1.684E+00</u></b>
12) Total Uncertainty	<u>3.324</u>		%
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A140</u></b>	<b><u>6099</u></b>	
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>

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**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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A100</u></b>	<b><u>5708</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>5.1153E+01</u></b>	±	<b><u>1.700E+00</u></b>
12) Total Uncertainty	<u>3.324</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A130</u></b>	<b><u>5975</u></b>	
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		

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**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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A120</u></b>	<b><u>5884</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>2.5244E+00</u></b>	±	<b><u>8.418E-02</u></b>
12) Total Uncertainty	<u>3.335</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A121</u></b>	<b><u>5926</u></b>	
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>

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**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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A100</u></b>	<b><u>5708</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>3.9908E+01</u></b>	<b>±</b>	<b><u>1.328E+00</u></b>
12) Total Uncertainty	<u>3.327</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A120</u></b>	<b><u>5884</u></b>	
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>

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**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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A110</u></b>	<b><u>5709</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>2.0900E+00</u></b>	<b>±</b>	<b><u>6.971E-02</u></b>
12) Total Uncertainty	<u>3.335</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A111</u></b>	<b><u>5818</u></b>	
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>

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**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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A100</u></b>	<b><u>5708</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>4.0046E+01</u></b>	<b>±</b>	<b><u>1.332E+00</u></b>
12) Total Uncertainty	<u>3.327</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A110</u></b>	<b><u>5709</u></b>	
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>

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**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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>TH23003A000</u></b>	<b><u>5507</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>2.2471E+03</u></b>	<b>±</b>	<b><u>7.446E+01</u></b>
12) Total Uncertainty	<u>3.314</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>TH23003A100</u></b>	<b><u>5708</u></b>	
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>

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**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

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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

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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

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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:  $\gamma$ -impurities <0.1%,  $\alpha$ -impurities <0.23%

5.09407 grams 0.5M HNO<sub>3</sub> 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 18:47:19.17

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
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10-FEB-2008 10:09	chk		0.3328		
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12-MAR-2008 06:18	chk		0.3349		
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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		5.5000		
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12-MAR-2008 06:18	chk		5.3333		
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-- 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
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10-FEB-2008 10:09	chk		312.1530		
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12-MAR-2008 06:18	chk		312.1513		
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-- 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 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
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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
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10-FEB-2008 10:09	chk		7.5726		
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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		7.5445		
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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
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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	

11-FEB-2008 06:14	bkg		0.0020	
13-MAR-2008 10:55	bkg		0.0000	

13-MAR-2008 10:55	bkg		0.0000	
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-- 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	

11-FEB-2008 06:14	bkg		0.0000	
13-MAR-2008 10:55	bkg		0.0030	

13-MAR-2008 10:55	bkg		0.0030	
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-- 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	

11-FEB-2008 06:14	bkg		0.0010	
13-MAR-2008 10:55	bkg		0.0040	

13-MAR-2008 10:55	bkg		0.0040	
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-- 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
------------------	-----------	----------------	-------	-----------------

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
------------------	-----------	----------------	-------	-----------------

```
-----
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
------------------	-----------	----------------	-------	-------------	-----

```
-----
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
------------------	-----------	----------------	-------	-------------	-----

```
-----
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
------------------	-----------	----------------	-------	-------------	-----

```
-----
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
------------------	-----------	----------------	-------	-------------	-----

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
------------------	-----------	----------------	-------	-----------------

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
------------------	-----------	----------------	-------	-----------------



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	

URANIUM ISOTOPIC  
SAMPLE AND QC DATA

Lot No., Due Date: F8A260145; 02/25/2008  
 Client, Site: 1418995; LANDWELL - Tronox Parcel H  
 QC Batch No., Method Test: 8030208; RUIISO Uiso by ALP  
 SDG, Matrix: ; *Water*

**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:

First Level Review *John A. [Signature]*

Date 2-13-08

**Data Review Checklist**  
**RADIOCHEMISTRY**  
 Second Level Review

Batch Number: 8030208

Review Item	Yes (✓)	No (✓)	NA (✓)
<b>A. Sample Analysis</b>			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery 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?	✓		
<b>C. Other</b>			
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: Eirbe O'Neil Date: 2/17/18

2/6/2008 3:23:02 PM

1418995, Landwell Company  
Landwell Company

### Sample Preparation/Analysis

7Y Ulso PprRC5016/5086, SepRC5067(5039)  
SR Uranium-234,235,238 by Alpha Spec  
01 STANDARD TEST SET

Balance Id:11

Pipet #:

AnalyDueDate: 02/06/2008

Sep1 DT/Tm Tech:

Batch: 8030208

PM, Quote: JAE, 78254

pCi/L

SEO Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: LucasD,HarrisD

Count On | Off  
(24hr) Circle

CR Analyst  
Init/Date

Comments:

Detector  
Id

Count  
Time Min

OC Tracer  
Prep Date

Adj Aliq Amt  
(Un-Acidified)

Initial Aliquot  
Amt/Unit

Total  
Acidified/Unit

Total Amt  
/Unit

Work Order, Lot,  
Sample Date

1 KF6FN-1-AE

200.00g.in 200.00g

UITC19477

Count  
Time Min

Detector  
Id

Count On | Off  
(24hr) Circle

CR Analyst  
Init/Date

Comments:

F8A260145-19-SAMP

AmiRec: 2XLP

#Containers: 2

02:04:08.pd  
06:15:01.r

Scr:

Alpha: 1.73E-04 uCiSa

Beta: 2.62E-05 uCiSa

Comments:

200

2 KF6FN-1-AF-X

200.30g.in 200.30g

UITC19478

Count  
Time Min

Detector  
Id

Count On | Off  
(24hr) Circle

CR Analyst  
Init/Date

Comments:

F8A260145-19-DUP

AmiRec: 2XLP

#Containers: 2

02:04:08.pd  
06:15:01.r

Scr:

Alpha: 1.73E-04 uCiSa

Beta: 2.62E-05 uCiSa

Comments:

3 KGAFF-1-AA-B

200.00g.in 200.00g

UITC19479

Count  
Time Min

Detector  
Id

Count On | Off  
(24hr) Circle

CR Analyst  
Init/Date

Comments:

J8A300000-208-BLK

AmiRec:

#Containers: 1

02:04:08.pd  
06:15:01.r

Scr:

Alpha:

Beta:

Comments:

4 KGAFF-1-AC-C

200.30g.in 200.30g

UISG1566

Count  
Time Min

Detector  
Id

Count On | Off  
(24hr) Circle

CR Analyst  
Init/Date

Comments:

J8A300000-208-LCS

AmiRec:

#Containers: 1

12:11:07.pd  
05:05:87.r

Scr:

Alpha:

Beta:

Comments:

Comments: KF6FN-SAMP "Comments: ISV for DUP- DL 2/1/08"

*Handwritten:* 1418995. Out 2/10/08

All Clients for Batch:

1418995, Landwell Company

Landwell Company

JAE, 78254

KF6FNIAE-SAMP Constituent List:

KGAFF1AA-BLK:

U-232 RDL: pCi/L LCL:20  
U-235 RDL:0.1 RDL:0.1 UCL:115 UCL:115

U-234 RPD:20 RPD:20  
U-238 RDL:1 RDL:1

pCi/L pCi/L

LCL: LCL:

UCL: UCL:

RPD: RPD:

KGAFF1AC-LCS:

TAL Richland

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

Page 1

ISV - insufficient Volume for Analysis

WO Cnt: 4

Richland Wa

pd - Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

Prep, SamplePrep v4.8.32

2/6/2008 3:23:03 PM

### Sample Preparation/Analysis

Balance Id:11

7Y Ulso PipRC5016/5086, SepRC5067(5039)  
SR Uranium-234,235,238 by Alpha Spec  
01 STANDARD TEST SET

Pipet #:

Analysis Due Date: 02/06/2008

Sep1 DT/Tm Tech:

Batch: 8030208

pCi/L

Sep2 DT/Tm Tech:

SEO 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	RPD:20	Uranium	RDL:	pCi/L	LCL:70	UCL:130	RPD:20

KF6FN1AE-SAMP Calc Info:

Uncert Level (#s): 4

KGAF11AA-BLK:

Uncert Level (#s): 4

KGAF11AC-LCS:

Uncert Level (#s): 4

Blk Subt.: N Sci.Not.: N ODRs: B

Blk Subt.: N Sci.Not.: N ODRs: B

Blk Subt.: N Sci.Not.: N ODRs: B

Decay to SaDt: N

Decay to SaDt: N

Decay to SaDt: N

Approved By

Date:

# ICOC Fraction Transfer/Status Report

ByDate: 2/13/2007, 2/18/2008, Batch: '8030208', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
<b>8030208</b>				
AC	<b>Rev1C</b>	<b>HarrisD</b>	2/6/2008 3:16:31 PM	
SC		wagarr	IsBatched	1/30/2008 12:05:38 PM
SC		HarrisD	InPrep	2/6/2008 3:16:31 PM
SC		HarrisD	Prep1C	2/6/2008 3:23:11 PM
SC		AshworthA	Prep2C	2/7/2008 7:26:33 PM
SC		AshworthA	Sep1C	2/8/2008 1:39:18 PM
SC		AshworthA	Sep2C	2/11/2008 7:56:59 PM
SC		DAWKINSO	InCnt1	2/11/2008 8:20:45 PM
SC		nortonj	Rev1C	2/13/2008 10:49:14 AM
AC		<b>HarrisD</b>	2/6/2008 3:23:11 PM	ICOC_RADCALC v4.8.32
AC		<b>AshworthA</b>	2/7/2008 7:26:33 PM	RICH-RC-5016 Revision 7
AC		<b>AshworthA</b>	2/8/2008 1:39:18 PM	RICH-RC-5016 REVISION 7
AC		<b>AshworthA</b>	2/11/2008 7:56:59 PM	RICH-RC-5086 REV3
AC		<b>DAWKINSO</b>	2/11/2008 8:20:45 PM	RICH-RC-5067 REV8
AC		nortonj	2/13/2008 10:49:14	RICH-RC-5039 REV5
				RICH-RD-0008 REVISION 4
				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 Tot uncert	Received Date mqa	Sample Date Units	Expected Yield	Volumes		
<b>8030210</b>	<b>9KF6FN10</b>		<b>F8A26014519</b>	RINSATE-1	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM				
TH-228	9NS1	0	2/8/2008 4:46:41 PM	-2.9354E-02	5.176E-02	5.181E-02	3.087E-01	pCi/L	0.824	2.001E-1	
TH-230	9NS1	0	2/8/2008 4:46:41 PM	1.4469E-01	8.409E-02	8.484E-02	2.31E-01	pCi/L	0.824	2.001E-1	
TH-232	9NS1	0	2/8/2008 4:46:41 PM	0.0E+00	0.0E+00	4.919E-02	2.31E-01	pCi/L	0.824	2.001E-1	
U-234	7YSR	0	2/12/2008 8:04:11 AM	4.7096E-02	4.898E-02	4.913E-02	2.123E-01	pCi/L	0.878	2.0E-1	
U-234	TBD	0	2/12/2008 8:04:11 AM	4.7096E-02	4.898E-02	4.913E-02	2.123E-01	pCi/L	0.878	2.0E-1	
U-235	7YSR	0	2/12/2008 8:04:11 AM	5.0458E-02	4.174E-02	4.195E-02	1.611E-01	pCi/L	0.878	2.0E-1	
U-235	TBD	0	2/12/2008 8:04:11 AM	5.0458E-02	4.174E-02	4.195E-02	1.611E-01	pCi/L	0.878	2.0E-1	
U-238	7YSR	0	2/12/2008 8:04:11 AM	-1.6816E-02	2.814E-02	2.818E-02	2.476E-01	pCi/L	0.878	2.0E-1	
U-238	TBD	0	2/12/2008 8:04:11 AM	-1.6816E-02	2.814E-02	2.818E-02	2.476E-01	pCi/L	0.878	2.0E-1	
<b>8030210</b>	<b>KF6FN1FR</b>		<b>F8A26014519</b>	RINSATE-1 DUP	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM				
U-234	7YSR	0 R	2/12/2008 8:04:42 AM	9.3729E-02	5.447E-02	5.501E-02	1.496E-01	pCi/L	1.043	2.003E-1	
U-235	7YSR	0 R	2/12/2008 8:04:42 AM	-6.2489E-03	3.186E-02	3.187E-02	1.496E-01	pCi/L	1.043	2.003E-1	
U-238	7YSR	0 R	2/12/2008 8:04:42 AM	6.2486E-02	4.462E-02	4.492E-02	1.496E-01	pCi/L	1.043	2.003E-1	
<b>8030210</b>	<b>KGAFF1AB</b>		<b>J8A300000208</b>	INTRA-LAB BLANK	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM				
U-234	7YSR	0 B	2/12/2008 8:04:58 AM	7.6917E-02	6.216E-02	6.248E-02	2.402E-01	pCi/L	0.857	2.0E-1	
U-235	7YSR	0 B	2/12/2008 8:04:58 AM	6.9931E-02	4.994E-02	5.028E-02	1.675E-01	pCi/L	0.857	2.0E-1	
U-238	7YSR	0 B	2/12/2008 8:04:58 AM	-2.798E-02	3.766E-02	3.773E-02	2.402E-01	pCi/L	0.857	2.0E-1	
<b>8030210</b>	<b>KGAFF1CS</b>		<b>J8A300000208</b>	INTRA-LAB CHECK	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM				
U-234	7YSR	0 S	2/12/2008 8:05:19 AM	8.921E+00	5.535E-01	9.191E-01	2.516E-01	pCi/L	8.7782E+00	0.874	2.003E-1
U-238	7YSR	0 S	2/12/2008 8:05:19 AM	9.174E+00	5.607E-01	9.401E-01	2.157E-01	pCi/L	9.1934E+00	0.874	2.003E-1

8030208, \*\*Samples Inserted | Updated | NotUpdated => 1 | 0 | 3,  
 \*\*Results Inserted | ReTestInserted | Updated | NotInserted => 2 | 0 | 0 | 9.  
 \*\*Diff RptDb | Qtims => .



# 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	WATER	KF6FN1AE	U-234	4.71E-02	(4.91E-02)	U4	pCi/L	R	6.06E-02	2.12E-01					88%
Calc	SR	WATER	KF6FN1AE	U-235	5.05E-02	(4.20E-02)	U4	pCi/L	R	3.50E-02	1.61E-01					88%
Calc	SR	WATER	KF6FN1AE	U-238	-1.68E-02	(2.82E-02)	U4	pCi/L	R	7.83E-02	2.48E-01					88%
Calc	SR	WATER	KF6FN1AF	U-234	9.37E-02	(5.50E-02)		pCi/L	R	3.25E-02	1.50E-01	R				104%
Calc	SR	WATER	KF6FN1AF	U-235	-6.25E-03	(3.19E-02)	U4	pCi/L	R	3.25E-02	1.50E-01	R				104%
Calc	SR	WATER	KF6FN1AF	U-238	6.25E-02	(4.49E-02)	U4	pCi/L	R	3.25E-02	1.50E-01	R				104%
Calc	SR	WATER	KGAFF1AA	U-234	7.69E-02	(6.25E-02)	U4	pCi/L	R	7.28E-02	2.40E-01	B				86%
Calc	SR	WATER	KGAFF1AA	U-235	6.99E-02	(5.03E-02)	U4	pCi/L	R	3.64E-02	1.67E-01	B				86%
Calc	SR	WATER	KGAFF1AA	U-238	-2.80E-02	(3.77E-02)	U4	pCi/L	R	7.28E-02	2.40E-01	B				86%
Calc	SR	WATER	KGAFF1AC	U-234	8.92E+00	(9.19E-01)		pCi/L	R	7.95E-02	2.52E-01	S				87% 102%
Calc	SR	WATER	KGAFF1AC	U-235	4.72E-01	(1.34E-01)		pCi/L	R	3.56E-02	1.64E-01	S				87% 118%
Calc	SR	WATER	KGAFF1AC	U-238	9.17E+00	(9.40E-01)		pCi/L	R	6.16E-02	2.16E-01	S				87% 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

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/Ent	Yld	Total/Analy	Vol	Final/Count	Vol	
1	Calc	SR	WATER	*STLE	AlpisoWoBS	KF6FN1AE			pCi/L			01/25/08 15:00	02/12/08 08:04					1						
									WATER															
0	02/12/08	06:24	U-232	676	14	ALP1	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn				
								ED	Y	N	3.8124E-01		N	100%	N	1.0000E+00	(0.0000E+00)	4.5045E+02	1.0000E+00					
									Y		(1.144E-02)													
1	02/12/08	06:24	U-234	2	3	ALP1	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn				
								ED	N	N	3.8124E-01		N	88%	N	1.0000E+00	(0.0000E+00)	4.5045E+02	1.0000E+00					
									Y		(1.144E-02)													
2	02/12/08	06:24	U-235	1.5	0	ALP1	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn				
								ED	N	N	3.8124E-01		N	88%	N	1.0000E+00	(0.0000E+00)	4.5045E+02	1.0000E+00					
									Y		(1.144E-02)													
3	02/12/08	06:24	U-238	0.5	5	ALP1	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn				
								ED	N	N	3.8124E-01		N	88%	N	1.0000E+00	(0.0000E+00)	4.5045E+02	1.0000E+00					
									Y		(1.144E-02)													
Sq	CalcDate,TrcAct	Parameter	Avg	Sa Act, Total	U	Q	Net Cnt	Rt	Dpm	Wo	Blk	Dpm-Blk	Vol Used	Trc Yld,EntFct	LCSYld,EFctU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC						
02/12/08	U-232	R	19.883507	3.36572E+00	8.828286	8.828286	0.20 L	88%					0.20 L											
2.265E+01			(1.404971)	(1.3004E-01)	(0.431852)	(0.431852)	(0.002)						(0.002)											
02/12/08	U-234	R	0.047096	6.99972E-03	0.020911	0.020911	0.20 L	88%					0.20 L											
2.265E+01			(0.049134)	(7.2795E-03)	(0.021789)	(0.021789)	(0.002)						(0.002)											
02/12/08	U-235	R	0.050458	7.49938E-03	0.022403	0.022403	0.20 L	88%					0.20 L											
2.265E+01			(0.041953)	(6.2043E-03)	(0.018592)	(0.018592)	(0.002)						(0.002)											
02/12/08	U-238	R	-0.016816	-2.49929E-03	-0.007466	-0.007466	0.20 L	88%					0.20 L											
2.265E+01			(0.028178)	(4.1828E-03)	(0.012505)	(0.012505)	(0.002)						(0.002)											
Sq	Calc	SR	Matrix	Protocol <td>Equation <td>Set <td>Wrk</td> <td>Ord <td>Units/Matrix <td>QC/BB <td>Sa/On <td>Date <td>AnalysisDate/PptWt <td>Sep1/Sep2 <td>Date <td>QC/Tracer <td>Vial <td>Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	Equation <td>Set <td>Wrk</td> <td>Ord <td>Units/Matrix <td>QC/BB <td>Sa/On <td>Date <td>AnalysisDate/PptWt <td>Sep1/Sep2 <td>Date <td>QC/Tracer <td>Vial <td>Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	Set <td>Wrk</td> <td>Ord <td>Units/Matrix <td>QC/BB <td>Sa/On <td>Date <td>AnalysisDate/PptWt <td>Sep1/Sep2 <td>Date <td>QC/Tracer <td>Vial <td>Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	Wrk	Ord <td>Units/Matrix <td>QC/BB <td>Sa/On <td>Date <td>AnalysisDate/PptWt <td>Sep1/Sep2 <td>Date <td>QC/Tracer <td>Vial <td>Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td></td></td></td></td></td></td></td>	Units/Matrix <td>QC/BB <td>Sa/On <td>Date <td>AnalysisDate/PptWt <td>Sep1/Sep2 <td>Date <td>QC/Tracer <td>Vial <td>Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td></td></td></td></td></td></td>	QC/BB <td>Sa/On <td>Date <td>AnalysisDate/PptWt <td>Sep1/Sep2 <td>Date <td>QC/Tracer <td>Vial <td>Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td></td></td></td></td></td>	Sa/On <td>Date <td>AnalysisDate/PptWt <td>Sep1/Sep2 <td>Date <td>QC/Tracer <td>Vial <td>Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td></td></td></td></td>	Date <td>AnalysisDate/PptWt <td>Sep1/Sep2 <td>Date <td>QC/Tracer <td>Vial <td>Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td></td></td></td>	AnalysisDate/PptWt <td>Sep1/Sep2 <td>Date <td>QC/Tracer <td>Vial <td>Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td></td></td>	Sep1/Sep2 <td>Date <td>QC/Tracer <td>Vial <td>Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td></td>	Date <td>QC/Tracer <td>Vial <td>Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td></td>	QC/Tracer <td>Vial <td>Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td></td>	Vial <td>Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td></td>	Multi/Ent <td>Yld <td>Total/Analy <td>Vol <td>Final/Count <td>Vol </td></td></td></td></td>	Yld <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	SR	WATER	*STLE	AlpisoWoBS	KF6FN1AF			pCi/L			01/25/08 15:00	02/12/08 08:04					1						
									WATER															
0	02/12/08	06:24	U-232	758	12	ALP2	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn				
								ED	Y	N	3.5984E-01		N	100%	N	1.0000E+00	(0.0000E+00)	4.5045E+02	1.0000E+00					
									Y		(1.080E-02)													
1	02/12/08	06:24	U-234	3	0	ALP2	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn				
								ED	N	N	3.5984E-01		N	104%	N	1.0000E+00	(0.0000E+00)	4.5045E+02	1.0000E+00					
									Y		(1.080E-02)													
2	02/12/08	06:24	U-235	0	1	ALP2	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn				
								ED	N	N	3.5984E-01		N	104%	N	1.0000E+00	(0.0000E+00)	4.5045E+02	1.0000E+00					
									Y		(1.080E-02)													
3	02/12/08	06:24	U-238	2	0	ALP2	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn				
								ED	N	N	3.5984E-01		N	104%	N	1.0000E+00	(0.0000E+00)	4.5045E+02	1.0000E+00					
									Y		(1.080E-02)													
									Y		(1.080E-02)													

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	BkLcC/MDC	StdDvMdc/LcC
02/12/08	U-232	R	23.607157	3.77737E+00		10.497311	10.497311	0.2003L	104%					
2.263E+01			(1.6404)	(1.3768E-01)		(0.495546)	(0.495546)	(0.002003)						
02/12/08	U-234	R	0.093729	1.49975E-02		0.041678	0.041678	0.2003L	104%			0.149641		
2.263E+01			(0.055011)	(8.7164E-03)		(0.024369)	(0.024369)	(0.002003)				0.032506		
02/12/08	U-235	R	-0.006249	-9.99883E-04		-0.002779	-0.002779	0.2003L	104%			0.149641		
2.263E+01			(0.031866)	(5.0982E-03)		(0.014169)	(0.014169)	(0.002003)				0.032506		
02/12/08	U-238	R	0.062486	9.99833E-03		0.027785	0.027785	0.2003L	104%			0.149641		
2.263E+01			(0.044916)	(7.1402E-03)		(0.019922)	(0.019922)	(0.002003)				0.032506		

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/EnYld Total/Analy Vol Final/Count Vol

Sq	Calc	SR	WATER	*STLE	AlpIsoWoBS	KGAFF1AA	pC/IL	B	01/25/08	15:00	02/12/08	08:04	UITS	19479	Alq	200.00	g
0	02/12/08	06:24	U-232	653	9	ALP3	ED	Y	N	3.7580E-01	Efficiency1	N	100%	N	1.0000E+00	4.5045E+02	1.0000E+00
										(1.127E-02)	Efficiency2	N			(0.000E+00)	0.005	
1	02/12/08	06:24	U-234	3	4	ALP3	ED	N	N	3.7580E-01	Efficiency1	N	86%	N	1.0000E+00	4.5045E+02	1.0000E+00
										(1.127E-02)	Efficiency2	N	5%	N	(0.000E+00)	0.005	
2	02/12/08	06:24	U-235	2	0	ALP3	ED	N	N	3.7580E-01	Efficiency1	N	86%	N	1.0000E+00	4.5045E+02	1.0000E+00
										(1.127E-02)	Efficiency2	N	5%	N	(0.000E+00)	0.005	
3	02/12/08	06:24	U-238	0	4	ALP3	ED	N	N	3.7580E-01	Efficiency1	N	86%	N	1.0000E+00	4.5045E+02	1.0000E+00
										(1.127E-02)	Efficiency2	N	5%	N	(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	Trc Yld,EnFct	LCS Yld,EFctU	IDC/ILcC	BkLcC/MDC	StdDvMdc/LcC
02/12/08	U-232	R	19.507464	3.25491E+00		8.661323	8.661323	0.20L	86%					
2.277E+01			(1.384992)	(1.2776E-01)		(0.427901)	(0.427901)	(0.002)						
02/12/08	U-234	R	0.076917	1.09953E-02		0.034151	0.034151	0.20L	86%			0.240201		
2.277E+01			(0.062485)	(8.8854E-03)		(0.027689)	(0.027689)	(0.002)				0.072765		
02/12/08	U-235	R	0.069931	9.99667E-03		0.031049	0.031049	0.20L	86%			0.167479		
2.277E+01			(0.050278)	(7.1391E-03)		(0.022267)	(0.022267)	(0.002)				0.036383		
02/12/08	U-238	R	-0.02798	-3.99973E-03		-0.012423	-0.012423	0.20L	86%			0.240201		
2.277E+01			(0.037732)	(5.3836E-03)		(0.016741)	(0.016741)	(0.002)				0.072765		

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/EnYld Total/Analy Vol Final/Count Vol

Sq	Calc	SR	WATER	*STLE	AlpIsoWoBS	KGAFF1AC	pC/IL	S	01/25/08	15:00	02/12/08	08:05	UISG	1566	Alq	200.30	g
0	02/12/08	06:25	U-232	661	8	ALP4	ED	Y	N	3.7608E-01	Efficiency1	N	100%	N	1.0000E+00	4.5045E+02	1.0000E+00
										(1.128E-02)	Efficiency2	N			(0.000E+00)	0.004993	

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 hh:mm, 24hr Time  
 RecCnt:4  
 RADCALC v4.8.29  
 TA Richland

Alpha Spec, Uiso by ALP , Calculated Results

2/12/2008 5:38:00 PM

Batch Nbr: 8030208

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	BikLcC/MDC	StdMdc/LcC	
1	02/12/08 06:25	U-234	262	5	ALP4	ED	N	N	3.7608E-01	N	87%	N	1.0000E+00	4.5045E+02	1.0000E+00
			200.06666666	1000.2333			Y	(1.128E-02)			5%		(0.000E+00)	0.004993	
2	02/12/08 06:25	U-235	14	1	ALP4	ED	N	N	3.7608E-01	N	87%	N	1.0000E+00	4.5045E+02	1.0000E+00
			200.06666666	1000.2333			Y	(1.128E-02)			5%		(0.000E+00)	0.004993	
3	02/12/08 06:25	U-238	269	3	ALP4	ED	N	N	3.7608E-01	N	87%	N	1.0000E+00	4.5045E+02	1.0000E+00
			200.06666666	1000.2333			Y	(1.128E-02)			5%		(0.000E+00)	0.004993	

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	BikLcC/MDC	StdMdc/LcC
	02/12/08	U-232	R	19.708705		3.29590E+00	8.7638	8.7638	0.2003 L	87%				
	2.254E+01			(1.396532)		(1.2854E-01)	(0.431206)	(0.431206)	(0.002003)					
	02/12/08	U-234	R	8.921038		1.30456E+00	3.966886	3.966886	0.2003 L	87%	102%	0.251574		
	2.254E+01			(0.91912)		(8.0936E-02)	(0.355138)	(0.355138)	(0.002003)			0.07952		
	02/12/08	U-235	R	0.471686		6.89769E-02	0.209743	0.209743	0.2003 L	87%	118%	0.163711		
	2.254E+01			(0.133821)		(1.8729E-02)	(0.058537)	(0.058537)	(0.002003)			0.035563		
	02/12/08	U-238	R	9.173971		1.34155E+00	4.079357	4.079357	0.2003 L	87%	100%	0.215747		
	2.254E+01			(0.940123)		(8.1997E-02)	(0.362618)	(0.362618)	(0.002003)			0.061596		

# URANIUM ISOTOPIC COUNTING REQUEST

2/12/08 0945

C.R. Technician    

Counting Time 200 Minutes

SOP's Operating: RICHRD008  
Review: RICHRD0016

Date Counted 2/12/08

Sample Background See Alpha Regions Report

8030208

165/2008

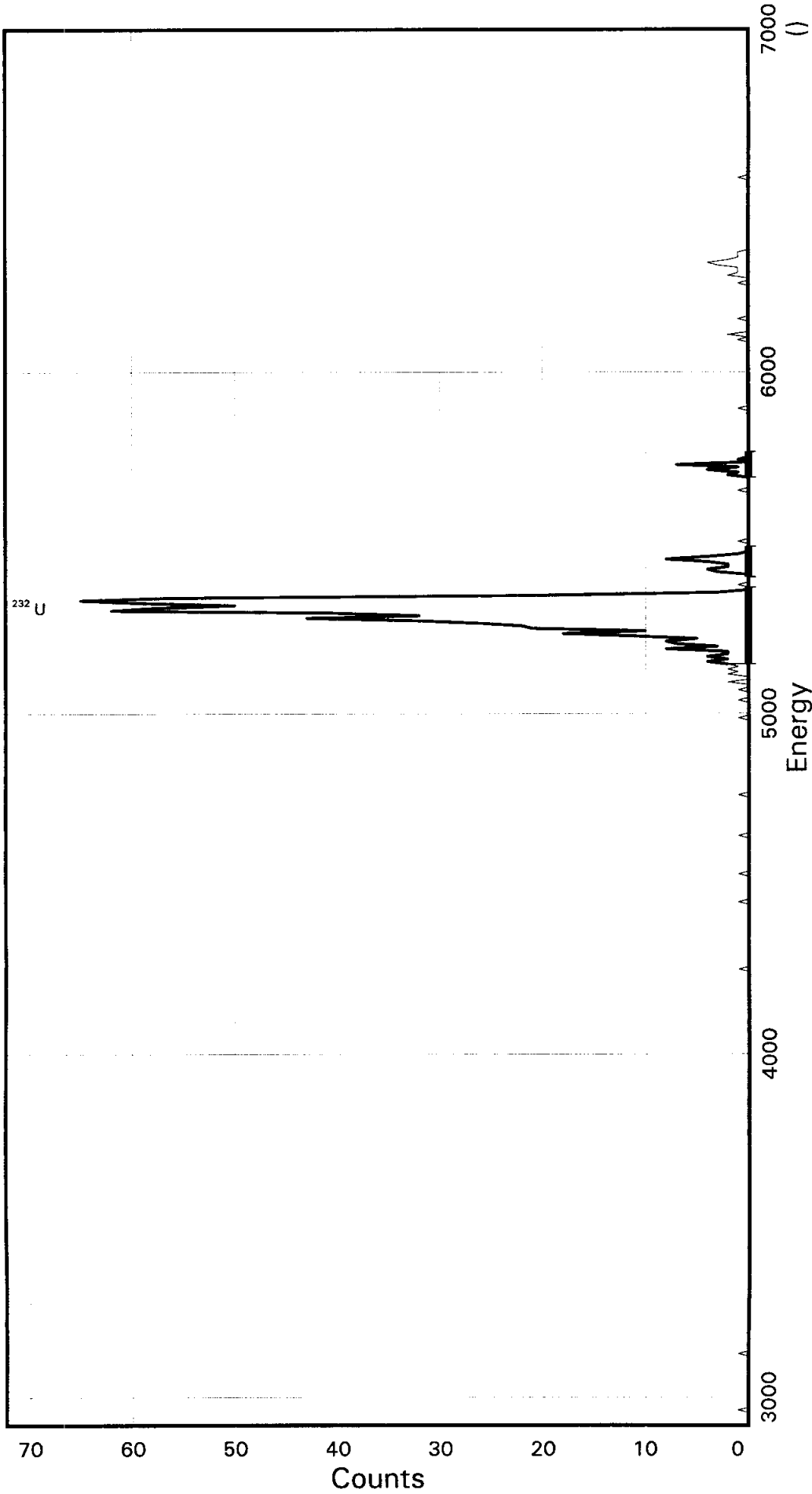
WorkOrder #	U-232 (5320 KeV) Tracer	TOTAL COUNTS			Det #	Comments/Edits
		U-238 (4196 KeV)	U-235 (4396 KeV)	U-234 (4776 KeV)		
KF6FN1AE	See Counting Room Printout for ROI information				1	
KF6FN1AF	See Counting Room Printout for ROI information				2	
KGAFF1AA	See Counting Room Printout for ROI information				3	
KGAFF1AC	See Counting Room Printout for ROI information				4	
	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: KF6FN1AE  
Detector ID: ALP1 1

Batch ID: 8030208



Energy Coefficients:  
Offset: 2.89653E+03  
Slope: 7.45256E+00  
Quadrature: 4.73726E-05

Acquisition Start: 12-FEB-2008 06:24:10.16  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:01.00

SAMPLE IDENTIITY: KF6FN1AE

TITLE : U BRCO

DETECTOR : ALP1 1  
CONFIGURATION NAME : \$DISK1:[ALP1.SAMPLE]KF6FN1AE\_120280624.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:30

REPORT DATE : 12-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 12-FEB-2008 06:24:10 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: KF6FN1AE

Flags Key

Detector: ALP1 1  
 Report Date: 12-Feb-08 09:44 AM P: Peak Identified  
 Acquire Date: 12-FEB-2008 06:24:10.16 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	Intrscpt Count	Count Rate C/Min	Centrd Energy keV	Region Width keV	Left Chnl	Right Chnl	Left Wdth Mult	Right Wdth Mult	Flags
U-232	676	14	0	3.366	5308.4	224.5	301	331	0.00	0.00	P
U-234	2	3	0	0.007	4762.8	224.3	228	258	0.00	0.00	
U-235	2	0	1	0.007	4386.0	224.1	178	208	0.00	0.00	S
U-238	1	5	1	-0.002	4186.2	224.0	151	181	0.00	0.00	S

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 12-FEB-2008 09:44:27

Configuration : \$DISK1:[ALP1.SAMPLE]KF6FN1AE\_120280624.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 12-FEB-2008 06:24:10  
 Sample ID : KF6FN1AE 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	5308.41	676	0	74.53	322.97	301	30	5.63E-02	3.8	
2	0	5441.73	28	0	44.72	340.78	335	12	2.33E-03	18.9	
3	0	5720.36	15	0	37.26	378.00	374	10	1.25E-03	25.8	



## Alpha Spectrum Listing

(Version: 1 Apr 07)

Sample Identity: KP6FN1AE

Flags Key

Detector: ALP1 1

Report Date: 12-Feb-08 09:44 AM

Intersect Region: @

Acquire Date: 12-FEB-2008 06:24:10.16

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									
0		1	0		51	0		101	0+		151	0+		201	0+		251	2+		301	0		351	1		401	0		451	0		501
		2	0		52	0		102	0+		152	0+		202	0+		252	4+		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	0+		153	0+		203	0+		253	2+		303	0		353	0		403	2		453	0		503
0		4	0		54	0		104	0+		154	0+		204	0+		254	4+		304	0		354	0		404	1		454	0		504
0		5	0		55	0		105	0+		155	0+		205	0+		255	2+		305	0		355	0		405	1		455	0		505
0		6	0		56	0		106	0+		156	0+		206	0+		256	2+		306	0		356	0		406	1		456	0		506
0		7	0		57	0		107	0+		157	0+		207	0+		257	8+		307	0		357	0		407	3		457	0		507
0		8	0		58	0		108	0+		158	1+		208	0+		258	3+		308	0		358	0		408	4		458	0		508
1		9	0		59	0		109	0+		159	0		209	0		259	7+		309	0		359	0		409	2		459	0		509
0		10	0		60	0		110	0+		160	0		210	0		260	8+		310	0		360	0		410	1		460	0		510
0		11	0		61	0		111	0+		161	0		211	0		261	5+		311	0		361	0		411	1		461	0		511
0		12	0		62	0		112	0+		162	0		212	0		262	11+		312	0		362	0		412	1		462	0		512
0		13	0		63	0		113	0+		163	0		213	0		263	18+		313	0		363	0		413	0		463			
0		14	0		64	0		114	0+		164	0		214	0		264	10+		314	0		364	0		414	0		464			
0		15	0		65	0		115	0+		165	0		215	0		265	21+		315	0		365	0		415	0		465			
0		16	0		66	0		116	0+		166	0		216	0		266	22+		316	0		366	0		416	0		466			
0		17	0		67	0		117	0+		167	0		217	0		267	26+		317	0		367	0		417	0		467			
0		18	0		68	0		118	0+		168	0		218	0		268	32+		318	0		368	0		418	0		468			
0		19	0		69	0		119	0+		169	1		219	0		269	43+		319	1		369	0		419	0		469			
0		20	0		70	0		120	0+		170	0		220	0		270	32+		320	0		370	0		420	0		470			
0		21	0		71	0		121	0+		171	0		221	0		271	40+		321	0		371	0		421	0		471			
0		22	0		72	0		122	0+		172	0		222	0		272	62+		322	0		372	0		422	0		472			
0		23	0		73	0		123	0+		173	0		223	0		273	58+		323	0		373	0		423	0		473			
0		24	0		74	0		124	0+		174	0		224	0		274	50+		324	0		374	0		424	0		474			
0		25	0		75	0		125	0+		175	0		225	0		275	59+		325	2		375	0		425	0		475			
0		26	0		76	0		126	0+		176	0		226	0		276	65+		326	1		376	0		426	0		476			
0		27	0		77	0		127	0+		177	0		227	0		277	57+		327	4		377	0		427	0		477			
0		28	0		78	0		128	0@		178	0+		228	0		278	19+		328	1		378	1		428	0		478			
0		29	0		79	0		129	0@		179	0+		229	0		279	3+		329	7		379	0		429	0		479			
0		30	0		80	0		130	0@		180	0+		230	1		280	0+		330	0		380	2		430	0		480			
1		31	0		81	0		131	1@		181	0+		231	0		281	0		331	1		381	0		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	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	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	1		436	0		486			
0		37	0		87	0		137	0+		187	0+		237	1		287	3		337	0		387	0		437	0		487			
0		38	0		88	0		138	0+		188	0+		238	0		288	4		338	0		388	0		438	0		488			
0		39	0		89	0		139	0+		189	0+		239	0		289	2		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	1		291	4		341	0		391	0		441	1		491			
0		42	0		92	0		142	0+		192	0+		242	0		292	8		342	0		392	0		442	0		492			
0		43	0		93	0		143	0+		193	0+		243	0		293	4		343	0		393	0		443	0		493			
0		44	0		94	0		144	0+		194	0+		244	2		294	1		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	2		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	2		299	1		349	0		399	0		449	0		499			
0		50	0		100	0		150	0+		200	1+		250	1		300	0		350	0		400	1		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP1.SAMPLE]KF6FN1AE\_120280624.CNF;1

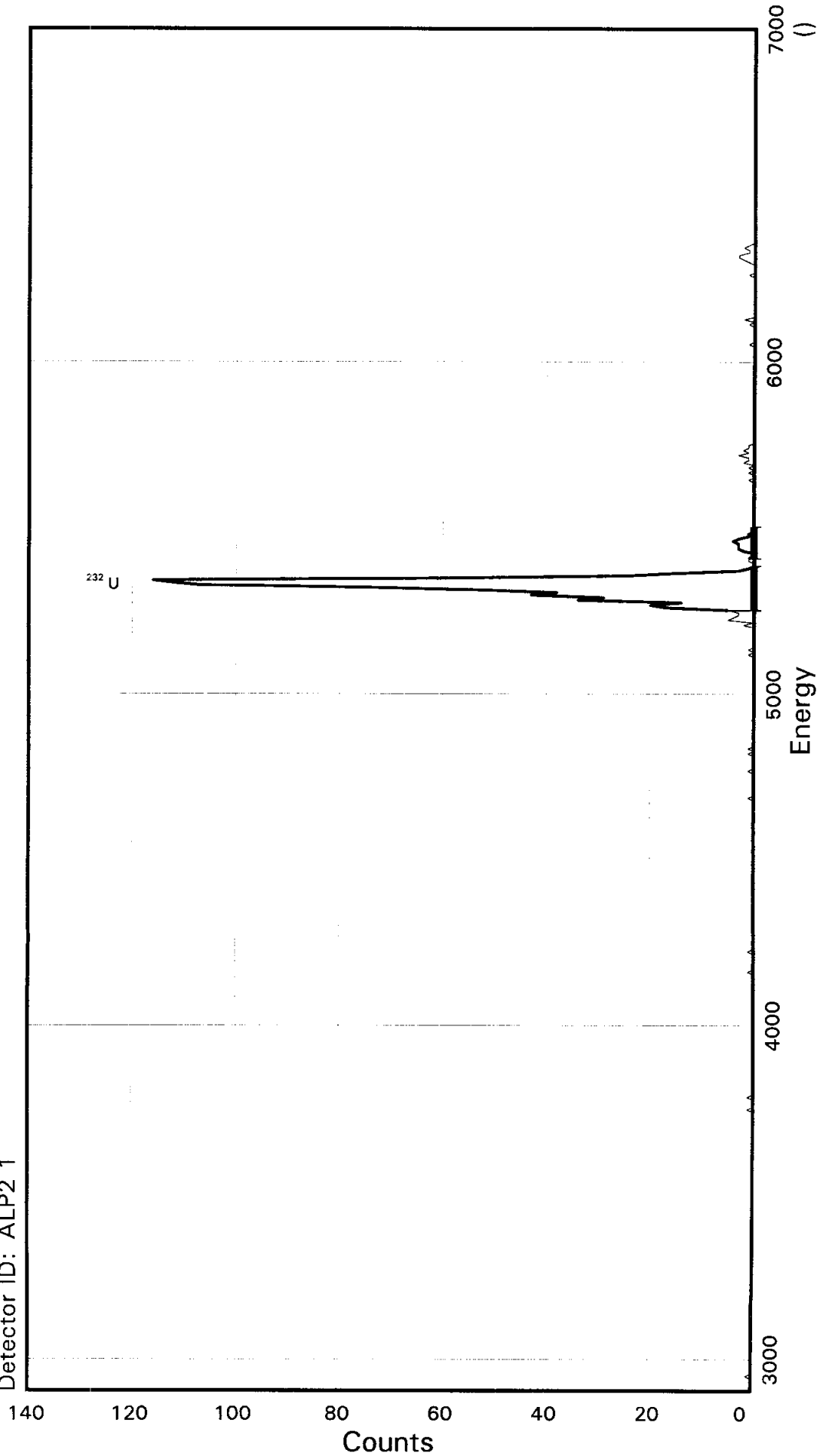
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/ StDev	Overlap Counts	Multiplet Diff/StDev
5308.41	301	331	676	675	0.04		
5441.72	335	347	28	28	0.00		
5720.36	374	384	15	16	-0.26		

End of Report

TAL Richland WA.  
U BRCO

Sample ID: KF6FN1AF  
Detector ID: ALP2 1

Batch ID: 8030208



Acquisition Start: 12-FEB-2008 06:24:40.61  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:02.00

Energy Coefficients:  
Offset: 2.88374E+03  
Slope: 7.38355E+00  
Quadrature: 4.94405E-05

SAMPLE IDENTIITY: KF6FN1AF

TITLE : U BRCO

DETECTOR : ALP2 1  
CONFIGURATION NAME : \$DISK1:[ALP2.SAMPLE]KF6FN1AF\_120280624.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:36

REPORT DATE : 12-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 12-FEB-2008 06:24:40 CALIB DATE : 04-FEB-2008 03:39:03

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

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: KF6FN1AF

Flags Key

Detector: ALP2 1  
 Report Date: 12-Feb-08 10:01 AM P: Peak Identified  
 Acquire Date: 12-FEB-2008 06:24:40.61 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	Intrstc Count	Count Rate C/Min	Centrd Region			Left		Right		Flags
					Energy keV	Width keV	Chnl	Chnl	Mult	Mult		
U-232	758	12	0	3.777	5330.0	133.5	320	338	0.00	0.00	P	
U-234	3	0	0	0.015	4784.5	133.4	246	264	0.00	0.00		
U-235	0	1	0	-0.001	4407.7	133.3	196	214	0.00	0.00		
U-238	2	0	0	0.010	4207.9	133.2	169	187	0.00	0.00		

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 12-FEB-2008 10:01:45

Configuration : \$DISK1:[ALP2.SAMPLE]KF6FN1AF\_120280624.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 12-FEB-2008 06:24:40  
 Sample ID : KF6FN1AF Sample quantity : 0.00000E+00 LITER  
 Sample type : disk Sample geometry :  
 Detector name : ALP2 Detector geometry:  
 Elapsed live time: 0 03:20:02.00 Elapsed real time: 0 03:20:02.00 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	5330.02	758	0	44.30	330.58	320	18	6.32E-02	3.6	
2	0	5450.04	22	0	44.30	346.76	341	13	1.83E-03	21.3	

## Alpha Spectrum Listing

(Version: 1-Apr-07)

Sample Identity: KPF6NIAF

Flags Key

Detector: ALP2 1

Report Date: 12 Feb 08 10:01 AM

Intersect Region: @

Acquire Date: 12 FEB-2008 06:24:40.61

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	0+		251	0		301	1		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	0+		202	0+		252	1		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	1		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	0+		205	1+		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	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
1		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	1		461	0		511
0		12	0		62	0		112	0		162	0+		212	1+		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	3		463			
0		14	0		64	0		114	0		164	0+		214	1+		264	2		314	0		364	0		414	3		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	5		316	0		366	0		416	1		466			
0		17	0		67	1		117	0		167	0		217	0		267	4		317	0		367	0		417	2		467			
0		18	0		68	0		118	0		168	0		218	0		268	3		318	0		368	0		418	1		468			
0		19	0		69	0		119	0+		169	0		219	0		269	3		319	0		369	0		419	0		469			
0		20	0		70	0		120	0+		170	0		220	0		270	5+		320	0		370	0		420	0		470			
0		21	0		71	0		121	0+		171	0		221	0		271	17+		321	0		371	0		421	0		471			
0		22	0		72	1		122	0+		172	0		222	0		272	20+		322	0		372	0		422	0		472			
0		23	0		73	0		123	1+		173	0		223	0		273	14+		323	1		373	0		423	0		473			
0		24	0		74	0		124	0+		174	0		224	0		274	34+		324	0		374	0		424	0		474			
0		25	0		75	0		125	0+		175	0		225	0		275	29+		325	0		375	0		425	0		475			
0		26	0		76	0		126	0+		176	0		226	0		276	43+		326	1		376	0		426	0		476			
0		27	0		77	0		127	0+		177	0		227	0		277	38+		327	0		377	0		427	0		477			
0		28	0		78	0		128	0+		178	0		228	0		278	51+		328	1		378	1		428	0		478			
0		29	0		79	0		129	0+		179	0		229	0		279	72+		329	0		379	0		429	0		479			
0		30	0		80	0		130	0+		180	0		230	0		280	107+		330	2		380	0		430	0		480			
0		31	0		81	0		131	1+		181	0		231	0		281	112+		331	1		381	0		431	0		481			
0		32	0		82	0		132	0+		182	0		232	0		282	116+		332	1		382	0		432	0		482			
0		33	0		83	0		133	0+		183	0		233	0		283	58+		333	3		383	0		433	0		483			
0		34	0		84	0		134	0+		184	0		234	0		284	24+		334	1		384	0		434	0		484			
0		35	0		85	0		135	0+		185	0		235	0		285	15+		335	2		385	0		435	0		485			
0		36	0		86	0		136	0+		186	0		236	0		286	3+		336	1		386	1		436	0		486			
0		37	0		87	0		137	0+		187	0		237	0		287	1+		337	1		387	0		437	0		487			
0		38	0		88	0		138	0		188	0		238	0		288	0		338	0		388	2		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	1		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	0		241	0		291	1		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	0		443	0		493			
0		44	0		94	0		144	0		194	1		244	0		294	2		344	0		394	0		444	0		494			
0		45	0		95	0		145	0		195	0		245	0		295	3		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	3		347	0		397	0		447	0		497			
0		48	0		98	0		148	0+		198	0+		248	0		298	4		348	0		398	0		448	0		498			
0		49	0		99	0		149	0+		199	0+		249	0		299	3		349	0		399	0		449	0		499			
0		50	0		100	0		150	0+		200	0+		250	0		300	1		350	0		400	0		450	0		500			

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP2.SAMPLE]KF6FN1AF\_120280624.CNF;1

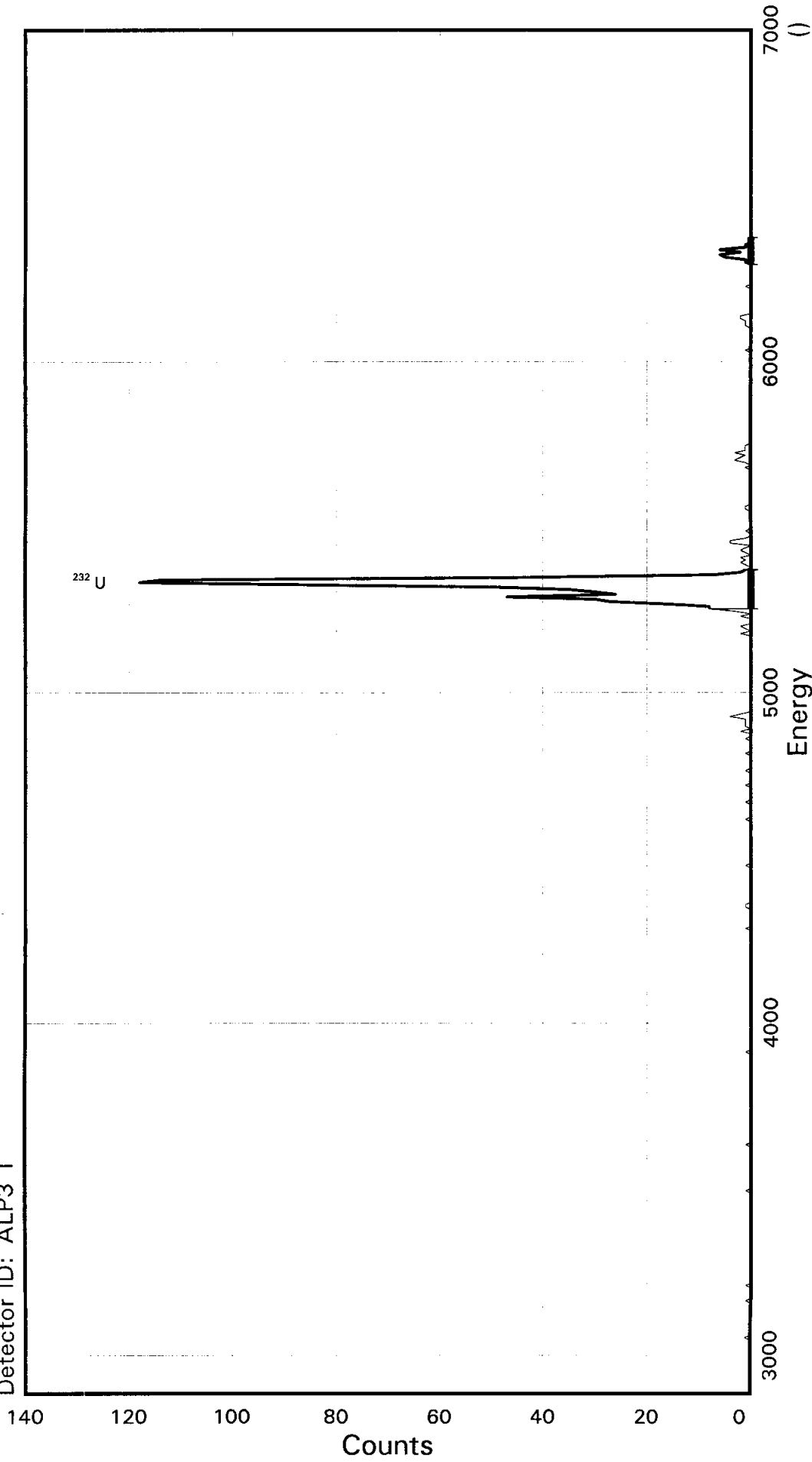
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
5330.02	320	338	758	759	-0.04		
5450.03	341	354	22	21	0.21		

End of Report

TAL Richland WA.  
U BRCO

Sample ID: KGAFF1AA  
Detector ID: ALP3 1

Batch ID: 8030208



Acquisition Start: 12-FEB-2008 06:24:56.05  
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: KGAFF1AA

TITLE : U BRCO

DETECTOR : ALP3 1  
CONFIGURATION NAME : \$DISK1:[ALP3.SAMPLE] KGAFF1AA\_120280624.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:39

REPORT DATE : 12-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 12-FEB-2008 06:24:56 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: KGAFF1AA

Flags Key

Detector: ALP3 1  
 Report Date: 12-Feb-08 09:45 AM P: Peak Identified  
 Acquire Date: 12-FEB-2008 06:24:56.05 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		Right		Flags
					Energy keV	Width keV	Chnl	Chnl	Wdth Mult	Wdth Mult	
U-232	653	9	0	3.255	5333.1	118.0	325	341	0.00	0.00	P
U-234	3	4	0	0.011	4787.5	117.8	251	267	0.00	0.00	
U-235	2	0	0	0.010	4410.7	117.7	200	216	0.00	0.00	
U-238	0	4	0	-0.004	4210.9	117.6	173	189	0.00	0.00	

End of Alpha Region Report  
(Produced by Alp\_rgn\_cnts)

VMS Peak Search Report V1.9 Generated 12-FEB-2008 09:45:17

Configuration : \$DISK1:[ALP3.SAMPLE] KGAFF1AA\_120280624.CNF;1  
 Analyses by : ALPHA V1.8  
 Sample title : U BRCO  
 Sample date : 25-JAN-2008 12:00:00 Acquisition date : 12-FEB-2008 06:24:56  
 Sample ID : KGAFF1AA 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	5333.05	653	0	36.63	336.00	325	16	5.44E-02	3.9	
2	0	6322.81	24	0	36.63	470.05	466	11	2.00E-03	20.4	

Alpha Spectrum Listing  
 (Version: 1 Apr-07)

Sample Identity: KCAFF1AA  
 Detector: ALP3 1  
 Report Date: 12 Feb 08 09:45 AM  
 Acquire Date: 12 FEB 2008 06:24:56.05

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	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	4		352	0		402	0		452	0		502	
0		3	0		53	0		103	0		153	1+		203	1+		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	1		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	1		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	1+		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	2		315	0		365	0		415	0		465				
0		16	0		66	0		116	0		166	0+		216	1+		266	0		316	1		366	0		416	0		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	0		218	0		268	2		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	5		469				
0		20	0		70	0		120	0		170	1		220	0		270	0		320	0		370	0		420	6		470				
0		21	0		71	0		121	0		171	0		221	0		271	0		321	0		371	0		421	2		471				
0		22	0		72	0		122	0		172	0		222	1		272	2		322	0		372	0		422	6		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	3		324	0		374	0		424	1		474				
0		25	0		75	0		125	0+		175	0		225	2		275	8+		325	0		375	0		425	0		475				
1		26	0		76	0		126	0+		176	0		226	0		276	8+		326	0		376	0		426	0		476				
0		27	0		77	0		127	0+		177	0		227	1		277	16+		327	0		377	0		427	0		477				
0		28	0		78	0		128	0+		178	0		228	1		278	27+		328	0		378	0		428	0		478				
0		29	0		79	0		129	0+		179	0		229	1		279	30+		329	0		379	0		429	0		479				
0		30	0		80	0		130	0+		180	0		230	1		280	47+		330	0		380	0		430	0		480				
0		31	0		81	0		131	0+		181	0		231	4		281	26+		331	0		381	1		431	0		481				
0		32	0		82	0		132	0+		182	0		232	2		282	30+		332	0		382	0		432	0		482				
0		33	0		83	0		133	0+		183	0		233	0		283	35+		333	1		383	0		433	0		483				
0		34	0		84	0		134	0+		184	0		234	0		284	49+		334	0		384	0		434	0		484				
0		35	0		85	0		135	0+		185	0		235	0		285	87+		335	1		385	0		435	0		485				
0		36	1		86	0		136	0+		186	0		236	0		286	118+		336	3		386	0		436	0		486				
0		37	0		87	0		137	0+		187	0		237	0		287	114+		337	2		387	0		437	0		487				
0		38	0		88	0		138	0+		188	0		238	0		288	43+		338	1		388	0		438	0		488				
0		39	0		89	0		139	0+		189	1		239	0		289	7+		339	3		389	0		439	0		489				
0		40	0		90	0		140	0		190	0		240	0		290	2+		340	1		390	0		440	0		490				
1		41	0		91	0		141	0		191	0		241	0		291	1		341	1		391	1		441	0		491				
0		42	0		92	0		142	0		192	0		242	0		292	0		342	1		392	1		442	0		492				
0		43	0		93	1		143	0		193	0		243	0		293	1		343	0		393	1		443	0		493				
0		44	0		94	0		144	1		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	1		345	0		395	2		445	0		495				
0		46	0		96	0		146	0		196	1		246	0		296	2		346	0		396	0		446	0		496				
1		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	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	1		350	0		400	0		450	0		500				

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP3.SAMPLE]KGAFF1AA\_120280624.CNF;1

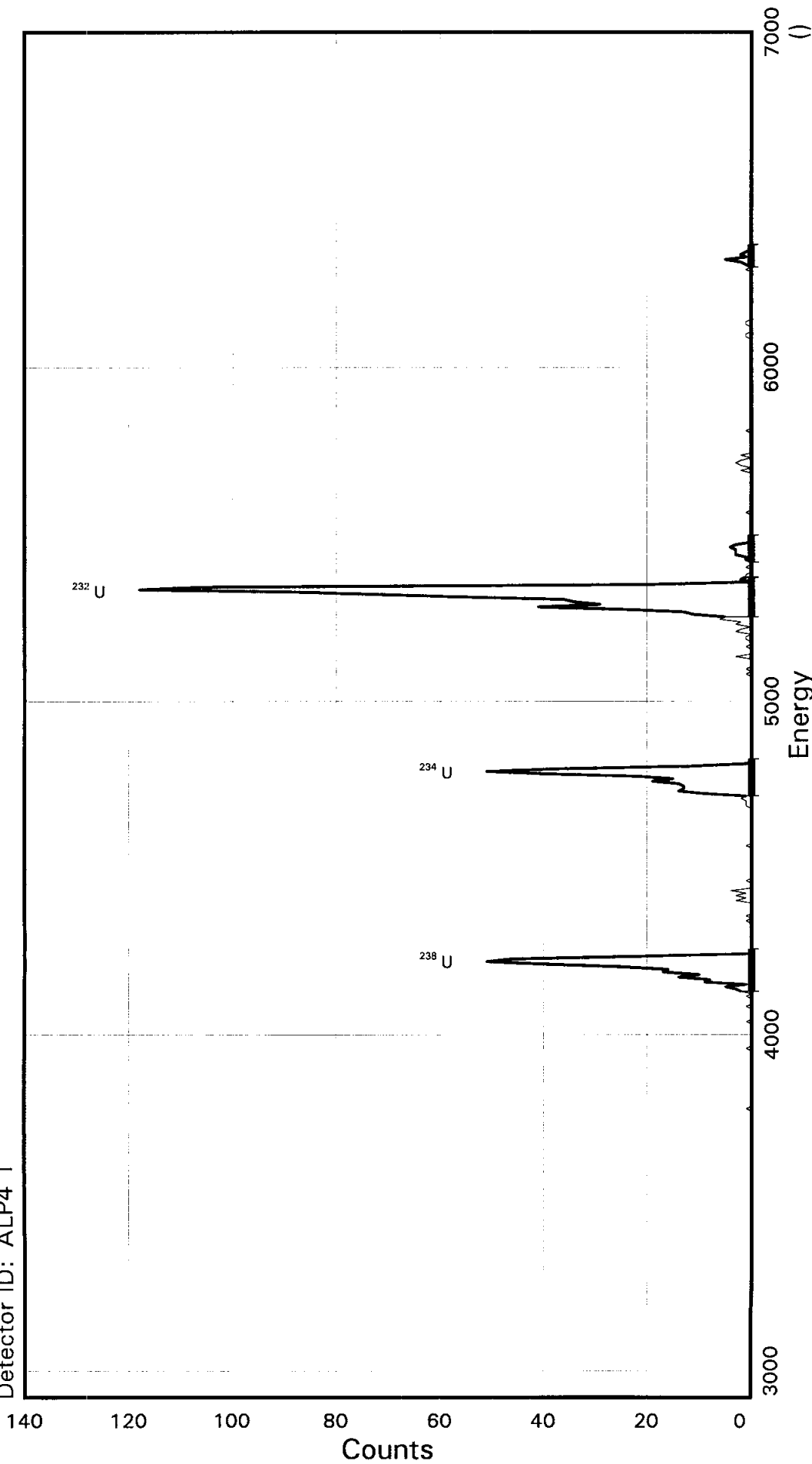
Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
5333.05	325	341	653	648	0.20		
6322.81	466	477	24	23	0.20		

End of Report

TAL Richland WA.  
U BRCO

Sample ID: KGAFF1AC  
Detector ID: ALP4 1

Batch ID: 8030208



Acquisition Start: 12-FEB-2008 06:25:17.12  
Preset Live Time: 0 03:20:00.00  
Elapsed Live Time: 0 03:20:04.00

Energy Coefficients:  
Offset: 2.89851E+03  
Slope: 7.46541E+00  
Quadrature: -5.32157E-05

SAMPLE IDENTIITY: KGAFF1AC

TITLE : U BRCO

DETECTOR : ALP4 1  
CONFIGURATION NAME : \$DISK1:[ALP4.SAMPLE] KGAFF1AC\_120280625.CNF;1

ACQUIRE DATE of BACKGROUND: 04-FEB-2008 06:06:43

REPORT DATE : 12-Feb-08 SAMPLE DATE: 25-JAN-2008 12:00:00  
ACQUIRE DATE: 12-FEB-2008 06:25:17 CALIB DATE : 04-FEB-2008 03:39:19

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

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: KGAFF1AC

Flags Key

Detector: ALP4 1 Report Date: 12-Feb-08 10:02 AM Acquire Date: 12-FEB-2008 06:25:17.12 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	Intrstc Count	Count Rate C/Min	Centrd Region			Left		Right		Flags
					Energy keV	Width keV	Chnl	Chnl	Wdth Mult	Wdth Mult		
U-232	661	8	0	3.296	5328.1	118.9	316	332	0.00	0.00	P	
U-234	262	5	0	1.305	4782.6	111.6	244	259	0.00	0.00	P	
U-235	14	1	0	0.069	4405.8	119.1	192	208	0.00	0.00		
U-238	269	3	0	1.342	4206.0	126.6	165	182	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 10:02:56

```

Configuration      : $DISK1:[ALP4.SAMPLE]KGAFF1AC_120280625.CNF;1
Analyses by       : ALPHA V1.8
Sample title      : U BRCO
Sample date       : 25-JAN-2008 12:00:00 Acquisition date : 12-FEB-2008 06:25:17
Sample ID        : KGAFF1AC Sample quantity : 0.00000E+00 LITER
Sample type      : disk Sample geometry :
Detector name    : ALP4 Detector geometry:
Elapsed live time: 0 03:20:04.00 Elapsed real time: 0 03:20:04.00 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	4217.84	269	0	37.33	176.95	165	17	2.24E-02	6.1	
2	0	4788.15	262	0	29.86	253.58	244	15	2.18E-02	6.2	
3	0	5328.13	661	0	37.33	326.21	316	16	5.51E-02	3.9	
4	0	5447.58	18	0	37.33	342.29	338	11	1.50E-03	23.6	
5	0	6321.96	13	0	37.33	460.08	457	9	1.08E-03	27.7	

Alpha Spectrum Listing  
(Version: 1-Apr-07)

Sample Identity: KGAFFIAC

Flags Key

Detector: ALP4 1

Report Date: 12-Feb-08 10:02 AM

Intersect Region: @

Acquire Date: 12-FEB-2008 06:25:17.12

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	15+		251	0		301	0		351	0		401	0		451	0		501
		2	0		52	0		102	0		152	3+		202	22+		252	0		302	0		352	0		402	0		452	0		502
0		3	0		53	0		103	1		153	1+		203	39+		253	0		303	0		353	0		403	0		453	0		503
0		4	0		54	0		104	0		154	3+		204	51+		254	1		304	0		354	0		404	0		454	0		504
0		5	0		55	0		105	0		155	1+		205	38+		255	0		305	0		355	0		405	0		455	0		505
0		6	0		56	0		106	0		156	4+		206	12+		256	0		306	0		356	0		406	1		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	0+		258	1		308	1		358	0		408	1		458	0		508
0		9	0		59	0		109	1		159	0		209	0		259	0		309	0		359	0		409	2		459	0		509
0		10	0		60	0		110	0		160	1		210	0		260	3		310	0		360	0		410	5		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	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	1		463			
0		14	0		64	0		114	0		164	0		214	0		264	2		314	0		364	0		414	0		464			
0		15	0		65	0		115	2+		165	0		215	0		265	6		315	0		365	0		415	0		465			
0		16	0		66	0		116	3+		166	0		216	0		266	5+		316	0		366	0		416	0		466			
0		17	0		67	0		117	5+		167	0		217	0		267	11+		317	0		367	0		417	0		467			
0		18	0		68	1		118	1+		168	0		218	0		268	13+		318	0		368	0		418	0		468			
0		19	0		69	0		119	9+		169	0		219	0		269	24+		319	0		369	0		419	0		469			
0		20	0		70	0		120	8+		170	0		220	0		270	41+		320	0		370	0		420	0		470			
0		21	0		71	0		121	14+		171	0		221	0		271	29+		321	0		371	0		421	0		471			
0		22	0		72	0		122	10+		172	0		222	0		272	34+		322	0		372	0		422	0		472			
0		23	0		73	0		123	17+		173	0		223	0		273	36+		323	0		373	0		423	0		473			
0		24	0		74	0		124	16+		174	1		224	0		274	55+		324	0		374	0		424	0		474			
0		25	0		75	0		125	25+		175	0		225	0		275	71+		325	2		375	0		425	0		475			
0		26	0		76	0		126	39+		176	0		226	0		276	87+		326	0		376	0		426	0		476			
0		27	0		77	0		127	51+		177	0		227	0		277	118+		327	2		377	0		427	0		477			
0		28	0		78	0		128	46+		178	0		228	0		278	106+		328	3		378	0		428	0		478			
0		29	0		79	0		129	21+		179	0		229	0		279	20+		329	2		379	1		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	2+		331	2		381	0		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	1		434	0		484			
0		35	0		85	0		135	0		185	0		235	0		285	0		335	0		385	1		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	0		289	1		339	0		389	0		439	0		489			
0		40	0		90	0		140	0		190	1		240	0		290	1		340	0		390	0		440	0		490			
0		41	0		91	0		141	0		191	1		241	0		291	3		341	1		391	0		441	0		491			
0		42	0		92	1		142	0+		192	1		242	0		292	3		342	0		392	0		442	0		492			
0		43	0		93	0		143	0+		193	2		243	1		293	3		343	0		393	0		443	0		493			
0		44	0		94	0		144	1+		194	1+		244	0		294	4		344	0		394	0		444	0		494			
0		45	0		95	0		145	0+		195	9+		245	1		295	3		345	0		395	0		445	0		495			
0		46	0		96	0		146	1+		196	14+		246	0		296	0		346	0		396	0		446	0		496			
0		47	0		97	0		147	0+		197	13+		247	0		297	0		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	0+		200	19+		250	3		300	0		350	0		400	0		450	0		500			



ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP4.SAMPLE]KGAF1AC\_120280625.CNF;1

Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4217.84	165	182	269	267	0.12		
4788.15	244	259	262	261	0.06		
5328.12	316	332	661	653	0.31		
5447.58	338	349	18	18	0.00		
6321.96	457	466	13	12	0.28		

End of Report

URANIUM ISOTOPIC  
STANDARDS AND TRACEABILITY

# Standard Material Fractions (Vials)

Vial Prep: 2/16/07 to 2/18/08, SMFractionIdentifier Between UITC19477 and UITC19479, 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
UITC19477	U-232	1.0057E+01 ± 3.129E-01 DPM	0.201 g	2/4/2008 2/4/2008	Armstron	5.0034E+01 ± 1.556E+00 DPM/G
UITC19478	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
UITC19479	U-232	1.0112E+01 ± 3.146E-01 DPM	0.2021 g	2/4/2008 2/4/2008	Armstron	5.0034E+01 ± 1.556E+00 DPM/G

1.0079E+001 ± 2.932E-002 ( 3)      0.291%      1.0057E+001 , 1.0112E+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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U23201A130</u></b>	<b><u>6281</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>5.3490E+01</u></b>	<b>±</b>	<b><u>1.664E+00</u></b>
12) Total Uncertainty	<u>3.110</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>U23201A131</u></b>	<b><u>6282</u></b>	
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>	

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**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(0.0002<sup>2</sup> + 0.0002<sup>2</sup> + 0.00001<sup>2</sup>) = 0.0003 g

10) % error of dilution wt. = (0.0173 / total weight of dilution \* 100)  
wt uncert (0.1 place balance) = Sqrt(0.1<sup>2</sup> + 0.1<sup>2</sup> + 0.1<sup>2</sup>) = 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>tda</u>	2) Date Prepared	<u>1/10/2008</u>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U23201A100</u></b>	<b><u>4920</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>1.3382E+04</u></b>	<b>±</b>	<b><u>4.162E+02</u></b>
12) Total Uncertainty	<u>3.110</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>U23201A130</u></b>	<b><u>6281</u></b>	
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>W.G</u>	2) Date Prepared	<u>6/15/2001</u>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U23201A000</u></b>	<b><u>4911</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>1.8963E+06</u></b>	<b>±</b>	<b><u>5.897E+04</u></b>
12) Total Uncertainty	<u>3.110</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>U23201A100</u></b>	<b><u>4920</u></b>	
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		

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**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

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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

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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



## Standard Material Fractions (Vials)

Vial Prep: 2/16/07 to 2/18/08, SMFractionIdentifier Like: UISG1566%, 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	
UISG1566	U-232	1.0039E+01 ± 2.918E-01 DPM	0.2013 g	12/11/2007 12/11/2007	Armstron	4.9873E+01 ± 1.449E+00 DPM/G
		1.0039E+001 ± 1.004E+001 ( 1)	1.0039E+001 , 1.0039E+001			

**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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U23283D100</u></b>	<b><u>1091</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>6.1360E+01</u></b>	<b>±</b>	<b><u>1.783E+00</u></b>
12) Total Uncertainty	<u>2.905</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>U23283D190</u></b>	<b><u>6263</u></b>	
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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U23283D100</u></b>	<b><u>1091</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>2.0516E+01</u></b>	<b>±</b>	<b><u>9.420E-01</u></b>
12) Total Uncertainty	<u>4.592</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>U23283D180</u></b>	<b><u>6120</u></b>	
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.

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**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 =  $\sqrt{(\% \text{ error of Source Activity}^2 + \% \text{ error of Wt. Used}^2 + \% \text{ error of Dilution Wt.}^2)}$

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**ISOTOPE DILUTION RECORD**

1) Prepared by	<u>tda</u>	2) Date Prepared	<u>7/28/2006</u>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U23283D100</u></b>	<b><u>1091</u></b>	
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>2.0516E+01</u></b>	<b>±</b>	<b><u>9.420E-01</u></b>
12) Total Uncertainty	<u>4.592</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>U23283D180</u></b>	<b><u>6120</u></b>	
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.			

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**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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U23283D170</u></b>		<b><u>4886</u></b>
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>1.0071E+01</u></b>	±	<b><u>4.640E-01</u></b>
12) Total Uncertainty	<u>4.607</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>U23283D171</u></b>		<b><u>4887</u></b>
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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U23283D100</u></b>		<b><u>1091</u></b>
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>2.9709E+02</u></b>	±	<b><u>1.366E+01</u></b>
12) Total Uncertainty	<u>4.596</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>U23283D170</u></b>		<b><u>4886</u></b>
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  
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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  
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Prepared By: WG      Preparation Date: 18OCT93      Reference date 01FEB86

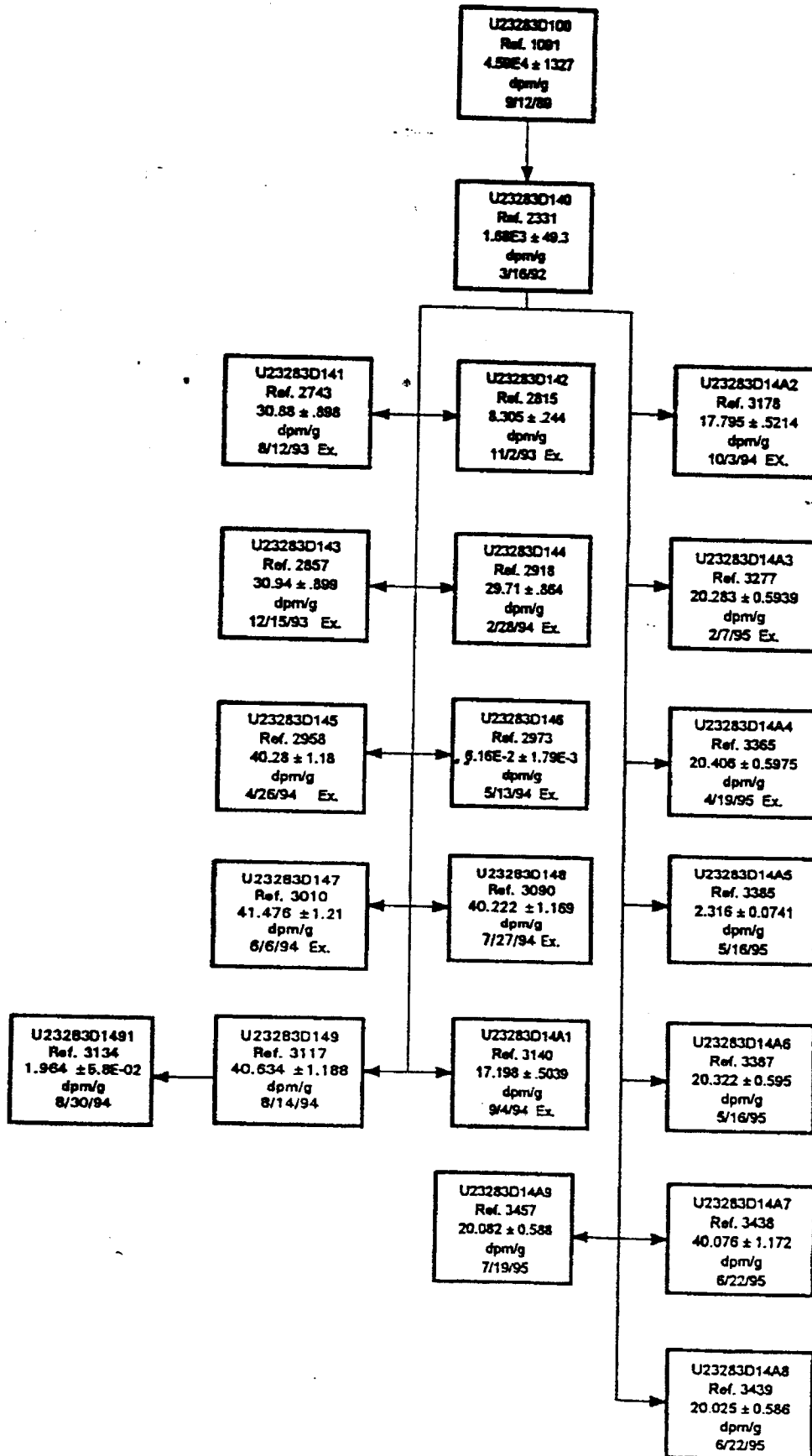
Source Identification: U30886A149      Isotope: UN-AT

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 HNO<sub>3</sub></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) % 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 =  $(\% \text{ error of Source Activity} ^2 + \% \text{ error of Wt. used} + \% \text{ error of Dilution Wt.})$

Form: CC-006, 5/5/94, Rev 2

**ISOTOPE DILUTION RECORD**

1) Prepared by	<u>W.G.</u>	2) Date Prepared	<u>3/16/92</u>
<b>3) Source Identification Number / Ref. Number</b>	<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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<u>1.6892E+03</u>	±	<u>4.929E+01</u>
12) Total Uncertainty	<u>2.918</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<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**

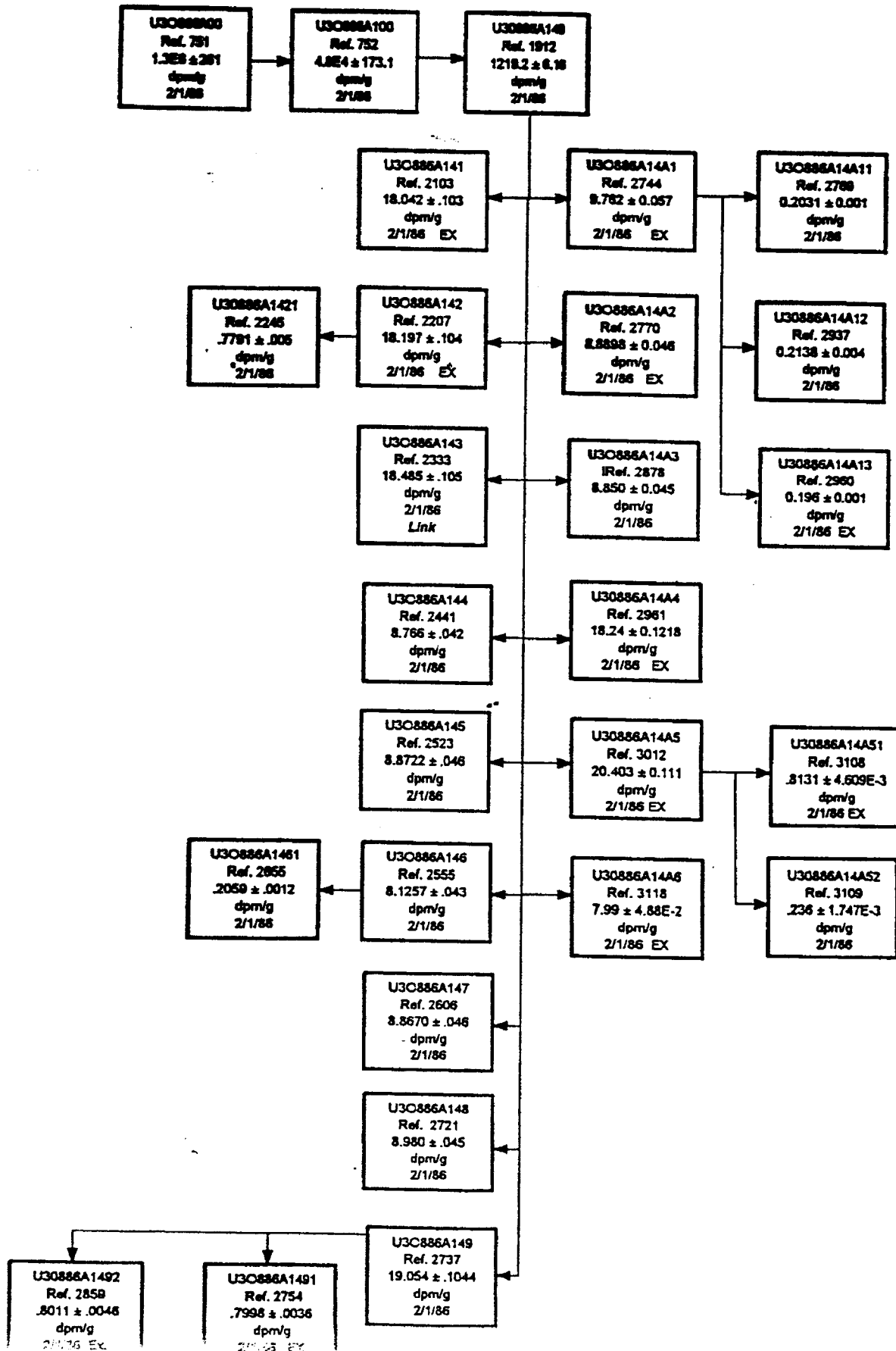
7) % Error of Wt. used =  $(0.0048 / \text{Weight of Source Material used} * 100) ^2$

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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U30886A100</u></b>		<b><u>752</u></b>
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>	%	
<b>12) Specific Activity of Diluted Solution dpm/g</b>	<b><u>1.2192E+03</u></b>	±	<b><u>6.156E+00</u></b>
<b>13) Specific Activity of Diluted Solution ug/g</b>	<b><u>7.9273E+02</u></b>	±	<b><u>4.003E+00</u></b>
14) Total Uncertainty	<u>0.505</u>	%	
<b>15) Dilution Identification Number / Ref. Number</b>	<b><u>U30886A140</u></b>		<b><u>1912</u></b>
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**

$$7) \% \text{ Error of Wt. used} = (0.0048 / \text{Weight of Source Material used} * 100) ^2$$

$$10) \% \text{ error of Dilution Wt.} = (0.3 / \text{Total Weight of Dilution} * 100) ^2$$

$$11) \text{ Specific Activity} = \text{Source Activity} * \text{Wt. of Source Material used} / \text{Total Wt. of the Dilution}$$

$$12) \% \text{ Total Uncertainty} = \sqrt{(\% \text{ error of Source Activity} ^2 + \% \text{ error of Wt. used} + \% \text{ error of Dilution Wt.})}$$

**ISOTOPE DILUTION RECORD**

1) Prepared by	<u>C.S.</u>	2) Date Prepared	<u>3/24/86</u>
<b>3) Source Identification Number / Ref. Number</b>	<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>	%	
<b>12) Specific Activity of Diluted Solution dpm/g</b>	<u>4.7985E+04</u>	±	<u>1.731E+02</u>
<b>13) Specific Activity of Diluted Solution ug/g</b>	<u>3.1200E+04</u>	±	<u>1.125E+02</u>
14) Total Uncertainty	<u>0.361</u>	%	
<b>15) Dilution Identification Number / Ref. Number</b>	<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  $\pm 0.020$  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.<sup>1,2</sup> 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

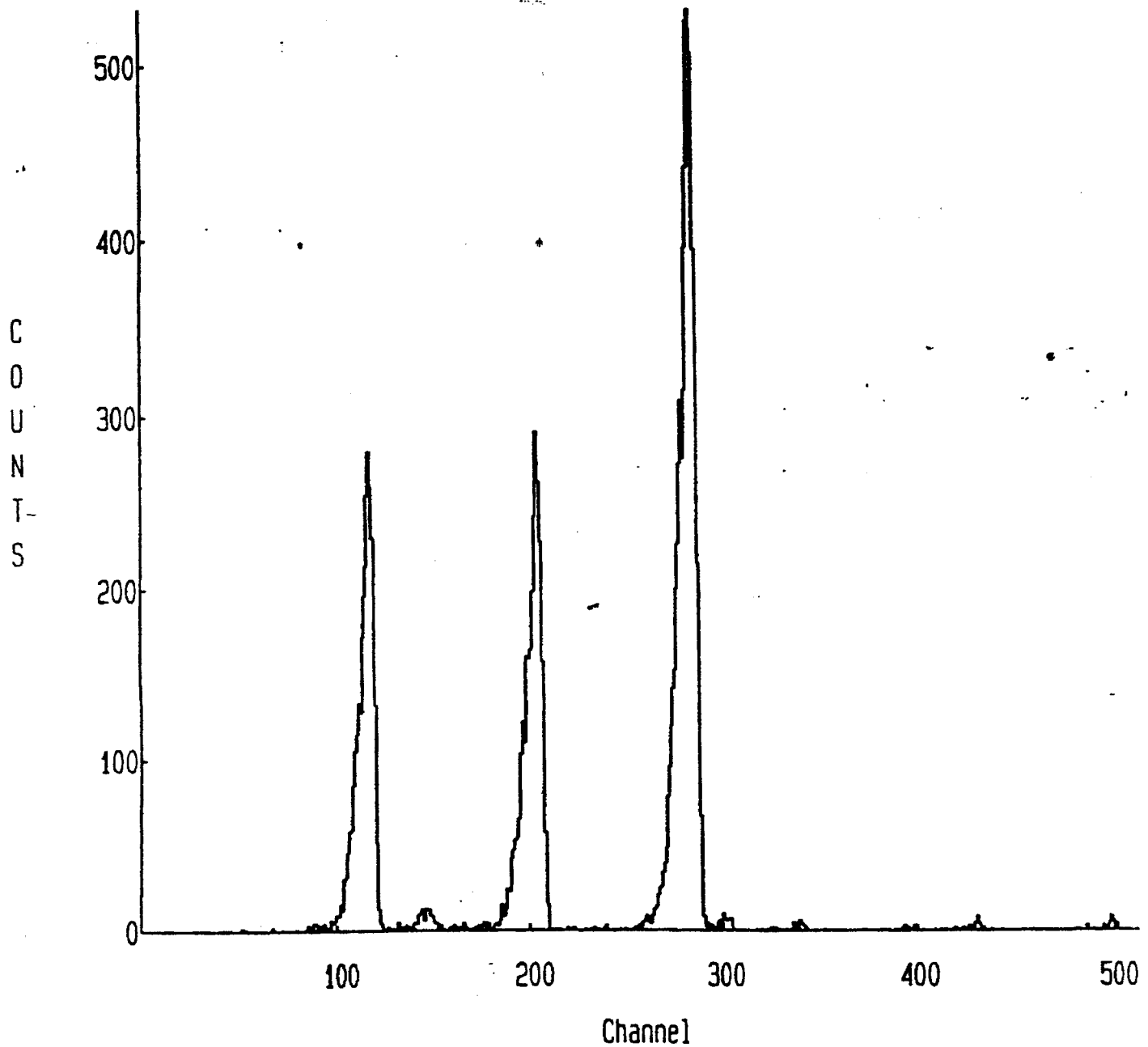
(over)

IT-NO # <i>Cal 626</i>	ISO	CUSTOMER ID <i>IT</i>	RECEIVE DATE	DUE DATE
SA TYPE:	RPT UNITS: PCI <i>DEH</i> 6 L CH <i>SA</i>		STORAGE	
PROC	VIAL			
GA	GB	CO	CS	
<i>U-232</i>				
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>10-18-73</i>		
TOTAL SAMPLE WEIGHT OR VOLUME	UNIT	SUGGESTED ALIQUOT	SAMPLE ANALYZED WEIGHT OR VOLUME	UNIT
				<i>SA</i>
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
COUNTING INSTRUMENT CHECK ONE				OTHER
NAI 3 5 9				GER ASPEC LEPD AGC BGC
SPIXE #		TECH COMMENTS		
BLANK #		<i>WJ</i> <i>CCG Data Cal C.K</i> <i>232/L</i>		

Spectrum: DUB1: [ALP5.SAMPLE] CAL626\_201031223.CNF; 1

Title:

Sample Title: U IT



Start Time: 20-OCT-93 12:23

Real Time: 0 16: 40: 05.00

Live Time: 0 16: 40: 02.00

Sample Time: 19-OCT-93 12:00

Sample ID: CAL626

Sample Type: disk

FWHM Parameters:

Offset: 8.06E+01

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 Chnl	Right Chnl	Left Wdth	Right Wdth	Flags	
					Energy keV	Width keV						
U-232	5488	89	23.6	0	5.464	5327.6	174.0	266	292	0.00	0.00	P
U-234	2631	8	1.2	0	2.630	4783.1	159.5	186	210	0.00	0.00	P
U-235	123	8	1.2	0	0.122	4403.3	198.4	127	157	0.00	0.00	P
U-238	2614	8	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: ALPS 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						
		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  
 "E" = Manually edited

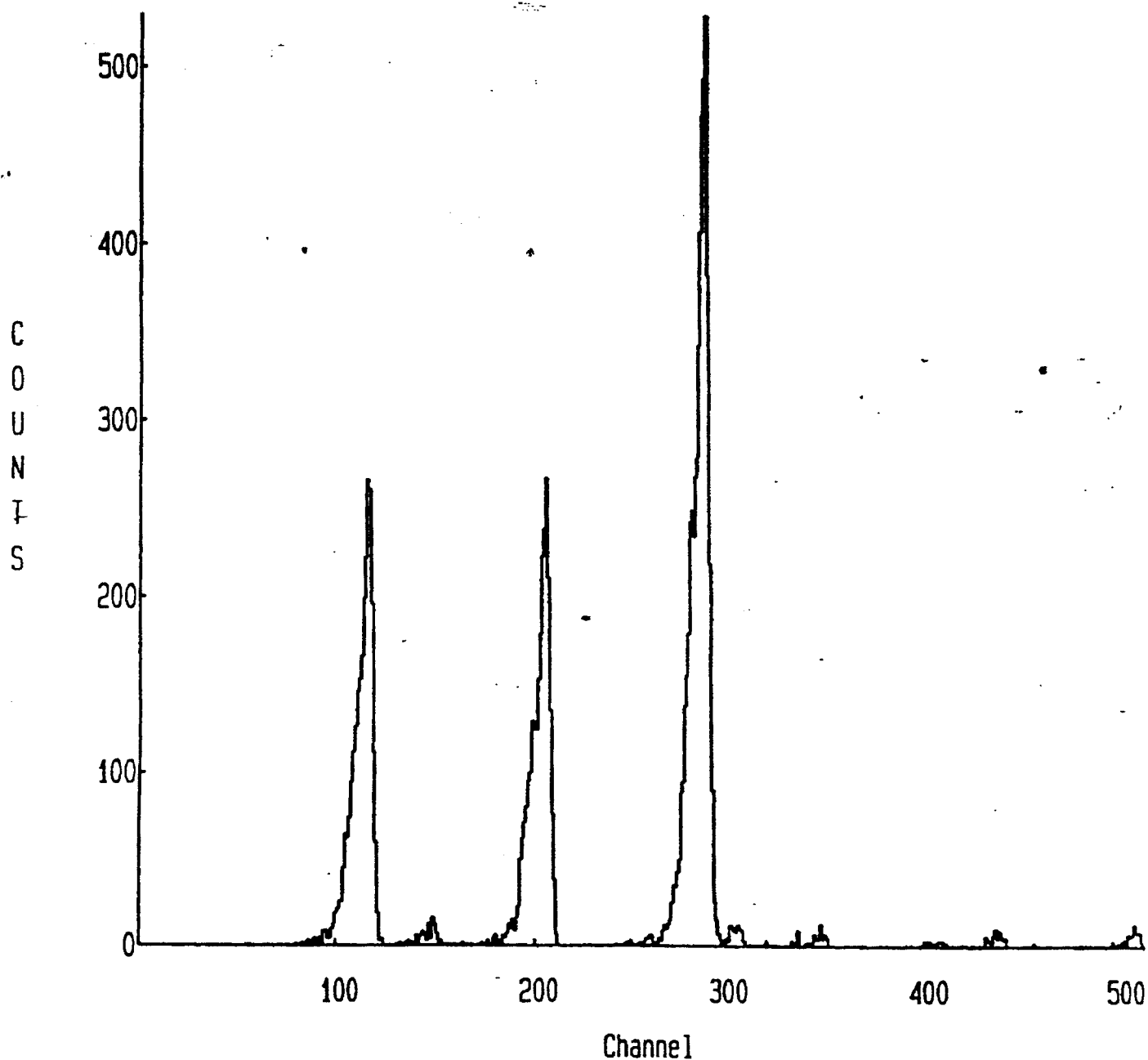
"M" = Manually accepted  
 "A" = Nuclide specific abn. limit

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
				REF DATE MON YR
COST CODE CIRCLE ONE				OTHER
14 44 64 83 108 208				
COUNTING INSTRUMENT CHECK ONE			OTHER	DETECTOR NUMBER
NAI	3	5	9	GER
				ASPEC LEPD ASC 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	
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

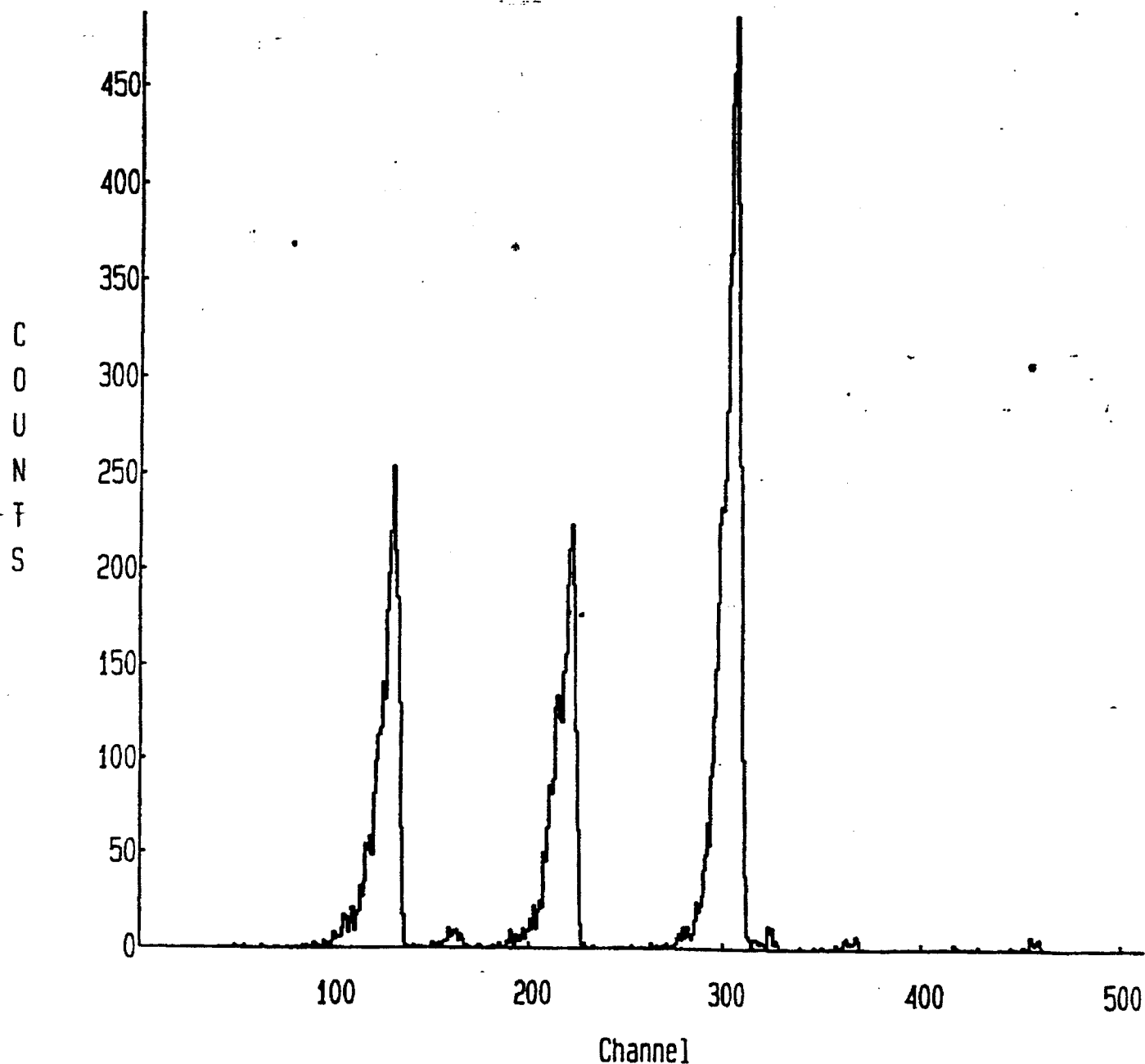
Flags: "K" = Keyline not found "M" = Manually accepted  
 "E" = Manually edited "A" = Nuclide specific abn. limit

LT-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 HEIGHT 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"/> <i>ASPEC</i>
				<input type="checkbox"/> <i>LEPD</i>
				<input type="checkbox"/> <i>ASC</i>
				<input type="checkbox"/> <i>BGC</i>
SPIKE #		TECH COMMENTS		
BLANK #		<i>U-232</i>		
<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

Real Time: 0 16:40:01.00

Live Time: 0 16:40:01.00

Sample Time: 19-OCT-93 12:00

Sample ID: CAL628

Sample Type: disk

FWHM Parameters:

Offset: 7.30E+01

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 05:05 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

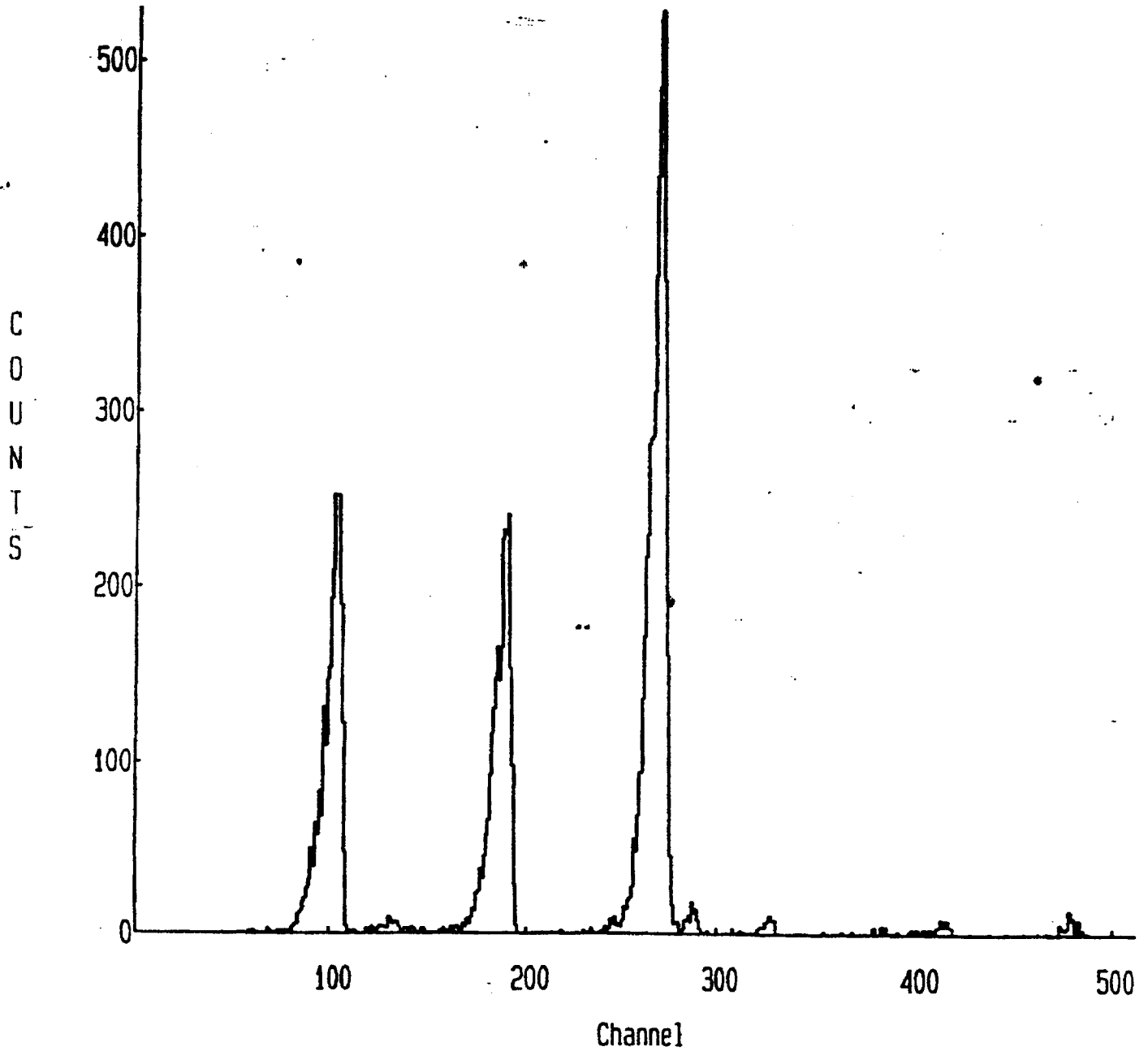
IT-RD # <i>Cal 629</i>		ISO	CUSTOMER ID <i>IT</i>	RECEIVE DATE	DUE DATE
SA TYPE:		RPT UNITS: PCI <i>(DPH)</i> 6 L CH <i>(SA)</i>			STORAGE
PROC		VIAL			
GA	GB	CO	CS		
REQUESTED COUNTING TIME	REQ'D BY	SAMPLE DATE/ON DATE	SAMPLE DATE/OFF TIME	COUNTING DATE DAY MON YR TIME	
<i>1000</i>	<i>CCG</i>	<i>10-18-93</i>			
TOTAL SAMPLE WEIGHT OR VOLUME	UNIT	SUGGESTED ALIQUOT	SAMPLE ANALYZED WEIGHT OR VOLUME	UNIT	SECURETY CIRCLE ONE
TRACER ISOTOPE	TRACER UST NUMBER	TRACER VOLUME/WEIGHT	TRACER CONCENTRATE	TRACER REP DATE DAY MON YR	14 44 64 83 108 208
COUNTING INSTRUMENT CHECK ONE				OTHER	DETECTOR NUMBER
NAI	3	5	9	GER	ASPEC
				LEPD	ASC
				BGC	
Spike #		TECH COMMENTS			
Blank #		<i>WA</i>			
<i>CCG Data Cal Ch 232LL</i>					

*U-232*

*ISA*

*WA*

Spectrum: DUB1: [ALP10.SAMPLE] CAL629\_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: CAL629	Offset: 5.91E+01
Live Time: 0 16:40:01.00	Sample Type: disk	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	
		1	0		51	194+	0	151	0	201	15	0	301	0	351	3	401	0	451	0	501			
		2	0		52	210+	1	152	0	202	20	0	302	0	352	1	402	0	452	0	502			
0		3	1	53	253+	0	153	1	203	22	0	303	1	353	0	403	0	453	0	503				
0		4	0	54	252+	0	154	0	204	28+	0	304	2	354	3	404	0	454	0	504				
0		5	1	55	252+	2	155	1	205	56+	0	305	0	355	3	405	1	455	0	505				
0		6	1	56	190+	0	156	0	206	49+	1	306	0	356	0	406	0	456	0	506				
0		7	0	57	124+	3	157	1	207	70+	0	307	0	357	3	407	0	457	0	507				
0		8	0	58	48+	1	158	1	208	94+	0	308	0	358	3	408	0	458	0	508				
0		9	2	59	5+	2	159	0	209	95+	3	309	1	359	2	409	0	459	0	509				
0		10	0	60	1+	2	160	1	210	130+	0	310	0	360	1	410	0	460	0	510				
0		11	2	61	2	4	161	0	211	173+	1	311	1	361	4	411	0	461	0	511				
0		12	0	62	1	1	162	0	212	210+	1	312	0	362	5	412	1	462	0	512				
0		13	1	63	2	4	163	1	213	251+	2	313	2	363	9	413	0	463	0					
0		14	0	64	0	4	164	1	214	282+	0	314	0	364	5	414	0	464	0					
0		15	0	65	0	2	165	0	215	285+	1	315	0	365	8	415	0	465	0					
0		16	1	66	0+	2	166	1	216	287+	1	316	0	366	8	416	1	466	0					
0		17	0	67	0+	6	167	0	217	312+	1	317	0	367	5	417	1	467	0					
0		18	0	68	0+	4	168	2	218	379+	1	318	2	368	4	418	0	468	0					
0		19	3	69	3+	9	169	1	219	436+	1	319	1	369	0	419	9	469	0					
0		20	2	70	3+	6	170	0	220	487+	1	320	0	370	0	420	6	470	0					
0		21	1	71	1+	10	171	0	221	525+	0	321	0	371	0	421	0	471	0					
0		22	1	72	4+	15+	172	0	222	530+	3	322	1	372	0	422	1	472	0					
0		23	1	73	3+	14+	173	0	223	376+	4	323	0	373	0	423	3	473	0					
0		24	2	74	2+	24+	174	0	224	162+	4	324	1	374	0	424	1	474	0					
0		25	2	75	3+	26+	175	1	225	46+	4	325	1	375	0	425	3	475	0					
0		26	2	76	5+	39+	176	1	226	17+	7	326	0	376	0	426	3	476	0					
0		27	2	77	4+	33+	177	0	227	6+	8	327	1	377	0	427	1	477	0					
0		28	2	78	4+	46+	178	0	228	7	11	328	0	378	1	428	1	478	0					
0		29	1	79	3+	58+	179	2	229	7	8	329	4	379	0	429	3	479	0					
0		30	2	80	10+	67+	180	0	230	2	8	330	0	380	0	430	10	480	0					
0		31	2	81	8+	93+	181	1	231	2	1	331	0	381	0	431	1	481	0					
0		32	4	82	6+	118+	182	1	232	3	0	332	1	382	0	432	8	482	0					
0		33	6	83	7+	132+	183	3	233	8	0	333	5	383	0	433	3	483	0					
0		34	6	84	7+	149+	184	1	234	8	0	334	0	384	0	434	0	484	0					
0		35	12+	85	4+	167+	185	1	235	11	0	335	5	385	0	435	3	485	0					
0		36	14+	86	2+	148+	186	0	236	7	0	336	1	386	0	436	0	486	0					
0		37	19+	87	2+	167+	187	1	237	19	0	337	1	387	1	437	1	487	0					
0		38	21+	88	3+	228+	188	2	238	13	0	338	0	388	0	438	1	488	0					
0		39	27+	89	3+	233+	189	1	239	15	0	339	1	389	0	439	0	489	0					
0		40	32+	90	1	231+	190	4	240	8	1	340	0	390	0	440	0	490	0					
0		41	50+	91	4	242+	191	2	241	3	1	341	2	391	0	441	0	491	0					
0		42	40+	92	3	155+	192	3	242	1	0	342	0	392	0	442	0	492	0					
0		43	65+	93	0	98+	193	9	243	1	1	343	0	393	0	443	0	493	0					
0		44	58+	94	1	29+	194	6	244	1	0	344	0	394	0	444	0	494	0					
0		45	83+	95	1	5+	195	10	245	2	1	345	0	395	0	445	0	495	0					
1		46	69+	96	3	0+	196	5	246	1	0	346	0	396	1	446	0	496	0					
0		47	133+	97	3	0	197	6	247	0	0	347	2	397	0	447	0	497	0					
0		48	110+	98	1	0	198	4	248	0	0	348	3	398	0	448	0	498	0					
0		49	148+	99	0	1	199	8	249	0	0	349	0	399	0	449	0	499	0					
0		50	155+	100	1	0	200	16	250	1	0	350	0	400	0	450	0	500	0					

```

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  
 "E" = Manually edited

"M" = Manually accepted  
 "A" = Nuclide specific abn. limit

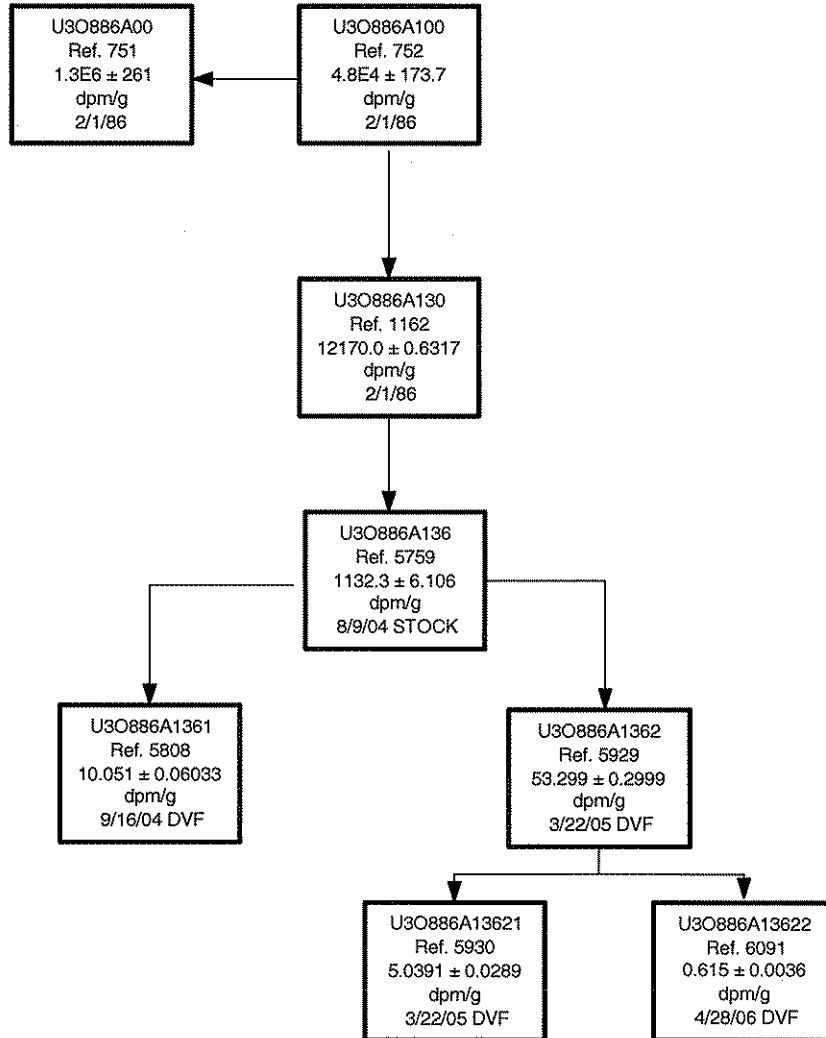


Vial Identifier	Constituent	Prep Activity/Concentration	Std Wt Used	Prep,Decayed To Date	Prep by	Std Decayed Activity/Concentration
Parent Standard:		U3O886A1362	Ref: 3/22/2005	3.5107E+01 ± 1.950E-01	UG/G	
UISG1566	U	5.3117E+00 ± 2.992E-02 UG	0.1513 g	12/11/2007 12/11/2007	Armstron	3.5107E+01 ± 1.950E-01 UG/G

5.3117E+000 ± 5.312E+000 ( 1)                      5.3117E+000 , 5.3117E+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	
UISG1566	UIO	8.1694E+00 ± 4.601E-02 DPM	0.1513 g	12/11/2007 12/11/2007	Armstron	5.3995E+01 ± 2.999E-01 DPM/G
		8.1694E+000 ± 8.169E+000 ( 1)	8.1694E+000 , 8.1694E+000			

**U3088A136**  
**Link**



## ISOTOPE DILUTION RECORD

1) Prepared by <u>tda</u>	2) Date Prepared	<u>5/8/2006</u>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U30886A1362</u></b>	<b><u>5929</u></b>
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>	%
<b>12) Specific Activity of Diluted Solution dpm/g</b>	<b><u>3.1241E+00</u></b>	± <b><u>1.777E-02</u></b>
<b>13) Specific Activity of Diluted Solution ug/g</b>	<b><u>2.0313E+00</u></b>	± <b><u>1.155E-02</u></b>
<b>14) Specific Activity of Diluted Solution ug/ml</b>	<b><u>2.1654E+00</u></b>	± <b><u>1.232E-02</u></b>
15) Total Uncertainty	<u>0.569</u>	%
<b>16) Dilution Identification Number / Ref. Number</b>	<b><u>U30886A13623</u></b>	<b><u>6103</u></b>
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	

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### 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 \_\_\_\_\_

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**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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U30886A130</u></b>	<b><u>1162</u></b>	
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>	%	
<b>12) Specific Activity of Diluted Solution dpm/g</b>	<b><u>1.1323E+03</u></b>	±	<b><u>6.106E+00</u></b>
<b>13) Specific Activity of Diluted Solution ug/g</b>	<b><u>7.3623E+02</u></b>	±	<b><u>3.970E+00</u></b>
14) Total Uncertainty	<u>0.539</u>	%	
<b>15) Dilution Identification Number / Ref. Number</b>	<b><u>U30886A136</u></b>	<b><u>5759</u></b>	
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		

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**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

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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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>U3O886A000</u></b>	<b><u>751</u></b>	
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>		%
<b>12) Specific Activity of Diluted Solution dpm/g</b>	<b><u>4.7985E+04</u></b>	±	<b><u>1.731E+02</u></b>
<b>13) Specific Activity of Diluted Solution ug/g</b>	<b><u>3.1200E+04</u></b>	±	<b><u>1.125E+02</u></b>
14) Total Uncertainty	<u>0.361</u>		%
<b>15) Dilution Identification Number / Ref. Number</b>	<b><u>U3O886A100</u></b>	<b><u>752</u></b>	
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 0.012 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 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 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		

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		

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	

## -- 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	

## -- 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
------------------	-----------	----------------	-------	-----------------

```

-----
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
------------------	-----------	----------------	-------	-----------------

```

-----
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	

```
-----
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	

```
-----
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	

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	

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	

```
-----
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	

```
-----
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
------------------	-----------	----------------	-------	-------------	-----

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		

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	

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    | | |

## -- 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

-----  
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    | | |

## -- 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  | | |

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-- 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
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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 : 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
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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 : 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
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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 : 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		
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2-MAR-2008 06:38	bkg		0.0130		
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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 : 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		
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2-MAR-2008 06:38	bkg		0.0940		
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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 : 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 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		

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		

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
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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
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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		0.0080		

## -- 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
------------------	-----------	----------------	-------	-------------	-----

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
------------------	-----------	----------------	-------	-------------	-----

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
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
Quality Assurance Multi-Test Full Report (continued)      Page : 5				
4-FEB-2008 06:06	bkg		0.0880	
2-MAR-2008 06:38	bkg		0.0790	

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		0.0880	
2-MAR-2008 06:38	bkg		0.0790	

4-FEB-2008 06:06	bkg		0.0880	
2-MAR-2008 06:38	bkg		0.0790	

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
4-FEB-2008 06:06	bkg		0.0550	
2-MAR-2008 06:38	bkg		0.0720	

4-FEB-2008 06:06	bkg		0.0550	
2-MAR-2008 06:38	bkg		0.0720	

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		

# RADIUM 228

## SAMPLE AND QC DATA

**Lot No., Due Date:** F8A260145; 02/25/2008  
**Client, Site:** 1418995; LANDWELL - Tronox Parcel H  
**QC Batch No., Method Test:** 8030212; 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 10-11844

**First Level Review**         Korvus DMI: [Signature]        

**Date**         2/14/08

**Data Review Checklist**  
**RADIOCHEMISTRY**  
Second Level Review

Batch Number: 8030212

Review Item	Yes (✓)	No (✓)	NA (✓)
<b>A. Sample Analysis</b>			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery 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?		✓	
<b>C. Other</b>			
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

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Second Level Review: Eihe Jorde Date: 2/12/8

# Clouseau Nonconformance Memo

NCM #: <b>10-11844</b> NCM Initiated By: Tom McGinnis Date Opened: 02/14/2008 Date Closed:	Classification: <b>Deficiency</b> Status: <b>GLREVIEW</b> Production Area: Environmental - Prep Tests: Ra-228 by GPC Lot #'s (Sample #'s): J8A300000 (212), QC Batches: 8030212,
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>

**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>



2/1/2008 10:29:01 AM  
 1418995, Landwell Company  
 Landwell Company  
**Analyte Due Date: 02/06/2008**  
 Batch: 8030212  
 SEQ Batch, Test: 8030211, BUTE 8030211, BUTE

**Sample Preparation/Analysis**  
 BU Ra-226/228 Prp/SepRC5005  
 TF Radium-228 by GPC  
 01 STANDARD TEST SET  
 PM, Quote: JAE, 78254  
 pCi/L

Balance Id: 1120403183  
 Pipet #: **H**  
 Sep1 DT/Tm Tech: 2/4/08 11:35 DL  
 Sep2 DT/Tm Tech: 2/12/08 9:00 AM  
 Prep Tech: LucasD

**PRIORITY**

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 KF6FN-1-AC	960.10g.in	RATA30146	01/21/08	✓ 1.0000	1.5"	3x50	6A	1448	2/12/08		
F8A260145-19-SAMP											

01/25/2008 15:00  
 AmtRec: 2XLP #Containers: 2  
 2 KF6FN-1-AJ-X  
 F8A260145-19-DUP

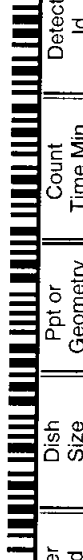
01/25/2008 15:00  
 AmtRec: 2XLP #Containers: 2  
 3 KGAFN-1-AA-B  
 J8A300000-212-BLK

01/25/2008 15:00  
 AmtRec: #Containers: 1  
 4 KGAFN-1-AC-C  
 J8A300000-212-LCS

01/25/2008 15:00  
 AmtRec: #Containers: 1  
 31.7  
 32.2  
 31.5

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:
01/25/2008 15:00	1000.50g.in	RATA30147	01/21/08	✓ 1.0000							
01/25/2008 15:00	1000.50g.in	RASC4687	01/21/08	✓ .9810							
01/25/2008 15:00											

2/1/2008 10:29:01 AM Balance Id:1120403183  
**Sample Preparation/Analysis**  
 BU Ra-226/228 Prp/SepRC5005 Pipet #:  
 TF Radium-228 by GPC  
 01 STANDARD TEST SET Sep1 DT/Tm Tech:  
**ANALYSIS** Sep2 DT/Tm Tech:  
 Batch: 8030212 Prep Tech: , LucasD  
 SEQ Batch, Test: None 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:
											

**Comments:** KF6FN-SAMP "Comments: ISV for DUP- DL 2/1/08"

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

KF6FN1AC-SAMP Constituent List:

KGAFN1AA-BLK:	RDL:	pCi/L	LCL:	RDL:	RA-228	RDL:	pCi/L	LCL:	UCL:	RPD:
Ba-133	RDL:3	pCi/L	LCL:20	RPD:20	RA-228	RDL:3	pCi/L	LCL:115	UCL:115	RPD:20
RA-228DA	RDL:3	pCi/L	LCL:70	RPD:20	RA-226	RDL:3	pCi/L	UCL:130	UCL:130	RPD:20
Ba-133	RDL:3	pCi/L	LCL:20	RPD:20	RA-228DA	RDL:3	pCi/L	UCL:70	UCL:70	RPD:20
RA-228	RDL:3	pCi/L	LCL:70	RPD:20						

KF6FN1AC-SAMP Calc Info:  
 Uncert Level (#s): 4 Decay to Sadt: N Blk Subt.: N Sci.Not.: N ODRs: B  
 KGAFN1AA-BLK:  
 Uncert Level (#s): 4 Decay to Sadt: N Blk Subt.: N Sci.Not.: N ODRs: B  
 KGAFN1AC-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: 2/14/2007, 2/19/2008, Batch: '8030212', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
<b>8030212</b>				
AC		<b>Rev1C</b>	<b>LucasD</b>	2/4/2008 11:32:21
SC			wagarr	IsBatched 1/30/2008 12:05:38 PM
SC			LucasD	Sep1C 2/4/2008 11:32:21 AM
SC			McGinnisT	Sep2C 2/12/2008 10:22:01 AM
SC			ClarkR	InCnt1 2/12/2008 12:04:19 PM
SC			BlackCL	CalcC 2/13/2008 6:54:13 AM
SC			mcginnist	Rev1C 2/14/2008 10:24:01 AM
AC			<b>McGinnisT</b>	2/12/2008 10:22:01
AC			<b>ClarkR</b>	2/12/2008 12:04:19
AC			<b>BlackCL</b>	2/13/2008 6:54:13
AC			<b>mcginnist</b>	2/14/2008 10:24:01

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 Cnt Uncert	Received Date Tot Uncert	Sample Date Units	Expected Yield	Volumes		
<b>8030210</b>	<b>9KF6FN10</b>		<b>F8A26014519</b>	RINSATE-1	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM				
RA-226	BUTE	0	2/11/2008 1:35:00 PM	<b>6.9348E-03</b>	2.047E-02	2.048E-02	8.287E-02	pCi/L	1.0	9.601E-1	
RA-228	BUTF	0	2/13/2008 6:23:38 AM	<b>3.5323E-01</b>	1.3E-01	1.31E-01	5.456E-01	pCi/L	0.922	9.601E-1	
RA-228	TBD	0	2/13/2008 6:23:38 AM	<b>3.5323E-01</b>	1.3E-01	1.31E-01	5.456E-01	pCi/L	0.922	9.601E-1	
TH-228	9NS1	0	2/8/2008 4:46:41 PM	<b>-2.9354E-02</b>	5.176E-02	5.181E-02	3.087E-01	pCi/L	0.824	2.001E-1	
TH-230	9NS1	0	2/8/2008 4:46:41 PM	<b>1.4469E-01</b>	8.409E-02	8.484E-02	2.31E-01	pCi/L	0.824	2.001E-1	
TH-232	9NS1	0	2/8/2008 4:46:41 PM	<b>0.0E+00</b>	0.0E+00	4.919E-02	2.31E-01	pCi/L	0.824	2.001E-1	
U-234	7YSR	0	2/12/2008 8:04:11 AM	<b>4.7096E-02</b>	4.898E-02	4.913E-02	2.123E-01	pCi/L	0.878	2.0E-1	
U-234	TBD	0	2/12/2008 8:04:11 AM	<b>4.7096E-02</b>	4.898E-02	4.913E-02	2.123E-01	pCi/L	0.878	2.0E-1	
U-235	7YSR	0	2/12/2008 8:04:11 AM	<b>5.0458E-02</b>	4.174E-02	4.195E-02	1.611E-01	pCi/L	0.878	2.0E-1	
U-235	TBD	0	2/12/2008 8:04:11 AM	<b>5.0458E-02</b>	4.174E-02	4.195E-02	1.611E-01	pCi/L	0.878	2.0E-1	
U-238	7YSR	0	2/12/2008 8:04:11 AM	<b>-1.6816E-02</b>	2.814E-02	2.818E-02	2.476E-01	pCi/L	0.878	2.0E-1	
U-238	TBD	0	2/12/2008 8:04:11 AM	<b>-1.6816E-02</b>	2.814E-02	2.818E-02	2.476E-01	pCi/L	0.878	2.0E-1	
<b>8030210</b>	<b>KGAFN1AB</b>		<b>J8A300000212</b>	INTRA-LAB BLANK	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM				
RA-228	BUTF	0 B	2/13/2008 6:23:38 AM	<b>2.1522E-01</b>	1.047E-01	1.082E-01	4.708E-01	pCi/L	0.936	1.0E+0	
<b>8030210</b>	<b>KGAFN1CS</b>		<b>J8A300000212</b>	INTRA-LAB CHECK	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM				
RA-228	BUTF	0 S	2/13/2008 6:23:38 AM	<b>4.7514E+00</b>	2.412E-01	3.607E-01	5.173E-01	pCi/L	4.9092E+00	0.898	1.0E+0

8030212, \*\*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-228 by GPC			Ra-226/Ra-228 Deem With Out Blk Subt. *CntU: 0+1, + *SystU, `MDCConst:2.71												
Calc	TF	WATER	KF6FN1AC	RA-228	1.20E-01	(1.86E-01)	U4	pCi/L	R	3.87E-01	8.48E-01		92%		
Calc	TF	WATER	KF6FN1AC	RA-228	6.22E-01	(2.47E-01)		pCi/L	R	4.30E-01	9.42E-01		92%		
Calc	TF	WATER	KF6FN1AC	RA-228	3.18E-01	(2.43E-01)	U4	pCi/L	R	4.77E-01	1.04E+00		92%		
Calc	TF	WATER	KF6FN1AC	RA-228	3.53E-01	(1.31E-01)		pCi/L	A	2.49E-01	5.46E-01	✓	92%		
Calc	TF	WATER	KF6FN1AC	RA-228	1.68E+00	(1.50E+00)	U4	pCi/L	R	3.03E+00	6.58E+00		92%		
Calc	TF	WATER	KGAFN1AA	RA-228	3.19E-01	(1.79E-01)		pCi/L	R	3.31E-01	7.32E-01	B	94%		
Calc	TF	WATER	KGAFN1AA	RA-228	1.25E-01	(1.78E-01)	U4	pCi/L	R	3.68E-01	8.13E-01	B	94%		
Calc	TF	WATER	KGAFN1AA	RA-228	2.02E-01	(2.04E-01)	U4	pCi/L	R	4.08E-01	9.02E-01	B	94%		
Calc	TF	WATER	KGAFN1AA	RA-228	2.15E-01	(1.08E-01)		pCi/L	A	2.13E-01	4.71E-01	✓B	94%	JK	
Calc	TF	WATER	KGAFN1AA	RA-228	1.33E+00	(1.31E+00)	U4	pCi/L	R	2.64E+00	5.77E+00	B	94%		
Calc	TF	WATER	KGAFN1AC	RA-228	5.07E+00	(6.38E-01)		pCi/L	R	3.66E-01	8.04E-01	S	90%	103%	
Calc	TF	WATER	KGAFN1AC	RA-228	4.59E+00	(6.08E-01)		pCi/L	R	4.06E-01	8.93E-01	S	90%	93%	
Calc	TF	WATER	KGAFN1AC	RA-228	4.59E+00	(6.27E-01)		pCi/L	R	4.51E-01	9.91E-01	S	90%	94%	
Calc	TF	WATER	KGAFN1AC	RA-228	4.75E+00	(3.61E-01)		pCi/L	A	2.35E-01	5.17E-01	✓S	90%	97%	
Calc	TF	WATER	KGAFN1AC	RA-228	5.93E+00	(1.65E+00)		pCi/L	R	2.47E+00	5.44E+00	S	90%	121%	

Tom D ME [Signature]

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

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	K6FN1AC	pcil/L	✓	01/25/08 15:00	02/13/08 06:23	02/04/08 11:35	RATA30146	✓	1	g			
							WATER			31.7	02/12/08 09:00	RATA30146	Alq	100%	✓	960.10 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	02/12/08 13:13	RA-228	41	293	GPC6A	1.5	N	N	5.7096E-01	1.0000E+00	N	92%	N		1.5370E+00	4.5045E+02	1.0033E+00	
			50	400			Y		(1.254E-02)	(0.000E+00)		7%			(0.000E+00)	0.001042		
1	02/12/08 14:08	RA-228	57	293	GPC6A	1.5	N	N	5.7096E-01	1.0000E+00	N	92%	N		1.7057E+00	4.5045E+02	1.0033E+00	
			50	400			Y		(1.254E-02)	(0.000E+00)		7%			(0.000E+00)	0.001042		
2	02/12/08 15:03	RA-228	46	293	GPC6A	1.5	N	N	5.7096E-01	1.0000E+00	N	92%	N		1.8929E+00	4.5045E+02	1.0033E+00	
			50	400			Y		(1.254E-02)	(0.000E+00)		7%			(0.000E+00)	0.001042		
3	02/13/08 06:23	RA-228	55	370	GPC6A	1.5	N	N	5.7096E-01	1.0000E+00	N	92%	N		1.0715E+01	4.5045E+02	1.0033E+00	
			50	400			N		(1.254E-02)	(0.000E+00)		7%			(0.000E+00)	0.001042		
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		
	02/13/08	RA-228	R	0.120316	U4	8.75000E-02	0.255612		0.255612	(0.39501)	0.9601 L	92%		0.848433				
				(0.186028)		(1.3502E-01)	(0.39501)				(0.173205)			0.387183				
	02/13/08	RA-228	R	0.621839	U4	4.07500E-01	1.321097		1.321097	(0.520474)	0.9601 L	92%		0.941567				
				(0.246951)		(1.5694E-01)	(0.520474)				(0.173205)			0.429685				
	02/13/08	RA-228	R	0.31752	U4	1.87500E-01	0.674572		0.674572	(0.514778)	0.9601 L	92%		1.044892				
				(0.242825)		(1.4224E-01)	(0.514778)				(0.173205)			0.476837				
	02/13/08	RA-228	A	0.353225	U4	2.27500E-01	0.750427		0.750427	(0.277273)	0.9601 L	92%		0.545575				
				(0.131045)		(8.3728E-02)	(0.277273)				(0.10)			0.248973				
	02/13/08	RA-228	R	1.677474	U4	1.75000E-01	3.563796		3.563796	(3.189069)	0.9601 L	92%		6.582106				
				(1.503432)		(1.5592E-01)	(3.189069)				(0.173205)			3.033085				
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	WATER	*STLE	Ra228WObS	K6AFN1AA	pcil/L	✓	01/25/08 15:00	02/13/08 06:23	02/04/08 11:35	RATA30147	✓	1	g			
							WATER			32.2	02/12/08 09:00	RATA30147	Alq	100%	✓	1000.50 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	02/12/08 13:13	RA-228	43	245	GPC6C	1.5	N	N	5.7623E-01	1.0000E+00	N	94%	N		1.5370E+00	4.5045E+02	1.0033E+00	
			50	400			Y		(1.576E-02)	(0.000E+00)		7%			(0.000E+00)	0.001		
1	02/12/08 14:08	RA-228	35	245	GPC6C	1.5	N	N	5.7623E-01	1.0000E+00	N	94%	N		1.7057E+00	4.5045E+02	1.0033E+00	
			50	400			Y		(1.576E-02)	(0.000E+00)		7%			(0.000E+00)	0.001		
2	02/12/08 15:03	RA-228	37	245	GPC6C	1.5	N	N	5.7623E-01	1.0000E+00	N	94%	N		1.8929E+00	4.5045E+02	1.0033E+00	
			50	400			Y		(1.576E-02)	(0.000E+00)		7%			(0.000E+00)	0.001		

Alpha Beta, Ra-228 by GPC, Calculated Results

Batch Nbr: 8030212

2/13/2008 6:45:50 AM

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	BIKLCc/MDC	StdDvMdc/LcC
3	02/13/08	06:23	RA-228	47	317		GPC6B 1.5	N N 5.7345E-01	1.000E+00	N	94%	N	1.0715E+01	4.5045E+02	1.0033E+00
				50	400			N (1.359E-02)	(0.000E+00)		7%		(0.000E+00)	0.001	
	02/13/08	RA-228	R	0.31857			2.47500E-01	0.705282	0.705282	1.0005 L	94%		0.732211		
				(0.17892)			(1.3686E-01)	(0.394538)	(0.394538)	(0.173205)			0.33142		
	02/13/08	RA-228	R	0.124989		U4	8.75000E-02	0.276713	0.276713	1.0005 L	94%		0.812587		
				(0.178442)			(1.2462E-01)	(0.39481)	(0.39481)	(0.173205)			0.367801		
	02/13/08	RA-228	R	0.202113		U4	1.27500E-01	0.447457	0.447457	1.0005 L	94%		0.901757		
				(0.203549)			(1.2779E-01)	(0.450081)	(0.450081)	(0.173205)			0.408162		
	02/13/08	RA-228	A	0.215224			1.54167E-01	0.476484	0.476484	1.0005 L	94%		0.47084		
				(0.108159)			(7.4977E-02)	(0.239004)	(0.239004)	(0.10)			0.213116		
	02/13/08	RA-228	R	1.329918		U4	1.47500E-01	2.944303	2.944303	1.0005 L	94%		5.767067		
				(1.306198)			(1.4416E-01)	(2.88804)	(2.88804)	(0.173205)			2.640757		

Sq	Status	Method	Matrix	Protocol	Equation	Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PtWt	Sept1/Sept2 Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol
3	Calc	TF	WATER	*STLE	Ra228WoBS	KGAFN1AC	✓	pc/IL	S	01/25/08 15:00	02/13/08 06:23	02/04/08 11:35	RASC4687	✓	1	g	
										31.5	✓	02/12/08 09:00	RASC4687	Alq	98%	1000.50	g
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,EnrFct	LCSYld,EFctU	IDC/ILcC	BIKLCc/MDC	StdDvMdc/LcC
	02/13/08	RA-228	R	5.073913			3.77500E+00	11.233125	11.233125	1.0005 L	90%		0.804391		
				(0.638385)			(3.0152E-01)	(1.296923)	(1.296923)	(0.173205)			0.365988		
	02/13/08	RA-228	R	4.586747			3.07500E+00	10.154589	10.154589	1.0005 L	90%		0.892691		
				(0.608232)			(2.7733E-01)	(1.247173)	(1.247173)	(0.173205)			0.406163		
	02/13/08	RA-228	R	4.593489			2.77500E+00	10.169514	10.169514	1.0005 L	90%		0.990652		
				(0.627462)			(2.6629E-01)	(1.29273)	(1.29273)	(0.173205)			0.450735		
	02/13/08	RA-228	A	4.751383			3.20833E+00	10.519076	10.519076	1.0005 L	90%		0.517255		
				(0.360739)			(1.6287E-01)	(0.738512)	(0.738512)	(0.10)			0.235345		
	02/13/08	RA-228	R	5.929882			6.35000E-01	13.128152	13.128152	1.0005 L	90%		5.438108		
				(1.646919)			(1.6496E-01)	(3.586537)	(3.586537)	(0.173205)			2.467448		

( ) - (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:3  
 RADCALC v4.8.29  
 TA Richland

UST Number: KF6FN1AC      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 6-A      File: [quad6.sample.A]KF6FN1AC.180  
Dish Size: 15      Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.A\_15;6116

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00041	0050	01289	1800	12-FEB-2008 13:13:17.55
2	00000	00057	0050	01281	1800	12-FEB-2008 14:08:33.38
3	00000	00046	0050	01296	1800	12-FEB-2008 15:03:48.99

Bkg File: [quad6.bkgrnd]2008-02-12\_0216.A\_15      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00293	0400	0.73	10208	1800	12-FEB-2008 02:16:14.92 ✓



UST Number: KF6FN1AC      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 6-A      File: [quad6.sample.A]KF6FN1AC.430  
Dish Size: 15      Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.A\_15;6117

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00055	0050	01309	1800	13-FEB-2008 06:23:38.63

Bkg File: [quad6.bkgrnd]2008-02-13\_0208.A\_15      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00370	0400	0.93	10422	1800	13-FEB-2008 02:08:19.79

UST Number: KGAFN1AA    Isotope: 180    (QREPORT Rev 11-OCT-98)

Detector: 6-C    File: [quad6.sample.C]KGAFN1AA.180  
Dish Size: 15    Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.C\_15;6119

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00043	0050	01289	1800	12-FEB-2008 13:13:17.55
2	00000	00035	0050	01281	1800	12-FEB-2008 14:08:33.38
3	00000	00037	0050	01296	1800	12-FEB-2008 15:03:48.99

Bkg File: [quad6.bkgrnd]2008-02-12\_0216.C\_15    (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00245	0400	0.61	10208	1800	12-FEB-2008 02:16:14.92 ✓

UST Number: KGAFN1AA      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 6-B      File: [quad6.sample.B]KGAFN1AA.430  
Dish Size: 15      Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.B\_15;6158

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00047	0050	01309	1800	13-FEB-2008 06:23:38.63

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: KGAFN1AC      Isotope: 180      (QREPORT Rev 11-OCT-98)

Detector: 6-D      File: [quad6.sample.D]KGAFN1AC.180  
Dish Size: 15      Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.D\_15;6118

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00223	0050	01289	1800	12-FEB-2008 13:13:17.55
2	00000	00188	0050	01281	1800	12-FEB-2008 14:08:33.38
3	00000	00173	0050	01296	1800	12-FEB-2008 15:03:48.99

Bkg File: [quad6.bkgrnd]2008-02-12\_0216.D\_15      (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00274	0400	0.69	10208	1800	12-FEB-2008 02:16:14.92 ✓

UST Number: KGAFN1AC      Isotope: 430      (QREPORT Rev 11-OCT-98)

Detector: 6-C      File: [quad6.sample.C]KGAFN1AC.430  
Dish Size: 15      Bkg File: \$DISK1:[QUAD6.BKGRND]CURRENT.C\_15;6120

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00064	0050	01309	1800	13-FEB-2008 06:23:38.63

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

# RADIUM 228

## STANDARDS AND TRACEABILITY

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	± 1.482E+01	DPM/G	
RASC4699	RA-228	1.1167E+01 ± 3.708E-01 DPM	0.0408 g	1/21/2008 1/21/2008	Armstron	2.7370E+02 ± 9.038E+00 DPM/G
		1.1167E+001 ± 1.117E+001 ( 1)	1.1167E+001 , 1.1167E+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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>new source</u></b>		
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>4.4881E+02</u></b>	±	<b><u>1.482E+01</u></b>
12) Total Uncertainty	<u>3.302</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>RA22806A000</u></b>		<b><u>6076</u></b>
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>

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**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 \_\_\_\_\_

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		
RASC4687	RA-228	1.0948E+01 ± 3.871E-02 DPM	0.04 g	1/21/2008 1/21/2008	Armstron	2.7370E+02 ± 0.000E+00 DPM/G
		1.0948E+001 ± 1.095E+001 ( 1)	1.0948E+001 , 1.0948E+001			

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)

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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
------------------	-----------	----------------	-------	-----------------

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

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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

-----  
 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:** F8A260145; 02/25/2008  
**Client, Site:** 1418995; LANDWELL - Tronox Parcel H  
**QC Batch No., Method Test:** 8030211; RRA2267 Ra-226 by ASC-7  
**SDG, Matrix:** ;

- |                             |   |     |    |     |
|-----------------------------|---|-----|----|-----|
| <b>1.0 COC</b>              |   |     |    |     |
| 1.1                         | Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?           | Yes | No | N/A |
|                             |   | ✓   |    |     |
| <b>2.0 QC Batch</b>         |   |     |    |     |
| 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 |
|                             |   | ✓   |    |     |
| <b>3.0 QC &amp; Samples</b> |   |     |    |     |
| 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 |
|                             |   | ✓   |    |     |
| <b>4.0 Raw Data</b>         |   |     |    |     |
| 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 |
|                             |   | ✓   |    |     |
| <b>5.0 Other</b>            |   |     |    |     |
| 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:<br>NCM 10-11846  |     |    |     |

**First Level Review** Thomas DME

**Date** 2/14/08

**Data Review Checklist**  
**RADIOCHEMISTRY**  
Second Level Review

Batch Number: 8030211

Review Item	Yes (✓)	No (✓)	NA (✓)
<b>A. Sample Analysis</b>			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery 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?		✓	
<b>C. Other</b>			
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

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Second Level Review: Erika Ford Date: 2/17/18

# Clouseau Nonconformance Memo

NCM #: <b>10-11846</b> NCM Initiated By: Tom McGinnis Date Opened: 02/14/2008 Date Closed:	Classification: <b>Deficiency</b> Status: <b>GLREVIEW</b> Production Area: Environmental - Prep Tests: Ra-226 by ASC-7 Lot #'s (Sample #'s): J8A300000 (211), QC Batches: 8030211,
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>
----------------------	--------------------	-----------------

2/1/2008 10:29:00 AM

1418995, Landwell Company  
Landwell Company

### Sample Preparation/Analysis

BU Ra-226/228 Prp/SepRC5005  
TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow  
01 STANDARD TEST SET

Balance Id:1120403183

Pipet #:

AnalyDueDate: 02/06/2008

Sep1 DT/Tm Tech: 2/4/08 11:35 DC

Batch: 8030211

PM, Quote: JAE, 78254

SEQ Batch, Test: 8030212, BUTF 8030212, BUTF 8030212, BUTF 8030213  
KWSR, 8030214 D2S1, 8030216 AXT9,

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

1 KF6FN-1-AA 960.10g.in RATA30146 01/21/08  
 F8A260145-19-SAMP 7.6097 ✓ = 1.0000  
 8.251

01/25/2008 15:00 AmtRec: 2XLP #Containers: 2  
 2 KF6FN-1-AH-X (134) Alpha: 1.73E-04 uCi/Sa Beta: -2.62E-05 uCi/Sa  
 IMB 2-11-08 9:35 SB

01/25/2008 15:00 AmtRec: 2XLP #Containers: 2  
 F8A260145-19-DUP ~~SN~~  
 01/25/2008 15:00 AmtRec: 2XLP RATA30147 01/21/08  
 3 KGAFM-1-AA-B 1000.50g.in 7.5358 ✓ = 1.0000  
 8.313

01/25/2008 15:00 AmtRec: 1 RASC4687 01/21/08  
 4 KGAFM-1-AC-C 1000.50g.in 7.5644 ✓ = 1.0193  
 7.421

01/25/2008 15:00 AmtRec: #Containers: 1  
 J8A300000-211-BLK 1000.50g.in 7.5644 ✓ = 1.0193  
 7.421

01/25/2008 15:00 AmtRec: #Containers: 1  
 J8A300000-211-LCS 1000.50g.in 7.5644 ✓ = 1.0193  
 7.421

2/1/2008 10:29:00 AM

### Sample Preparation/Analysis

Balance Id:1120403183

BU Ra-226/228 Prp/SepRC5005

# PRIORITY

Pipet #:

TE Ba-133 by NaI & Ra-226 by Alpha Scint 7 day ingrow

AnalyDueDate: 02/06/2008

Sep1 DT/Tm Tech:

Batch: 8030211  
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

pCi/L

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: KF6FN-SAMP \*Comments: ISV for DUP-DL 2/1/08"

#### All Clients for Batch:

1418995, Landwell Company

Landwell Company

JAE, 78254

#### KF6FN1AA-SAMP Constituent List:

KGAFM1AA-BLK:	Ba-133	RDL:	pCi/L	LCL:20	UCL:115	RPD:20	Ra-226	RDL:1	pCi/L	LCL:	UCL:	RPD:
KGAFM1AC-LCS:	Ba-133	RDL:	pCi/L	LCL:20	UCL:115	RPD:20	Ra-226	RDL:1	pCi/L	LCL:70	UCL:130	RPD:20

#### KF6FN1AA-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: '8030211', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments	
<b>8030211</b>					
AC		<b>Rev1C</b>	<b>LucasD</b>	1/31/2008 1:53:25 PM	
SC			wagarr	IsBatched 1/30/2008 12:05:38 PM	ICOC_RADCALC v4.8.32
SC			LucasD	InPrep 1/31/2008 1:53:25 PM	RICH-RC-5005 REVISION 6
SC			LucasD	Sep1C 2/4/2008 11:32:18 AM	RICH-RC-5005 REVISION 6
SC			BlackCL	InCnt1 2/4/2008 12:36:09 PM	RICH-RD-0007 REVISION 6
SC			BlackCL	Cnt1C 2/4/2008 1:57:06 PM	RICH-RD-0007 REVISION 6
SC			BairdS	InSep2 2/5/2008 4:24:53 PM	RICH-RC-5005 REVISION 6
SC			BairdS	CalcC 2/11/2008 5:04:08 PM	RICH-RC-5005 REVISION 6
SC			mcginnist	Rev1C 2/14/2008 9:39:16 AM	RICH-RC-0002 REV 8
AC			<b>LucasD</b>	2/4/2008 11:32:18	
AC			<b>BlackCL</b>	2/4/2008 12:36:09 PM	
AC			<b>BlackCL</b>	2/4/2008 1:57:06 PM	
AC			<b>BairdS</b>	2/5/2008 4:24:53 PM	
AC			<b>BairdS</b>	2/11/2008 5:04:08 PM	
AC			<b>mcginnist</b>	2/14/2008 9:39:16	

AC: Accepting Entry; SC: Status Change

TAL Richland

Richland Wa.

Page 1

Grp Rec Cnt: 7

ICOCFractions v4.8.32

2/14/2008 10:41:22 AM

## 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 v/va	Unus	Expected Yield	Volumes
<b>8030210</b>	<b>9KF6FN10</b>		<b>F8A26014519</b>	RINSATE-1	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM			
RA-226	BUTE	0	2/11/2008 1:35:00 PM	<b>6.9348E-03</b>	2.047E-02	2.048E-02	8.287E-02	pCi/L	1.0	9.601E-1
RA-228	BUTF	0	2/13/2008 6:23:38 AM	<b>3.5323E-01</b>	1.3E-01	1.31E-01	5.456E-01	pCi/L	0.922	9.601E-1
RA-228	TBD	0	2/13/2008 6:23:38 AM	<b>3.5323E-01</b>	1.3E-01	1.31E-01	5.456E-01	pCi/L	0.922	9.601E-1
TH-228	9NS1	0	2/8/2008 4:46:41 PM	<b>-2.9354E-02</b>	5.176E-02	5.181E-02	3.087E-01	pCi/L	0.824	2.001E-1
TH-230	9NS1	0	2/8/2008 4:46:41 PM	<b>1.4469E-01</b>	8.409E-02	8.484E-02	2.31E-01	pCi/L	0.824	2.001E-1
TH-232	9NS1	0	2/8/2008 4:46:41 PM	<b>0.0E+00</b>	0.0E+00	4.919E-02	2.31E-01	pCi/L	0.824	2.001E-1
U-234	7YSR	0	2/12/2008 8:04:11 AM	<b>4.7096E-02</b>	4.898E-02	4.913E-02	2.123E-01	pCi/L	0.878	2.0E-1
U-234	TBD	0	2/12/2008 8:04:11 AM	<b>4.7096E-02</b>	4.898E-02	4.913E-02	2.123E-01	pCi/L	0.878	2.0E-1
U-235	7YSR	0	2/12/2008 8:04:11 AM	<b>5.0458E-02</b>	4.174E-02	4.195E-02	1.611E-01	pCi/L	0.878	2.0E-1
U-235	TBD	0	2/12/2008 8:04:11 AM	<b>5.0458E-02</b>	4.174E-02	4.195E-02	1.611E-01	pCi/L	0.878	2.0E-1
U-238	7YSR	0	2/12/2008 8:04:11 AM	<b>-1.6816E-02</b>	2.814E-02	2.818E-02	2.476E-01	pCi/L	0.878	2.0E-1
U-238	TBD	0	2/12/2008 8:04:11 AM	<b>-1.6816E-02</b>	2.814E-02	2.818E-02	2.476E-01	pCi/L	0.878	2.0E-1
<b>8030210</b>	<b>KGAFM1AB</b>		<b>J8A300000211</b>	INTRA-LAB BLANK	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM			
RA-226	BUTE	0 B	2/11/2008 1:45:01 PM	<b>5.5629E-02</b>	4.167E-02	4.207E-02	1.449E-01	pCi/L	1.0	1.0E+0
<b>8030210</b>	<b>KGAFM1CS</b>		<b>J8A300000211</b>	INTRA-LAB CHECK	WATER	1/26/2008 10:15:00	1/25/2008 3:00:00 PM			
RA-226	BUTE	0 S	2/11/2008 1:51:00 PM	<b>1.0687E+00</b>	9.521E-02	1.421E-01	1.192E-01	pCi/L	1.3664E+00	0.981

8030211,



# 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	WATER	KF6FN1AA	RA-226	6.93E-03 ✓	(2.05E-02)	U4	pCi/L	R	3.34E-02	8.29E-02 ✓		100%		
Calc	TE	WATER	KGAFM1AA	RA-226	5.56E-02 ✓	(4.21E-02)	U4	pCi/L	R	6.47E-02	1.45E-01 ✓	B	100%		
Calc	TE	WATER	KGAFM1AC	RA-226	1.07E+00 ✓	(1.42E-01)		pCi/L	R	4.92E-02	1.19E-01 ✓	S	98%	78% <i>JK</i>	

*Tom D. [Signature]* 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	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PtWt	Sep1/Sep2 Date	QC/Tracer	Vial	Multi/EntYld	Total/Analy Vol	Final/Count Vol	
1	Calc	TE	WATER	*STLE Ra226WoBS KF6FN1AA	✓	pci/l		01/25/08 15:00	02/11/08 13:35	02/05/08 16:00	RATA30146	✓	1	960.10 g	✓	
				.F8A260145-19		WATER				02/11/08 09:35	RATA30146	Alq	100%			
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/11/08 13:35	RA-226	7	✓	ASC1MB	ASC	N	N	2.5215E+00	100%	N	1.5973E+00	100%	4.5045E+02	1.0000E+00	
			50	60			Y		(1.183E-02)	8%		(0.000E+00)		0.001042		
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	BKlLcC/MDC	StdDvMdc/LcC	
	02/11/08	RA-226	R	0.006935	U4	2.33333E-02	0.014781	0.014781		0.9601 L	100%			0.082866		
				(0.020482)		(6.8880E-02)	(0.043649)	(0.043649)		(0.173205)				0.033399		
2	Calc	TE	WATER	*STLE Ra226WoBS KGAFM1AA	✓	pci/l		01/25/08 15:00	02/11/08 13:45	02/05/08 16:00	RATA30147	✓	1	1000.50 G	✓	
				.J8A300000-211		WATER				02/11/08 09:45	RATA30147	Alq	100%			
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/11/08 13:45	RA-226	33	✓	ASC2HA	ASC	N	N	2.4976E+00	100%	N	1.5962E+00	100%	4.5045E+02	1.0000E+00	
			50	60			Y		(9.891E-02)	8%		(0.000E+00)		0.001		
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	BKlLcC/MDC	StdDvMdc/LcC	
	02/11/08	RA-226	R	0.055629	U4	1.93333E-01	0.123556	0.123556		1.0005 L	100%			0.144855		
				(0.042065)		(1.4484E-01)	(0.093217)	(0.093217)		(0.010005)				0.064668		
3	Calc	TE	WATER	*STLE Ra226WoBS KGAFM1AC	✓	pci/l		01/25/08 15:00	02/11/08 13:51	02/05/08 16:00	RASC4687	✓	1	1000.50 G	✓	
				.J8A300000-211		WATER				02/11/08 09:51	RASC4687	Alq	98%			
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Trc Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay	Abn
0	02/11/08 13:51	RA-226	146	✓	ASC3RC	ASC	N	N	1.8979E+00	98%	N	1.5955E+00	98%	4.5045E+02	1.0000E+00	
			50	60			Y		(5.162E-02)	8%		(0.000E+00)		0.001		
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	BKlLcC/MDC	StdDvMdc/LcC	
	02/11/08	RA-226	R	1.068705	R	2.77000E+00	2.373682	2.373682		1.0005 L	98%	78%		0.119174		
				(0.142089)		(2.4678E-01)	(0.291459)	(0.291459)		(0.010005)				0.049161		

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KF6FN1AA                      Isotope: RA-226  
Client: STL                                  Matrix Code: 103  
Batch Nbr: 8030211                      Activity Unit: PCI/L                      Multiplier: 1.0  
Technician: SB  
Analysis Size: 960.1                      Analysis Unit: G  
   Report Date: 11-FEB-2008 14:25:00.87  
   First Separation Date: 5-FEB-2008 16:00:00.00  
   Second Separation Date: 11-FEB-2008 09:35:00.00  
Detector ID: 1                                  Cell ID: 1MB  
Bkg Date: 5-FEB-2008 09:14:27.18  
   Bkg Counts: 000007                                  Bkg Duration: 000060.0  
Count Date: 11-FEB-2008 13:35:00.38  
   Counts: 000007                                  Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

Sample ID: KGAFM1AA                      Isotope: RA-226  
Client: STL                                 Matrix Code: 103  
Batch Nbr: 8030211                      Activity Unit: PCI/L                      Multiplier: 1.0  
Technician: SB  
Analysis Size: 1000.5                      Analysis Unit: G  
    Report Date: 11-FEB-2008 14:35:01.22  
    First Separation Date: 5-FEB-2008 16:00:00.00  
    Second Separation Date: 11-FEB-2008 09:45:00.00  
Detector ID: 2                               Cell ID: 2HA  
Bkg Date: 6-FEB-2008 09:04:14.63  
    Bkg Counts: 000028                      Bkg Duration: 000060.0  
Count Date: 11-FEB-2008 13:45:00.73  
    Counts: 000033                      Count Duration: 000050.0

End of Report ✓

ALPHA SCINTILLATION REPORT  
(Version: 17-Oct-1998)

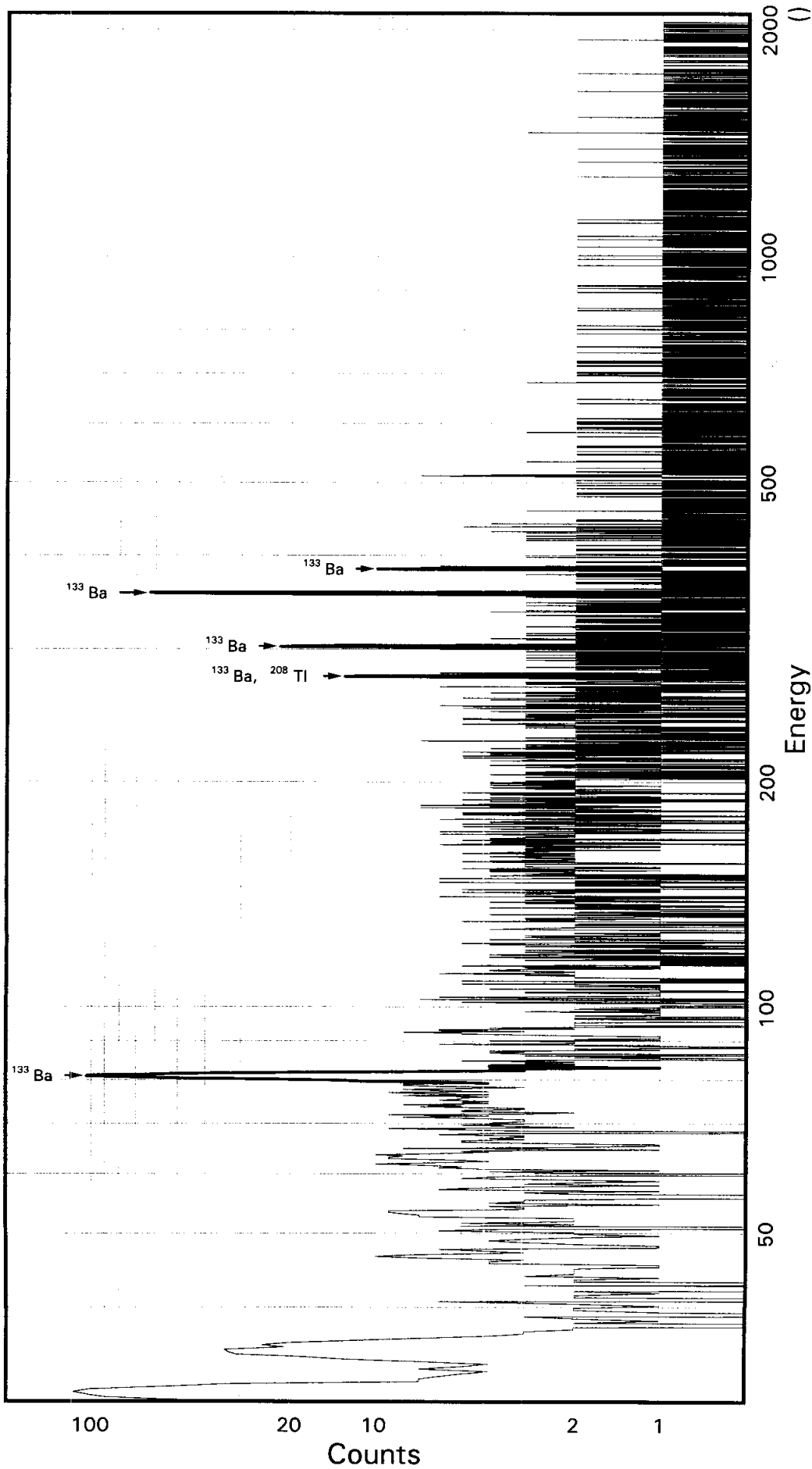
Sample ID: KGAFM1AC                      Isotope: RA-226  
Client: STL                                  Matrix Code: 103  
Batch Nbr: 8030211                      Activity Unit: PCI/L                      Multiplier: 1.0193  
Technician: SB  
Analysis Size: 1000.5                      Analysis Unit: G  
   Report Date: 11-FEB-2008 14:41:00.57  
   First Separation Date: 5-FEB-2008 16:00:00.00  
   Second Separation Date: 11-FEB-2008 09:51:00.00  
Detector ID: 3                                  Cell ID: 3RC  
Bkg Date: 6-FEB-2008 09:04:28.60  
   Bkg Counts: 000009                                  Bkg Duration: 000060.0  
Count Date: 11-FEB-2008 13:51:00.26  
   Counts: 000146                                  Count Duration: 000050.0

End of Report ✓

TAL Richland WA.  
BA133

Sample ID: KF6FN1AA  
Detector ID: GER8 1

Batch ID: 8030211



Acquisition Start: 4-FEB-2008 13:21:28.66  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:  
Offset: 1.57157E-01  
Slope: 2.49969E-01  
Quadrature: 1.84860E-08

SAMPLE IDENTIFICATION: KF6FN1AA

CONFIGURATION ID: GER8:KF6FN1AA\_040281321  
TITLE : BA133  
SAMPLE ID : KF6FN1AA

REPORT DATE: 04-FEB-08  
ACQUIRE DATE: 04-FEB-08 13:21:28  
ELAPSED LIVE TIME: 1800.0 Sec  
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 21-JAN-2008 12:00:00.00  
CALIB DATE: 4-FEB-2008 07:38:31.83  
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: 1.5716E-01 keV  
ENERGY SLOPE: 2.4997E-01 keV/C  
ENERGY Q COEFF: 1.8486E-08 keV/C<sup>2</sup>  
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 8.9752E-01 keV  
FWHM SLOPE: 2.4700E-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:[GER8.SAMPLE]KF6FN1AA_040281321.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title      : BA133
Sample date       : 21-JAN-2008 12:00:00 Acquisition date : 4-FEB-2008 13:21:28
Sample ID         : KF6FN1AA 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      : 20.15 End energy : 2049.15
Sensitivity       : 5.00 Gaussian : 10.00
Critical level    : No
    
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	30.82	525	117	1.13	122.65	114	16	2.92E-01	6.3	
2	0	35.17	193	60	1.51	140.06	131	19	1.07E-01	12.1	
3	0	81.04	447	79	0.97	323.56	316	19	2.48E-01	6.8	
4	0	276.44	54	8	0.94	1105.16	1098	15	2.97E-02	17.6	
5	0	302.81	102	20	1.20	1210.64	1202	16	5.66E-02	13.9	
6	0	356.02	354	0	1.33	1423.48	1415	17	1.97E-01	5.3	
7	0	383.77	39	13	1.36	1534.45	1528	11	2.14E-02	24.6	

Flag: "\*" = Peak area was modified by background subtraction



Configuration : \$DISK1:[GER8.SAMPLE]KF6FN1AA\_040281321.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3  
 Sample title : BA133  
 Sample date : 21-JAN-2008 12:00:00 Acquisition date : 4-FEB-2008 13:21:28  
 Sample ID : KF6FN1AA 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	447	33.00	2.140E+00	2.107E+03	2.113E+03	8.74
	276.40	54	6.90	2.306E+00	1.121E+03	1.124E+03	18.45
	302.84	102	17.80	2.309E+00	8.267E+02	8.288E+02	14.95
	356.00	354	62.05*	2.311E+00	8.230E+02	8.251E+02	7.57
	383.85	39	8.70	2.310E+00	6.393E+02	6.409E+02	25.17

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KF6FN1AA

Page : 2  
Acquisition date : 4-FEB-2008 13:21:28

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	30.82	525	117	1.13	122.65	114	16	2.92E-01	6.3	1.87E+00	
0	35.17	193	60	1.51	140.06	131	19	1.07E-01	12.1	1.92E+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	1.137E+03	18.45	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:[GER8.SAMPLE]KF6FN1AA_040281321.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       : 21-JAN-2008 12:00:00 Acquisition date : 4-FEB-2008 13:21:28
Sample ID         : KF6FN1AA 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	8.251E+02	6.243E+01	4.875E+01	9.750E-01	16.925

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	2.014E+01	5.425E+01	2.349E+02	4.711E+00	0.086
NA-22	6.310E+00	4.851E+00	2.316E+01	4.904E-01	0.272
K-40	6.558E+00	3.922E+01	2.043E+02	4.380E+00	0.032
SC-46	3.784E-01	4.339E+00	1.898E+01	3.974E-01	0.020
CR-51	-2.264E+01	1.238E+02	4.566E+02	9.137E+00	-0.050
MN-54	-2.750E+00	4.735E+00	1.833E+01	3.759E-01	-0.150
CO-57	-6.163E+01	9.997E+01	3.512E+02	7.253E+00	-0.175
CO-58	2.097E+00	5.050E+00	2.247E+01	4.602E-01	0.093
FE-59	-1.991E-01	6.742E+00	3.081E+01	6.443E-01	-0.006
CO-60	6.319E-01	3.195E+00	1.520E+01	3.231E-01	0.042
ZN-65	-9.704E+00	7.129E+00	2.277E+01	4.765E-01	-0.426
SE-75	-1.495E+01	1.824E+01	6.382E+01	1.280E+00	-0.234
SR-85	-3.976E+01	1.256E+01	3.559E+01	7.152E-01	-1.117
Y-88	0.000E+00	0.000E+00	4.723E+00	1.038E-01	0.000
NB-94	-1.306E+00	4.392E+00	1.781E+01	3.662E-01	-0.073
NB-95	-2.159E+00	3.499E+00	1.433E+01	2.924E-01	-0.151
TC-95M	6.774E+00	1.826E+01	6.944E+01	1.404E+00	0.098
ZR-95	5.560E+00	1.001E+01	4.367E+01	8.909E-01	0.127
ZRNB-95	-3.805E+00	6.166E+00	2.524E+01	5.153E-01	-0.151
MO-99	-3.470E+00	4.535E+02	1.636E+03	3.373E+01	-0.002
RH-101	1.742E+01	1.721E+01	6.444E+01	1.304E+00	0.270
RH-102M	3.930E-01	5.212E+00	2.166E+01	4.345E-01	0.018
RU-103	1.317E+01	7.260E+00	3.506E+01	7.040E-01	0.376
RU-106DA	1.472E+01	4.603E+01	2.002E+02	4.047E+00	0.074
AG-108M	-1.788E+01	9.212E+00	2.804E+01	5.616E-01	-0.638
AG-110M	2.214E+00	4.718E+00	2.288E+01	4.710E-01	0.097
SN-113DA	1.548E+01	1.119E+01	4.816E+01	9.634E-01	0.321

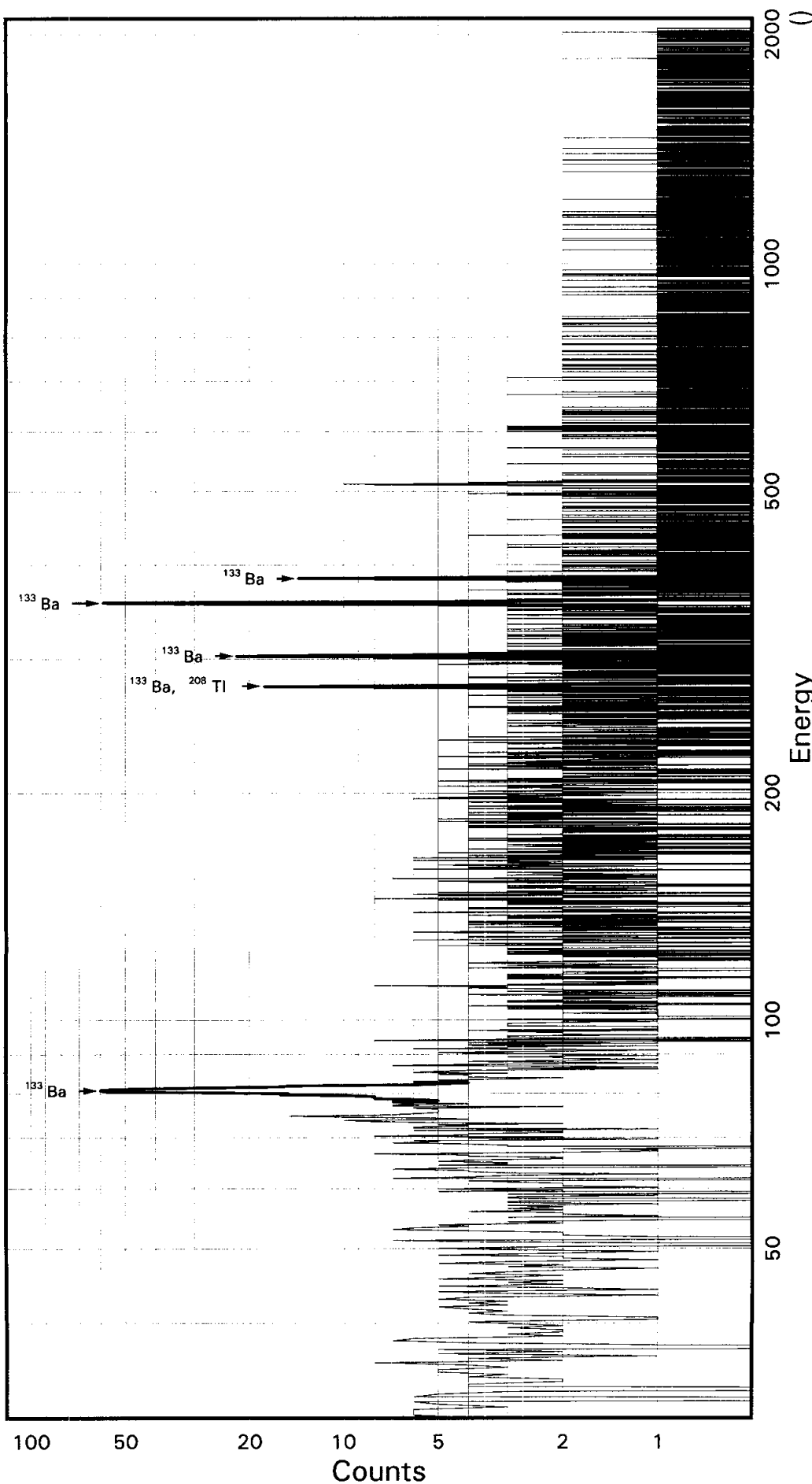
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL) K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-124	6.971E+00	7.017E+00	3.046E+01	6.152E-01	0.229
SB-125	-8.668E+00	2.341E+01	8.610E+01	1.724E+00	-0.101
SN-126DA	1.021E+01	4.436E+00	2.320E+01	4.704E-01	0.440
I-131	-5.021E+01	2.867E+01	8.965E+01	1.793E+00	-0.560
CS-134	-9.972E+00	4.794E+00	1.287E+01	2.633E-01	-0.775
CS-137DA	-1.066E+01	6.083E+00	1.850E+01	3.749E-01	-0.576
LA-138	3.858E+00	5.515E+00	2.687E+01	5.752E-01	0.144
CE-139	1.322E+01	1.751E+01	6.471E+01	1.321E+00	0.204
BA-140	-8.437E+01	4.770E+01	1.493E+02	3.004E+00	-0.565
BALA-140	1.210E+01	1.369E+01	7.301E+01	1.580E+00	0.166
CE-141	-2.116E+01	3.072E+01	1.066E+02	2.193E+00	-0.198
CE-144	-7.619E+01	9.676E+01	3.361E+02	6.951E+00	-0.227
CEPR-144	-1.512E+02	1.936E+02	6.728E+02	1.392E+01	-0.225
PM-144	-3.052E+00	5.269E+00	1.985E+01	4.013E-01	-0.154
PM-146	4.802E+00	6.198E+00	2.923E+01	5.858E-01	0.164
EU-152	2.182E+01	3.312E+01	1.289E+02	2.579E+00	0.169
EU-154	1.764E+01	1.356E+01	6.474E+01	1.370E+00	0.272
EU-155	-9.397E+01	5.442E+01	1.765E+02	3.718E+00	-0.532
HF-181	1.344E+00	7.589E+00	3.177E+01	6.373E-01	0.042
BI-207	5.059E+00	4.554E+00	2.150E+01	4.333E-01	0.235
TL-208	1.497E+01	7.090E+00	3.324E+01	6.706E-01	0.450
BI-210M	1.204E+01	1.934E+01	7.462E+01	1.497E+00	0.161
BI-212	1.472E+01	9.389E+01	3.717E+02	1.136E+01	0.040
PB-212	1.271E+01	2.477E+01	9.659E+01	1.943E+00	0.132
BI-214	-3.500E+00	1.309E+01	5.708E+01	1.153E+00	-0.061
PB-214	9.492E+00	2.282E+01	9.029E+01	1.806E+00	0.105
RA-223	7.628E+01	6.909E+01	2.752E+02	5.518E+00	0.277
RA-224DA	1.289E+01	2.512E+01	9.795E+01	1.970E+00	0.132
RA-226DA	-3.374E+00	1.310E+01	5.717E+01	1.155E+00	-0.059
AC-227DA	-1.105E+02	9.034E+01	3.080E+02	6.197E+00	-0.359
AC-228	1.362E+01	1.731E+01	7.809E+01	1.611E+00	0.174
RA-228DA	1.368E+01	1.739E+01	7.845E+01	1.618E+00	0.174
TH-228DA	4.225E+01	2.001E+01	9.384E+01	1.893E+00	0.450
TH-232DA	1.296E+02	6.981E+01	2.926E+02	5.853E+00	0.443
TH-234DA	-5.711E+01	5.558E+02	2.407E+03	4.997E+01	-0.024
U-234DA	-2.301E+01	4.604E+01	1.717E+02	3.438E+00	-0.134
U-235HP	-9.706E+01	1.072E+02	3.660E+02	7.534E+00	-0.265
NP-237DA	1.200E+01	2.440E+01	9.422E+01	1.886E+00	0.127
U-238DA	9.492E+00	2.282E+01	9.029E+01	1.806E+00	0.105
U-238DHP	1.335E+03	4.773E+02	1.925E+03	4.274E+01	0.694
AM-241HP	-1.194E+02	4.369E+01	1.357E+02	3.036E+00	-0.880

TAL Richland WA.  
BA133

Sample ID: KGAFM1AA  
Detector ID: GER10 1

Batch ID: 8030211



Energy Coefficients:  
Offset: 1.47134E+01  
Slope: 2.47235E-01  
Quadrature: 3.85703E-09

Acquisition Start: 4-FEB-2008 13:21:48.60  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

SAMPLE IDENTIFICATION: KGAFM1AA

CONFIGURATION ID: GER10:KGAFM1AA\_040281321  
TITLE : BA133  
SAMPLE ID : KGAFM1AA

REPORT DATE: 04-FEB-08  
ACQUIRE DATE: 04-FEB-08 13:21:48  
ELAPSED LIVE TIME: 1800.0 Sec  
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 21-JAN-2008 12:00:00.00  
CALIB DATE: 4-FEB-2008 07:57:36.51  
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: 1.4713E+01 keV  
ENERGY SLOPE: 2.4723E-01 keV/C  
ENERGY Q COEFF: 3.8570E-09 keV/C<sup>2</sup>  
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 1.1473E+00 keV  
FWHM SLOPE: 2.4099E-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]KGAFM1AA\_040281321.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6  
 Sample title : BA133  
 Sample date : 21-JAN-2008 12:00:00 Acquisition date : 4-FEB-2008 13:21:48  
 Sample ID : KGAFM1AA 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 : 17.19 End energy : 2040.32  
 Sensitivity : 5.00 Gaussian : 10.00  
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	80.74	305	105	1.13	267.07	255	21	1.69E-01	10.2	
2	0	276.60	63	23	0.85	1059.24	1046	23	3.50E-02	20.9	
3	0	302.89	115	21	1.16	1165.56	1154	20	6.41E-02	12.3	
4	0	356.01	408	20	1.69	1380.41	1369	24	2.27E-01	5.5	
5	0	383.65	68	13	1.43	1492.23	1477	25	3.77E-02	17.0	

Flag: "\*" = Peak area was modified by background subtraction



Configuration : \$DISK1:[GER10.SAMPLE]KGAFM1AA\_040281321.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3  
 Sample title : BA133  
 Sample date : 21-JAN-2008 12:00:00 Acquisition date : 4-FEB-2008 13:21:48  
 Sample ID : KGAFM1AA 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
BA-133	81.00	305	33.00	2.477E+00	1.244E+03	1.247E+03	11.53
	276.40	63	6.90	2.637E+00	1.155E+03	1.158E+03	21.61
	302.84	115	17.80	2.640E+00	8.187E+02	8.208E+02	13.46
	356.00	408	62.05*	2.642E+00	8.292E+02	8.313E+02	7.72
	383.85	68	8.70	2.641E+00	9.850E+02	9.875E+02	17.82

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KGAFM1AA

Page : 2  
Acquisition date : 4-FEB-2008 13:21:48

None

Flags: "T" = Tentatively associated

Nuclide	Half-Life		Energy	%Abund	Activity 1-Sigma		Rejected by
	Half-life	Ratio			(DPM/SAMPL)	%Error	
TL-208	1.41E+10Y	0.00	277.35	6.80	1.172E+03	21.61	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]KGAFM1AA\_040281321.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 : 21-JAN-2008 12:00:00 Acquisition date : 4-FEB-2008 13:21:48  
 Sample ID : KGAFM1AA 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
BA-133	8.313E+02	6.415E+01	5.496E+01	1.099E+00	15.126

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	8.582E+01	6.568E+01	2.836E+02	5.687E+00	0.303
NA-22	1.257E+00	4.040E+00	1.752E+01	3.675E-01	0.072
K-40	-2.536E+01	4.161E+01	2.048E+02	4.342E+00	-0.124
SC-46	-3.274E+00	4.558E+00	1.716E+01	3.567E-01	-0.191
CR-51	-5.043E+01	1.133E+02	4.126E+02	8.254E+00	-0.122
MN-54	2.525E+00	5.014E+00	2.109E+01	4.308E-01	0.120
CO-57	-2.948E+01	1.043E+02	3.744E+02	7.693E+00	-0.079
CO-58	7.379E+00	4.959E+00	2.356E+01	4.806E-01	0.313
FE-59	-8.328E+00	9.478E+00	3.461E+01	7.184E-01	-0.241
CO-60	-3.312E-02	1.911E+00	9.812E+00	2.065E-01	-0.003
ZN-65	2.827E+00	8.019E+00	3.521E+01	7.316E-01	0.080
SE-75	-2.078E+01	1.629E+01	5.392E+01	1.081E+00	-0.385
SR-85	-2.441E+01	1.428E+01	4.594E+01	9.225E-01	-0.531
Y-88	2.158E+00	2.813E+00	1.503E+01	3.251E-01	0.144
NB-94	2.584E+00	4.148E+00	1.833E+01	3.752E-01	0.141
NB-95	7.250E+00	7.272E+00	3.111E+01	6.329E-01	0.233
TC-95M	-1.196E+01	1.934E+01	6.721E+01	1.356E+00	-0.178
ZR-95	-1.595E+00	9.881E+00	3.908E+01	7.946E-01	-0.041
ZRNB-95	1.314E+01	1.286E+01	5.506E+01	1.120E+00	0.239
MO-99	-4.959E+02	4.086E+02	1.419E+03	2.911E+01	-0.349
RH-101	1.950E+00	1.687E+01	6.290E+01	1.271E+00	0.031
RH-102M	5.613E+00	6.096E+00	2.554E+01	5.121E-01	0.220
RU-103	8.629E+00	9.914E+00	3.986E+01	7.998E-01	0.216
RU-106DA	-4.152E+01	5.312E+01	1.946E+02	3.927E+00	-0.213
AG-108M	-5.398E+00	6.918E+00	2.464E+01	4.933E-01	-0.219
AG-110M	6.075E+00	5.727E+00	2.672E+01	5.476E-01	0.227
SN-113DA	8.096E+00	9.351E+00	3.940E+01	7.882E-01	0.206

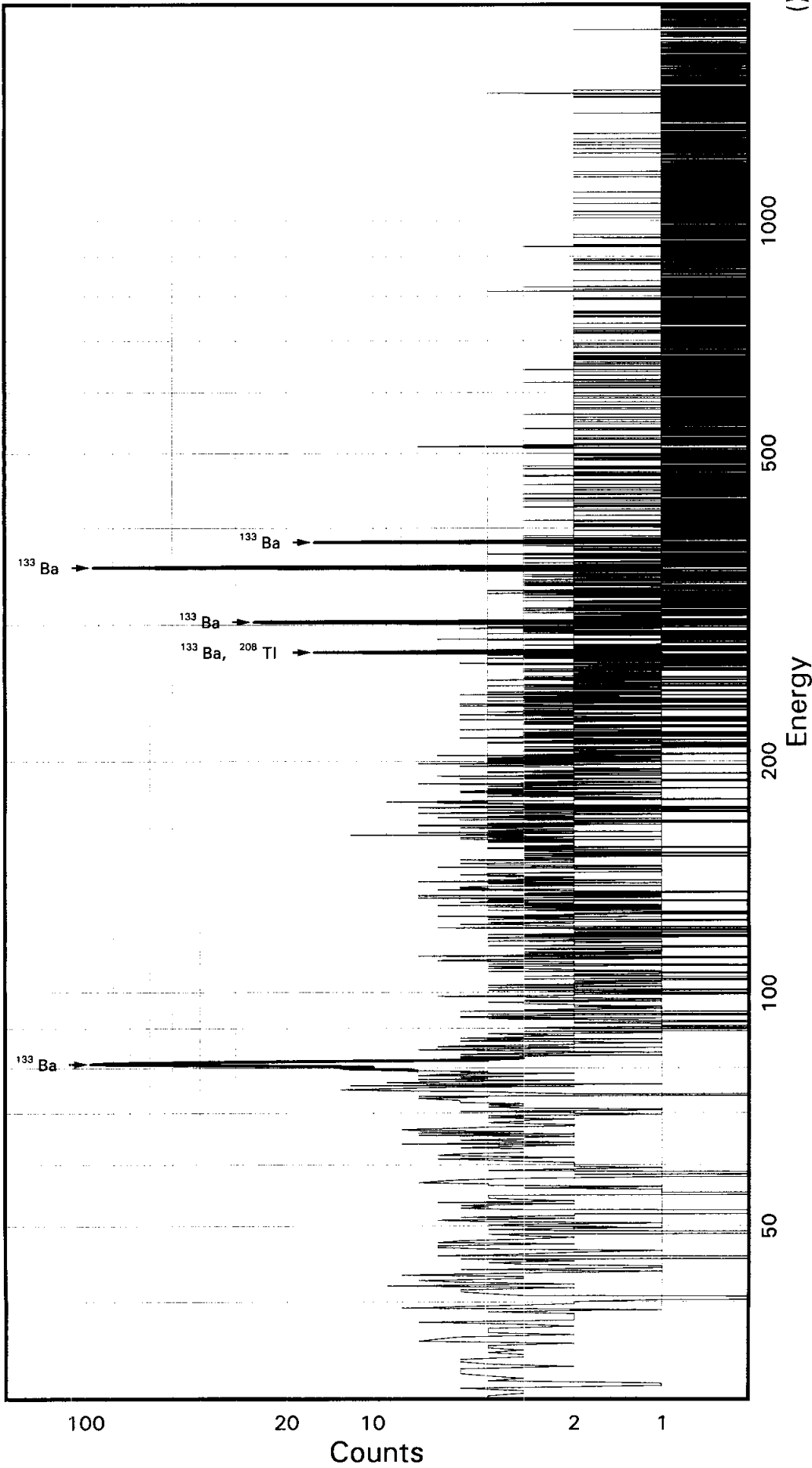
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL) K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-124	8.278E+00	8.870E+00	3.575E+01	7.209E-01	0.232
SB-125	4.406E+00	1.894E+01	7.568E+01	1.515E+00	0.058
SN-126DA	3.078E-01	5.642E+00	2.223E+01	4.497E-01	0.014
I-131	5.307E+01	3.197E+01	1.327E+02	2.654E+00	0.400
CS-134	-1.772E+00	5.055E+00	1.980E+01	4.035E-01	-0.089
CS-137DA	-5.876E+00	6.242E+00	2.226E+01	4.503E-01	-0.264
LA-138	-1.772E+00	4.376E+00	1.858E+01	3.933E-01	-0.095
CE-139	1.025E+01	1.516E+01	5.652E+01	1.150E+00	0.181
BA-140	3.737E+00	4.223E+01	1.686E+02	3.389E+00	0.022
BALA-140	9.202E-02	8.490E+00	4.448E+01	9.501E-01	0.002
CE-141	4.688E+01	3.151E+01	1.221E+02	2.500E+00	0.384
CE-144	1.644E+00	1.025E+02	3.744E+02	7.701E+00	0.004
CEPR-144	4.287E+00	2.051E+02	7.492E+02	1.541E+01	0.006
PM-144	5.158E+00	5.764E+00	2.448E+01	4.939E-01	0.211
PM-146	-4.035E+00	7.840E+00	2.927E+01	5.865E-01	-0.138
EU-152	2.362E+01	2.764E+01	1.108E+02	2.215E+00	0.213
EU-154	3.514E+00	1.129E+01	4.898E+01	1.027E+00	0.072
EU-155	2.643E+01	4.899E+01	1.818E+02	3.798E+00	0.145
HF-181	-9.977E+00	8.035E+00	2.710E+01	5.435E-01	-0.368
BI-207	-1.200E+00	5.882E+00	2.218E+01	4.465E-01	-0.054
TL-208	-6.630E+00	5.412E+00	1.811E+01	3.649E-01	-0.366
BI-210M	-3.554E+00	1.778E+01	6.388E+01	1.281E+00	-0.056
BI-212	1.526E+02	7.773E+01	3.636E+02	1.110E+01	0.420
PB-212	6.454E+00	1.924E+01	7.213E+01	1.449E+00	0.089
BI-214	4.360E+00	1.502E+01	5.854E+01	1.181E+00	0.074
PB-214	7.757E+01	2.595E+01	1.028E+02	2.055E+00	0.755
RA-223	9.105E+01	6.628E+01	2.508E+02	5.027E+00	0.363
RA-224DA	6.545E+00	1.951E+01	7.315E+01	1.470E+00	0.089
RA-226DA	1.720E+00	1.525E+01	5.855E+01	1.181E+00	0.029
AC-227DA	-1.274E+01	8.282E+01	2.981E+02	5.992E+00	-0.043
AC-228	8.871E+00	1.340E+01	6.123E+01	1.257E+00	0.145
RA-228DA	8.913E+00	1.346E+01	6.152E+01	1.263E+00	0.145
TH-228DA	-1.871E+01	1.528E+01	5.113E+01	1.030E+00	-0.366
TH-232DA	6.767E+00	6.164E+01	2.338E+02	4.676E+00	0.029
TH-234DA	2.157E+02	5.898E+02	2.611E+03	5.388E+01	0.083
U-234DA	2.802E+00	4.452E+01	1.630E+02	3.263E+00	0.017
U-235HP	-1.458E+02	1.114E+02	3.748E+02	7.678E+00	-0.389
NP-237DA	-3.244E+00	2.115E+01	7.897E+01	1.580E+00	-0.041
U-238DA	7.757E+01	2.595E+01	1.028E+02	2.055E+00	0.755
U-238DHP	5.123E+02	3.672E+02	1.379E+03	3.009E+01	0.372
AM-241HP	-2.341E+01	3.570E+01	1.231E+02	2.704E+00	-0.190

TAL Richland WA.  
BA133

Sample ID: KGAFM1AC  
Detector ID: GER11 1

Batch ID: 8030211



Acquisition Start: 4-FEB-2008 13:22:12.79  
Preset Live Time: 0 00:30:00.00  
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:  
Offset: -1.01572E+00  
Slope: 2.31721E-01  
Quadrature: 2.93095E-08

SAMPLE IDENTIFICATION: KGAFM1AC

CONFIGURATION ID: GER11:KGAFM1AC\_040281322  
TITLE : BA133  
SAMPLE ID : KGAFM1AC

REPORT DATE: 04-FEB-08  
ACQUIRE DATE: 04-FEB-08 13:22:12  
ELAPSED LIVE TIME: 1800.0 Sec  
PRESET LIVE TIME: 0 00:30:00

SAMPLE DATE: 21-JAN-2008 12:00:00.00  
CALIB DATE: 4-FEB-2008 07:53:03.67  
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: -.1016E+01 keV  
ENERGY SLOPE: 2.3172E-01 keV/C  
ENERGY Q COEFF: 2.9310E-08 keV/C<sup>2</sup>  
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 2.0020E-01 keV  
FWHM SLOPE: 4.1692E-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 4-FEB-2008 13:52:29

Configuration : \$DISK1:[GER11.SAMPLE]KGAFM1AC\_040281322.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6  
 Sample title : BA133  
 Sample date : 21-JAN-2008 12:00:00 Acquisition date : 4-FEB-2008 13:22:12  
 Sample ID : KGAFM1AC Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:01.02 0.1%  
 Start energy : 1.30 End energy : 1899.21  
 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	297	66	0.62	354.03	347	14	1.65E-01	8.2	
2	0	276.46	59	16	0.87	1197.29	1191	16	3.28E-02	20.0	
3	0	302.69	122	13	1.07	1310.45	1304	13	6.79E-02	10.9	
4	0	355.91	426	23	1.02	1540.02	1532	15	2.37E-01	5.4	
5	0	383.62	72	9	0.78	1659.55	1652	17	4.00E-02	15.0	

Flag: "\*" = Peak area was modified by background subtraction



Configuration : \$DISK1:[GER11.SAMPLE]KGAFM1AC\_040281322.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3  
 Sample title : BA133  
 Sample date : 21-JAN-2008 12:00:00 Acquisition date : 4-FEB-2008 13:22:12  
 Sample ID : KGAFM1AC Sample quantity : 1.0000 SAMPL  
 Sample type : Sample geometry : BA133T15  
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:01.02 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	297	33.00	2.879E+00	1.041E+03	1.044E+03	9.86
	276.40	59	6.90	3.084E+00	9.242E+02	9.266E+02	20.70
	302.84	122	17.80	3.088E+00	7.417E+02	7.435E+02	12.15
	356.00	426	62.05*	3.090E+00	7.402E+02	7.421E+02	7.64
	383.85	72	8.70	3.090E+00	8.928E+02	8.951E+02	15.97

Flag: "\*" = Keyline

Unidentified Energy Lines  
Sample ID : KGAFM1AC

Page : 2  
Acquisition date : 4-FEB-2008 13:22:12

None

Flags: "T" = Tentatively associated

Nuclide	Half-Life		Energy	%Abund	Activity 1-Sigma		Rejected by
	Half-life	Ratio			(DPM/SAMPL)	%Error	
TL-208	1.41E+10Y	0.00	277.35	6.80	9.378E+02	20.70	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]KGAFM1AC_040281322.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       : 21-JAN-2008 12:00:00 Acquisition date : 4-FEB-2008 13:22:12
Sample ID         : KGAFM1AC Sample quantity : 1.0000 SAMPL
Sample type       : Sample geometry : BA133T15
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:01.02 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
EA-133	7.421E+02	5.672E+01	3.756E+01	7.511E-01	19.761

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (DPM/SAMPL) Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	1.954E+01	5.322E+01	2.149E+02	4.311E+00	0.091
NA-22	4.079E+00	2.712E+00	1.450E+01	3.055E-01	0.281
K-40	5.186E+00	5.100E+01	2.476E+02	5.282E+00	0.021
SC-46	1.056E+00	4.257E+00	1.782E+01	3.718E-01	0.059
CR-51	-1.786E+01	7.246E+01	2.727E+02	5.455E+00	-0.065
MN-54	4.522E+00	3.623E+00	1.710E+01	3.501E-01	0.264
CO-57	1.112E+02	8.071E+01	3.123E+02	6.435E+00	0.356
CO-58	4.065E+00	4.623E+00	2.037E+01	4.164E-01	0.200
FE-59	6.035E+00	6.359E+00	3.106E+01	6.473E-01	0.194
CO-60	-1.178E+00	2.005E+00	8.432E+00	1.784E-01	-0.140
ZN-65	6.706E+00	7.003E+00	3.251E+01	6.782E-01	0.206
SE-75	-1.950E+01	1.124E+01	3.673E+01	7.367E-01	-0.531
SR-85	-3.016E+01	8.346E+00	2.011E+01	4.040E-01	-1.500
Y-88	2.608E+00	2.591E+00	1.395E+01	3.044E-01	0.187
NB-94	-9.647E-02	2.751E+00	1.191E+01	2.444E-01	-0.008
NB-95	-5.513E+00	4.960E+00	1.746E+01	3.558E-01	-0.316
TC-95M	-4.904E+00	1.274E+01	4.550E+01	9.192E-01	-0.108
ZR-95	-1.947E+00	8.785E+00	3.453E+01	7.034E-01	-0.056
ZRNB-95	-9.715E+00	8.739E+00	3.076E+01	6.270E-01	-0.316
MO-99	-9.129E+00	3.215E+02	1.174E+03	2.415E+01	-0.008
RH-101	1.208E+01	1.184E+01	4.624E+01	9.351E-01	0.261
RH-102M	-3.681E+00	4.213E+00	1.505E+01	3.019E-01	-0.245
RU-103	3.225E-01	6.481E+00	2.542E+01	5.102E-01	0.013
RU-106DA	3.570E+01	4.453E+01	1.914E+02	3.867E+00	0.187
AG-108M	-1.315E+01	6.214E+00	1.889E+01	3.782E-01	-0.696
AG-110M	-9.254E+00	5.296E+00	1.585E+01	3.256E-01	-0.584
SN-113DA	-3.846E-02	7.373E+00	2.944E+01	5.890E-01	-0.001

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-124	2.732E+00		5.527E+00	2.277E+01	4.595E-01	0.120
SB-125	-4.182E+00		1.593E+01	6.104E+01	1.222E+00	-0.069
SN-126DA	4.608E+00		3.890E+00	1.764E+01	3.572E-01	0.261
I-131	1.259E+01		2.520E+01	9.719E+01	1.944E+00	0.130
CS-134	-1.177E+00		4.318E+00	1.717E+01	3.506E-01	-0.069
CS-137DA	6.260E+00		3.880E+00	1.920E+01	3.888E-01	0.326
LA-138	2.056E-01		4.135E+00	1.852E+01	3.944E-01	0.011
CE-139	4.943E+00		1.095E+01	4.143E+01	8.443E-01	0.119
BA-140	-1.339E+01		3.825E+01	1.474E+02	2.965E+00	-0.091
BALA-140	-5.309E+00		1.169E+01	4.831E+01	1.039E+00	-0.110
CE-141	-2.196E+01		2.115E+01	7.429E+01	1.525E+00	-0.296
CE-144	8.310E+01		7.694E+01	2.947E+02	6.080E+00	0.282
CEPR-144	1.671E+02		1.540E+02	5.898E+02	1.217E+01	0.283
PM-144	3.383E+00		4.378E+00	1.880E+01	3.798E-01	0.180
PM-146	8.812E+00		6.559E+00	2.942E+01	5.895E-01	0.300
EU-152	5.548E+00		2.128E+01	8.190E+01	1.638E+00	0.068
EU-154	1.584E+01		7.183E+00	4.184E+01	8.819E-01	0.378
EU-155	-2.468E+01		2.707E+01	9.460E+01	1.985E+00	-0.261
HF-181	-9.126E-01		6.179E+00	2.419E+01	4.852E-01	-0.038
BI-207	1.648E+00		4.800E+00	1.952E+01	3.932E-01	0.084
TL-208	2.673E+00		3.623E+00	1.691E+01	3.410E-01	0.158
BI-210M	8.870E+00		1.186E+01	4.780E+01	9.587E-01	0.186
BI-212	1.016E+02		5.255E+01	2.642E+02	8.071E+00	0.384
PB-212	-2.286E+01		1.644E+01	5.294E+01	1.064E+00	-0.432
BI-214	-6.207E-02		1.098E+01	4.248E+01	8.576E-01	-0.001
PB-214	2.094E+01		1.744E+01	6.559E+01	1.312E+00	0.319
RA-223	-2.458E+01		4.659E+01	1.696E+02	3.400E+00	-0.145
RA-224DA	-2.318E+01		1.668E+01	5.369E+01	1.079E+00	-0.432
RA-226DA	-6.172E-02		1.098E+01	4.248E+01	8.576E-01	-0.001
AC-227DA	1.053E+02		6.454E+01	2.586E+02	5.200E+00	0.407
AC-228	-5.905E-01		1.006E+01	4.310E+01	8.868E-01	-0.014
RA-228DA	-5.932E-01		1.010E+01	4.330E+01	8.910E-01	-0.014
TH-228DA	7.544E+00		1.023E+01	4.774E+01	9.624E-01	0.158
TH-232DA	1.066E+02		4.572E+01	2.024E+02	4.049E+00	0.527
TH-234DA	5.238E+02		5.133E+02	2.421E+03	5.011E+01	0.216
U-234DA	-5.687E+00		3.740E+01	1.371E+02	2.746E+00	-0.041
U-235HP	-9.338E+01		7.072E+01	2.437E+02	5.005E+00	-0.383
NP-237DA	1.185E+01		1.597E+01	6.400E+01	1.281E+00	0.185
U-238DA	2.094E+01		1.744E+01	6.559E+01	1.312E+00	0.319
U-238DHP	-7.618E+01		2.405E+02	8.291E+02	1.826E+01	-0.092
AM-241HP	-9.776E+00		1.914E+01	6.687E+01	1.483E+00	-0.146

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	
<b>RASC4687</b>	RA-226	<b>3.0350E+00 ± 4.670E-02</b> DPM	0.1445 g	1/21/2008 1/21/2008	Armstron	2.1003E+01 ± 3.225E-01 DPM/G
		3.0350E+000 ± 3.035E+000 ( 1)		3.0350E+000 , 3.0350E+000		

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		
RASC4687	RA-228	1.0948E+01 ± 3.871E-02 DPM	0.04 g	1/21/2008 1/21/2008	Armstron	2.7370E+02 ± 0.000E+00 DPM/G
		1.0948E+001 ± 1.095E+001 ( 1)	1.0948E+001 , 1.0948E+001			
<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 \_\_\_\_\_

**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>
<b>3) Source Identification Number / Ref. Number</b>	<b><u>new source</u></b>		
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>	%	
<b>11) Specific Activity of Diluted Solution dpm/g</b>	<b><u>4.4881E+02</u></b>	±	<b><u>1.482E+01</u></b>
12) Total Uncertainty	<u>3.302</u>	%	
<b>13) Dilution Identification Number / Ref. Number</b>	<b><u>RA22806A000</u></b>		<b><u>6076</u></b>
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 226  
CONTINUING CALIBRATION

Quality Assurance Report.

Generated 26-MAR-2008 13:48:26.51

QA Filename : \$DISK1:[SCINT2.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-2

Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 258046.000000 Upper Bound : 272954.000000

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 : 265500.343750 Std Deviation : 2484.659180

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

11-FEB-2008 06:39	count		261565.0000		
12-FEB-2008 07:12	count		262223.0000		
13-FEB-2008 06:37	count		264036.0000		
14-FEB-2008 07:12	count		260734.0000		
18-FEB-2008 08:49	count		260513.0000	In	
19-FEB-2008 06:34	count		260501.0000	In	
20-FEB-2008 06:05	count		262768.0000		
21-FEB-2008 06:27	count		265538.0000		
25-FEB-2008 06:31	count		261092.0000		
26-FEB-2008 06:34	count		260457.0000	In	
27-FEB-2008 07:33	count		261775.0000		
28-FEB-2008 06:07	count		262532.0000		
3-MAR-2008 06:22	count		259442.0000	In	
4-MAR-2008 06:40	count		262134.0000		
5-MAR-2008 06:36	count		258660.0000	In	
6-MAR-2008 06:39	count		260309.0000	In	
10-MAR-2008 06:50	count		264148.0000		
11-MAR-2008 06:54	count		260553.0000		
12-MAR-2008 06:56	count		262134.0000		
13-MAR-2008 07:03	count		265013.0000		
17-MAR-2008 07:01	count		263087.0000		



18-MAR-2008 06:40	count	263858.0000			
19-MAR-2008 06:58	count	261911.0000			
20-MAR-2008 06:42	count	264970.0000			
24-MAR-2008 06:27	count	262408.0000			
25-MAR-2008 06:19	count	262829.0000			

Quality Assurance Report.                      Generated 26-MAR-2008 13:48:26.88

QA Filename        : \$DISK1:[SCINT2.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description        : 1000 min bkg, ascint-2  
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 16:38	count		0.0000		

Quality Assurance Report.

Generated 26-MAR-2008 13:46:43.39

QA Filename : \$DISK1:[SCINT1.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-1

Parameter Units : counts Parameter Type : Generic

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 261532.000000 Upper Bound : 274615.000000

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 : 268074.031250 Std Deviation : 2180.427979

Measurement Time	Sample ID	Sample Analyst	Value	LU SD UD BS	Rej
11-FEB-2008 06:12	count		266888.0000		
12-FEB-2008 06:56	count		267492.0000		
13-FEB-2008 06:14	count		268636.0000		
14-FEB-2008 06:45	count		266577.0000		
18-FEB-2008 08:32	count		266221.0000		
19-FEB-2008 06:21	count		265051.0000		
20-FEB-2008 05:52	count		268949.0000		
21-FEB-2008 06:14	count		269674.0000		
25-FEB-2008 06:19	count		266945.0000		
26-FEB-2008 06:13	count		264647.0000		
27-FEB-2008 07:19	count		267057.0000		
28-FEB-2008 05:28	count		267853.0000		
3-MAR-2008 06:09	count		264349.0000		
4-MAR-2008 06:28	count		268006.0000		
5-MAR-2008 06:21	count		263765.0000		
6-MAR-2008 06:09	count		266388.0000		
10-MAR-2008 07:20	count		268465.0000		
11-MAR-2008 06:41	count		267486.0000		
12-MAR-2008 06:42	count		267981.0000		
13-MAR-2008 06:39	count		270850.0000		
17-MAR-2008 06:29	count		268166.0000		

18-MAR-2008 06:06	count	268542.0000	
19-MAR-2008 06:39	count	267215.0000	
20-MAR-2008 06:29	count	268873.0000	
24-MAR-2008 06:14	count	269270.0000	
25-MAR-2008 06:07	count	268250.0000	

Quality Assurance Report.                      Generated 26-MAR-2008 13:46:43.76

QA Filename        : \$DISK1:[SCINT1.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description        : 1000min bkg, ascint-1  
 Parameter Units   : counts                      Parameter Type : Generic

---- 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 16:38	count		0.0000	

Quality Assurance Report.

Generated 26-MAR-2008 13:59:41.55

QA Filename : \$DISK1:[SCINT3.QA]CHK.QAF;1

-- Multi-Test Full Report --

Description : 10 min check, ascint-3

Parameter Units : counts Parameter Type : Manual

---- Lower/Upper Bounds Test Parameters ----

Lower Bound : 254392.000000 Upper Bound : 270567.000000

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 : 262480.093750 Std Deviation : 2695.693359

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

11-FEB-2008 06:52	count		256721.0000	In	
12-FEB-2008 07:26	count		257369.0000		
13-FEB-2008 06:52	count		257803.0000		
14-FEB-2008 08:16	count		256607.0000	In	
18-FEB-2008 09:06	count		256133.0000	In	
19-FEB-2008 06:46	count		256680.0000	In	
20-FEB-2008 06:22	count		261761.0000		
21-FEB-2008 06:44	count		260015.0000		
25-FEB-2008 06:49	count		256984.0000	In	
26-FEB-2008 06:59	count		256351.0000	In	
27-FEB-2008 08:00	count		256659.0000	In	
28-FEB-2008 06:19	count		257809.0000		
3-MAR-2008 06:40	count		255932.0000	In	
4-MAR-2008 06:56	count		256207.0000	In	
5-MAR-2008 06:59	count		255094.0000	In	
6-MAR-2008 06:57	count		254613.0000	In	
10-MAR-2008 07:06	count		256581.0000	In	
11-MAR-2008 07:19	count		256952.0000	In	
12-MAR-2008 07:09	count		257608.0000		
13-MAR-2008 07:16	count		258989.0000		
17-MAR-2008 07:25	count		258492.0000		

18-MAR-2008 06:58	count	258594.0000	
19-MAR-2008 07:11	count	256717.0000	In
20-MAR-2008 06:56	count	259465.0000	
24-MAR-2008 06:45	count	257779.0000	
25-MAR-2008 06:32	count	257803.0000	

Quality Assurance Report.                      Generated 26-MAR-2008 13:59:41.93

QA Filename     : \$DISK1:[SCINT3.QA]BKG.QAF;1

-- Multi-Test Full Report --

Description     : 1000 min bkg, ascint-3  
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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