

AUXIER & ASSOCIATES, INC.

PAP/KAN

**STANDARD LEVEL IV
REPORT OF ANALYSIS**

WORK ORDER #16-06067-OR

August 17, 2016

**Eberline Analytical
Oak Ridge Laboratory
OAK RIDGE, TN**

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**Eberline Services – Oak Ridge Laboratory
LABORATORY DATA SUPPORT CHECKLIST**

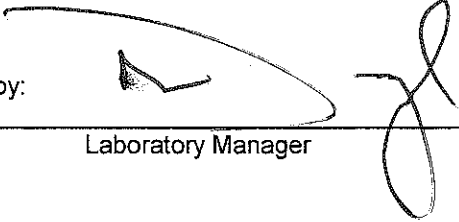
MP-001-3

Eberline Services Work Order # 16-06067

The checklist items listed below are to be initialed by appropriate staff upon completion/verification.

Date for Partial	Initials	Date	Initials	Checklist Items
		6-14-16	SEB	Sample Log-In
		7/6/16	KBS	Data Compilation
		7-16-16	NET	First Technical Data Review
		7/14/16	NET	Second Technical Data Review
		8/16/16	S	Data Entry/Electronic Deliverable
		8/16/16	CK	Case Narrative
		8/17/16	KBS	Electronic Deliverable Proof
		8/17/16	NET	Samples Analyzed within Holding Time Yes? <input checked="" type="checkbox"/> No? <input type="checkbox"/>
		8/17/16	NET	QA/QC Review
		07/07/16	EJT	Client in Possession of Data Electronic or Hard Copy
				Invoiced by Laboratory

Technical/Clerical Corrections, Signatures Needed, Problems, Etc	Date/Initials

Date package approved by:  8/17/16
Laboratory Manager Date

SECTION I
CHAIN OF CUSTODY

16-06067
~~16-06066~~ ^{5EJ}
 REC'D JUN 14 2016 6:14b

PAP/KAN
 Auxter & Associates, Inc.
 9821 Cogdill Road
 Suite 1
 Knoxville, TN 37932
 (423) 675-3669



Biological Health, Safety and Environmental Services
 A USA Environmental L2 Company

CHAIN OF CUSTODY FORM

Project Name:	PAP/KAN	Project Manager:	Cecilia Greene
Location:	Kansas City, MO	Telephone No.:	865-675-3669
Sample Custodian:	Marsha Joseph	Fax No.:	865-675-3677

SAMPLE IDENTIFICATION	DATE OF COLLECTION	SAMPLE DESCRIPTION	SAMPLE IDENTIFICATION	DATE OF COLLECTION	SAMPLE DESCRIPTION
4 CP-5030.05-10 QC	6/6/16	Soil in Plastic Bag			Soil in Plastic Bag
5 CP-5031.00-02 QC	6/2/16	Soil in Plastic Bag			Soil in Plastic Bag
6 CP-5023.02-05 QC	6/2/16	Soil in Plastic Bag			Soil in Plastic Bag
7 CP-5010.00-02 QC	6/7/16	Soil in Plastic Bag			Soil in Plastic Bag
8 CP-5010.09-15 QC	6/7/16	Soil in Plastic Bag			Soil in Plastic Bag
9 CP-5012.09-15 QC	6/7/16	Soil in Plastic Bag			Soil in Plastic Bag
10 CP-5014.09-15 QC	6/7/16	Soil in Plastic Bag			Soil in Plastic Bag
11 CP-5017.00-02 QC	6/8/16	Soil in Plastic Bag			Soil in Plastic Bag
14 CP-5020.00-02 QC	6/9/16	Soil in Plastic Bag			Soil in Plastic Bag
		Soil in Plastic Bag			Soil in Plastic Bag
		Soil in Plastic Bag			Soil in Plastic Bag
		Soil in Plastic Bag			Soil in Plastic Bag
		Soil in Plastic Bag			Soil in Plastic Bag

Relinquished By:	<i>Marsha Joseph</i>	Date Shipped:	6/9/16
Method Of Shipment & Tracking #:	FEDEX 8003 3737 1796	Received In Good Condition By:	<i>James E. [Signature]</i>
		Date Received:	6-14-16 1100



EBERLINE
SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #

16-06067

Lab Deadline

7/5/2016

Analysis

UUISO - Level 4

Sample Matrix

Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location	
REPORT ON DRY WEIGHT BASIS	04	37	G1.5	
	05	38	G1.5	
	06	30	G1.5	
	07	50	G1.5	
	08	39	G1.5	
	09	55	G1.5	
	10	49	G1.5	
	11	47	G1.5	
	12	41	G1.5	

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>[Signature]</i>	6-16-16
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>[Signature]</i>	6-20-16
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>[Signature]</i>	6-20-16
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>[Signature]</i>	6-21-16
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>[Signature]</i>	6-21-16
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>[Signature]</i>	7-1-16 1222
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>[Signature]</i>	<i>[Signature]</i>
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>[Signature]</i>	7-1-16 1701
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		





EBERLINE
SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #

16-06067

Lab Deadline

7/5/2016

Analysis

ThISO - Level 4

Sample Matrix

Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location	
REPORT ON DRY WEIGHT BASIS	04	37	G1.5	
	05	38	G1.5	
	06	30	G1.5	
	07	50	G1.5	
	08	39	G1.5	
	09	55	G1.5	
	10	49	G1.5	
	11	47	G1.5	
	12	41	G1.5	

	Location (circle one)					Initials	Date
Received by	<u>Sample Storage</u>	Rough Prep	Prep	Separations	Count Room 1200	Ken Saej	6-16-16
Relinquished by	Sample Storage	<u>Rough Prep</u>	Prep	Separations	Count Room 0845	Ken Saej	6-20-16
Received by	Sample Storage	Rough Prep	Prep	<u>Separations</u>	Count Room 845	Michelle	6-20-16
Relinquished by	Sample Storage	Rough Prep	Prep	<u>Separations</u>	Count Room 745	Michelle	6-21-16
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	Ken M	6-21-16 0745
Relinquished by	Sample Storage	Rough Prep	Prep	<u>Separations</u>	Count Room	200	7/1/16 1255
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[Signature]	1255
Relinquished by	<u>Sample Storage</u>	Rough Prep	Prep	Separations	Count Room	[Signature]	6 0845
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		



EBERLINE
SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #

16-06067

Lab Deadline

7/5/2016

Analysis

Gamma - Level 4

Sample Matrix

Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location	
Report Ac228, Bi214, Pb210/214, Pa231, K40 & positives.	04	37	G1.5	
	05	38	G1.5	
	06	30	G1.5	
	07	50	G1.5	
	08	39	G1.5	
	09	55	G1.5	
	10	49	G1.5	
	11	47	G1.5	
	12	41	G1.5	
	REPORT ON DRY WEIGHT BASIS			

	Location (circle one)					Initials	Date
Received by	<u>Sample Storage</u>	<u>Rough Prep</u>	Prep	Separations	Count Room	<i>Doc</i>	<i>6/16/16</i>
Relinquished by	Sample Storage	<u>Rough Prep</u>	Prep	Separations	Count Room	<i>0845</i>	<i>6-20-16</i>
Received by	Sample Storage	Rough Prep	Prep	Separations	<u>Count Room</u>	<i>VB</i>	<i>6/20/16 0900</i>
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	<u>Count Room</u>	<i>VB</i>	<i>6/20/16 1225</i>
Received by	<u>Sample Storage</u>	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

SECTION II
SAMPLE ACKNOWLEDGEMENT

Client Name Auxier & Associates, Inc.	Contract/PO PAP-KAN	Project Type Environmental	Date Received 06/14/2016	Required Turnaround Days 28	Eberline Services Work Order 16-06067												
Project Name PAP-KAN	Client WO PAP/KAN	Sample Disp H	Lab Deadline 07/05/2016	Internal Deadline 07/11/2016	Client Deadline 07/12/2016												
Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma	TIISO	UIISO										
01	LCS	06/14/16	SO	G1.5	X	X	X										
02	BLANK	06/14/16	SO	G1.5	X	X	X										
03	DUP	06/14/16	SO	G1.5	X	X	X										
04	CP-5030 05-10 QC	06/06/16 00:00	SO	G1.5	X	X	X										
05	CP-5031 00-02 QC	06/02/16 00:00	SO	G1.5	X	X	X										
06	CP-5023 02-05 QC	06/02/16 00:00	SO	G1.5	X	X	X										
07	CP-5010 00-02 QC	06/07/16 00:00	SO	G1.5	X	X	X										
08	CP-5010 09-15 QC	06/07/16 00:00	SO	G1.5	X	X	X										
09	CP-5012 09-15 QC	06/07/16 00:00	SO	G1.5	X	X	X										
10	CP-5014 09-15 QC	06/07/16 00:00	SO	G1.5	X	X	X										
11	CP-5017 00-02 QC	06/08/16 00:00	SO	G1.5	X	X	X										
12	CP-5020 00-02 QC	06/09/16 00:00	SO	G1.5	X	X	X										
				Totals Per Analysis (non QA samples)													
				9 9 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0													

EBERLINE SERVICES

Sample Log In Report

Oak Ridge Laboratory
 601 Scarboro Rd.
 Oak Ridge, TN 37830

Voice: (865) 481-0683
 Fax: (865) 483-4621

Invoice

Accounts Payable
 Auxier & Associates, Inc.
 9821 Cogdill Drive #1
 Knoxville, TN 37932

865-675-3669
 865-675-3677

Harvey Cohen
 301-718-8900
 301-718-8909

Report Data

Cecilia Greene
 Auxier & Associates, Inc.
 9821 Cogdill Road, Suite 1
 Knoxville, TN 37932

865-675-3669
 865-675-3677

00016



Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 16-06067

SAMPLE MATRIX/MATRICES:

(CIRCLE ONE OR BOTH)

AQUEOUS NON-AQUEOUS

(CIRCLE EITHER YES, NO, OR N/A)

WERE SAMPLES:

Received in good condition?	<u>Y</u>	N	
If aqueous, properly preserved	Y	N	<u>N/A</u>

WERE CHAIN OF CUSTODY SEALS:

Present on outside of package?	<u>Y</u>	N
Unbroken on outside of package?	<u>Y</u>	N
Present on samples?	<u>Y</u>	N
Unbroken on samples?	<u>Y</u>	N
Was chain of custody present upon sample receipt?	<u>Y</u>	N

IF THE RESPONSE TO ANY OF THE ABOVE IS NO, A DISCREPANT SAMPLE RECEIPT REPORT (DSR) HAS BEEN ISSUED.

REMARKS: _____

SIGNATURE: *James E. ...* DATE: 6-14-16

SECTION III
CASE NARRATIVE



EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-41117

August 17, 2016

Cecilia Greene
Auxier & Associates, Inc.
9821 Cogdill Road #1
Knoxville, TN 37932

CASE NARRATIVE
Work Order # 16-06067-OR

SAMPLE RECEIPT

This work order contains nine soil samples received 06/14/2016. These samples were analyzed for Isotopic Uranium, Isotopic Thorium and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
CP-5030 05-10QC	16-06067-04	CP-5012 09-15QC	16-06067-09
CP-5031 00-02QC	16-06067-05	CP-5014 09-15QC	16-06067-10
CP-5023 02-05QC	16-06067-06	CP-5017 00-02QC	16-06067-11
CP-5010 00-02QC	16-06067-07	CP-5020 00-02QC	16-06067-12
CP-5010 09-15QC	16-06067-08		

ANALYTICAL METHODS

Isotopic Uranium was analyzed using Method EML U-02 Modified. Isotopic Thorium was analyzed using Method EML Th-01 Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

Minimum Detectable Activity (MDA) values for data represented in this report are sample-specific. MDA measurements are determined based on factors and conditions including instrument settings, aliquot size and matrix type.

SPECIAL CIRCUMSTANCES

Results are reported on a "dry weight" basis.

ANALYTICAL RESULTS CONTINUED

ISOTOPIC URANIUM

Samples were prepared by removing representative aliquots followed by mixed acid digestions as appropriate. Uranium was selectively extracted by ion exchange. Uranium was eluted, micro-precipitated and mounted on micro-porous filter media. Sample activities were then determined by alpha spectroscopy using energy specific regions of interest for Uranium-234, Uranium-235 and Uranium-238. Chemical recovery was determined by the use of a Uranium-232 tracer. Activity of the Uranium-232 tracer was determined by alpha spectroscopy using an energy specific region of interest.

Samples demonstrated acceptable results for all Uranium analyses. Chemical recovery was acceptable for all samples. The Uranium-234, Uranium-235 and Uranium-238 method blank demonstrated acceptable results. Results for the Uranium-234, Uranium-235 and Uranium-238 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Uranium-234 and Uranium-238 laboratory control sample demonstrated an acceptable percent recovery.

ISOTOPIC THORIUM

Samples were prepared by removing representative aliquots followed by mixed acid digestions as appropriate. Thorium was selectively extracted by ion exchange. Thorium was eluted, micro-precipitated and mounted on micro-porous filter media. Sample activities were then determined by alpha spectroscopy using energy specific regions of interest for Thorium-230 and Thorium-232. Chemical recovery was determined by the use of a Thorium-229 tracer. Activity of the Thorium-229 tracer was determined by alpha spectroscopy using an energy specific region of interest.

Samples demonstrated acceptable results for all Thorium analyses. Chemical recovery was acceptable for all samples. The Thorium-230 and Thorium-232 method blank demonstrated acceptable results. Results for the Thorium-230 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Thorium-232 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Thorium-230 and Thorium-232 laboratory control sample demonstrated an acceptable percent recovery.

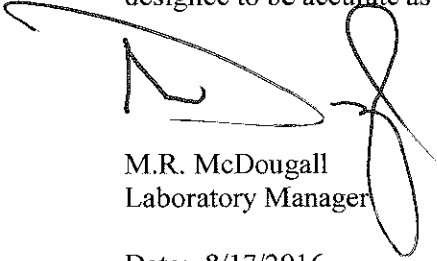
GAMMA SPECTROSCOPY

Samples for Gamma Spectroscopy analysis were prepared by transferring a known mass/aliquot of each prepared and homogenized sample to a standard geometry container. Samples were counted on High Purity Germanium (HPGe) gamma ray detector.

Samples demonstrated acceptable results for all gamma-emitting radionuclides as reported. The method blank demonstrated acceptable results for all radionuclides as reported. Results for the Actinium-228, Bismuth-214 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall
Laboratory Manager

Date: 8/17/2016

Eberline Analytical wants and encourages your feedback regarding our performance providing radioanalytical services. Please visit <http://www.eberlineservices.com/client.htm> to provide us with feedback on our services.

SECTION IV
ANALYTICAL RESULTS SUMMARY

Eberline Analytical

Final Report of Analysis

Cecilia Greene
Auxier & Associates, Inc.
9821 Cogdill Road, Suite 1
Knoxville, TN 37932

Work Order Details:

16-06067
PAP-KAN
ENVIRONMENTAL
SO

SDG:
 Project:
 Analysis Category:
 Sample Matrix:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
16-06067-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/20/2016	16-06067	Cobalt-60	LANL ER-130 Modified	1.37E+02	5.48E+00				pC/kg
16-06067-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/20/2016	16-06067	Cesium-137	LANL ER-130 Modified	8.69E+01	3.48E+00				pC/kg
16-06067-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/20/2016	16-06067	Cobalt-60	LANL ER-130 Modified	1.42E+02	9.85E+00	1.22E+01	1.47E+00	1.70E+00	pC/kg
16-06067-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/20/2016	16-06067	Cesium-137	LANL ER-130 Modified	8.73E+01	8.38E+00	9.50E+00	1.81E+00	8.97E-01	pC/kg
16-06067-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/20/2016	16-06067	Actinium-228	LANL ER-130 Modified	-2.69E-02	1.40E-01	1.40E-01	2.31E-01	9.75E-02	pC/kg
16-06067-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/20/2016	16-06067	Bismuth-214	LANL ER-130 Modified	-2.39E-02	8.56E-02	8.56E-02	1.36E-01	6.09E-02	pC/kg
16-06067-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/20/2016	16-06067	Potassium-40	LANL ER-130 Modified	4.80E-01	3.18E-01	3.19E-01	8.89E-01	3.72E-01	pC/kg
16-06067-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/20/2016	16-06067	Protactinium-231	LANL ER-130 Modified	1.92E-01	1.30E+00	1.30E+00	2.11E+00	9.79E-01	pC/kg
16-06067-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-210	LANL ER-130 Modified	1.65E-01	2.66E-01	2.66E-01	5.17E-01	2.47E-01	pC/kg
16-06067-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-212	LANL ER-130 Modified	5.43E-02	6.34E-02	6.35E-02	1.09E-01	5.12E-02	pC/kg
16-06067-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-214	LANL ER-130 Modified	1.12E-01	8.20E-02	8.22E-02	1.51E-01	7.03E-02	pC/kg
16-06067-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/20/2016	16-06067	Thorium-234	LANL ER-130 Modified	4.23E-01	3.90E-01	3.90E-01	6.59E-01	3.15E-01	pC/kg
16-06067-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/20/2016	16-06067	Thallium-208	LANL ER-130 Modified	1.08E-02	1.17E-01	1.17E-01	1.96E-01	8.74E-02	pC/kg
16-06067-03	DUP	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Actinium-228	LANL ER-130 Modified	2.58E+00	4.20E-01	4.41E-01	9.64E-01	4.65E-01	pC/kg
16-06067-03	DUP	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Bismuth-214	LANL ER-130 Modified	1.37E+00	2.51E-01	2.60E-01	3.84E-01	1.84E-01	pC/kg
16-06067-03	DUP	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Potassium-40	LANL ER-130 Modified	2.89E+01	3.54E+00	3.94E+00	1.92E+00	8.97E-01	pC/kg
16-06067-03	DUP	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Protactinium-231	LANL ER-130 Modified	3.21E+00	2.25E+00	2.26E+00	4.00E+00	1.91E+00	pC/kg
16-06067-03	DUP	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-210	LANL ER-130 Modified	2.82E+00	2.26E+00	2.26E+00	3.71E+00	1.81E+00	pC/kg
16-06067-03	DUP	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-212	LANL ER-130 Modified	2.35E+00	2.81E-01	3.06E-01	3.72E-01	1.82E-01	pC/kg
16-06067-03	DUP	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-214	LANL ER-130 Modified	1.64E+00	2.60E-01	2.74E-01	3.80E-01	1.83E-01	pC/kg
16-06067-03	DUP	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Thorium-234	LANL ER-130 Modified	4.44E+00	2.34E+00	2.35E+00	3.29E+00	1.61E+00	pC/kg
16-06067-03	DUP	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Thallium-208	LANL ER-130 Modified	1.52E+00	2.54E-01	2.66E-01	3.47E-01	2.42E-01	pC/kg
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Actinium-228	LANL ER-130 Modified	2.38E+00	3.41E-01	3.63E-01	5.24E-01	2.45E-01	pC/kg
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Bismuth-214	LANL ER-130 Modified	1.58E+00	2.51E-01	2.64E-01	2.99E-01	1.42E-01	pC/kg
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Potassium-40	LANL ER-130 Modified	3.23E+01	3.79E+00	4.14E+00	1.66E+00	7.65E-01	pC/kg
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Protactinium-231	LANL ER-130 Modified	3.16E+00	2.41E+00	2.42E+00	4.19E+00	2.01E+00	pC/kg
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-210	LANL ER-130 Modified	2.42E+00	2.29E+00	2.30E+00	3.80E+00	1.85E+00	pC/kg
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-212	LANL ER-130 Modified	2.39E+00	2.76E-01	3.02E-01	3.82E-01	1.87E-01	pC/kg
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-214	LANL ER-130 Modified	1.81E+00	2.37E-01	2.54E-01	3.80E-01	1.84E-01	pC/kg
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Thorium-234	LANL ER-130 Modified	4.97E+00	2.38E+00	2.39E+00	3.95E+00	1.64E+00	pC/kg
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	6/20/2016	16-06067	Thallium-208	LANL ER-130 Modified	1.84E+00	2.88E-01	3.03E-01	1.95E-01	2.52E-01	pC/kg

CU=Counting Uncertainty,CSU=Combined Standard Uncertainty (2-sigma),MDA=Minimal Detected Activity,LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original; CV=Critical Value



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Final Report of Analysis

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16-06067
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Work Order Details:

Report To:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Actinium-228	LANL ER-130 Modified	1.78E-01	2.84E-01	2.84E-01	5.00E-01	2.31E-01	pCi/g
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Bismuth-214	LANL ER-130 Modified	1.18E+00	2.37E-01	2.44E-01	2.21E-01	1.03E-01	pCi/g
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Potassium-40	LANL ER-130 Modified	4.89E+00	1.37E+00	1.39E+00	1.44E+00	6.44E-01	pCi/g
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Protactinium-231	LANL ER-130 Modified	5.47E-02	1.13E+00	1.13E+00	3.52E+00	1.68E+00	pCi/g
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-210	LANL ER-130 Modified	9.00E-01	5.55E-01	5.57E-01	9.10E-01	4.43E-01	pCi/g
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-212	LANL ER-130 Modified	3.83E-01	1.31E-01	1.33E-01	2.24E-01	1.09E-01	pCi/g
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-214	LANL ER-130 Modified	1.28E+00	2.54E-01	2.62E-01	2.82E-01	1.26E-01	pCi/g
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Thorium-234	LANL ER-130 Modified	1.77E+00	1.27E+00	1.27E+00	2.09E+00	1.03E+00	pCi/g
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Thallium-208	LANL ER-130 Modified	1.83E-01	2.16E-01	2.17E-01	3.74E-01	1.76E-01	pCi/g
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Actinium-228	LANL ER-130 Modified	1.26E+00	2.74E-01	2.81E-01	4.39E-01	2.07E-01	pCi/g
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Bismuth-214	LANL ER-130 Modified	1.07E+00	1.79E-01	1.87E-01	2.30E-01	1.10E-01	pCi/g
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Potassium-40	LANL ER-130 Modified	1.88E+01	2.41E+00	2.60E+00	1.38E+00	6.46E-01	pCi/g
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Protactinium-231	LANL ER-130 Modified	-1.95E+00	2.30E+00	2.30E+00	2.51E+00	1.19E+00	pCi/g
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-210	LANL ER-130 Modified	2.19E+00	1.47E+00	1.47E+00	2.39E+00	1.17E+00	pCi/g
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-212	LANL ER-130 Modified	1.71E+00	2.97E-01	3.09E-01	2.43E-01	1.19E-01	pCi/g
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-214	LANL ER-130 Modified	1.14E+00	1.83E-01	1.92E-01	2.10E-01	1.00E-01	pCi/g
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Thorium-234	LANL ER-130 Modified	1.46E+00	1.35E+00	1.35E+00	2.24E+00	1.10E+00	pCi/g
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	6/20/2016	16-06067	Thallium-208	LANL ER-130 Modified	9.92E-01	1.69E-01	1.77E-01	1.33E-01	1.25E-01	pCi/g
16-06067-07	TRG	CP-5010 00-02 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Actinium-228	LANL ER-130 Modified	1.07E+00	3.51E-01	3.55E-01	6.64E-01	3.17E-01	pCi/g
16-06067-07	TRG	CP-5010 00-02 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Bismuth-214	LANL ER-130 Modified	1.82E+00	2.50E-01	2.67E-01	3.58E-01	1.88E-01	pCi/g
16-06067-07	TRG	CP-5010 00-02 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Potassium-40	LANL ER-130 Modified	1.61E+01	2.21E+00	2.36E+00	1.32E+00	6.03E-01	pCi/g
16-06067-07	TRG	CP-5010 00-02 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Protactinium-231	LANL ER-130 Modified	3.90E-01	2.49E+00	2.49E+00	3.66E+00	1.76E+00	pCi/g
16-06067-07	TRG	CP-5010 00-02 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-210	LANL ER-130 Modified	2.14E+00	1.90E+00	1.90E+00	3.14E+00	1.54E+00	pCi/g
16-06067-07	TRG	CP-5010 00-02 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-212	LANL ER-130 Modified	1.55E+00	1.85E-01	2.02E-01	2.66E-01	1.30E-01	pCi/g
16-06067-07	TRG	CP-5010 00-02 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-214	LANL ER-130 Modified	2.03E+00	2.15E-01	2.39E-01	4.40E-01	2.15E-01	pCi/g
16-06067-07	TRG	CP-5010 00-02 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Thorium-234	LANL ER-130 Modified	2.02E+00	1.95E+00	1.95E+00	3.24E+00	1.60E+00	pCi/g
16-06067-07	TRG	CP-5010 00-02 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Thallium-208	LANL ER-130 Modified	1.16E+00	2.30E-01	2.37E-01	1.58E-01	2.34E-01	pCi/g

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Work Order Details:

Report To:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
16-06067-08	TRG	CP-5010 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Actinium-228	LANL ER-130 Modified	1.76E+00	3.53E-01	3.65E-01	4.32E-01	2.00E-01	pCi/g
16-06067-08	TRG	CP-5010 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Bismuth-214	LANL ER-130 Modified	1.11E+00	2.11E-01	2.18E-01	2.35E-01	1.66E-01	pCi/g
16-06067-08	TRG	CP-5010 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Potassium-40	LANL ER-130 Modified	2.57E+01	3.20E+00	3.47E+00	1.40E+00	6.39E-01	pCi/g
16-06067-08	TRG	CP-5010 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Protactinium-231	LANL ER-130 Modified	2.44E-01	1.66E+00	1.66E+00	3.36E+00	1.60E+00	pCi/g
16-06067-08	TRG	CP-5010 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-210	LANL ER-130 Modified	2.24E+00	1.40E+00	1.40E+00	2.24E+00	1.08E+00	pCi/g
16-06067-08	TRG	CP-5010 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-212	LANL ER-130 Modified	1.65E+00	2.73E-01	2.86E-01	4.02E-01	1.97E-01	pCi/g
16-06067-08	TRG	CP-5010 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-214	LANL ER-130 Modified	1.21E+00	2.37E-01	2.45E-01	3.31E-01	1.60E-01	pCi/g
16-06067-08	TRG	CP-5010 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Thorium-234	LANL ER-130 Modified	2.63E+00	1.88E+00	1.88E+00	3.09E+00	1.51E+00	pCi/g
16-06067-08	TRG	CP-5010 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Thallium-208	LANL ER-130 Modified	1.23E+00	2.49E-01	2.56E-01	2.57E-01	2.14E-01	pCi/g
16-06067-09	TRG	CP-5012 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Actinium-228	LANL ER-130 Modified	2.68E+00	4.91E-01	5.10E-01	8.91E-01	4.17E-01	pCi/g
16-06067-09	TRG	CP-5012 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Bismuth-214	LANL ER-130 Modified	1.98E+00	3.88E-01	4.02E-01	5.42E-01	2.59E-01	pCi/g
16-06067-09	TRG	CP-5012 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Potassium-40	LANL ER-130 Modified	3.05E+01	4.13E+00	4.42E+00	1.92E+00	8.49E-01	pCi/g
16-06067-09	TRG	CP-5012 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Protactinium-231	LANL ER-130 Modified	7.00E+00	3.91E+00	3.93E+00	6.59E+00	3.16E+00	pCi/g
16-06067-09	TRG	CP-5012 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-210	LANL ER-130 Modified	3.40E+00	3.08E+00	3.09E+00	5.10E+00	2.49E+00	pCi/g
16-06067-09	TRG	CP-5012 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-212	LANL ER-130 Modified	2.71E+00	3.33E-01	3.61E-01	5.94E-01	2.91E-01	pCi/g
16-06067-09	TRG	CP-5012 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-214	LANL ER-130 Modified	1.96E+00	2.79E-01	2.86E-01	9.73E-01	4.77E-01	pCi/g
16-06067-09	TRG	CP-5012 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Thorium-234	LANL ER-130 Modified	2.05E+00	2.74E+00	2.74E+00	3.67E+00	1.79E+00	pCi/g
16-06067-09	TRG	CP-5012 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Thallium-208	LANL ER-130 Modified	1.94E+00	4.09E-01	4.21E-01	3.06E-01	3.71E-01	pCi/g
16-06067-10	TRG	CP-5014 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Actinium-228	LANL ER-130 Modified	1.84E+00	3.65E-01	3.97E-01	7.38E-01	3.55E-01	pCi/g
16-06067-10	TRG	CP-5014 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Bismuth-214	LANL ER-130 Modified	1.21E+00	2.02E-01	2.12E-01	2.20E-01	1.35E-01	pCi/g
16-06067-10	TRG	CP-5014 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Potassium-40	LANL ER-130 Modified	2.84E+01	3.22E+00	3.53E+00	1.24E+00	5.69E-01	pCi/g
16-06067-10	TRG	CP-5014 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Protactinium-231	LANL ER-130 Modified	1.72E+00	1.95E+00	1.95E+00	3.30E+00	1.58E+00	pCi/g
16-06067-10	TRG	CP-5014 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-210	LANL ER-130 Modified	3.88E+00	2.11E+00	2.12E+00	2.99E+00	1.46E+00	pCi/g
16-06067-10	TRG	CP-5014 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-212	LANL ER-130 Modified	1.61E+00	2.27E-01	2.41E-01	3.61E-01	1.78E-01	pCi/g
16-06067-10	TRG	CP-5014 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-214	LANL ER-130 Modified	1.47E+00	1.95E-01	2.09E-01	3.28E-01	1.59E-01	pCi/g
16-06067-10	TRG	CP-5014 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Thorium-234	LANL ER-130 Modified	2.43E+00	2.20E+00	2.20E+00	3.66E+00	1.80E+00	pCi/g
16-06067-10	TRG	CP-5014 09-15 QC	06/07/16 00:00	6/14/2016	6/20/2016	16-06067	Thallium-208	LANL ER-130 Modified	1.61E+00	2.12E-01	2.27E-01	1.50E-01	2.31E-01	pCi/g

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Work Order Details:

Report To:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	6/20/2016	16-06067	Actinium-228	LANL ER-130 Modified	1.06E+00	2.10E-01	2.17E-01	3.50E-01	1.65E-01	pCt/g
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	6/20/2016	16-06067	Bismuth-214	LANL ER-130 Modified	8.86E-01	1.40E-01	1.47E-01	1.89E-01	9.05E-02	pCt/g
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	6/20/2016	16-06067	Potassium-40	LANL ER-130 Modified	1.77E+01	2.09E+00	2.28E+00	6.97E-01	3.13E-01	pCt/g
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	6/20/2016	16-06067	Protactinium-231	LANL ER-130 Modified	-1.68E+00	1.72E+00	1.72E+00	1.95E+00	9.27E-01	pCt/g
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-210	LANL ER-130 Modified	5.79E-01	8.00E-01	8.00E-01	1.24E+00	5.95E-01	pCt/g
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-212	LANL ER-130 Modified	7.41E-01	1.77E-01	1.81E-01	2.27E-01	1.11E-01	pCt/g
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-214	LANL ER-130 Modified	8.29E-01	1.62E-01	1.67E-01	1.78E-01	8.58E-02	pCt/g
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	6/20/2016	16-06067	Thorium-234	LANL ER-130 Modified	1.69E+00	1.31E+00	1.31E+00	2.17E+00	1.07E+00	pCt/g
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	6/20/2016	16-06067	Thallium-208	LANL ER-130 Modified	9.86E-01	1.66E-01	1.74E-01	1.04E-01	1.44E-01	pCt/g
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	6/20/2016	16-06067	Actinium-228	LANL ER-130 Modified	9.64E-01	2.74E-01	2.78E-01	5.13E-01	2.44E-01	pCt/g
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	6/20/2016	16-06067	Bismuth-214	LANL ER-130 Modified	3.81E+00	3.42E-01	3.94E-01	2.62E-01	1.28E-01	pCt/g
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	6/20/2016	16-06067	Potassium-40	LANL ER-130 Modified	1.86E+01	2.27E+00	2.46E+00	2.96E+00	1.23E+00	pCt/g
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	6/20/2016	16-06067	Protactinium-231	LANL ER-130 Modified	6.19E+01	9.83E-01	9.84E-01	4.01E+00	1.95E+00	pCt/g
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-210	LANL ER-130 Modified	4.62E+00	2.12E+00	2.13E+00	3.38E+00	1.68E+00	pCt/g
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-212	LANL ER-130 Modified	1.36E+00	1.75E-01	1.88E-01	4.61E-01	2.28E-01	pCt/g
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	6/20/2016	16-06067	Lead-214	LANL ER-130 Modified	4.39E+00	3.42E-01	4.09E-01	3.83E-01	1.87E-01	pCt/g
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	6/20/2016	16-06067	Thorium-234	LANL ER-130 Modified	2.94E+00	2.26E+00	2.27E+00	3.76E+00	1.86E+00	pCt/g
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	6/20/2016	16-06067	Thallium-208	LANL ER-130 Modified	1.01E+00	1.85E-01	1.92E-01	1.33E-01	2.68E-01	pCt/g
16-06067-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-230	EML Th-01 Modified	5.35E+00	1.44E-01				pCt/g
16-06067-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-230	EML Th-01 Modified	6.06E+00	1.11E+00	1.34E+00	8.35E-02	1.08E-01	pCt/g
16-06067-02	MBL	BLANK	06/14/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-230	EML Th-01 Modified	6.36E-02	4.95E-02	5.01E-02	4.89E-02	5.11E-02	pCt/g
16-06067-03	DUP	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-230	EML Th-01 Modified	1.19E+00	2.61E-01	2.99E-01	5.23E-02	4.99E-02	pCt/g
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-230	EML Th-01 Modified	1.31E+00	3.09E-01	3.49E-01	4.90E-02	5.35E-02	pCt/g
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-230	EML Th-01 Modified	1.01E+00	4.17E-01	4.35E-01	1.35E-01	1.47E-01	pCt/g
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-230	EML Th-01 Modified	1.19E+00	3.02E-01	3.36E-01	6.49E-02	6.42E-02	pCt/g
16-06067-07	TRG	CP-5010 00-02 QC	06/07/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-230	EML Th-01 Modified	1.76E+00	4.19E-01	4.72E-01	9.77E-02	9.01E-02	pCt/g
16-06067-08	TRG	CP-5010 08-15 QC	06/07/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-230	EML Th-01 Modified	1.27E+00	3.08E-01	3.46E-01	6.90E-02	6.53E-02	pCt/g
16-06067-09	TRG	CP-5012 08-15 QC	06/07/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-230	EML Th-01 Modified	1.34E+00	2.69E-01	3.33E-01	5.74E-02	5.38E-02	pCt/g
16-06067-10	TRG	CP-5014 08-15 QC	06/07/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-230	EML Th-01 Modified	1.25E+00	2.93E-01	3.31E-01	5.36E-02	5.43E-02	pCt/g
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-230	EML Th-01 Modified	1.23E+00	3.10E-01	3.45E-01	6.17E-02	5.38E-02	pCt/g
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-230	EML Th-01 Modified	3.47E+00	6.96E-01	8.18E-01	6.25E-02	6.06E-02	pCt/g

CU=Counting Uncertainty; CSU=Combined Standard Uncertainty (2-sigma); MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate Sample; DO=Duplicate Original; TRG=Normal Sample; DO=Duplicate Original; CV=Critical Value



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601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Eberline Analytical Final Report of Analysis		Report To: Cecilia Greene Auxier & Associates, Inc. 9821 Cogdill Road, Suite 1 Knoxville, TN 37932										Work Order Details: 16-06067 PAP-KAN ENVIRONMENTAL SO				
Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units		
16-06067-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-232	EML Th-01 Modified	5.10E+00	1.64E-01	1.09E+00	1.05E-01	1.19E-02	pCi/g		
16-06067-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-232	EML Th-01 Modified	5.24E+00	9.83E-01	4.69E-02	7.58E-02	2.57E-02	pCi/g		
16-06067-02	MBL	BLANK	06/14/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-232	EML Th-01 Modified	3.56E-02	4.68E-02	2.29E-01	5.93E-02	1.61E-02	pCi/g		
16-06067-03	DUP	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-232	EML Th-01 Modified	9.05E-01	2.15E-01	3.21E-01	3.89E-02	2.37E-03	pCi/g		
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-232	EML Th-01 Modified	1.27E+00	3.01E-01	1.62E-01	1.54E-01	2.39E-02	pCi/g		
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-232	EML Th-01 Modified	2.09E-01	2.73E-01	2.73E-01	6.16E-02	9.60E-03	pCi/g		
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-232	EML Th-01 Modified	9.68E-01	2.59E-01	2.91E-01	6.16E-02	8.31E-03	pCi/g		
16-06067-07	TRG	CP-5010 00-02 QC	06/07/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-232	EML Th-01 Modified	1.02E+00	2.77E-01	3.35E-01	5.81E-02	8.05E-04	pCi/g		
16-06067-08	TRG	CP-5010 08-15 QC	06/07/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-232	EML Th-01 Modified	1.31E+00	3.15E-01	3.00E-01	4.40E-02	5.94E-03	pCi/g		
16-06067-09	TRG	CP-5012 09-15 QC	06/07/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-232	EML Th-01 Modified	1.27E+00	2.78E-01	3.30E-01	4.69E-02	5.31E-03	pCi/g		
16-06067-10	TRG	CP-5014 09-15 QC	06/07/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-232	EML Th-01 Modified	1.34E+00	3.08E-01	2.45E-01	4.29E-02	2.61E-03	pCi/g		
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-232	EML Th-01 Modified	8.31E-01	2.33E-01	2.47E-01	6.73E-02	1.53E-02	pCi/g		
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	7/6/2016	16-06067	Thorium-232	EML Th-01 Modified	8.76E-01	2.35E-01	2.47E-01	6.73E-02	1.53E-02	pCi/g		
16-06067-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-234	EML U-02 Modified	8.06E+00	2.91E-01	9.44E-01	6.36E-02	1.46E-02	pCi/g		
16-06067-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-234	EML U-02 Modified	6.39E+00	8.27E-01	6.04E-02	5.95E-02	1.63E-02	pCi/g		
16-06067-02	MBL	BLANK	06/14/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-234	EML U-02 Modified	8.87E-02	6.00E-02	2.01E-01	5.40E-02	1.70E-02	pCi/g		
16-06067-03	DUP	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-234	EML U-02 Modified	9.43E-01	1.90E-01	1.74E-01	4.44E-02	1.09E-02	pCi/g		
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-234	EML U-02 Modified	7.58E-01	1.66E-01	2.37E-01	3.56E-02	6.71E-03	pCi/g		
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-234	EML U-02 Modified	1.11E+00	2.23E-01	2.39E-01	6.40E-02	2.10E-02	pCi/g		
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-234	EML U-02 Modified	1.12E+00	2.25E-01	2.34E-01	3.46E-02	6.92E-03	pCi/g		
16-06067-07	TRG	CP-5010 00-02 QC	06/07/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-234	EML U-02 Modified	1.20E+00	2.17E-01	3.09E-01	5.06E-02	1.01E-02	pCi/g		
16-06067-08	TRG	CP-5010 08-15 QC	06/07/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-234	EML U-02 Modified	1.55E+00	3.09E-01	1.96E-01	5.29E-02	1.29E-02	pCi/g		
16-06067-09	TRG	CP-5012 09-15 QC	06/07/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-234	EML U-02 Modified	8.05E-01	1.87E-01	2.30E-01	6.82E-02	2.65E-02	pCi/g		
16-06067-10	TRG	CP-5014 09-15 QC	06/07/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-234	EML U-02 Modified	1.09E+00	2.16E-01	2.07E-01	3.70E-02	6.96E-03	pCi/g		
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-234	EML U-02 Modified	8.76E-01	1.97E-01	7.07E-01	5.76E-02	1.09E-02	pCi/g		
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-234	EML U-02 Modified	3.72E+00	6.55E-01	7.07E-01	5.76E-02	1.09E-02	pCi/g		

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original; CV=Critical Value



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Eberline Analytical

Final Report of Analysis

Cecilia Greene
Auxier & Associates, Inc.
 9821 Cogdill Road, Suite 1
 Knoxville, TN 37932

SDG: 16-06067
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Report To: Work Order Details:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
16-06067-01	LCS	SPIKE	06/14/2016 00:00	6/14/2016	7/1/2016	16-06067	Uranium-235	EML U-02 Modified	4.22E-01	1.58E-01	1.61E-01	7.85E-02	9.14E-03	pC/g
16-06067-02	MBL	BLANK	06/14/2016 00:00	6/14/2016	7/1/2016	16-06067	Uranium-235	EML U-02 Modified	1.28E-02	3.20E-02	3.20E-02	6.88E-02	8.84E-03	pC/g
16-06067-03	DUP	CP-5030 05-10 QC	06/08/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-235	EML U-02 Modified	5.73E-02	4.78E-02	4.80E-02	5.12E-02	5.94E-03	pC/g
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-235	EML U-02 Modified	7.31E-02	5.48E-02	5.51E-02	5.77E-02	8.52E-03	pC/g
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-235	EML U-02 Modified	7.89E-02	5.93E-02	5.96E-02	5.53E-02	5.48E-03	pC/g
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-235	EML U-02 Modified	7.63E-02	5.87E-02	5.90E-02	5.88E-02	6.89E-03	pC/g
16-06067-07	TRG	CP-5010 09-15 QC	06/07/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-235	EML U-02 Modified	1.47E-01	7.37E-02	7.45E-02	4.68E-02	4.63E-03	pC/g
16-06067-08	TRG	CP-5010 09-15 QC	06/07/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-235	EML U-02 Modified	4.78E-02	5.19E-02	5.20E-02	6.25E-02	4.98E-03	pC/g
16-06067-09	TRG	CP-5012 09-15 QC	06/07/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-235	EML U-02 Modified	7.62E-02	6.09E-02	6.12E-02	6.53E-02	1.19E-03	pC/g
16-06067-10	TRG	CP-5014 09-15 QC	06/07/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-235	EML U-02 Modified	-8.53E-03	2.21E-02	2.21E-02	7.43E-02	1.59E-02	pC/g
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-235	EML U-02 Modified	7.66E-02	6.12E-02	6.14E-02	6.56E-02	1.15E-03	pC/g
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-235	EML U-02 Modified	3.06E-01	1.51E-01	1.52E-01	1.02E-01	1.80E-03	pC/g
16-06067-01	LCS	KNOWN	06/14/2016 00:00	6/14/2016	7/1/2016	16-06067	Uranium-238	EML U-02 Modified	7.83E+00	2.82E-01				pC/g
16-06067-01	LCS	SPIKE	06/14/2016 00:00	6/14/2016	7/1/2016	16-06067	Uranium-238	EML U-02 Modified	7.93E+00	9.85E-01	1.14E+00	5.89E-02	1.28E-02	pC/g
16-06067-02	MBL	BLANK	06/14/2016 00:00	6/14/2016	7/1/2016	16-06067	Uranium-238	EML U-02 Modified	1.78E-02	3.15E-02	3.15E-02	5.67E-02	1.48E-02	pC/g
16-06067-03	DUP	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-238	EML U-02 Modified	1.01E+00	1.97E-01	2.10E-01	4.61E-02	1.21E-02	pC/g
16-06067-04	DO	CP-5030 05-10 QC	06/06/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-238	EML U-02 Modified	8.31E-01	1.75E-01	1.85E-01	5.25E-01	1.60E-02	pC/g
16-06067-05	TRG	CP-5031 00-02 QC	06/02/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-238	EML U-02 Modified	1.33E+00	2.51E-01	2.69E-01	3.55E-01	6.78E-03	pC/g
16-06067-06	TRG	CP-5023 02-05 QC	06/02/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-238	EML U-02 Modified	9.70E-01	2.06E-01	2.17E-01	6.18E-02	1.96E-02	pC/g
16-06067-07	TRG	CP-5010 00-02 QC	06/07/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-238	EML U-02 Modified	1.13E+00	2.09E-01	2.24E-01	4.31E-02	1.07E-02	pC/g
16-06067-08	TRG	CP-5010 09-15 QC	06/07/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-238	EML U-02 Modified	1.12E+00	2.50E-01	2.62E-01	6.32E-02	6.60E-03	pC/g
16-06067-09	TRG	CP-5012 09-15 QC	06/07/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-238	EML U-02 Modified	8.64E-01	1.95E-01	2.04E-01	4.98E-02	1.15E-02	pC/g
16-06067-10	TRG	CP-5014 09-15 QC	06/07/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-238	EML U-02 Modified	8.06E-01	1.78E-01	1.87E-01	5.21E-02	1.44E-02	pC/g
16-06067-11	TRG	CP-5017 00-02 QC	06/08/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-238	EML U-02 Modified	7.86E-01	1.85E-01	1.93E-01	5.29E-02	5.53E-03	pC/g
16-06067-12	TRG	CP-5020 00-02 QC	06/09/16 00:00	6/14/2016	7/1/2016	16-06067	Uranium-238	EML U-02 Modified	3.68E+00	6.50E-01	7.01E-01	8.23E-02	2.03E-02	pC/g

CU=Counting Uncertainty; CSU=Combined Standard Uncertainty (2-sigma); MDA=Minimal Detected Activity; LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original; CV=Critical Value



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000022

SECTION V
ANALYTICAL STANDARD

U-8

QA/QC REVIEWED
Date 1/16/95 Initials WA

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

Radionuclide: U-238NAT
Half Life: $(4.468 \pm 0.005) \times 10^9$ years
Catalog No.: 7338
Source No.: 479-50

Customer: TMA EBERLINE
P.O.No.: OR2778
Reference Date: January 1 1995 12:00 PST.
Contained Radioactivity: (Total U) 8.016 μ Ci
Contained Radioactivity: (Total U) 297 kBq

Description of Solution
a. Mass of solution: 65.2896 g in a 50 ml flame sealed ampoule
b. Chemical form: Uranyl Nitrate in H₂O
c. Carrier content: None
d. Density: Approximately 1.3202 g/ml @ 20°C.

Radioimpurities Refer to attached technical data sheet

Radioactive Daughters Refer to attached technical data sheet

Radionuclide Concentration (Total U) 0.1228 μ Ci/g.

Method of Calibration

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement
a. Systematic uncertainty in instrument calibration: $\pm 3.0\%$
b. Random uncertainty in assay: $\pm 0.0\%$
c. Random uncertainty in weighing(s): $\pm 2.0\%$
d. Total uncertainty at the 99% confidence level: $\pm 3.6\%$

NIST Traceability
This calibration is implicitly traceable to the National Institute of Standards and Technology.

Leak Test(s)
See reverse side for Leak Test(s) applied to this source.

Notes
1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).


ERIC ALLAS
QUALITY CONTROL

29 DECEMBER 1994
Date Signed



ISOTOPE PRODUCTS LABORATORIES
3017 N. SAN FERNANDO BLVD.
BURBANK, CALIFORNIA 91504
818-843-7000 FAX 818-843-6168



QUALITY CONTROL PROGRAM
MP-009

Rev.8; 11/01/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
MP 009

SOLUTION REFERENCE # IPL 479-50 CURRENT DATE 7/11/2016 0:00
SOLUTION # U-8

Principal Radionuclide ^{234, 235, 238}U Half Life, Years 4.468E+09 Half Life, Days 1.632E+12

Radionuclide ^{234, 235, 238}U Reference Date 1/11/1995 0:00
Certified Activity 8.016E+00 μCi
Certified Concentration 8.016E+00 $\mu\text{Ci per gram}$

Ampoule /Solution Gross	<u>97.6400</u>	Weight, Grams
Empty Ampoule	<u>32.5020</u>	Weight, Grams
Solution Net	<u>65.1380</u>	Weight, Grams
Total Activity in Ampoule	<u>8.0160</u>	μCi

Chemical Composition of Standard Solution
Uranyl nitrate in dilute HNO₃

Dilution Instructions: Dilution Solvent Used 1M HNO₃

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 8.0160 μCi Which Equals 1.780E+07 dpm at the date listed above

And after dilution the activity of this solution is 1.77955E+04 dpm/ml
This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: July 6, 2017

Verified & Approved By [Signature]

Date: 7/11/2016 0:00

QC Approval [Signature]

Date: 7/19/16



QUALITY CONTROL PROGRAM
MP-009

Rev.8; 11/01/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

Solution Reference # MP-009
IPL 479-50

Date: 7/11/2016 0:00
Solution # U-8a

Principal Radionuclide

Half Life, Years

Half Life, Days

234, 235, 238 U

4.468E+09

1.632E+12

Radionuclide of Interest

234, 235, 238 U

Reference Date

1/1/1995 0:00

Parent Solution Conc. 1.7796E+04 dpm/ml

Chemical Composition of Standard Solution

Uranly Nitrate in 1M HNO₃

Dilution Instructions:

Dilution Solvent Used

1M HNO₃

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 4.0000 ml

Total Activity: 7.1182E+04 dpm

Final Volume: 1000.00 ml

Final Activity Concentration: 7.1182E+01 dpm/ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Isotopic Distribution as:

U-238 Atom % = 48.239 U-238 = 71.182 dpm/ml X 0.48249 = 34.345 dpm/ml
U-235 Atom % = 2.25 U-235 = 71.182 dpm/ml X 0.0225 = 1.602 dpm/ml
U-234 Atom % = 49.501 U-238 = 71.182 dpm/ml X 0.49501 = 35.236 dpm/ml
All values +/- 3.6%

Isotopic ratios from manufacturer's data sheet

Expiration Date: July 6, 2017

Verified & Approved By

Date: 7/11/2016 0:00

QC Approval

Date: 7/19/16

RECORD COPY

Tracer Solution for Environmental Analysis & Disequilibrium Studies

Product Description & Measurement Certificate

<i>Description</i>	Principal radionuclide: uranium 232 (U-232) Daughter Nuclide: Th-228	Product code: UDP10050 Batch Number: 92/232/67
<i>Measurement</i>	Reference date: Radioactive concentration U-232 which is equivalent to Mass of solution Volume of solution Total activity of U-232 which is equivalent to	01 March 2000 6.739E+03 becquerels per gram of solution 1.821E-01 microcuries per gram of solution 5.356 grams 5.035 millilitres 3.61E+04 becquerels 9.76E-01 microcuries
<i>Accuracy</i>	Method of measurement (see reverse of this certificate) Random uncertainty is: $\pm 0.7\%$ Systematic uncertainty: $\pm 0.5\%$ Overall uncertainty in the radioactive concentration quoted above: $\pm 1.7\%$ Overall uncertainty is defined on the reverse of this certificate.	
<i>Radionuclidic Purity</i>	Any radioactive impurities measured are listed below, expressed as percentages of the activity of the principle radionuclide at the reference date . Th-228 and daughter activity removed 2 Feb 2000 U-232 daughters activity will increase with time. By alpha 88% U-232, 12% daughters on 1/3/00	
<i>Isotopic Purity</i>	The isotopic composition, expressed as atom per cent at the reference date . Not measured	
<i>Chemical Composition</i>	Calculated weight of U-232, 4.42E-08 grams, as 2M HNO ₃ solution in a flame sealed glass vial. This Tracer solution has been produced 'carrier free'.	
<i>Physical Data</i>	Recommended half life of uranium 232: 6.980E+01 years Principle energies of alpha emissions (MeV): 5.263 31.7%, 5.320 68.0% Branching ratio for alpha emission: 100% Calculated specific activity of uranium 232: 8.167E+05 Bq per microgram U-232.	
<i>Remarks</i>	For safety information and notes to ensure correct usage by all persons handling this radioactive Tracer solution please read the instructions accompanying the package. AEA Technology operates a quality management system which has been independently audited and approved to ISO 9001.	

Approved
Signatory



Roger Wiltshire

Project Ref. AE2315

Prepared and characterised in the UK, for world wide distribution by **Isotrak, AEA Technology, QSA.**



QUALITY CONTROL PROGRAM
MP-009

Rev.8; 11/01/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
MP 009

SOLUTION REFERENCE # AEA/Amersham 92/232/67 **CURRENT DATE** 10/27/2015 0:00
SOLUTION # U-10

Principal Radionuclide ²³²U **Half Life, Years** 7.200E+01 **Half Life, Days** 2.630E+04

Radionuclide ²³²U **Reference Date** 3/1/2000 0:00
Certified Activity 9.760E-01 μCi
Certified Concentration μCi per gram

Ampoule /Solution Gross _____ **Weight, Grams**
Empty Ampoule _____ **Weight, Grams**
Solution Net _____ **Weight, Grams**
Total Activity in Ampoule 0.9760 μCi

Chemical Composition of Standard Solution
²³²U(NO₃)₆ in 2M HNO₃

Dilution Instructions: **Dilution Solvent Used** 2M HNO₃
Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 0.9760 μCi **Which Equals** 2.167E+06 dpm at the date listed above

And after dilution the activity of this solution is 2.167E+03 dpm/ml This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: October 26, 2016

Verified & Approved By _____ **Date:** 10/27/2015 0:00
QC Approval _____ **Date:** 10/28/15



QUALITY CONTROL PROGRAM
MP-009

Rev.8; 11/01/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

Solution Reference # MP-009
AEA/Amersham 92/232/67

Date 10/27/2015 0:00
Solution # U-10a

Principal Radionuclide
²³²U

Half Life, Years
7.200E+01

Half Life, Days
2.630E+04

Radionuclide of Interest ²³²U
Parent Solution Conc. 2.167E+03 dpm/ml

Reference Date 3/1/2000 0:00

Chemical Composition of Standard Solution

²³²U(NO₃)₆ in 2M HNO₃

Dilution Instructions:

Dilution Solvent Used 2M HNO₃

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 10.0000 ml
Total Activity: 2.1670E+04 dpm
Final Volume: 1000.00 ml

Final Activity Concentration: 2.1670E+01 dpm/ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: October 26, 2016

Verified & Approved By

Date: 10/27/2015 0:00

QC Approval

Date: 10/28/15

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

Radionuclide:	Th-232	Customer:	TMA EBERLINE
Half Life:	$(1.405 \pm 0.006) \times 10^{10}$ years	P.O.No.:	VH1632
Catalog No.:	7232	Reference Date:	November 1 1993 12:00 PST.
Source No.:	435-104-2	Contained Radioactivity:	(Th-232) 0.0933 μ Ci.
		Contained Radioactivity:	(Th-232) 3.45 kBq.

Description of Solution

a. Mass of solution:	11.9712 g (in a 10 ml flame sealed ampoule)
b. Chemical form:	Th(NO ₃) ₄ in water
c. Carrier content:	None added
d. Density:	Approx. 1.21 g/ml @ 20°C.

Radioimpurities: None detected (other than daughters).

Radioactive Daughters: Ra-228, Ac-228, Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Po-212, Tl-208

Radionuclide Concentration: (Th-232) 0.00779 μ Ci/g.

Method of Calibration: Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration:	$\pm 3.0\%$
b. Random uncertainty in assay:	$\pm 0.0\%$
c. Random uncertainty in weighing(s):	$\pm 2.0\%$
d. Total uncertainty at the 99% confidence level:	$\pm 3.6\%$

NIST Traceability: This calibration is implicitly traceable to the National Institute of Standards and Technology.

Leak Test(s): See reverse side for Leak Test(s) applied to this source.

Notes

1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).



ISOTOPE PRODUCTS LABORATORIES
1800 North Keystone Street
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(818) 843 - 7000

Anna U. Khan
QUALITY CONTROL
Nov. 8, 1993
Date Signed



QUALITY CONTROL PROGRAM
MP-009

Rev.8; 1/10/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
MP 009

SOLUTION REFERENCE # IPL 435-104-2 CURRENT DATE 9/29/2015 0:00
SOLUTION # Th-8

Principal Radionuclide ²³²Th, ²²⁸Th Half Life, Years 1.405E+10 Half Life, Days 5.132E+12

Radionuclide ²³² & ²²⁸Th Reference Date 11/1/1993 0:00
Certified Activity 9.330E-02 μCi
Certified Concentration $\mu\text{Ci per gram}$

Ampoule /Solution Gross 18.8415 Weight, Grams
Empty Ampoule 6.9296 Weight, Grams
Solution Net 11.9119 Weight, Grams
Total Activity in Ampoule 0.0933 μCi

Chemical Composition of Standard Solution
Th(NO₃)₄ in H₂O

Dilution Instructions: Dilution Solvent Used 1% Nitric Acid

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 0.0933 μCi Which Equals 2.071E+05 dpm at the date listed above

And after dilution the activity of this solution is 2.071E+02 dpm/ml This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: August 25, 2016

Verified & Approved By [Signature] Date: 9/29/2015 0:00
QC Approval [Signature] Date: 9/30/15



QUALITY CONTROL PROGRAM
MP-009

Rev.8; 1/10/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

Solution Reference # MP-009 IPL 435-104-2 Date 9/29/2015 0:00
Solution # Th-8b

Principal Radionuclide	Half Life, Years	Half Life, Days
<u>^{228 & 232}Th</u>	<u>1.405E+10</u>	<u>5.132E+12</u>

Radionuclide of Interest: ^{228 & 232}Th Reference Date: 11/1/1993 0:00
Parent Solution Conc. 2.07E+02 dpm/ml

Chemical Composition of Standard Solution
Th(NO₃)₄ in 1% HNO₃

Dilution Instructions: Dilution Solvent Used 1% Nitric Acid

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 500.0000 ml
Total Activity: 1.0355E+05 dpm Final Activity Concentration: 1.0355E+02 dpm/ml
Final Volume: 1000.00 ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: August 25, 2016

Verified & Approved By [Signature]

Date: 9/29/2015 0:00

QC Approval [Signature]

Date: 9/30/15

QA/QC REVIEWED

Date 10/14/91 Initials ut

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

Received
OCT 14 1991
TMA/Eberline
Oak Ridge Lab

Radionuclide	Th-230	Customer:	TMA EBERLINE
Half Life:	$(7.54 \pm 0.03) \times 10^4$ years	P.O.No.:	TT4944
Catalog No.:	7230	Reference Date:	November 1 1991 12:00 PST.
Source No.:	388-116	Contained Radioactivity:	1.036 μ Ci.

Description of Solution

a. Mass of solution:	5.0042	grams.
b. Chemical form:	Th(NO3)4 in 0.1N HNO3	
c. Carrier content:	None added	
d. Density:	1.0016	gram/ml @ 20°C.

Radioimpurities

See attached technical data sheet

Radioactive Daughters

See attached technical data sheet

Radionuclide Concentration

0.207 μ Ci/gram.

Method of Calibration

Weighed aliquots of the solution were assayed using a liquid scintillation counter.

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration:	$\pm 2.0\%$
b. Random uncertainty in assay:	$\pm 0.5\%$
c. Random uncertainty in weighing(s):	$\pm 0.2\%$
d. Total uncertainty at the 99% confidence level:	$\pm 2.7\%$

NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

Notes

1. Nuclear data were taken from "Table of Isotopes", Seventh Edition, edited by Virginia S. Shirley.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials. (As in NRC Regulatory Guide 4.15)



ISOTOPE PRODUCTS LABORATORIES
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[Signature]
QUALITY CONTROL



QUALITY CONTROL PROGRAM
MP-009

Rev.14; 10/10/2012
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
MP 009

SOLUTION REFERENCE # IPL 388-116 CURRENT DATE 3/5/2016 0:00
SOLUTION # Th-1

Principal Radionuclide ²³⁰Th Half Life, Years 7.540E+04 Half Life, Days 2.754E+07

Radionuclide ²³⁰Thorium Reference Date 11/1/1991 0:00
Certified Activity 1.036E+00 μCi
Certified Concentration $\mu\text{Ci per gram}$

Ampoule /Solution Gross	<u>9.2660</u>	Weight, Grams
Empty Ampoule	<u>4.6218</u>	Weight, Grams
Solution Net	<u>4.6442</u>	Weight, Grams
Total Activity in Ampoule	<u>1.0360</u>	μCi

Chemical Composition of Standard Solution
²³⁰Th(NO₃)₄ in 0.1N HNO₃

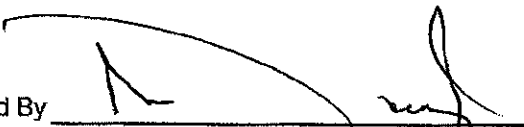
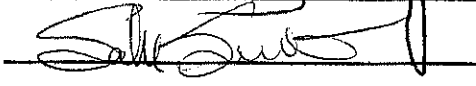
Dilution Instructions: Dilution Solvent Used 0.1N HNO₃

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 1.0360 μCi Which Equals 2.300E+06 dpm at the date listed above

And after dilution the activity of this solution is 2.300E+03 dpm/ml
This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: February 8, 2017

Recertified By  Date: 3/5/2016 0:00
QC Approval  Date: 3/10/16



QUALITY CONTROL PROGRAM
MP-009

Rev. 14; 10/10/2012
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

Solution Reference # MP-009 IPL 388-116 Date 3/5/2016 0:00
Solution # Th-1b

Principal Radionuclide	Half Life, Years	Half Life, Days
<u>²³⁰Th</u>	<u>7.540E+04</u>	<u>2.754E+07</u>

Radionuclide of Interest ²³⁰Thorium Reference Date 11/1/1991 0:00
Parent Solution Conc. 2.30E+03 dpm/ml

Chemical Composition of Standard Solution

²³⁰Th(NO₃)₄ in 0.1N HNO₃

Dilution Instructions: Dilution Solvent Used 0.1N HNO₃

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 10.0000 ml
Total Activity: 2.2999E+04 dpm Final Activity Concentration: 2.2999E+01 dpm/ml
Final Volume: 1000.00 ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: February 8, 2017

Recertified By [Signature]

Date: 3/5/2016 0:00

QC Approval [Signature]

Date: 3/10/16



**Isotope Products
Laboratories**

An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

Th-18

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

Radionuclide: Th-229	Customer: EBERLINE SERVICES
Half-life: 7340 ± 160 years	P.O. No.: 00009633
Catalog No.: 7229	Reference Date: 15-Jan-02 12:00 PST
Source No.: 867-54	Contained Radioactivity: 1.013 μCi 37.48 kBq (Th-229 only)

Physical Description:

A. Mass of solution:	5.0147 g in 5 mL flame-sealed ampoule
B. Chemical form:	Th(NO ₃) ₄ in 0.1M HNO ₃
C. Carrier content:	10μg Th/mL
D. Density:	1.0016 g/mL @ 20°C.

Radioimpurities:

None detected (daughters in equilibrium)

Radionuclide Concentration: 0.2020 μCi/g, 7.474 kBq/g

Method of Calibration:

This source was prepared from a weighed aliquot of solution whose activity in μCi/g was determined using gamma ray spectrometry.

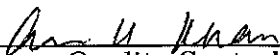
Peak energy used for integration:	193.5 keV
Branching ratio used:	0.0441 gammas per decay

Uncertainty of Measurement:

A. Type A (random) uncertainty:	± 0.7 %
B. Type B (systematic) uncertainty:	± 3.0 %
C. Uncertainty in aliquot weighing:	± 0.0 %
D. Total uncertainty at the 99% confidence level:	± 3.1 %

Notes:

- See reverse side for leak test(s) performed on this source.
- IPL participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).
- Nuclear data was taken from IAEA Technical Report Series No. 261.
- This solution has a working life of 5 years.


Quality Control

9-Jan-02
Date Signed

IPL Ref. No.: 867-54

ISO 9001 CERTIFIED

Medical Imaging Laboratory
24937 Avenue Tibbitts Valencia, California 91355

Industrial Gauging Laboratory
1800 North Keystone Street Burbank, California 91504

: 00036



QUALITY CONTROL PROGRAM

MP-009

Rev.8; 1/10/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY RADIOACTIVE REFERENCE SOLUTIONS PRIMARY DILUTION RECERTIFICATION MP 009

SOLUTION REFERENCE # IPL 867-54 CURRENT DATE 9/29/2015 0:00
SOLUTION # Th-18

Principal Radionuclide ²²⁹Th Half Life, Years 7.340E+03 Half Life, Days 2.681E+06

Radionuclide ²²⁹Th Reference Date 1/15/2002 0:00
Certified Activity 1.013E+00 μCi
Certified Concentration $\mu\text{Ci per gram}$

Ampoule /Solution Gross 8.7752 Weight, Grams
Empty Ampoule 3.7591 Weight, Grams
Solution Net 5.0161 Weight, Grams
Total Activity in Ampoule 1.0130 μCi

Chemical Composition of Standard Solution

²²⁹Th(NO₃)₄ in 0.1M HNO₃

Dilution Instructions: Dilution Solvent Used 0.1M HNO₃

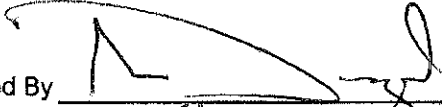
Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 1.0130 μCi Which Equals 2.249E+06 dpm at the date listed above

And after dilution the activity of this solution is 2.249E+03 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: August 24, 2016

Verified & Approved By 

Date: 9/29/2015 0:00

QC Approval 

Date: 9/30/15



QUALITY CONTROL PROGRAM
MP-009

Rev.7; 9/29/99
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

Solution Reference # MP-009 Date 9/29/2015 0:00
IPL 867-54 Solution # Th-18a

Principal Radionuclide ²²⁹Th Half Life, Years 7.340E+03 Half Life, Days 2.681E+06

Radionuclide of Interest ²²⁹Th Reference Date 1/15/2002 0:00
Parent Solution Conc. 2.25E+03 dpm/ml

Chemical Composition of Standard Solution
TH(NO₃)₄ in 0.1M HNO₃

Dilution Instructions: Dilution Solvent Used 0.1M HNO₃

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 10.0000 ml
Total Activity: 2.2490E+04 dpm Final Activity Concentration: 2.2490E+01 dpm/ml
Final Volume: 1000.00 ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: August 24, 2016

Verified & Approved By [Signature]

Date: 9/29/2015 0:00

QC Approval [Signature]

Date: 9/30/15

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

GAS-1402

98503

Sand in 16 Ounce PP Taral Jar Filled to Capacity

Customer: Eberline Analytical Corporation
P.O. No.: OR-1405030, Item 6 **Product Code:** 8401-EG-SAN
Reference Date: 01-Oct-2014 12:00 PM EST **Grams of Master Source:** 0.017608

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solutions. Additional radionuclides were added gravimetrically from solutions calibrated by gamma-ray spectrometry, ionization chamber, or liquid scintillation counting. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Nuclide	Gamma-Ray Energy (keV)	Half-Life, Days	Master Source* yps/gram	This Source yps	Uncertainty*, %			Calibration Method*
					u _A	u _B	U	
Am-241	59.5	1.580E+05	—	2.030E+03	0.1	1.8	3.6	4π LS
Cd-109	88.0	4.614E+02	1.663E+05	2.929E+03	0.5	2.0	4.1	HPGe
Co-57	122.1	2.717E+02	8.913E+04	1.569E+03	0.4	1.7	3.5	HPGe
Ce-139	165.9	1.376E+02	1.241E+05	2.185E+03	0.4	1.7	3.5	HPGe
Hg-203	279.2	4.659E+01	2.675E+05	4.710E+03	0.3	1.7	3.5	HPGe
Sn-113	391.7	1.151E+02	1.796E+05	3.163E+03	0.4	1.9	3.9	HPGe
Cs-137	661.7	1.099E+04	1.111E+05	1.956E+03	0.7	1.9	4.0	HPGe
Y-88	898.0	1.066E+02	4.223E+05	7.435E+03	0.7	1.7	3.7	HPGe
Co-60	1173.2	1.925E+03	2.091E+05	3.683E+03	0.7	1.8	3.9	HPGe
Co-60	1332.5	1.925E+03	2.094E+05	3.687E+03	0.7	1.8	3.9	HPGe
Y-88	1836.1	1.066E+02	4.471E+05	7.872E+03	0.7	1.7	3.7	HPGe

* Master Source refers to Analytics' 8-isotope mixture which is calibrated quarterly.

Calibration Methods: 4π LS - 4 pi Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber. **Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

(Certificate continued on reverse side)



SECTION VI
QUALITY CONTROL SAMPLE RESULTS SUMMARY

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06067	UUIISO	1	pCi	g	Auxier & Associates, Inc.

Laboratory Control Sample

Analyte	LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
U-234	79.01%	14.79%	100.00%	3.60%	8.08E+00	2.91E-01	6.39E+00	9.44E-01	U-8a	3.20E+01	3.60E+00	5.61E-01
U-238	101.31%	14.32%	100.00%	3.60%	7.83E+00	2.82E-01	7.93E+00	1.14E+00	U-8a	3.10E+01	3.60E+00	5.61E-01

Matrix Spike

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)

Replicate Sample

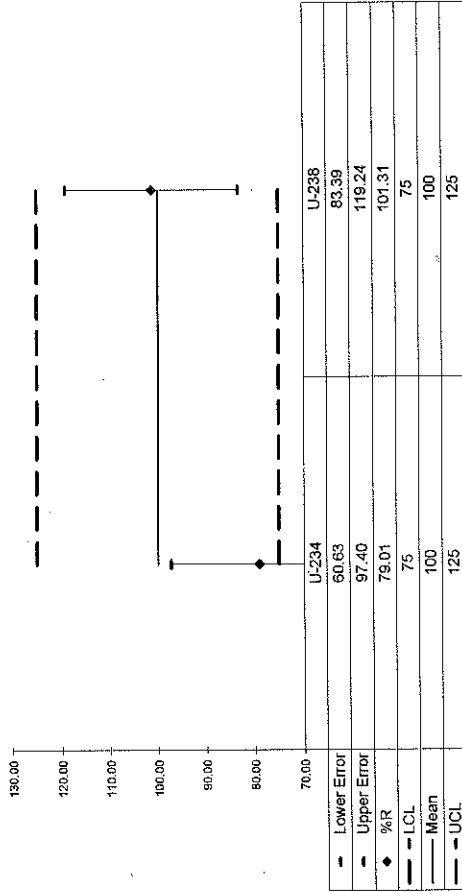
Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
U-234	1.36	21.78	7.58E-01	1.74E-01	9.43E-01	2.01E-01	0.79	OK			OK	OK
U-238	1.25	19.46	8.31E-01	1.85E-01	1.01E+00	2.10E-01	1.01	OK			OK	OK
U-235	0.42	24.13	7.31E-02	5.51E-02	5.73E-02	4.80E-02		OK			NA	OK

QC Summary

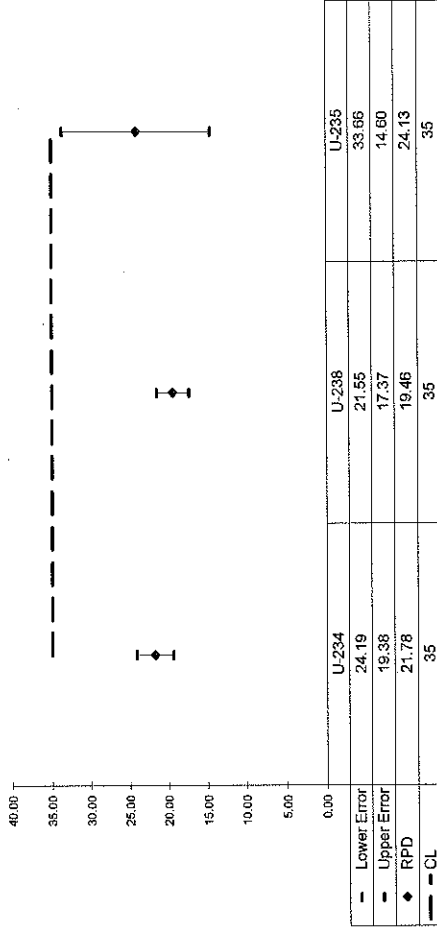
Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
U-234	1.36	21.78	7.58E-01	1.74E-01	9.43E-01	2.01E-01	0.79	OK			OK	OK
U-238	1.25	19.46	8.31E-01	1.85E-01	1.01E+00	2.10E-01	1.01	OK			OK	OK
U-235	0.42	24.13	7.31E-02	5.51E-02	5.73E-02	4.80E-02		OK			NA	OK

W/O	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06067	UUIISO	1	pCi	g	Auxier & Associates, Inc.

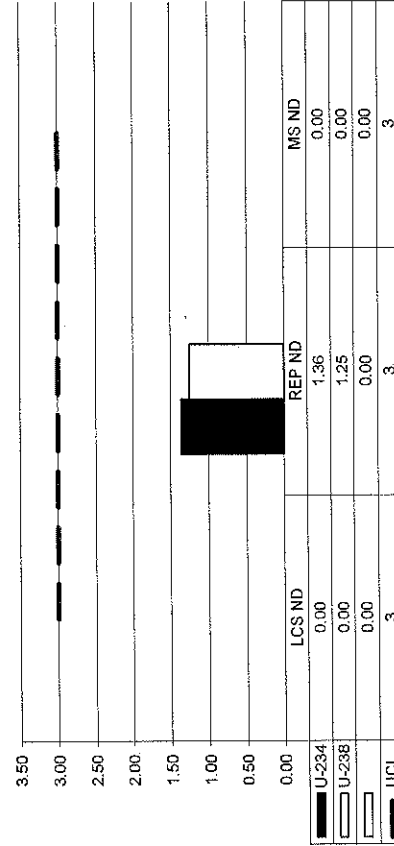
LCS % Recovery



Replicate Sample RPD



Normalized Difference



No Matrix Spike

W/O	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06067	THISO	1	pCi	g	Auxier & Associates, Inc.

Laboratory Control Sample

Analyte	LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
TH-228	117.26%	20.56%	100.00%	3.60%	5.10E+00	1.84E-01	5.98E+00	1.23E+00	Th-8b	1.04E+02	3.60E+00	1.09E-01
TH-230	113.57%	22.01%	100.00%	2.70%	5.35E+00	1.44E-01	6.08E+00	1.34E+00	Th-1b	2.35E+01	2.70E+00	5.05E-01
TH-232	102.80%	20.73%	100.00%	3.60%	5.10E+00	1.84E-01	5.24E+00	1.09E+00	Th-8b	1.04E+02	3.60E+00	1.09E-01

Matrix Spike

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)

Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
TH-228	0.64	11.41	1.34E+00	3.42E-01	1.20E+00	2.88E-01	1.17	OK			OK	OK
TH-230	0.53	10.05	1.31E+00	3.49E-01	1.19E+00	2.99E-01	1.14	OK			OK	OK
TH-232	1.79	33.25	1.27E+00	3.21E-01	9.05E-01	2.29E-01	1.03	OK			INV	OK

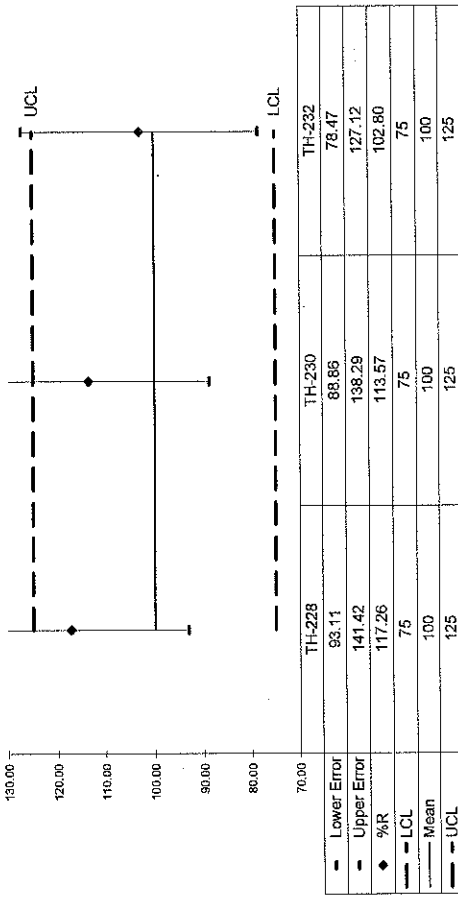
QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
TH-228	0.64	11.41	1.34E+00	3.42E-01	1.20E+00	2.88E-01	1.17	OK			OK	OK
TH-230	0.53	10.05	1.31E+00	3.49E-01	1.19E+00	2.99E-01	1.14	OK			OK	OK
TH-232	1.79	33.25	1.27E+00	3.21E-01	9.05E-01	2.29E-01	1.03	OK			INV	OK

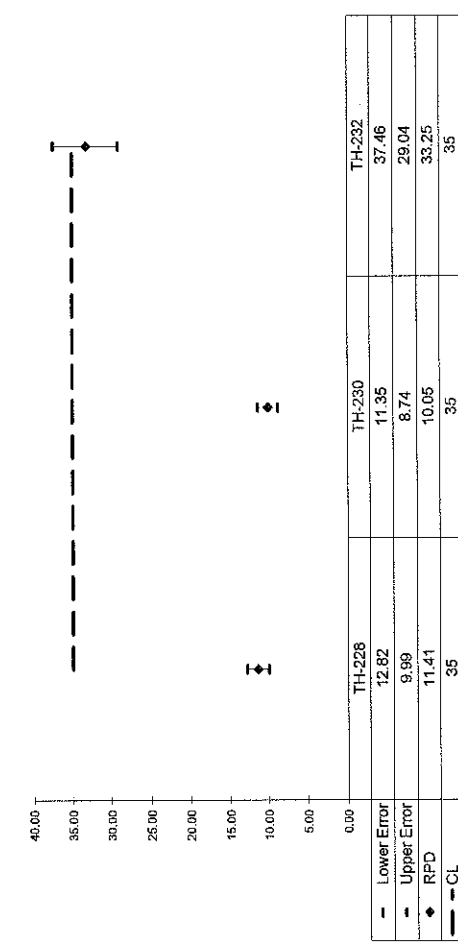


WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06067	THISO	1	pCi	g	Auxier & Associates, Inc.

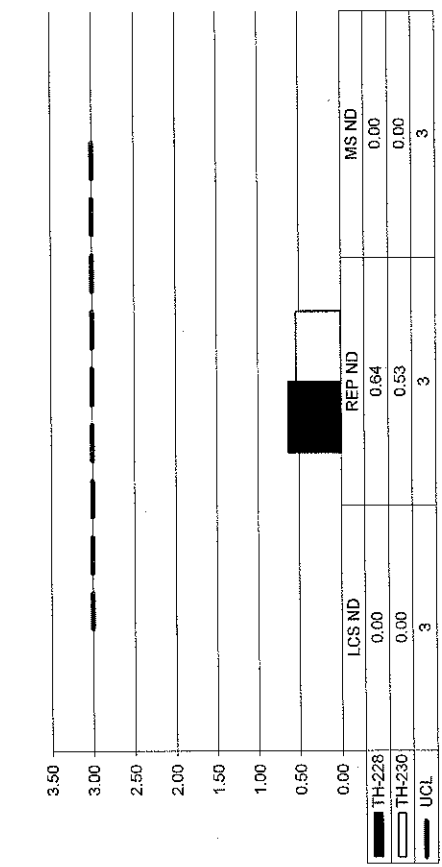
LCS % Recovery



Replicate Sample RPD



Normalized Difference



No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06067	Gamma	1	pCi	g	Auxier & Associates, Inc.

Laboratory Control Sample

Analyte	LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
CO-60	103.42%	8.64%	100.00%	4.00%	1.37E+02	5.48E+00	1.42E+02	1.22E+01	GAS-1302	1.37E+02	5.48E+00	7.36E+02
CS-137	100.43%	10.88%	100.00%	4.00%	8.69E+01	3.48E+00	8.73E+01	9.50E+00	GAS-1302	8.69E+01	3.48E+00	7.36E+02

Matrix Spike

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)

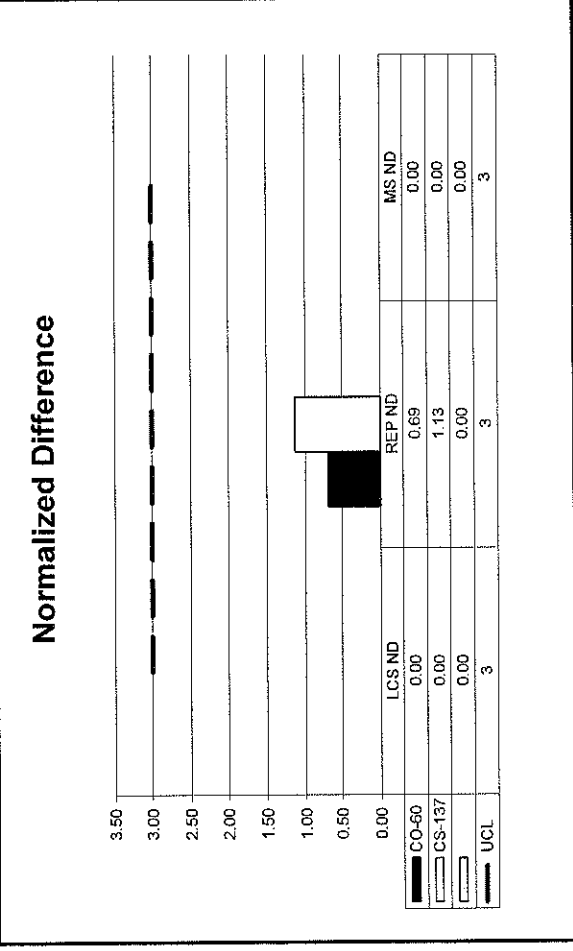
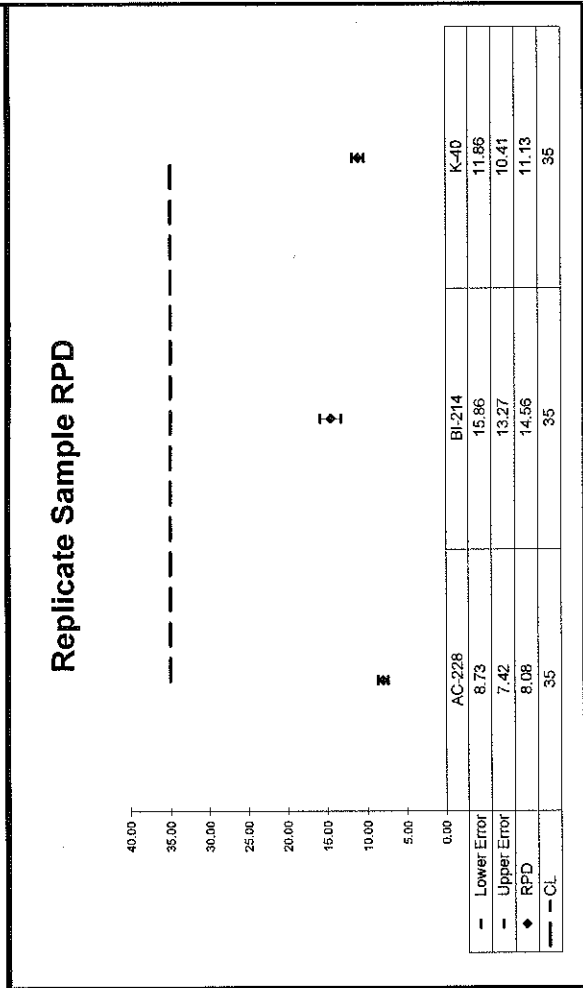
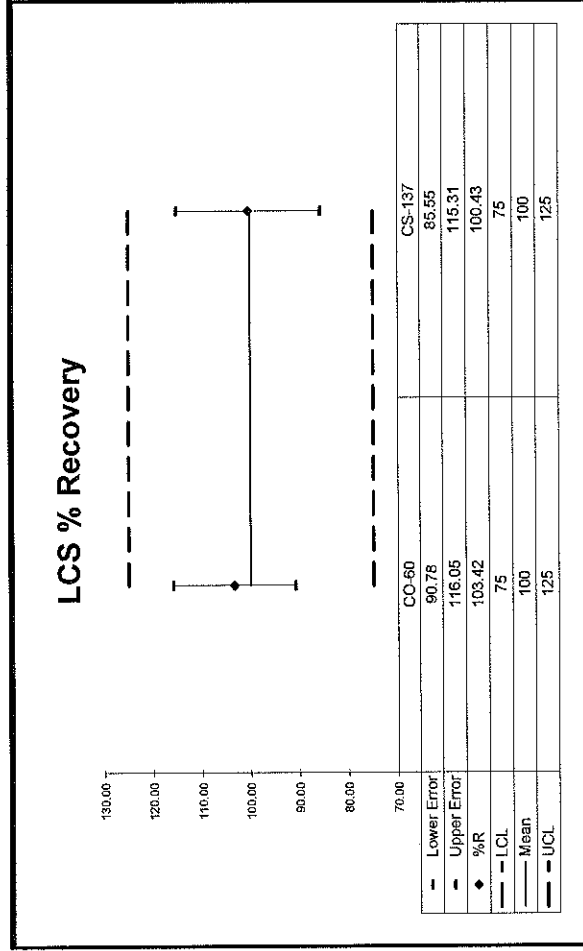
Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
AC-228	0.69	8.08	2.38E+00	3.63E-01	2.58E+00	4.41E-01	1.03	OK	<CS-137	AC-228>	OK	OK
BI-214	1.13	14.56	1.58E+00	2.64E-01	1.37E+00	2.60E-01	1.00	OK	<CO-60	BI-214>	OK	OK
K-40	1.18	11.13	3.23E+01	4.14E+00	2.89E+01	3.84E+00				K-40>	OK	OK

QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
AC-228	0.69	8.08	2.38E+00	3.63E-01	2.58E+00	4.41E-01	1.03	OK	<CS-137	AC-228>	OK	OK
BI-214	1.13	14.56	1.58E+00	2.64E-01	1.37E+00	2.60E-01	1.00	OK	<CO-60	BI-214>	OK	OK
K-40	1.18	11.13	3.23E+01	4.14E+00	2.89E+01	3.84E+00				K-40>	OK	OK


WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06067	Gamma	1	pCi	g	Auxier & Associates, Inc.



No Matrix Spike


SECTION VII
LABORATORY TECHNICIAN'S NOTES
& RUN LOGS

ISO U NOTES

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com		Internal Work Order	16-06067
			Analysis Code	UUISO
			Run Number	1

#	Date	Dept	User	Notes
1	06/20/16 11:43	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested on low heat with HF. Samples were further digested with a mixed acid digestion on medium heat. Samples were submitted to separations.

6-20-16 JPachella

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	16-06067
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	06/20/16 11:43	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested on low heat with HF. Samples were further digested with a mixed acid digestion on medium heat. Samples were submitted to separations.
2	06/20/16 11:45	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested on low heat with HF. Samples were further digested with a mixed acid digestion on medium heat. Samples were submitted to separations.
3	06/30/16 18:55	CHEM	JDEMELAS	Added concentrated HCl to sample beakers and heated to dryness; Added 20 ml 8N HCl to samples and transferred to new, labeled C-Tubes, rinsing with 8N HCl to bring volume to ~35 ml; Preconditioned resin columns with 35 ml 8N HCl; Centrifuged samples and loaded onto columns; Rinsed C-Tubes with 20 ml 8N HCl, centrifuged as needed and loaded onto columns; Rinsed columns with 35 ml 8N HCl - 0.1N NH4I, 35 ml of 6.5N HCl - 0.04N HF, and 10 ml of 6.5N HCl; Eluted Uranium with 50 ml of 0.5N HCl into clean, labeled 100 ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with DI H2O. Set samples aside for later precipitation and filtering.

John Demelas
 6/30/16

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	16-06067
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	06/20/16 11:43	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested on low heat with HF. Samples were further digested with a mixed acid digestion on medium heat. Samples were submitted to separations.
2	06/20/16 11:45	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested on low heat with HF. Samples were further digested with a mixed acid digestion on medium heat. Samples were submitted to separations.
3	06/30/16 18:55	CHEM	JDEMELAS	Added concentrated HCl to sample beakers and heated to dryness; Added 20 ml 8N HCl to samples and transferred to new, labeled C-Tubes, rinsing with 8N HCl to bring volume to ~35 ml; Preconditioned resin columns with 35 ml 8N HCl; Centrifuged samples and loaded onto columns; Rinsed C-Tubes with 20 ml 8N HCl, centrifuged as needed and loaded onto columns; Rinsed columns with 35 ml 8N HCl - 0.1N NH4I, 35 ml of 6.5N HCl - 0.04N HF, and 10 ml of 6.5N HCl; Eluted Uranium with 50 ml of 0.5N HCl into clean, labeled 100 ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with DI H2O. Set samples aside for later precipitation and filtering.
4	07/01/16 10:04	CHEM	JDEMELAS	Added 0.1 ml Neodymium Carrier, 0.3 ml Titanous Chloride and 1 ml HF to samples in C-Tubes and mixed; Immersed samples in ice bath for minimum of 1 hour; Setup filters, added Alcohol and Carbon Substrate, then added samples; When samples were filtered, added 10 ml DI H2O rinses from C-Tubes and filtered; Rinsed with Alcohol; When rinsates were filtered, placed filters in new, labeled Petri Dishes; and Set T-0. Completed documentation and sent sample set to the Count Room.

[Handwritten Signature]
 7/1/16



Reagents Used in an Analysis

Internal Work Order

16-06067

Analysis Code

Run

UUISO

1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
017230P	Anion Exchange Resin	Reagent Grade	JDEMELAS	6/30/2016
017750S	HCl - HF	6.5N - 0.04N	JDEMELAS	6/30/2016
017518D05	Hydrochloric Acid	0.5N	JDEMELAS	6/30/2016
017728S	Hydrochloric Acid	6.5N	JDEMELAS	6/30/2016
017756S	Hydrochloric Acid	8N	JDEMELAS	6/30/2016
017641P	Hydrochloric Acid	Reagent Grade	JDEMELAS	6/30/2016
017766S	HCl - NH4I	8N - 0.1M	JDEMELAS	6/30/2016
016606P	Titanous Chloride	Reagent Grade	JDEMELAS	7/1/2016
017340S	Neodymium Carrier	1 mg/ml	JDEMELAS	7/1/2016
017559P	Hydrofluoric Acid	Reagent Grade	JDEMELAS	7/1/2016
017737S	Carbon substrate	Solution	JDEMELAS	7/1/2016
017649P	Reagent Alcohol	Reagent Grade	JDEMELAS	7/1/2016


Alphast

Date	Sample #	Client	Time	CT Time	Analysis	Spec
6/24/16	System Bkgd	Lab	1509	16:40 hr	2	103
6/27	Daily Pulse	LAD	0453	10	NA	-
6/27	1606093AU-5)	Washington	0856	2:45	U1750	-
6/27	1606057AU-2)	Auxier	0856	2:45	U1750	-
6/27/16	1606031B(1-4,16)	Dep't of Health	1159	16:40 hr	UU	103
6/28	Daily Pulse	LAD	0521	10	NA	-
6/28	1606104AU-7)	USA	0835	2:45	2:750	-
6/28/16	1606064AU-7)	Auxier	1140	2:45	UU	103
6/28	Daily Pulse	LAD	0522	10	NA	-
6/29	1606125AU(1-4)	MCL	0817	2:45	2:241	-
6/29	1606129AU-3)	MCL	0818	2:45	2:750	-
6/29	Daily Pulse	LAD	0531	10	NA	-
6/29	1606066AU-7)	Auxier	0825	2:45	U1750	-
7/1/16	Daily Pulse	LAD	0852	10	NA	-
7/1/16	SECCAL(1-15)	LAD	1022	2:45	NA	-
7/1/16	1606067AU-7)	Auxier	1256	2:45	UU	103

Alpha 3

Date	Amplifier	Circuit	Leadline	Circuit	Analysis	Total
6/17	1606066A(8-11)	Auxiliary	0825	245	Un750	-
6/17	1606118A(1-6)	TWPC	0828	245	Th750	-
6/17	1606113A(1-2,2)	USA	0828	245	Th750	-
6/17	1606118A(1-6)	TWPC	0828	245	Un750	-
6/17	1606118A(1-6)	TWPC	0830	245	Un750	-
6/30/16	1606066A(12-13)	Auxiliary	1124	2450	Un	KB
6/30/16	1606066A(1-12)	Auxiliary	1125	2450	ISO-Th	KB
6/30/16	1606123A(1-13)	TexCom	1427	2450	Rak	KB
6/30/16	1606124A(1-11)	TexCom	1502	2450	Rak	KB
6/30/16	1606066A(1-2)	Auxiliary	1500	2450	ISO-Th	KB
7/1/16	Daily Pulse	LAB	0453	1	not	-
7/1/16	SECCAL(33-48)	LAB	0515	245	N/A	-
7/1/16	SECCAL(49-60)	LAB	0748	245	N/A	-
7/1/16	1606089A(1-4)	ND	1086	2450	Rak	KB
7/1/16	1606092A(1-4)	UCOR	1109	2450	Rak	KB
7/1/16	1606118A(1-6)	TWPC	1134	2450	Am 241	KB
7/1/16	1606118A(1-6)	TWPC	1135	2450	Am 242	KB
7/1/16	1606092A(1-5)	Searay	1204	2450	ISO-Th	KB
7/1/16	1606092A(1-2)	UCOR	1204	2450	P4242	KB
7/1/16	1606092A(3,4)	UCOR	1205	245	P4242	-
7/1/16	1606077A(1-4)	USA	1348	2450	ISO-Th	KB
7/1/16	1606067A(8-12)	Auxiliary	1403	2450	Un	KB

ISO-TH NOTES

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	16-06067
		Analysis Code	THISO
		Run Number	1

#	Date	Dept	User	Notes
1	06/20/16 11:43	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested on low heat with HF. Samples were further digested with a mixed acid digestion on medium heat. Samples were submitted to separations.

6-20-16 JPachella

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	16-06067
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	06/20/16 11:43	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested on low heat with HF. Samples were further digested with a mixed acid digestion on medium heat. Samples were submitted to separations.
2	06/30/16 18:55	CHEM	JDEMELAS	Added concentrated HNO3 to sample beakers and heated to dryness; Added 20 ml 8N HNO3 to samples and transferred to new, labeled C-Tubes, adding 8N HNO3 to bring volume to ~35 ml; Preconditioned resin columns with 50 ml 8N HNO3; Centrifuged samples as needed, and passed through columns; Rinsed C-Tubes with 20 ml 8N HNO3; Centrifuged rinsates and loaded onto columns; Rinsed columns with 40 ml 8N HNO3; Eluted Thorium with 50 ml of 8N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with deionized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.

John A. Demelas
 6/30/16

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	16-06067
		Analysis Code	THISO
		Run Number	1

#	Date	Dept	User	Notes
1	06/20/16 11:43	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested on low heat with HF. Samples were further digested with a mixed acid digestion on medium heat. Samples were submitted to separations.
2	06/30/16 18:55	CHEM	JDEMELAS	Added concentrated HNO3 to sample beakers and heated to dryness; Added 20 ml 8N HNO3 to samples and transferred to new, labeled C-Tubes, adding 8N HNO3 to bring volume to ~35 ml; Preconditioned resin columns with 50 ml 8N HNO3; Centrifuged samples as needed, and passed through columns; Rinsed C-Tubes with 20 ml 8N HNO3; Centrifuged rinsates and loaded onto columns; Rinsed columns with 40 ml 8N HNO3; Eluted Thorium with 50 ml of 8N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with deionized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.
3	07/01/16 10:04	CHEM	JDEMELAS	Added ~0.8 ml of 0.1 mg/ml Cerium Carrier and 1 ml HF to samples in C-Tubes and mixed; Immersed sample set in ice bath for minimum one hour; Setup filters by adding Alcohol and Carbon Substrate, then added samples; When samples were filtered, added 10 ml DI H2O rinses from C-Tubes; Rinsed with Alcohol; When rinsates were filtered, removed filters and placed in new, labeled Petri Dishes; and Set T-0. Completed documentation, and sent set to the Count Room.

John
7/1/16



Reagents Used In an Analysis

Internal Work Order

16-06067

Analysis Code

Run

ThISO

1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
017230P	Anion Exchange Resin	Reagent Grade	JDEMELAS	6/30/2016
017769S	Hydrochloric Acid	8N	JDEMELAS	6/30/2016
017641P	Hydrochloric Acid	Reagent Grade	JDEMELAS	6/30/2016
017770S	Nitric Acid	8N	JDEMELAS	6/30/2016
017757S	Nitric Acid	8N	JDEMELAS	6/30/2016
017534P	Nitric Acid	Reagent Grade	JDEMELAS	6/30/2016
017559P	Hydrofluoric Acid	Reagent Grade	JDEMELAS	7/1/2016
017730S	Cerrium Carrier	0.1mg/ml	JDEMELAS	7/1/2016
017737S	Carbon substrate	Solution	JDEMELAS	7/1/2016
017649P	Reagent Alcohol	Reagent Grade	JDEMELAS	7/1/2016

Alpha 3

Date	Account	Client	Location	Office	Analyst	Trades
6/17	1606066A(8-11)	Auxier	0825	2h50	Un730	-
6/17	1606118A(1-6)	TWPC	0828	2h5-	Th730	-
6/17	1606113A(1-2,9,12)	USA	0828	2h5-	Th730	-
6/17	1606118A(1-6)	TWPC	0828	2h5-	Th730	-
6/17	1606118A(1-6)	TWPC	0830	2h5-	Un730	-
6/30/16	1606066A(12-13)	Auxier	1124	2h00-	Un	KB
6/30/16	16060665A(1-12)	Auxier	1125	2h00-	ISO-YH	KB
6/30/16	1606123A(1-13)	TexCom	1427	2h00-	Rak	KB
6/30/16	1606124A(1-11)	TexCom	1502	2h00-	Rak	KB
6/30/16	1606065A(1-2)	Auxier	1500	2h00-	ISO-YH	KB
7/1/16	Daily Pkgs	LAB	0453	1h	NA	-
7/1/16	SECCAL(33-48)	LAB	0515	2h-	N/A	-
7/1/16	SECCAL(49-62)	LAB	0748	2h-	N/A	-
7/1/16	1606089A(1-1)	ND	1056	2h00-	Rak	KB
7/1/16	1606092A(1-4)	UCOR	1109	2h00-	Rak	KB
7/1/16	1606118A(1-6)	TWPC	1134	2h00-	Am241	KB
7/1/16	1606118A(1-6)	TWPC	1135	2h00-	Am240	KB
7/1/16	1606052A(1-5)	Seany	1204	2h50-	ISO-PA	KB
7/1/16	1606092A(1-2)	UCOR	1204	2h50-	Py 242	KB
7/1/16	1606092A(3,4)	UCOR	170	2h5-	Py 242	-
7/1/16	1606077A(1-4)	USA	1348	2h50-	ISO-YH	KB
7/1/16	1606067A(8-12)	Auxier	1403	2h00-	Un	KB
7/1/16	System Bkgd	LAB	1700	16.40 hrs	-	KB
7/6	Daily Pkgs	LAB	0123	1h	NA	-
7/6	1606066A(7-13)	Auxier	0540	2h5-	Th730	-
7/6	1606067A(1-12)	Auxier	0541	2h5-	Th730	-

GAMMA NOTES

GE 1

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DATE	SAMPLE #	Client	LoadTime	CT Time	Analysis	Tech
6/17	GAF14	LAB	0524	15	✓	✓
6/17	Daily	LAB	0512	15	✓	✓
6/17	GAF14	LAB	0611	15	✓	✓
6/17	1606064-13	Auxier	0714	2L	✓	✓
6/17	1606065-07	Auxier	0857	2L	✓	✓
6/17	1606065-04	Auxier	1009	2L	✓	✓
6/17	1606065-10	Auxier	1110	2L	✓	✓
6/17	1606065-17	Auxier	1211	2L	✓	✓
6/17	1606059-07	USA	1300	15	Ba	—
6/17	1606059-10	USA	1331	15	Re	—
6/17/16	1606059-13	USA	1347	15 min	Ba	KB
6/17/16	1606059-16	USA	1403	15	Ba	KB
6/17/16	1606064-04	Auxier	1419	1hr	Y	KB
6/17/16	1606064-09	Auxier	1521	1hr	Y	KB
6/17/16	1606066-12	Auxier	1622	1hr	Y	KB
6/18/16	System Bldg	Lab	0924 ¹⁵⁷	24 hrs	Y	KB
6/18/16	Env-G-3 cleanup	Lab	1056	30 mins	Y	KB
6/18/16	Env-G-5 cleanup	Lab	1126	30 min	Y	KB
6/20/16	Daily Bldg	Lab	0623	15 min	Y	AC
6/20/16	GAF14	Lab	0641	15 min	Y	AC
6/20/16	1606067-03	Auxier	0913	1hr	Y	KB
6/20/16	1606067-04	Auxier	1016	1hr	Y	KB
6/20/16	1606067-10	Auxier	1117	1hr	Y	KB

GE 2

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DATE	SAMPLE #	Client	LoadTime	CTime	Analysis	Tech
6/16/16	1606072-03	Indust. + Env.	1811	4 hrs	✓	KB
6/17	ETS 1401	LAB	0524	15	✓	✓
6/17	DashyR	LAB	0522	15	✓	✓
6/17	1606069-01	ucon	0612	30	✓	✓
6/17	1606069-03	ucon	0646	2h	✓	✓
6/17	1606065-05	Aurier	0857	2h	✓	✓
6/17	1606065-08	Aurier	1009	2h	✓	✓
6/17	1606069-04	ucon	1110	2h	✓	✓
6/17	1606069-02	ucon	1311	2h	✓	✓
6/17/16	Healesdale-07	Aurier	1512	1h	✓	KB
6/17/16	1606066-11	Aurier	1613	1h	✓	KB
6/17/16	1606072-04	Indust + Env.	1715	4 hrs	✓	KB
6/19/16	System Dksgd	Lab	0841	24 hrs	✓	KB
6/20/16	Daryl Blyd	Lab	0623	15 min	✓	AG
6/20/16	GAS 1401	Lab	0641	15 min	✓	AG
6/20/16	1606067-06	Aurier	0914	1h	✓	KB
6/20/16	1606067-08	Aurier	1014	1h	✓	KB
6/20/16	1606067-11	Aurier	1117	1h	✓	KB

GE 3

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DATE	SAMPLE #	Client	Load Time	CT.T.me	Analysis	Tech
6/20/16	Daily Bkgd	Lab	0623	15min	Y	AG
6/20/16	GAS 1402	Lab	0643	15min	Y	AG
6/20/16	Neobob7-07	Aurora	0914	1hr	Y	KB
6/20/16	Neobob7-09	Aurora	1016	1hr	Y	KB
6/20/16	Neobob7-12	Aurora	1118	1hr	Y	KB

GE4

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DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
6/16	1606043-05	Auxier	1151	2L	✓	✓
6/16/16	1606043-01	Auxier	1354	30mins	Y	KB
6/16/16	1606043-02	Auxier	1424	1hr	Y	KB
6/16/16	1606044-02	Auxier	1527	1hr	Y	KB
6/16/16	1606044-01	Auxier	1628	30mins	Y	KB
6/16/16	1606044-08	Auxier	1659	1hr	Y	KB
6/16/16	1606072-02	Indust. & Env.	1803	6hr	Y	KB
6/17	Chlor	IAS	0524	15	Y	✓
6/17	Daily R	LAB	0552	15	✓	✓
6/17	ETH 14	IAS	0611	15	✓	✓
6/17	1606044-12	Auxier	0704	2L	✓	✓
6/17	1606064-15	Auxier	0808	2L	✓	✓
6/17	1606065-07	Auxier	0910	2L	✓	✓
6/17	1606065-01	Auxier	1011	30	✓	✓
6/17	1606061-01	USA	1042	15	Be	✓
6/17	1606061-03	USA	1059	15	Be	✓
6/17	1606061-07	USA	1115	15	Be	✓
6/17	1606061-14	USA	1131	15	Be	✓
6/17	1606065-02	Auxier	1146	2L	✓	✓
6/17/16	1606059-07	USA	1247	15mins	Be	KB
6/17/16	1606059-06	USA	1304	15mins	Be	KB
6/17	1606059-08	USA	1320	15	Be	✓
6/17	1606059-12	USA	1335	15	Be	✓
6/17/16	1606059-15	USA	1352	15mins	Be	KB
6/17/16	1606066-05	Auxier	1407	1hr	Y	KB
6/17/16	1606066-08	Auxier	1505	1hr	Y	KB
6/17/16	1606066-02	Auxier	1608	1hr	Y	KB
6/17/16	1606066-01	Auxier	1709	30mins	Y	KB
6/18/16	System Bkgd	Lab	0842	24 hr	Y	KB
6/20/16	Daily Bkgd	Lab	0623	15min	Y	AC
6/20/16	GAO-14	Lab	0642	15min	Y	AC
6/20/16	1606067-05	Auxier	0914	1hr	Y	KB
6/20/16	1606067-02	Auxier	1015	1hr	Y	KB
6/20/16	1606067-01	Auxier	1119	30min	Y	KB

00065

SECTION VIII
ANALYTICAL DATA (ISOTOPIC URANIUM)

Work Order	16-06067
Analysis Code	UJISO
Run	1
Date Received	6/14/2016
Lab Deadline	7/6/2016
Client	Auxier & Associates, Inc.
Project	PAP-KAN
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EML U-02 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	U-232
Radiometric Sol#	U-10a
Tracer Act (dpm/g)	18.52
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		06/14/16 00:00	1.0000E+00
02	MBL	BLANK		06/14/16 00:00	1.5000E+00
03	DUP	CP-5030 05-10 QC	37	06/06/16 00:00	1.5742E+00
04	DO	CP-5030 05-10 QC	37	06/06/16 00:00	1.5014E+00
05	TRG	CP-5031 00-02 QC	38	06/02/16 00:00	1.5216E+00
06	TRG	CP-5023 02-05 QC	30	06/02/16 00:00	1.5511E+00
07	TRG	CP-5010 00-02 QC	50	06/07/16 00:00	1.5031E+00
08	TRG	CP-5010 09-15 QC	39	06/07/16 00:00	1.5051E+00
09	TRG	CP-5012 09-15 QC	55	06/07/16 00:00	1.5121E+00
10	TRG	CP-5014 09-15 QC	49	06/07/16 00:00	1.5186E+00
11	TRG	CP-5017 00-02 QC	47	06/08/16 00:00	1.5242E+00
12	TRG	CP-5020 00-02 QC	41	06/09/16 00:00	1.5125E+00

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. * Indicates estimated SAF value.
** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

	Run	1
	Analysis Code	UJISO
Eberline Analytical Work Order	16-06067	
Client	Auxier & Associates, Inc.	

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-235	LCS	LCS	pCi/g	4.22E-01	1.68E-01	7.85E-02					OK	
02	U-235	MBL	BLANK	pCi/g	1.28E-02	3.20E-02	6.68E-02					OK	OK
03	U-235	DUP	CP-5030 05-10 QC	pCi/g	5.73E-02	4.78E-02	5.12E-02				NA	OK	
04	U-235	DO	CP-5030 05-10 QC	pCi/g	7.31E-02	5.48E-02	5.77E-02					OK	
05	U-235	TRG	CP-5031 00-02 QC	pCi/g	7.89E-02	5.93E-02	5.53E-02					OK	
06	U-235	TRG	CP-5023 02-05 QC	pCi/g	7.63E-02	5.87E-02	5.88E-02					OK	
07	U-235	TRG	CP-5010 00-02 QC	pCi/g	1.47E-01	7.37E-02	4.68E-02					OK	
08	U-235	TRG	CP-5010 09-15 QC	pCi/g	4.78E-02	5.19E-02	6.25E-02					OK	
09	U-235	TRG	CP-5012 09-15 QC	pCi/g	7.62E-02	6.09E-02	6.53E-02					OK	
10	U-235	TRG	CP-5014 09-15 QC	pCi/g	-8.53E-03	2.21E-02	7.43E-02					OK	
11	U-235	TRG	CP-5017 00-02 QC	pCi/g	7.66E-02	6.12E-02	6.56E-02					OK	
12	U-235	TRG	CP-5020 00-02 QC	pCi/g	3.06E-01	1.51E-01	1.02E-01					OK	

Internal Work Order		Run	Analysis Code		Date	Technician		Technician Initials		Witness Initials		
16-06067		1	UIISO		6/20/2016 9:52	JPACHELLA		JPACHELLA				
LCS & Matrix Spikes												
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	LCS Volume Used (g)	MS Volume Used (g)	LCSD Volume Used (g)	MSD Volume Used (g)	LCS Known pCi	MS Error Estimate	LCSD Error Estimate	MSD Error Estimate
U-234	U-8a	32.000	6/20/2016	0.550	0.5608				8.08	0.291	0.000	0.000
U-238	U-8a	31.000	6/20/2016	0.550	0.5608				7.83	0.282	0.000	0.000
16-99 MS		IC-2a	22043.636		7/5/2014	0.1						
Tracers												
fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition						
01	U-232	U-10a	18.520	6/20/2016	0.6593	0.6500						LCS
02	U-232	U-10a	18.520	6/20/2016	0.6684	0.6500						
03	U-232	U-10a	18.520	6/20/2016	0.6695	0.6500						
04	U-232	U-10a	18.520	6/20/2016	0.6630	0.6500						
05	U-232	U-10a	18.520	6/20/2016	0.6732	0.6500						
06	U-232	U-10a	18.520	6/20/2016	0.6627	0.6500						
07	U-232	U-10a	18.520	6/20/2016	0.6619	0.6500						
08	U-232	U-10a	18.520	6/20/2016	0.6615	0.6500						
09	U-232	U-10a	18.520	6/20/2016	0.6621	0.6500						
10	U-232	U-10a	18.520	6/20/2016	0.6629	0.6500						
11	U-232	U-10a	18.520	6/20/2016	0.6609	0.6500						
12	U-232	U-10a	18.520	6/20/2016	0.6614	0.6500						
<p>0.6593 g</p> <p>0.6684 g</p> <p>0.6695 g</p> <p>0.6630 g</p> <p>0.6732 g</p> <p>0.6627 g</p> <p>0.6619 g</p> <p>0.6615 g</p> <p>0.6621 g</p> <p>0.6629 g</p> <p>0.6609 g</p> <p>0.6614 g</p>												
<p>0.5608 g</p>												
<p>Matrix Spike</p>												

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
16-06067	1	UUI50	grams	7/5/2016	JPACHELLA

Lab Fraction	Client ID	Sample Type	Muffle Data		Dilution Data			Aliquot Data			MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Aliq		
01	LCS	LCS						1.0000E+00	1.0000E+00					
02	BLANK	MBL						1.5000E+00	1.5000E+00					
03	CP-5030 05-10 QC	DUP						1.5742E+00	1.5742E+00					
04	CP-5030 05-10 QC	DO						1.5014E+00	1.5014E+00					
05	CP-5031 00-02 QC	TRG						1.5216E+00	1.5216E+00					
06	CP-5023 02-05 QC	TRG						1.5511E+00	1.5511E+00					
07	CP-5010 00-02 QC	TRG						1.5031E+00	1.5031E+00					
08	CP-5010 09-15 QC	TRG						1.5051E+00	1.5051E+00					
09	CP-5012 09-15 QC	TRG						1.5121E+00	1.5121E+00					
10	CP-5014 09-15 QC	TRG						1.5186E+00	1.5186E+00					
11	CP-5017 00-02 QC	TRG						1.5242E+00	1.5242E+00					
12	CP-5020 00-02 QC	TRG						1.5125E+00	1.5125E+00					

Comments

Technician: JPachella Date: 6/20/16

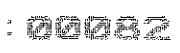
**Rough Sample Preparation
 Log Book**

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
16-06067	7/5/2016	6/19/2016	6/20/2016	6/21/2016	KSALLINGS

Eberline Fraction	Client ID	Tare (g)		Gross (g)		Net (g)		Percent		Gamma		Special Info
		Pan Wt	Dry Wt	Wet Wt	Dry Wt	Wet Wt	Dry Wt	Liquid	Solid	Dry Wt	LEPS Wt	
04	CP-5030 05-10 QC	14.6100	387.2900	464.6200	372.6800	450.0100	372.6800	17.18%	82.82%	0.0000	0.0000	
05	CP-5031 00-02 QC	14.5900	809.6600	845.3400	795.0700	830.7500	795.0700	4.29%	95.71%	0.0000	0.0000	
06	CP-5023 02-05 QC	14.6000	552.2800	653.6900	537.6800	639.0900	537.6800	15.87%	84.13%	0.0000	0.0000	
07	CP-5010 00-02 QC	14.6100	568.1200	662.9500	553.5100	648.3400	553.5100	14.63%	85.37%	0.0000	0.0000	
08	CP-5010 09-15 QC	14.6200	427.4500	537.1200	412.8300	522.5000	412.8300	20.99%	79.01%	0.0000	0.0000	
09	CP-5012 09-15 QC	14.5900	317.4600	393.5600	302.8700	378.9700	302.8700	20.08%	79.92%	0.0000	0.0000	
10	CP-5014 09-15 QC	14.5800	443.3500	549.8300	428.7700	535.2500	428.7700	19.89%	80.11%	0.0000	0.0000	
11	CP-5017 00-02 QC	14.5700	699.1600	806.9400	684.5900	792.3700	684.5900	13.60%	86.40%	0.0000	0.0000	
12	CP-5020 00-02 QC	14.5400	763.4700	909.9000	748.9300	895.3600	748.9300	16.35%	83.65%	0.0000	0.0000	

Comments
Special Codes
H: Hot, O: Organic Hazard, P: PCB Hazard, R: Rush, T: Other (see comments)

Technician: Henry Scog





KB
7/1/16

Sample Description: SPIKE
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001560
 Batch Identification: 1606067A-UU
 Sample Identification: 01
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_003
 Chamber Serial Number:
 Detector Serial Number: 3
 Env. Background: System Bkgd 157572
 Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
 Sample Date/Time: 7/1/2016 10:48:10 AM
 Acquisition Date/Time: 7/1/2016 12:56:34 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.659 mL
 Effective Efficiency: 0.2354 +/- 0.0120
 Counting Efficiency: 0.1612 +/- 0.0029 on 12/11/2015 2:46:09 PM
 Chem. Recovery Factor: 1.4601 +/- 0.0788

Control Certificate Name: NatU_U-8A
 Chem. Recov. of Control: U-238 0.891296 +/- 0.062467
 Peak Match Tolerance: 0.150 MeV

 ----- PEAK AREA REPORT -----

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.286	485.15	8.91	0.85	0.00E+000	20.0
U-234	4.740	566.32	8.24	0.68	0.00E+000	13.0
U-235	4.391	30.32	36.06	0.68	0.00E+000	5.2
U-238	4.162	706.49	7.38	0.51	0.00E+000	45.8

T = Tracer Peak used for Effective Efficiency

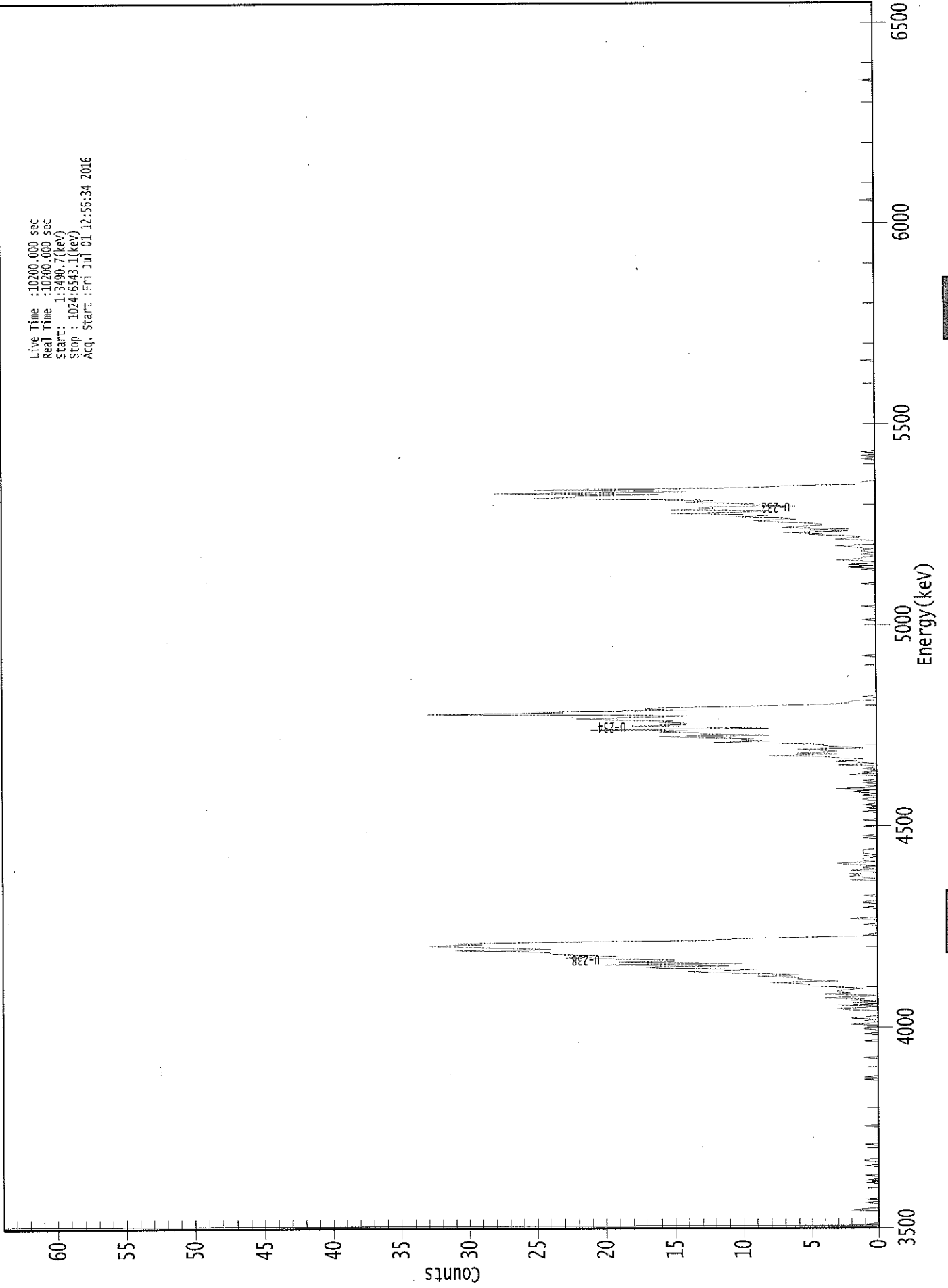
 ----- NUCLIDE ANALYSIS RESULTS -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.998	5302.50*	5.47E+000 +/- 5.46E-001	6.75E-002 +/- 6.74E-003
U-234	0.997	4761.50*	6.39E+000 +/- 8.27E-001	6.36E-002 +/- 6.35E-003
U-235	1.000	4385.50*	4.22E-001 +/- 1.58E-001	7.85E-002 +/- 7.84E-003
U-238	0.996	4184.40*	7.93E+000 +/- 9.85E-001	5.89E-002 +/- 5.88E-003

TC
7/6/16

0000156046.CNF

Live Time : 10200.000 sec
Real Time : 10200.000 sec
Start : 1:34:00.7 (keV)
Stop : 1024:6543.1 (keV)
Acq. Start : Fri Jul 01 12:56:34 2016



ROI Type: 3

ROI Type: 1

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 01

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	10200	10200	0	1	0	0	0	0
1:	10200	10200	0	1	0	0	0	0
9:	0	0	0	0	0	0	0	2
17:	1	0	0	0	0	1	0	0
25:	1	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	1	0
41:	1	0	0	0	1	0	0	0
49:	0	0	0	0	1	0	0	0
57:	1	1	0	0	0	0	0	0
65:	0	0	0	0	0	0	1	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	1	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	1	0	1	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	1	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	1	0	0	0
161:	0	0	1	0	0	0	1	1
169:	0	0	2	0	0	1	0	2
177:	1	0	0	0	0	0	2	3
185:	1	0	3	0	2	0	2	1
193:	4	1	0	4	2	3	3	2
201:	1	3	5	5	6	8	3	5
209:	6	6	9	6	8	12	14	11
217:	9	16	17	11	20	10	19	15
225:	15	20	23	19	22	24	24	25
233:	31	24	27	30	33	29	31	25
241:	12	12	9	4	0	1	0	0
249:	0	0	0	0	0	1	0	0
257:	0	0	2	0	0	0	0	0
265:	0	0	0	1	0	0	0	1
273:	1	0	0	0	0	1	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	2	0	1	2	1	2
297:	0	0	2	0	1	1	0	2
305:	3	0	1	1	1	0	1	0
313:	1	1	1	1	0	0	0	0
321:	0	0	0	0	0	1	0	1
329:	0	0	0	0	0	0	0	1
337:	0	0	0	0	1	0	0	0
345:	0	0	0	1	0	0	1	0
353:	0	1	0	0	0	1	1	0
361:	0	1	0	1	2	0	3	1

369: 0 0 0 1 0 1 0 0

Sample Title: 01

Channel	1	2	3	4	5	6	7	8	9
377:	0	0	2	0	1	0	0	0	1
385:	0	0	3	0	1	3	1	1	1
393:	3	4	8	3	6	3	3	6	6
401:	1	3	4	4	7	12	8	10	10
409:	9	13	16	8	13	13	16	14	14
417:	21	8	12	18	14	14	16	15	15
425:	20	22	17	14	20	33	23	25	25
433:	14	17	16	11	7	3	2	2	2
441:	0	0	0	1	0	0	0	0	0
449:	0	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	1	0	0	0
481:	0	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0	0
505:	0	0	0	1	0	0	0	0	0
513:	0	0	0	0	0	0	1	0	0
521:	0	0	0	0	0	0	0	0	0
529:	0	0	0	0	0	0	0	0	0
537:	0	1	0	0	0	0	0	0	0
545:	0	0	0	0	0	1	0	2	2
553:	0	2	0	0	1	3	1	1	1
561:	0	0	1	0	1	1	0	1	1
569:	2	3	0	0	0	0	3	2	2
577:	1	2	5	4	7	2	5	2	2
585:	7	6	4	4	5	8	9	6	6
593:	7	11	8	10	15	10	8	15	15
601:	12	13	6	10	9	14	13	12	12
609:	19	25	22	22	16	28	14	18	18
617:	25	10	8	6	1	1	1	0	0
625:	0	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0	0
641:	0	1	0	0	1	0	0	1	1
649:	0	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0	0
721:	0	0	0	1	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 01

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	1	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	1	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



KB
7/6/16

Sample Description: BLANK
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001560
 Batch Identification: 1606067A-UU
 Sample Identification: 02
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_004
 Chamber Serial Number:
 Detector Serial Number: 4
 Env. Background: System Bkgd 157573
 Reagent Blank: <not performed>

Sample Size: 1.500E+000 +/- 0.000E+000 gram
 Sample Date/Time: 7/1/2016 10:48:10 AM
 Acquisition Date/Time: 7/1/2016 12:56:35 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232 UU-10A
 Tracer Quantity: 0.668 mL
 Effective Efficiency: 0.1958 +/- 0.0107
 Counting Efficiency: 0.1879 +/- 0.0033 on 12/11/2015 2:46:10 PM
 Chem. Recovery Factor: 1.0423 +/- 0.0597

Peak Match Tolerance: 0.150 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232 T	5.286	409.15	9.70	0.85	0.00E+000	6.8
U-234	4.709	9.81	66.87	1.19	0.00E+000	2.9
U-235	4.357	1.15	249.58	0.85	0.00E+000	2.9
U-238	4.101	1.98	176.34	1.02	0.00E+000	2.9

T = Tracer Peak used for Effective Efficiency

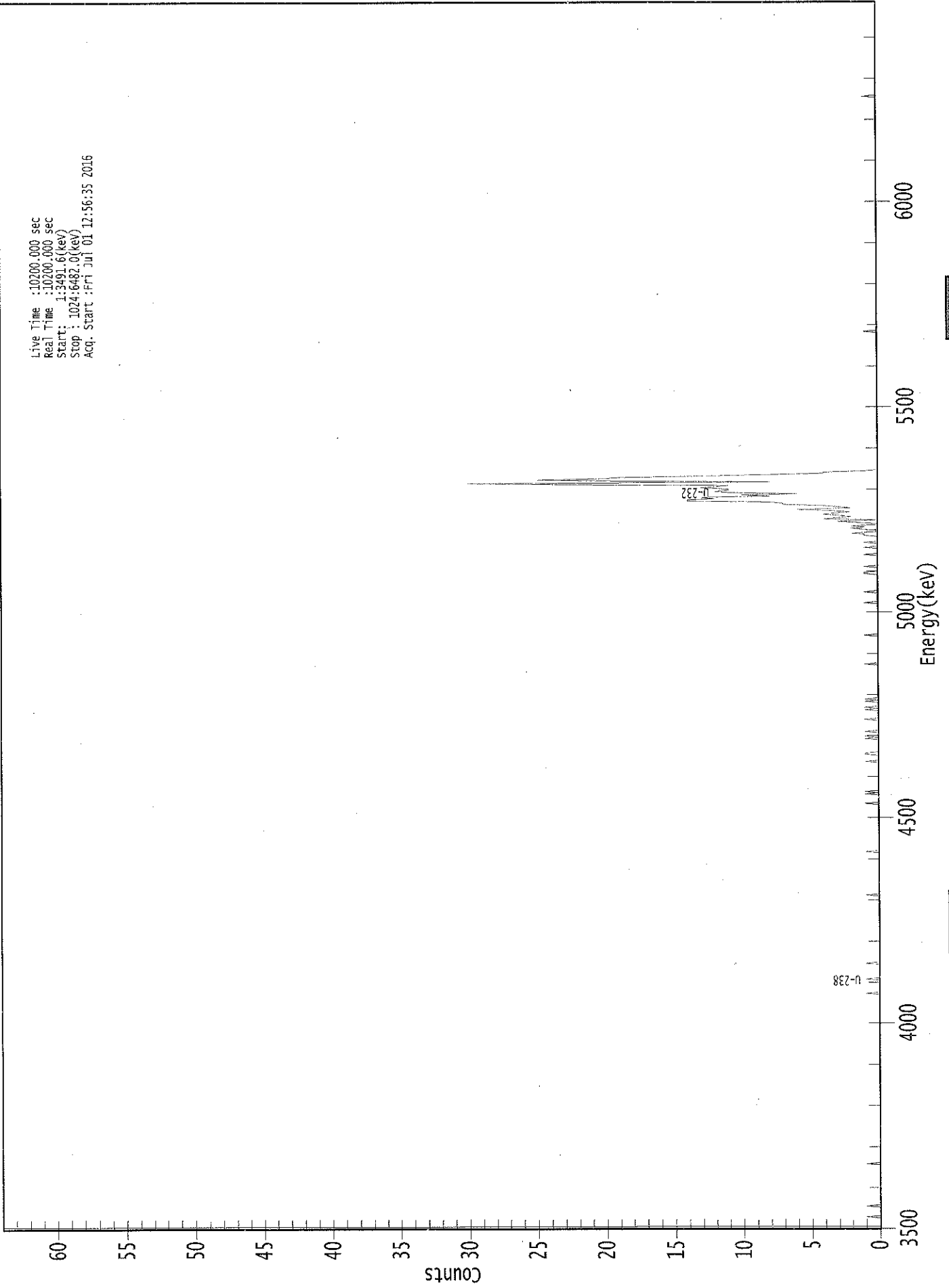
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.998	5302.50*	3.70E+000 +/- 3.96E-001	5.41E-002 +/- 5.79E-003
U-234	0.981	4761.50*	8.87E-002 +/- 6.00E-002	5.95E-002 +/- 6.37E-003
U-235	0.994	4385.50*	1.28E-002 +/- 3.20E-002	6.68E-002 +/- 7.14E-003
U-238	0.951	4184.40*	1.78E-002 +/- 3.15E-002	5.67E-002 +/- 6.07E-003

Ag
7/6/16

0000156047.CNF

Live Time :10200.000 sec
Real Time :10200.000 sec
Start : 1:34:1.6(kev)
Stop : 1024:6482.0(kev)
Acq. Start :Fri Jul 01 12:56:35 2016



ROI Type: 3

ROI Type: 1

58000 :

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 02

Elapsed Live time: 10200
 Elapsed Real Time: 10200

Channel	10200	10200	0	0	0	0	0	0
1:	10200	10200	0	0	0	0	0	0
9:	0	0	1	0	0	0	0	0
17:	0	0	0	1	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	1	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	1	0	0	0
201:	0	0	0	0	0	0	0	0
209:	1	0	0	0	0	0	0	0
217:	0	0	0	0	0	1	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	1	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	1	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	1	0	0	0	0	0
361:	0	0	1	0	1	0	0	0

369: 0 0 0 0 0 0 0 0 0

Sample Title: 02

Channel	1	2	3	4	5	6	7	8
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	1	0	0
393:	0	0	0	1	1	0	0	0
401:	0	0	0	0	0	0	0	0
409:	1	0	1	0	0	0	1	0
417:	0	0	0	0	0	0	0	0
425:	1	0	0	0	0	0	0	0
433:	1	0	1	0	0	0	0	1
441:	0	1	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	1	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	1	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	1	0	0	0	0	0	0
529:	0	0	1	0	0	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	1	1	0	0	0	0	1
553:	0	0	0	0	0	0	0	0
561:	0	1	0	0	0	0	0	1
569:	0	0	0	1	0	0	0	0
577:	0	1	1	2	0	0	1	2
585:	1	2	0	0	2	3	0	4
593:	3	2	3	4	3	2	4	6
601:	2	3	4	7	7	8	14	14
609:	12	13	8	10	6	11	12	11
617:	11	13	12	11	22	30	8	19
625:	25	20	19	12	9	4	4	1
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	1	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 02

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	1
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

KA
7/1/16

Sample Description: CP-5030 05-10 QC-DUP
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001560
 Batch Identification: 1606067A-UU
 Sample Identification: 03
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_010
 Chamber Serial Number:
 Detector Serial Number: 10
 Env. Background: System Bkgd 157574
 Reagent Blank: <not performed>

Sample Size: 1.574E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/6/2016 10:48:10 AM
 Acquisition Date/Time: 7/1/2016 12:56:36 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.669 mL
 Effective Efficiency: 0.2293 +/- 0.0117
 Counting Efficiency: 0.1895 +/- 0.0033 on 12/11/2015 2:46:10 PM
 Chem. Recovery Factor: 1.2099 +/- 0.0654

Peak Match Tolerance: 0.150 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.270	479.98	8.96	1.02	0.00E+000	33.7
U-234	4.726	128.30	17.44	1.70	0.00E+000	7.3
U-235	4.396	6.32	82.73	0.68	0.00E+000	2.9
U-238	4.141	137.98	16.76	1.02	0.00E+000	9.5

T = Tracer Peak used for Effective Efficiency

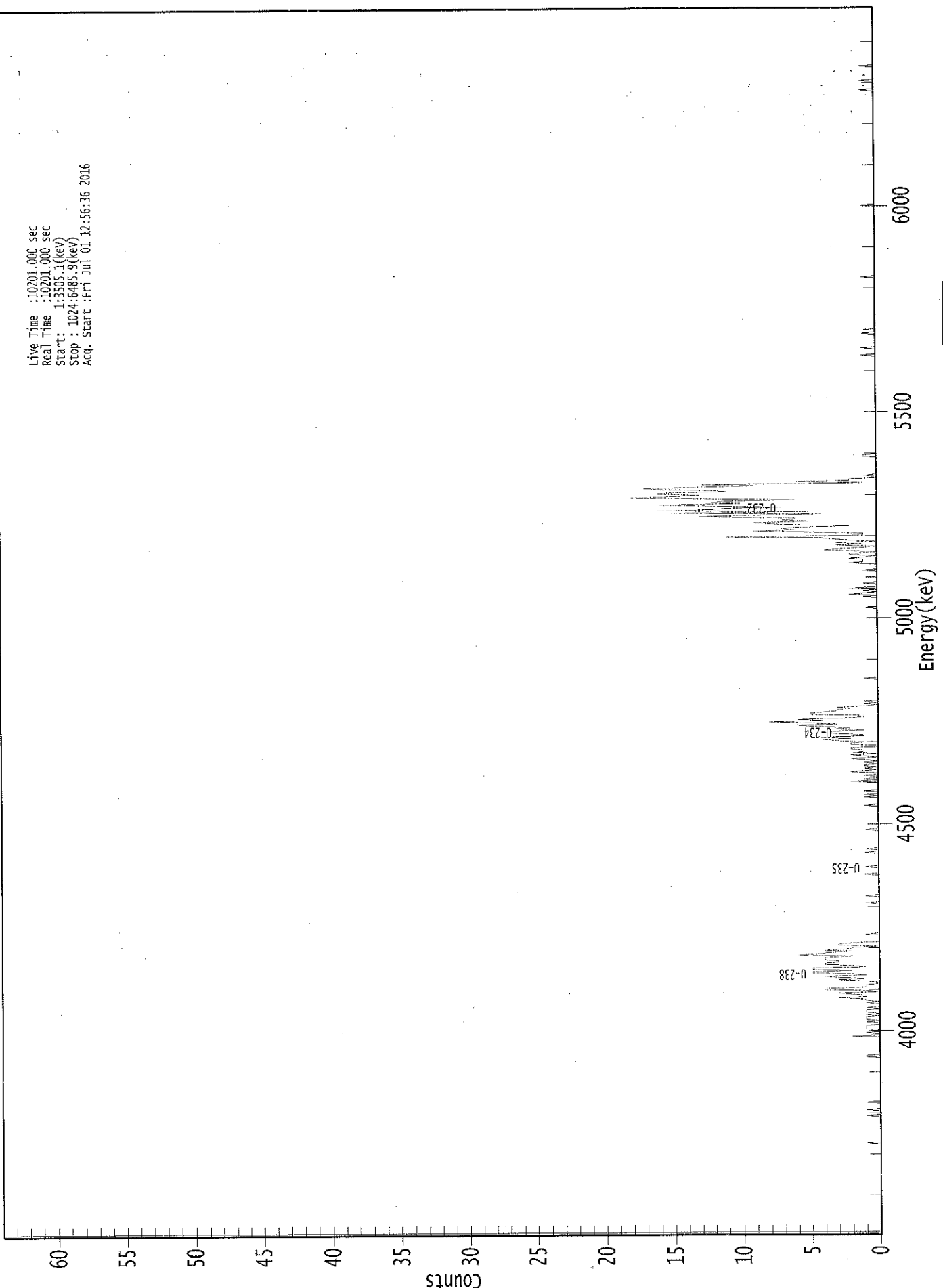
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	3.53E+000 +/- 3.54E-001	4.64E-002 +/- 4.65E-003
U-234	0.991	4761.50*	9.43E-001 +/- 1.90E-001	5.40E-002 +/- 5.42E-003
U-235	0.999	4385.50*	5.73E-002 +/- 4.78E-002	5.12E-002 +/- 5.13E-003
U-238	0.987	4184.40*	1.01E+000 +/- 1.97E-001	4.61E-002 +/- 4.63E-003

AG
7/6/16

0000156048.CNF

Live Time : 10201.000 sec
Real Time : 10201.000 sec
Start : 1:3505.1(keV)
Stop : 1024:6485.9(keV)
Acq. Start : Fri Jul 01 12:56:36 2016



ROI Type: 3

ROI Type: 1

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 03

Elapsed Live time: 10201

Elapsed Real Time: 10201

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	1	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	1	0	0	0	0
105:	1	0	0	0	0	0	1	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	1	1	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	2	0	0
169:	1	0	0	1	1	1	1	0
177:	0	1	0	1	1	1	0	1
185:	0	1	1	1	0	1	0	0
193:	0	1	0	1	1	3	1	1
201:	2	3	0	1	4	4	1	1
209:	1	0	0	1	3	1	3	4
217:	1	2	5	5	2	5	5	1
225:	2	4	4	3	3	4	4	4
233:	2	6	4	4	2	4	2	2
241:	0	3	3	2	0	0	0	0
249:	0	0	1	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	1	0	0	0
281:	0	0	1	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	1	0	0	0
305:	0	0	1	0	0	0	0	0
313:	0	0	0	0	0	0	1	0
321:	0	1	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	1	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	1	0	0
361:	0	0	0	0	1	0	1	0

369: 0 1 0 0 0 0 0 0

Sample Title: 03

Channel	1	2	3	4	5	6	7	8	9
377:	0	2	0	1	0	0	1	0	
385:	0	2	1	0	1	0	1	1	
393:	0	1	0	1	2	0	1	2	
401:	0	2	1	1	2	2	0	0	
409:	2	2	1	3	4	2	5	1	
417:	1	3	4	3	1	3	2	4	
425:	6	3	5	8	4	6	2	1	
433:	1	5	5	4	3	3	2	3	
441:	1	0	1	0	1	0	0	0	
449:	0	0	0	0	0	0	0	0	
457:	0	0	0	0	0	0	0	1	
465:	0	0	0	0	0	0	0	0	
473:	0	0	0	0	0	0	0	0	
481:	0	0	0	0	0	0	0	0	
489:	0	0	0	0	0	0	0	0	
497:	0	0	0	0	0	0	0	0	
505:	0	0	0	0	0	0	0	0	
513:	0	0	0	0	0	0	0	0	
521:	0	0	1	0	0	0	0	0	
529:	0	0	0	1	0	2	1	0	
537:	1	0	2	0	0	0	1	0	
545:	0	0	0	0	0	0	0	0	
553:	0	1	0	0	0	0	0	2	
561:	1	1	1	2	1	0	2	2	
569:	0	1	4	3	1	0	3	1	
577:	3	0	2	3	4	11	1	1	
585:	1	5	9	6	7	6	2	6	
593:	8	9	5	7	6	6	13	11	
601:	4	15	5	16	12	11	7	13	
609:	16	10	12	11	6	13	18	15	
617:	13	16	16	11	12	16	17	12	
625:	9	13	1	6	2	2	0	0	
633:	1	0	0	0	0	0	0	0	
641:	0	0	0	0	0	0	0	0	
649:	1	1	0	0	0	0	0	0	
657:	0	0	0	0	0	0	0	0	
665:	0	0	0	0	0	0	0	0	
673:	0	0	0	0	0	0	0	0	
681:	0	0	0	0	0	0	0	0	
689:	0	0	0	0	0	0	0	0	
697:	0	0	0	0	0	0	0	0	
705:	0	0	0	0	0	0	0	0	
713:	0	0	0	0	0	0	0	0	
721:	0	0	0	0	0	0	0	0	
729:	0	0	0	0	1	0	0	0	
737:	0	0	1	0	0	0	0	0	
745:	0	0	0	0	0	0	1	0	
753:	0	0	0	0	0	0	0	0	
761:	0	0	0	0	0	0	0	0	
769:	0	0	0	0	0	0	0	0	
777:	0	0	0	0	0	0	0	0	
785:	0	0	0	0	0	0	0	0	
793:	0	0	0	0	0	1	0	0	

801: 0 0 0 0 0 0 0 0

Sample Title: 03

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	1	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	1	0	0	0	0	0	0
961:	0	1	0	0	0	0	0	0
969:	0	0	0	0	0	1	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

KB
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Apex-Alpha™

Sample Description: CP-5030 05-10 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001560
 Batch Identification: 1606067A-UU
 Sample Identification: 04
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_011
 Chamber Serial Number:
 Detector Serial Number: 11
 Env. Background: System Bkgd 157575
 Reagent Blank: <not performed>

Sample Size: 1.501E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/6/2016 10:48:10 AM
 Acquisition Date/Time: 7/1/2016 12:56:37 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.663 mL
 Effective Efficiency: 0.2383 +/- 0.0121
 Counting Efficiency: 0.1989 +/- 0.0034 on 12/11/2015 2:46:14 PM
 Chem. Recovery Factor: 1.1982 +/- 0.0641

Peak Match Tolerance: 0.150 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.278	493.79	8.84	2.21	0.00E+000	4.8
U-234	4.720	102.15	19.49	0.85	0.00E+000	5.3
U-235	4.416	7.98	74.39	1.02	0.00E+000	2.6
U-238	4.152	112.47	18.63	1.53	0.00E+000	3.4

T = Tracer Peak used for Effective Efficiency

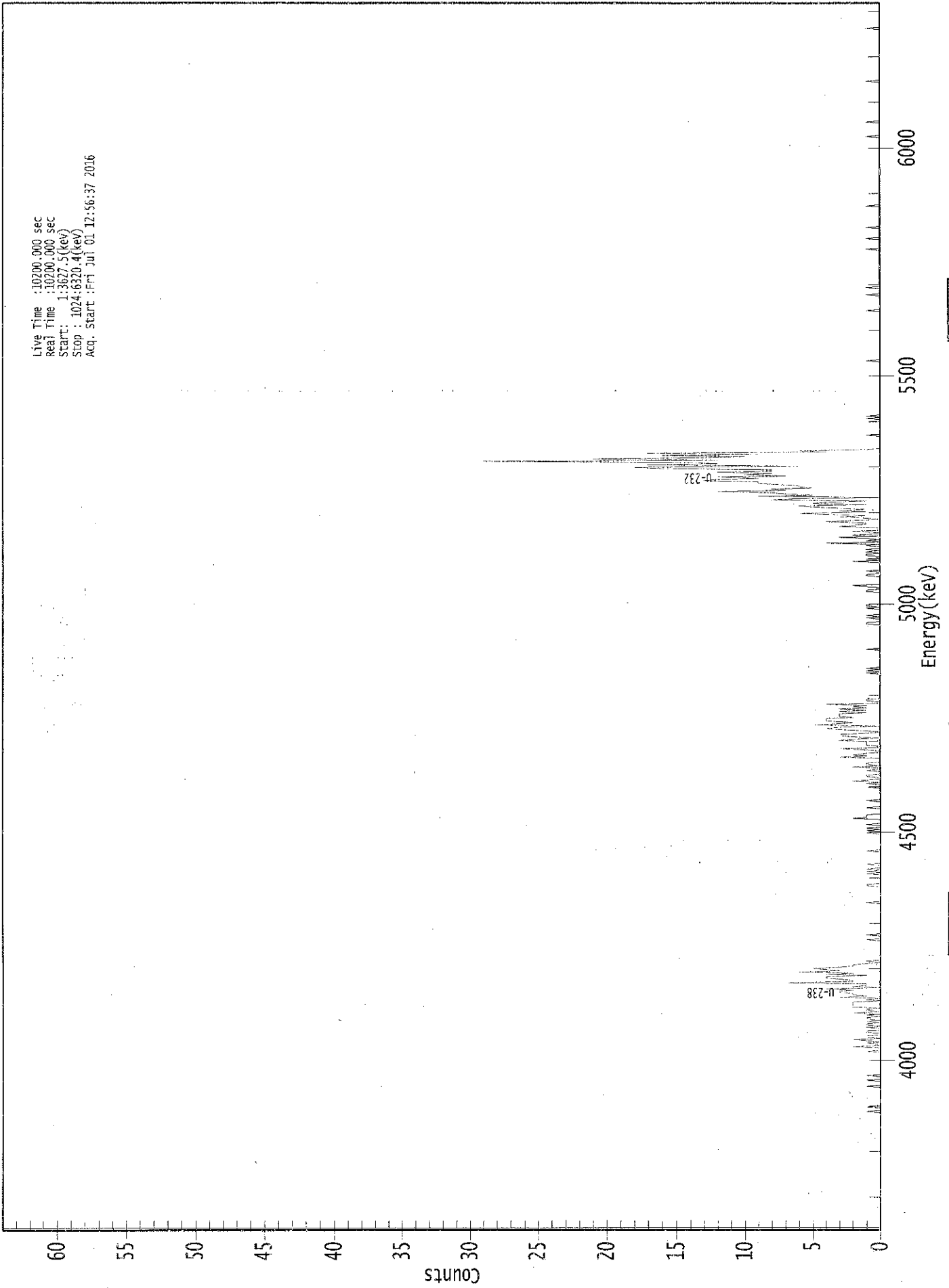
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	3.67E+000 +/- 3.64E-001	5.94E-002 +/- 5.90E-003
U-234	0.988	4761.50*	7.58E-001 +/- 1.66E-001	4.44E-002 +/- 4.41E-003
U-235	0.993	4385.50*	7.31E-002 +/- 5.48E-002	5.77E-002 +/- 5.73E-003
U-238	0.993	4184.40*	8.31E-001 +/- 1.75E-001	5.25E-002 +/- 5.21E-003

AG
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0000156049.CNF

Live Time :10200.000 sec
Real Time :10200.000 sec
Start : 1:3627.5(kev)
Stop : 1024.6320.4(kev)
Acq. Start : Fri Jul 01 12:56:37 2016



ROI Type: 1

ROI Type: 3

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 04

Elapsed Live time: 10200
 Elapsed Real Time: 10200

Channel	10200	10200	0	0	0	0	0	0
1:	10200	10200	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	1	0	0	0	1
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	1	0	0	0	0	1	0	0
129:	0	1	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	1	0	0
153:	0	2	0	0	1	0	1	2
161:	0	1	1	0	0	1	1	0
169:	0	1	0	1	1	0	1	0
177:	1	1	0	1	0	2	0	1
185:	1	0	2	2	2	2	2	0
193:	1	0	3	1	2	2	3	3
201:	2	4	0	2	1	1	7	2
209:	2	3	4	4	1	4	2	6
217:	3	4	5	3	2	2	1	0
225:	1	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	1	0	0	0	1	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	1	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	1
289:	1	0	0	0	0	0	0	0
297:	0	1	0	1	0	1	0	0
305:	0	1	0	0	0	0	0	0
313:	0	0	0	0	1	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	1	0	1	0	1
337:	0	0	1	0	0	0	0	2
345:	1	1	1	0	0	0	0	0
353:	1	0	0	0	0	0	1	0
361:	0	0	0	0	0	0	0	0

369: 0 1 0 0 1 0 2 1

Sample Title: 04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	1	1	0	0	0	1
385:	0	0	2	0	1	1	0	0
393:	0	0	3	1	2	1	0	0
401:	1	3	0	0	1	1	1	1
409:	3	2	0	2	3	3	1	0
417:	1	3	4	3	0	5	3	2
425:	4	4	4	2	3	3	3	1
433:	3	1	3	1	2	1	4	0
441:	0	1	1	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	1	0	1	0	1	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	1	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	1	1	0	0	0	1	0
513:	1	0	0	0	0	0	1	0
521:	1	1	0	0	0	0	0	0
529:	0	0	0	0	1	1	0	0
537:	1	2	0	0	0	0	0	0
545:	0	1	1	0	0	1	0	0
553:	0	0	0	0	0	2	0	1
561:	0	0	1	1	0	1	0	1
569:	0	0	1	0	4	0	1	0
577:	1	3	0	2	0	0	2	0
585:	0	0	3	2	1	1	4	2
593:	0	1	3	1	4	6	1	3
601:	1	3	5	6	1	5	4	1
609:	8	6	0	9	5	7	8	12
617:	7	8	5	6	6	8	9	9
625:	13	12	9	12	7	10	8	12
633:	8	8	16	18	6	17	12	14
641:	29	12	21	14	10	16	9	17
649:	4	6	1	0	0	0	0	0
657:	0	0	0	0	0	0	1	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	1	0	1	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	1	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	1	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	1	0	0	0	0
785:	0	1	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	0	0	0	0	0	0
817:	0	1	0	0	0	0	0	0
825:	0	0	1	0	0	0	0	0
833:	0	0	0	1	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	1	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	1
913:	0	0	0	0	0	0	0	0
921:	0	0	0	1	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	1	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	1	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

kb
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Sample Description: CP-5031 00-02 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001560
 Batch Identification: 1606067A-UU
 Sample Identification: 05
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_012
 Chamber Serial Number:
 Detector Serial Number: 12
 Env. Background: System Bkgd 157576
 Reagent Blank: <not performed>

Sample Size: 1.522E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/2/2016 10:48:10 AM
 Acquisition Date/Time: 7/1/2016 12:56:38 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.673 mL
 Effective Efficiency: 0.2043 +/- 0.0109
 Counting Efficiency: 0.1919 +/- 0.0033 on 12/11/2015 2:46:15 PM
 Chem. Recovery Factor: 1.0644 +/- 0.0599

Peak Match Tolerance: 0.150 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.278	429.98	9.47	1.02	0.00E+000	4.8
U-234	4.740	129.83	17.21	0.17	0.00E+000	10.4
U-235	4.373	7.49	74.42	0.51	0.00E+000	4.4
U-238	4.162	156.83	15.66	0.17	0.00E+000	7.9

T = Tracer Peak used for Effective Efficiency

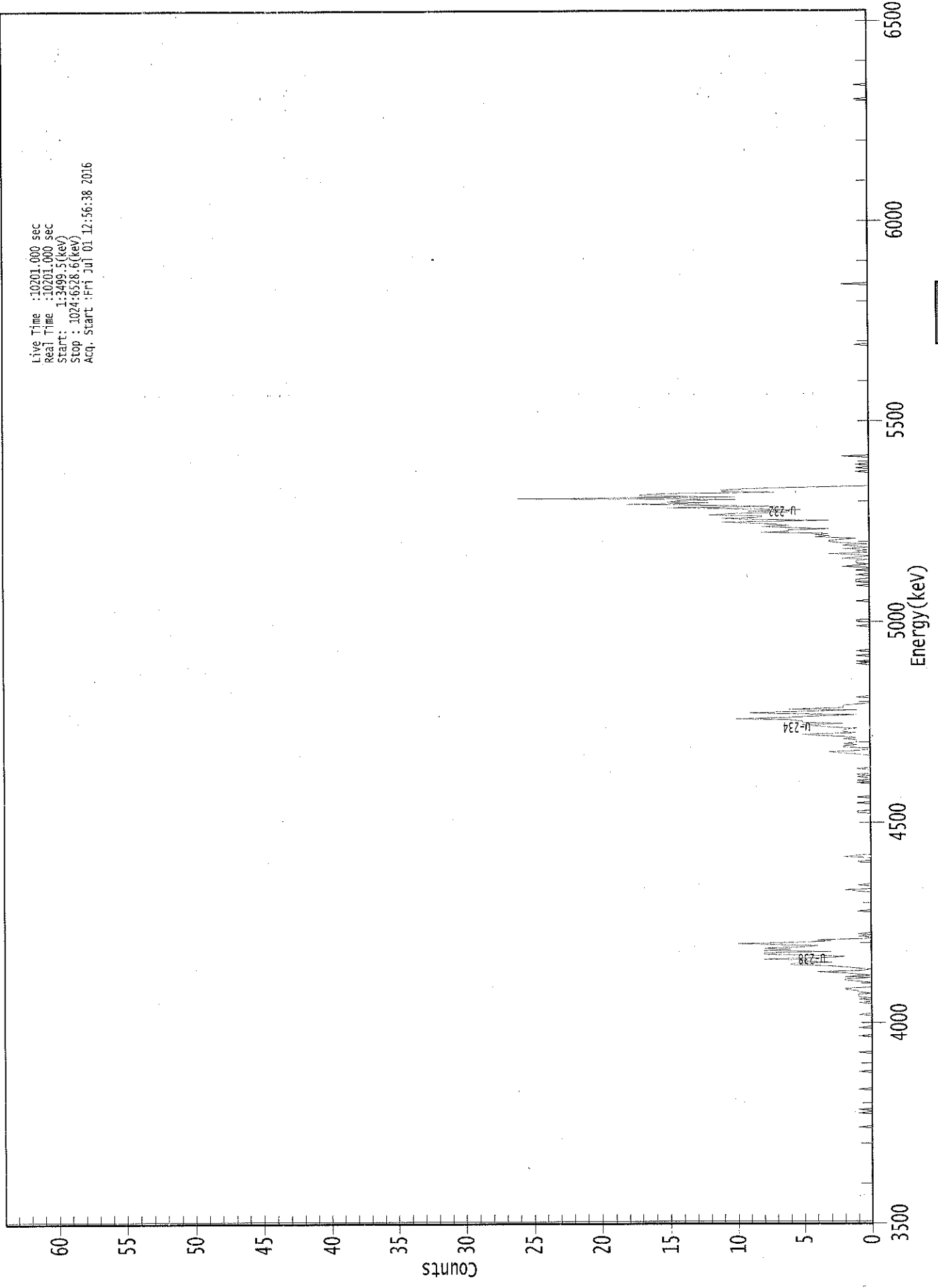
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	3.67E+000 +/- 3.85E-001	5.38E-002 +/- 5.65E-003
U-234	0.997	4761.50*	1.11E+000 +/- 2.23E-001	3.56E-002 +/- 3.74E-003
U-235	0.999	4385.50*	7.89E-002 +/- 5.93E-002	5.53E-002 +/- 5.80E-003
U-238	0.996	4184.40*	1.33E+000 +/- 2.51E-001	3.55E-002 +/- 3.72E-003

AG
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0000156050.CNF

Live Time : 10201.000 sec
Real Time : 10201.000 sec
Start : 1:3499.5(kev)
Stop : 1024:6528.6(kev)
Acq. Start : Fri Jul 01 12:56:38 2016



ROI Type: 3

ROI Type: 1

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 05

Elapsed Live time: 10201

Elapsed Real Time: 10201

Channel	10201	10201	0	0	0	0	0	0
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	1	0	0	0	0	0	0
89:	0	0	0	0	0	1	0	0
97:	1	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	1	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	1	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	1	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	1	0
161:	0	0	0	0	0	1	0	0
169:	0	0	0	0	0	0	0	0
177:	1	0	0	0	0	0	0	0
185:	0	0	1	0	0	1	0	1
193:	1	1	0	1	1	2	2	0
201:	0	0	0	0	1	2	2	0
209:	2	0	1	2	4	1	0	1
217:	2	3	6	6	3	5	5	8
225:	3	2	5	8	8	3	8	6
233:	8	5	4	7	10	5	3	4
241:	0	0	1	0	1	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	1
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	1	2	0	0	0	1	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	1	0	0	0	2	1	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	1	1	0	0	0	0
353:	0	0	1	0	0	0	0	1
361:	0	0	0	0	0	0	0	0

369: 0 0 0 1 0 1 0 0

Sample Title: 05

Channel	1	2	3	4	5	6	7	8	9
377:	1	0	1	0	0	0	0	0	1
385:	0	0	0	0	0	0	0	0	0
393:	0	0	0	1	2	3	1	0	0
401:	0	2	2	1	2	1	1	1	1
409:	2	1	2	4	5	1	2	2	2
417:	2	1	3	4	5	2	5	5	5
425:	6	10	6	4	1	6	9	5	5
433:	1	6	2	2	2	1	0	0	0
441:	0	0	0	1	0	0	0	0	0
449:	0	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	1	1
473:	0	1	0	0	0	0	1	0	0
481:	0	0	1	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0	1
505:	0	0	0	1	1	0	0	0	0
513:	0	0	0	0	0	0	0	0	0
521:	0	0	0	0	1	0	0	0	0
529:	0	0	0	0	0	0	0	0	0
537:	0	1	0	0	1	1	1	0	0
545:	0	0	1	0	0	0	1	0	0
553:	0	2	1	0	1	1	1	0	0
561:	2	1	0	1	3	0	1	0	0
569:	2	0	1	2	0	2	3	3	3
577:	2	1	4	3	4	3	8	6	6
585:	6	3	6	8	6	7	9	11	11
593:	3	8	11	8	8	12	10	6	6
601:	9	5	10	15	7	12	18	12	12
609:	15	14	10	26	10	17	17	15	15
617:	7	11	11	9	5	0	0	0	0
625:	0	0	0	0	0	0	0	0	0
633:	0	1	0	0	1	0	0	1	1
641:	0	0	0	0	0	0	2	0	0
649:	0	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0
737:	0	0	0	0	1	0	0	0	0
745:	0	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	2	2
793:	0	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 05

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	1	0	0	0	0
953:	0	0	0	0	0	0	0	1
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

DS
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Apex-Alpha™

Sample Description: CP-5023 02-05 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001560
 Batch Identification: 1606067A-UU
 Sample Identification: 06
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_014
 Chamber Serial Number:
 Detector Serial Number: 14
 Env. Background: System Bkgd 157577
 Reagent Blank: <not performed>

Sample Size: 1.551E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/2/2016 10:48:10 AM
 Acquisition Date/Time: 7/1/2016 12:56:39 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.663 mL
 Effective Efficiency: 0.2026 +/- 0.0110
 Counting Efficiency: 0.1824 +/- 0.0032 on 12/11/2015 2:46:16 PM
 Chem. Recovery Factor: 1.1110 +/- 0.0632

Peak Match Tolerance: 0.150 MeV

 ----- PEAK AREA REPORT -----

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.292	419.79	9.60	2.21	0.00E+000	36.0
U-234	4.749	132.13	17.19	1.87	0.00E+000	7.6
U-235	4.364	7.32	76.28	0.68	0.00E+000	2.9
U-238	4.167	115.30	18.41	1.70	0.00E+000	3.1

T = Tracer Peak used for Effective Efficiency

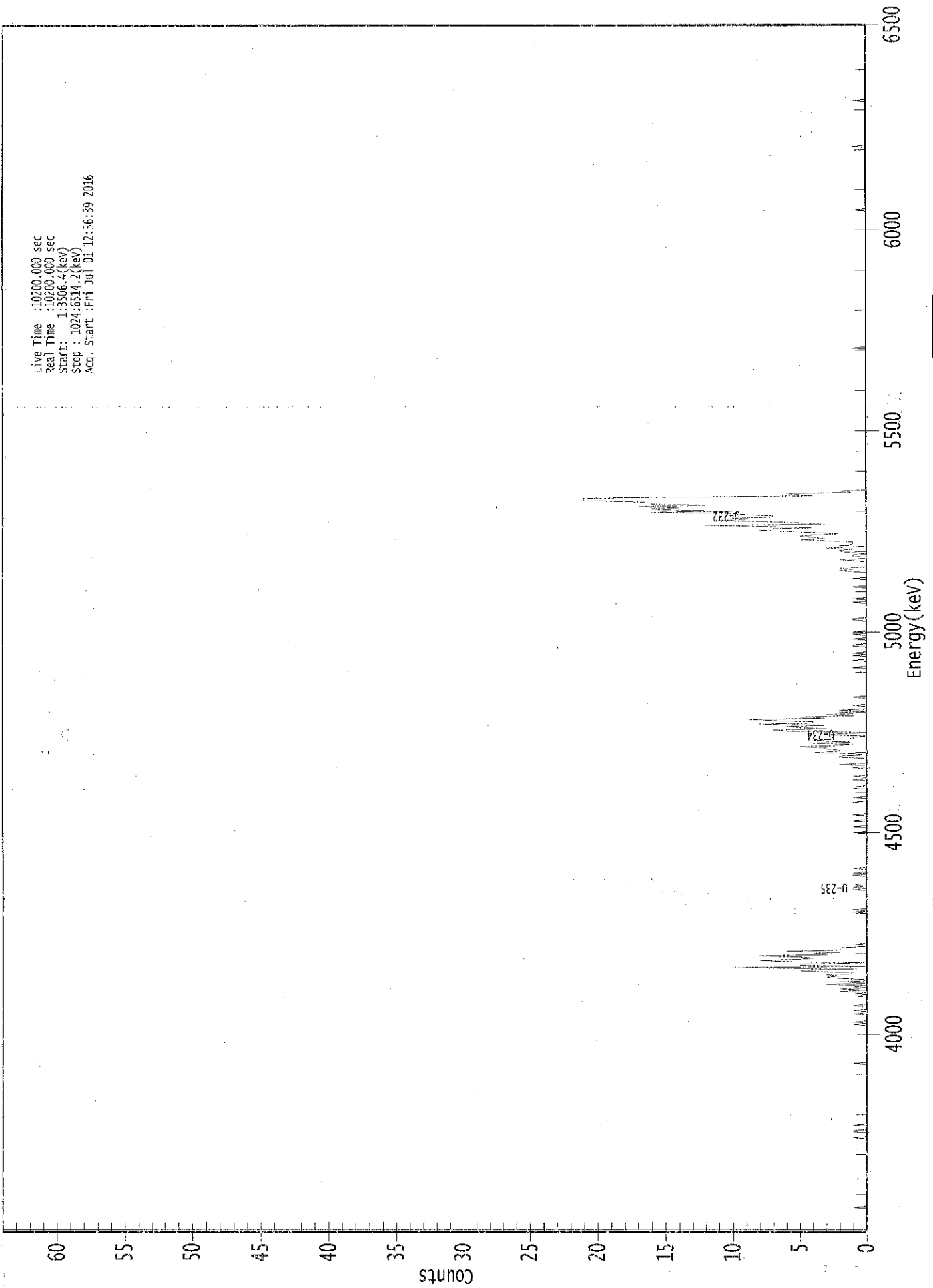
 ----- NUCLIDE ANALYSIS RESULTS -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	3.55E+000 +/- 3.76E-001	6.76E-002 +/- 7.17E-003
U-234	0.999	4761.50*	1.12E+000 +/- 2.25E-001	6.40E-002 +/- 6.78E-003
U-235	0.997	4385.50*	7.63E-002 +/- 5.87E-002	5.88E-002 +/- 6.23E-003
U-238	0.998	4184.40*	9.70E-001 +/- 2.06E-001	6.18E-002 +/- 6.55E-003

AG
7/6/16

0000156051.CNF

Live Time : 10200.000 sec
Real Time : 10200.000 sec
Start : 1:3506.4 (keV)
Stop : 1024:6314.2 (keV)
Acq. Start : Fri Jul 01 12:56:39 2016



ROI Type: 3

ROI Type: 1

00100

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 06

Elapsed Live time: 10200
 Elapsed Real Time: 10200

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	10200	10200	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	1	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	1	0	0	0	0	1	1	0
89:	0	0	0	1	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	1
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	1	0	1	0	0	0	0	0
185:	0	1	0	0	1	0	0	0
193:	1	0	0	0	0	0	0	0
201:	1	0	1	0	2	0	2	0
209:	1	0	3	0	2	0	0	2
217:	3	2	3	1	1	5	4	1
225:	10	0	5	5	0	6	8	5
233:	4	5	8	3	4	2	6	2
241:	2	2	0	0	1	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	1
273:	0	1	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	1	0	1	0	1	0
297:	0	0	0	0	0	0	1	0
305:	1	0	0	0	1	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	1	0	0	0	0	1
345:	0	0	0	0	1	0	0	0
353:	0	1	0	0	0	0	0	0
361:	0	0	0	0	1	0	0	0

369: 1 0 0 0 0 0 0 0 0

Sample Title: 06

Channel	1	2	3	4	5	6	7	8	9
377:	1	1	0	0	0	0	0	0	1
385:	0	0	1	0	0	0	0	0	0
393:	0	1	0	0	2	0	0	0	0
401:	0	0	2	2	0	1	4	2	2
409:	2	3	3	5	2	1	4	1	1
417:	4	3	1	1	0	3	2	0	0
425:	6	7	3	5	6	3	8	4	4
433:	4	7	9	3	5	1	3	1	1
441:	2	0	2	0	0	0	1	0	0
449:	0	0	0	0	0	1	0	0	0
457:	0	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	1	0	0
481:	0	0	0	0	1	0	0	0	0
489:	1	0	1	0	0	0	0	0	0
497:	1	1	0	0	0	0	1	0	0
505:	0	0	1	0	1	0	0	0	0
513:	0	0	0	0	0	0	1	1	1
521:	0	0	0	0	0	0	0	0	0
529:	0	0	0	0	0	1	0	0	0
537:	1	0	0	0	0	0	0	0	0
545:	0	0	1	0	0	0	0	0	0
553:	0	1	0	0	0	0	0	1	1
561:	2	1	2	0	0	0	0	0	0
569:	1	2	0	0	1	1	0	1	1
577:	2	2	1	3	0	2	1	1	1
585:	1	3	5	3	4	5	4	2	2
593:	4	6	8	8	4	7	12	3	3
601:	5	7	11	9	10	7	7	9	9
609:	10	16	10	15	16	14	17	12	12
617:	16	16	17	21	21	21	14	4	4
625:	5	6	1	2	0	0	0	0	0
633:	0	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0	0
745:	0	0	0	0	1	0	0	0	0
753:	0	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 06

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	1	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	1
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	1	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



KCS
7/1/16

Sample Description: CP-5010 00-02 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001560
 Batch Identification: 1606067A-UU
 Sample Identification: 07
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_015
 Chamber Serial Number:
 Detector Serial Number: 15
 Env. Background: System Bkgd 157578
 Reagent Blank: <not performed>

Sample Size: 1.503E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/7/2016 10:48:10 AM
 Acquisition Date/Time: 7/1/2016 12:56:40 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232 UU-10A
 Tracer Quantity: 0.662 mL
 Effective Efficiency: 0.2442 +/- 0.0122
 Counting Efficiency: 0.2292 +/- 0.0039 on 12/11/2015 2:46:18 PM
 Chem. Recovery Factor: 1.0654 +/- 0.0564

Peak Match Tolerance: 0.150 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.280	505.32	8.73	0.68	0.00E+000	35.6
U-234	4.735	165.66	15.25	0.34	0.00E+000	15.7
U-235	4.406	16.49	49.13	0.51	0.00E+000	4.5
U-238	4.157	157.15	15.68	0.85	0.00E+000	5.3

T = Tracer Peak used for Effective Efficiency

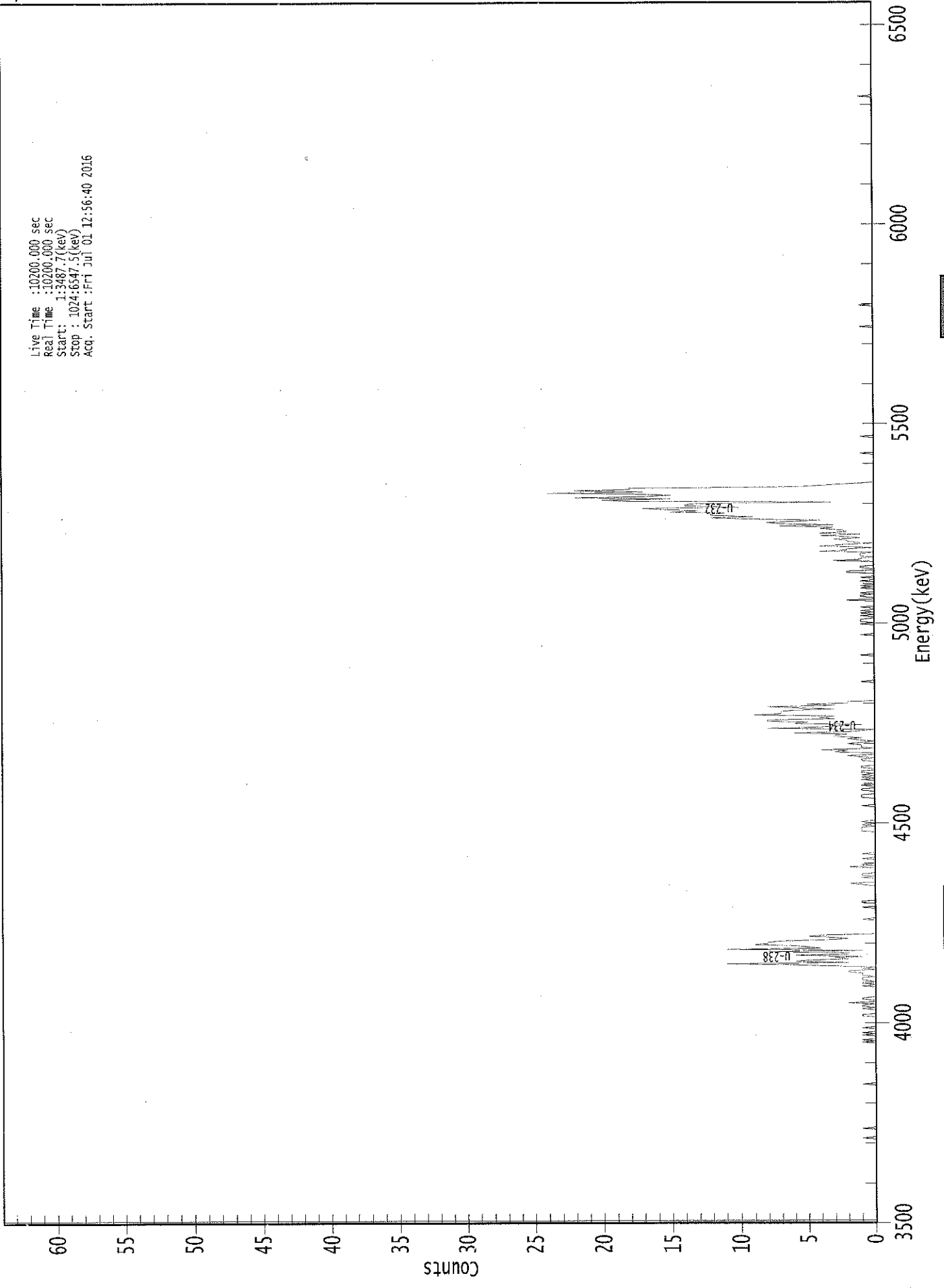
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	3.66E+000 +/- 3.59E-001	4.08E-002 +/- 4.01E-003
U-234	0.995	4761.50*	1.20E+000 +/- 2.17E-001	3.46E-002 +/- 3.40E-003
U-235	0.997	4385.50*	1.47E-001 +/- 7.37E-002	4.68E-002 +/- 4.60E-003
U-238	0.995	4184.40*	1.13E+000 +/- 2.09E-001	4.31E-002 +/- 4.24E-003

AG
7/6/16

0000156052.CNF

Live Time : 10200.000 sec
Real Time : 10200.000 sec
Start : 1:34:47.7(keV)
Stop : 1024:6547.5(keV)
Acq. Start : Fri Jul 01 12:56:40 2016



ROI Type: 3

ROI Type: 1

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 07

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	10200	10200	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0	1
73:	0	0	0	0	0	0	0	0	1
81:	0	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	1	0	0	0	0
121:	0	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0	1
153:	0	1	0	0	0	1	0	0	1
161:	0	0	0	1	0	0	0	0	0
169:	0	0	0	0	0	1	1	0	0
177:	0	0	0	1	0	1	1	0	0
185:	2	0	0	1	1	0	0	0	0
193:	0	0	0	0	0	0	1	0	0
201:	1	1	0	1	1	1	0	1	1
209:	1	1	2	2	0	1	0	3	3
217:	6	11	2	6	5	2	3	1	1
225:	6	2	2	8	1	11	4	5	5
233:	6	9	8	8	7	4	2	3	3
241:	5	4	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	1	0	0
257:	0	0	0	0	0	0	0	0	0
265:	1	0	0	0	1	1	0	0	0
273:	0	0	0	0	0	0	0	0	0
281:	0	0	0	1	2	0	0	0	0
289:	0	1	0	1	1	0	0	0	0
297:	0	0	2	0	1	0	0	0	0
305:	0	1	0	0	0	1	0	0	0
313:	0	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0	0
329:	1	1	1	1	0	1	0	0	0
337:	1	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	1	0	0	0
353:	0	0	0	0	1	1	1	0	0
361:	0	0	1	1	0	0	1	0	0

369: 0 0 0 1 0 1 0 1

Sample Title: 07

Channel	1	2	3	4	5	6	7	8	9
377:	0	1	1	0	0	1	1	0	
385:	0	0	0	1	1	0	1	2	
393:	0	0	3	2	4	0	1	1	
401:	1	2	1	0	1	2	1	3	
409:	3	2	6	2	1	0	8	4	
417:	3	1	6	5	8	8	3	4	
425:	3	9	7	7	7	6	3	6	
433:	8	3	5	2	2	0	0	0	
441:	0	0	0	0	0	0	0	0	
449:	0	0	0	0	0	1	0	0	
457:	0	0	0	0	0	0	0	0	
465:	0	0	0	0	0	0	0	0	
473:	0	0	0	1	0	0	0	0	
481:	0	0	0	0	0	0	0	0	
489:	0	0	0	0	1	0	0	0	
497:	0	0	0	0	0	1	0	1	
505:	1	1	0	0	1	0	1	0	
513:	1	0	0	1	0	0	0	0	
521:	0	2	0	0	1	1	0	1	
529:	0	0	0	1	0	1	0	0	
537:	0	1	0	0	1	0	0	0	
545:	2	2	0	0	1	1	0	0	
553:	0	0	3	1	1	0	1	1	
561:	1	0	4	2	2	0	4	3	
569:	1	1	2	2	3	1	2	4	
577:	1	4	2	2	3	4	3	7	
585:	3	7	8	6	4	9	12	9	
593:	12	12	11	15	13	15	17	10	
601:	14	14	13	3	18	20	15	22	
609:	17	15	17	24	17	22	18	18	
617:	6	4	3	1	0	0	0	0	
625:	0	0	0	0	0	0	0	0	
633:	0	0	0	0	0	0	0	0	
641:	0	0	0	0	1	0	0	0	
649:	0	0	0	0	0	0	0	0	
657:	0	0	1	0	0	0	0	0	
665:	0	0	0	0	0	0	0	0	
673:	0	0	0	0	0	0	0	0	
681:	0	0	0	0	0	0	0	0	
689:	0	0	0	0	0	0	0	0	
697:	0	0	0	0	0	0	0	0	
705:	0	0	0	0	0	0	0	0	
713:	0	0	0	0	0	0	0	0	
721:	0	0	0	0	0	0	0	0	
729:	0	0	0	0	0	0	0	0	
737:	0	0	0	0	0	0	0	0	
745:	0	0	0	0	0	0	1	0	
753:	0	0	0	0	0	0	0	0	
761:	0	0	0	0	0	0	0	0	
769:	1	0	0	0	0	0	0	0	
777:	0	0	0	0	0	0	0	0	
785:	0	0	0	0	0	0	0	0	
793:	0	0	0	0	0	0	0	0	

801: 0 0 0 0 0 0 0 0

Sample Title: 07

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	1
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

MS
7/1/16

Apex-Alpha™

Sample Description: CP-5010 09-15 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001560
 Batch Identification: 1606067A-UU
 Sample Identification: 08
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_037
 Chamber Serial Number: 04026478A
 Detector Serial Number: 91133
 Env. Background: System Bkgd 157583
 Reagent Blank: <not performed>

Sample Size: 1.505E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/7/2016 10:48:10 AM
 Acquisition Date/Time: 7/1/2016 2:02:44 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.661 mL
 Effective Efficiency: 0.1665 +/- 0.0098
 Counting Efficiency: 0.1645 +/- 0.0029 on 12/11/2015 8:20:53 AM
 Chem. Recovery Factor: 1.0122 +/- 0.0620

Peak Match Tolerance: 0.150 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.319	344.32	10.57	0.68	0.00E+000	3.0
U-234	4.770	146.66	16.21	0.34	0.00E+000	6.8
U-235	4.390	3.66	107.87	0.34	0.00E+000	3.0
U-238	4.192	106.00	19.13	0.00	0.00E+000	12.7

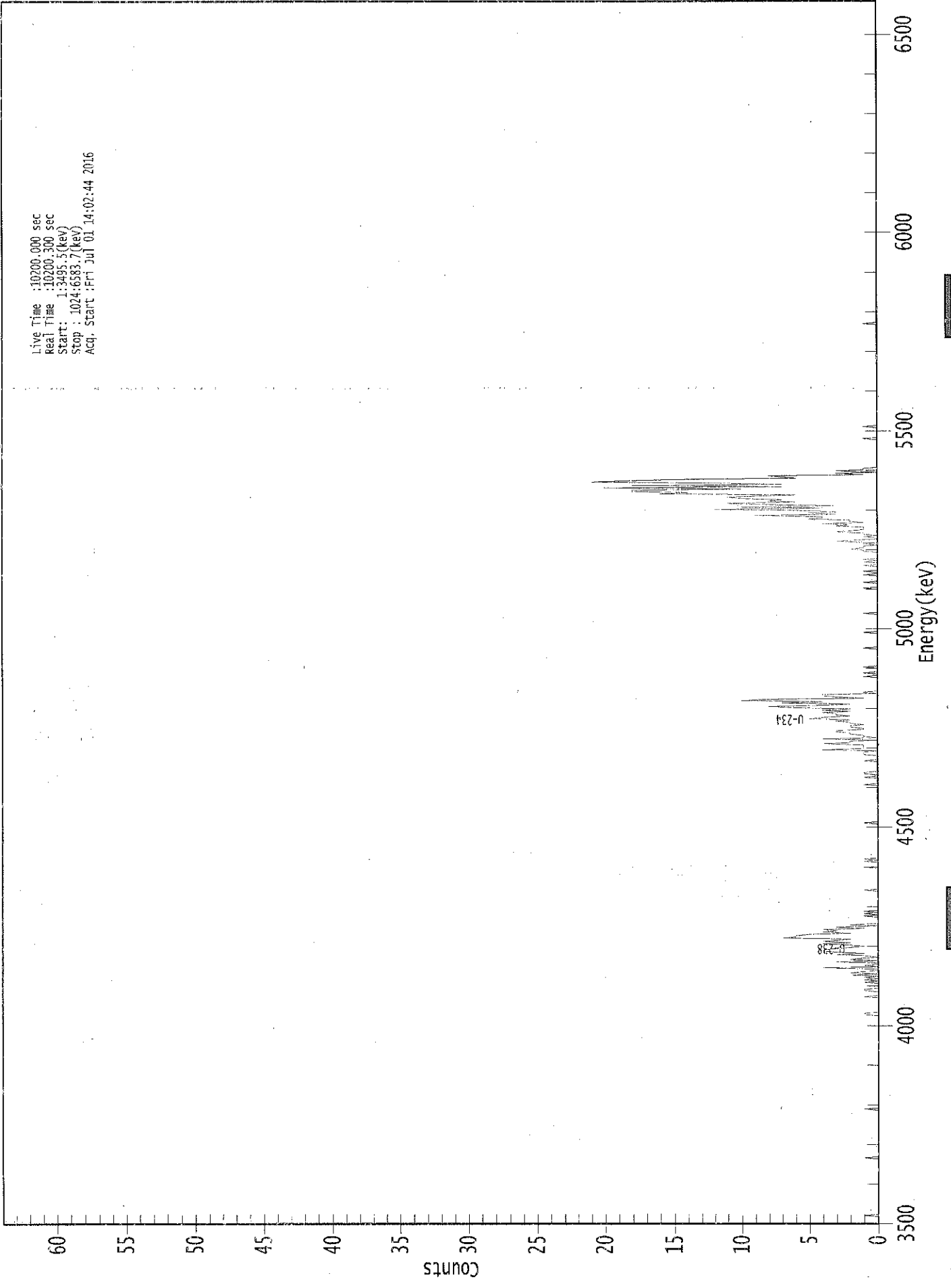
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.998	5302.50*	3.65E+000 +/- 4.20E-001	5.98E-002 +/- 6.87E-003
U-234	1.000	4761.50*	1.55E+000 +/- 3.09E-001	5.06E-002 +/- 5.82E-003
U-235	1.000	4385.50*	4.78E-002 +/- 5.19E-002	6.25E-002 +/- 7.18E-003
U-238	1.000	4184.40*	1.12E+000 +/- 2.50E-001	6.32E-002 +/- 7.27E-003

AG
7/6/16

0000156059.CNF



Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:34:55.5 (keV)
Stop : 1:024:6583.7 (keV)
Acq. Start : Fri Jul 01 14:02:44 2016

ROI Type: 1

ROI Type: 3

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 08

Elapsed Live time: 10200
 Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8
1:	0	0	0	0	0	0	0	1
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	1
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	1	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	1
177:	1	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	1	0
193:	0	0	0	1	1	0	0	0
201:	0	0	1	0	1	0	1	0
209:	2	0	2	1	0	0	4	0
217:	1	0	0	3	0	2	1	0
225:	1	3	1	3	4	4	3	2
233:	1	2	4	2	4	3	2	7
241:	6	6	5	2	4	3	4	1
249:	3	0	2	0	0	0	0	0
257:	0	1	0	1	0	1	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	1
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	1	0	0	0	0	1
305:	0	1	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	1
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	1

369: 0 0 0 0 0 1 0 0

Sample Title: 08

Channel	1	2	3	4	5	6	7	8	9
377:	1	1	0	0	0	0	0	0	0
385:	0	0	0	1	0	0	0	0	0
393:	1	1	1	0	4	1	1	1	1
401:	1	4	2	2	0	4	0	1	1
409:	1	2	2	3	3	1	1	2	2
417:	2	1	2	2	3	2	5	4	4
425:	2	3	3	4	2	4	2	6	6
433:	8	4	2	7	4	10	8	1	1
441:	3	4	4	0	1	0	0	0	0
449:	0	0	0	0	0	0	0	0	0
457:	0	1	0	0	1	0	0	0	0
465:	0	1	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0	0
481:	0	1	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	1	0	0
497:	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	1	0	0
513:	0	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0	0
529:	0	0	0	1	0	0	0	0	0
537:	1	0	0	0	0	0	1	0	0
545:	0	1	0	0	0	0	1	0	0
553:	0	1	0	1	0	0	0	0	0
561:	0	0	1	1	2	1	1	0	0
569:	1	0	3	2	0	0	1	0	0
577:	1	1	3	2	1	1	1	3	3
585:	2	4	1	2	2	5	4	4	4
593:	9	3	5	3	5	12	4	10	10
601:	3	9	11	6	8	7	10	11	11
609:	9	6	16	14	18	18	10	20	20
617:	7	18	7	12	21	18	15	6	6
625:	7	8	1	3	0	3	1	1	1
633:	0	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0	0
657:	1	0	0	0	0	0	0	0	0
665:	0	0	1	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0	0
753:	1	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 08

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



108
7/1/16

Sample Description: CP-5012 09-15 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001560
 Batch Identification: 1606067A-UU
 Sample Identification: 09
 Sample Geometry: Shelf 2
 Procedure Description: U iso
 Detector Name: Alpha_038
 Chamber Serial Number: 04026478B
 Detector Serial Number: 91134
 Env. Background: System Bkgd 157584
 Reagent Blank: <not performed>

Sample Size: 1.512E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/7/2016 10:48:10 AM
 Acquisition Date/Time: 7/1/2016 2:02:46 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.662 mL
 Effective Efficiency: 0.1989 +/- 0.0108
 Counting Efficiency: 0.1601 +/- 0.0028 on 12/11/2015 8:20:51 AM
 Chem. Recovery Factor: 1.2426 +/- 0.0711

Peak Match Tolerance: 0.150 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.282	411.66	9.66	0.34	0.00E+000	5.2
U-234	4.727	91.15	20.64	0.85	0.00E+000	5.8
U-235	4.397	7.00	79.20	0.00	0.00E+000	3.0
U-238	4.165	98.32	19.85	0.68	0.00E+000	6.3

T = Tracer Peak used for Effective Efficiency

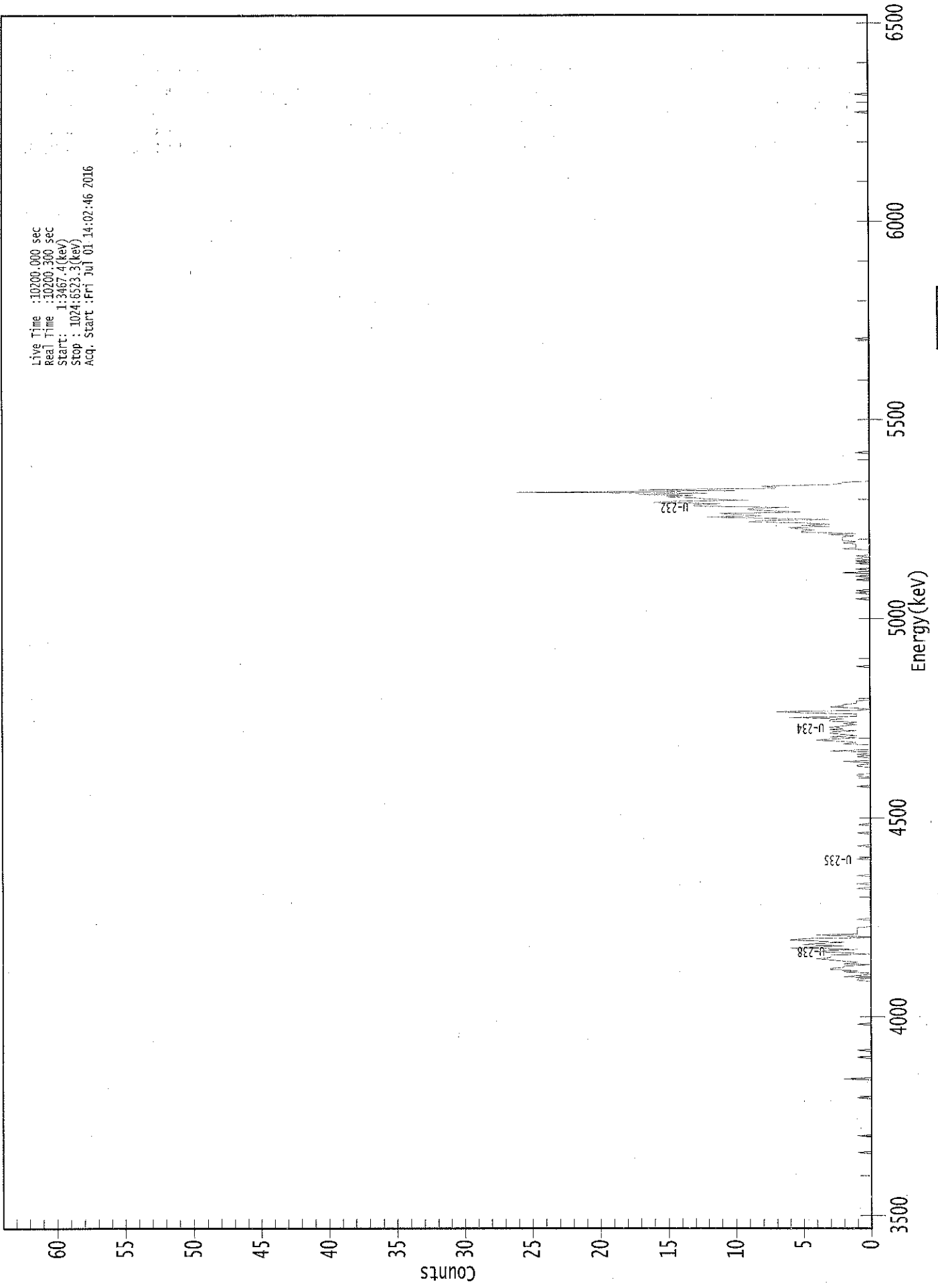
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.997	5302.50*	3.64E+000 +/- 3.88E-001	4.22E-002 +/- 4.50E-003
U-234	0.992	4761.50*	8.05E-001 +/- 1.87E-001	5.29E-002 +/- 5.64E-003
U-235	0.999	4385.50*	7.62E-002 +/- 6.09E-002	6.53E-002 +/- 6.96E-003
U-238	0.997	4184.40*	8.64E-001 +/- 1.95E-001	4.96E-002 +/- 5.29E-003

AG
7/6/16

0000156060.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:34:67.4 (keV)
Stop : 1024:6523.3 (keV)
Acq. Start : Fri Jul 01 14:02:46 2016



ROI Type: 1

ROI Type: 3

12100

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 09

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0
65:	1	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	1	0
81:	0	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	1	0
113:	0	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	2	0
129:	0	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0	0
145:	1	0	0	0	0	0	0	1	0
153:	0	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	1	0	0	0
177:	0	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0	0
209:	0	1	1	0	2	1	0	0	0
217:	2	1	3	3	2	2	0	2	0
225:	1	2	3	4	3	3	3	0	0
233:	2	4	3	1	6	4	2	5	0
241:	4	2	4	6	5	0	1	4	0
249:	1	1	1	1	1	1	0	0	0
257:	0	0	0	0	1	0	0	0	0
265:	0	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	1	0	0
289:	0	0	1	0	0	0	0	0	0
297:	0	1	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	1	0
313:	0	0	0	0	0	0	0	0	0
321:	0	0	1	0	0	0	0	0	0
329:	0	0	0	0	0	1	0	0	0
337:	0	0	0	0	1	0	0	0	0
345:	0	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0	0

369: 0 0 0 0 1 0 0 0

Sample Title: 09

Channel	1	2	3	4	5	6	7	8
377:	0	0	0	0	0	1	1	0
385:	0	0	0	0	0	1	1	0
393:	0	2	0	0	0	1	0	1
401:	0	0	3	0	0	0	0	0
409:	2	1	2	4	3	1	3	1
417:	2	3	3	1	3	2	3	2
425:	1	2	1	3	3	2	6	1
433:	1	1	5	7	1	0	1	3
441:	2	2	1	1	1	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	1	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0
529:	0	0	1	0	0	0	0	1
537:	0	1	0	0	0	0	0	0
545:	0	0	1	0	0	1	0	0
553:	2	0	0	1	0	0	0	0
561:	1	0	1	0	1	0	1	0
569:	0	0	0	0	2	1	1	1
577:	1	2	1	2	2	2	2	1
585:	3	1	5	5	4	5	6	3
593:	5	3	5	9	8	3	9	12
601:	8	10	11	5	7	9	9	6
609:	13	13	11	16	15	9	12	13
617:	15	13	17	12	26	10	17	7
625:	7	8	3	2	2	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	1	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	1	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 09

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	1	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	1	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



Apex-Alpha™

RB
7/1/16

Sample Description: CP-5014 09-15 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001560
 Batch Identification: 1606067A-UU
 Sample Identification: 10
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_039
 Chamber Serial Number: 06027396A
 Detector Serial Number: 83109
 Env. Background: System Bkgd 157585
 Reagent Blank: <not performed>

Sample Size: 1.519E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/7/2016 10:48:10 AM
 Acquisition Date/Time: 7/1/2016 2:02:47 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.663 mL
 Effective Efficiency: 0.2200 +/- 0.0115
 Counting Efficiency: 0.1862 +/- 0.0032 on 12/11/2015 8:20:49 AM
 Chem. Recovery Factor: 1.1816 +/- 0.0652

Peak Match Tolerance: 0.150 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.279	455.79	9.21	2.21	0.00E+000	34.3
U-234	4.741	137.28	16.92	2.72	0.00E+000	11.0
U-235	4.408	-0.87	258.63	1.87	0.00E+000	3.0
U-238	4.165	101.81	19.56	1.19	0.00E+000	7.2

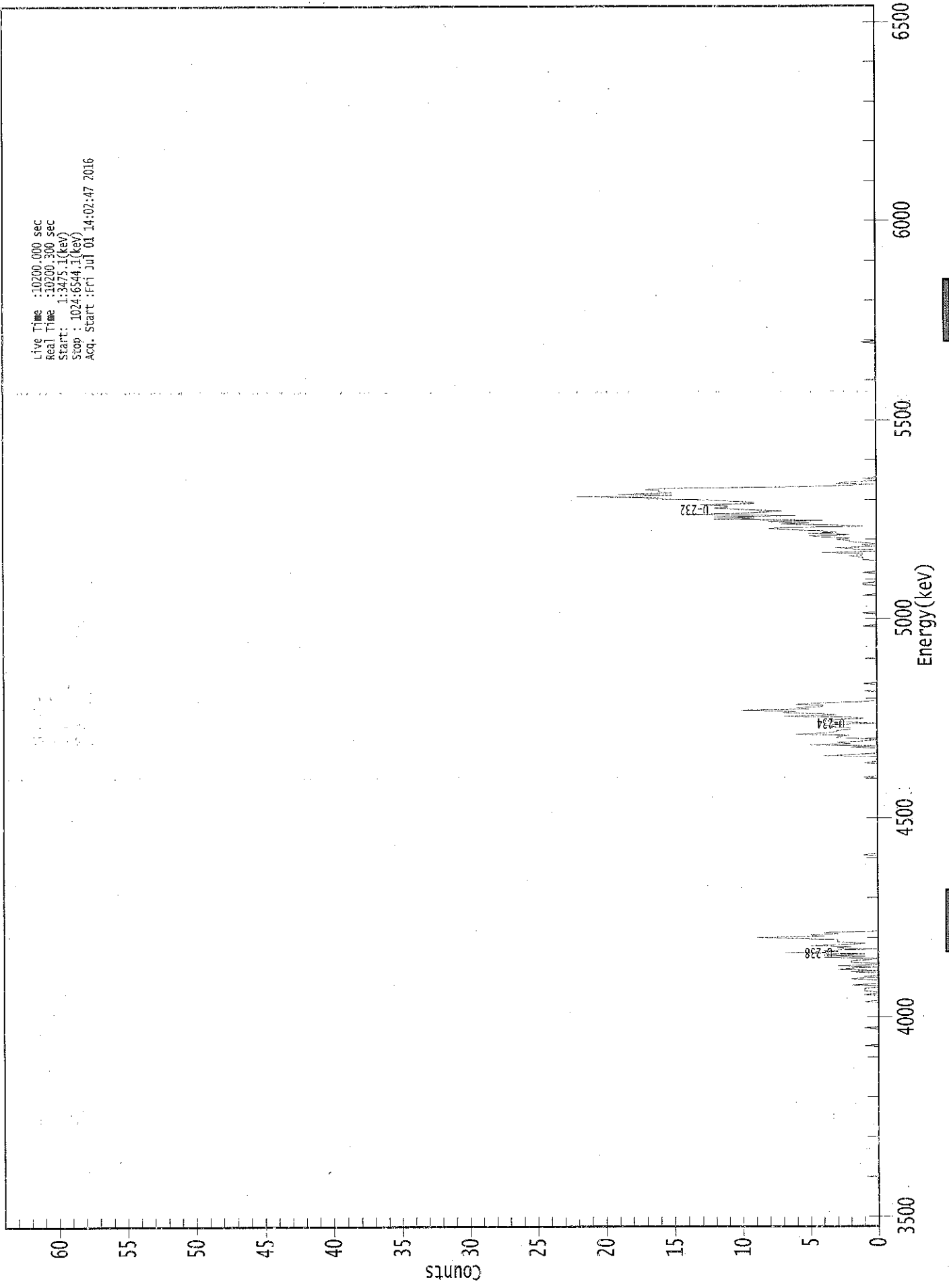
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	3.63E+000 +/- 3.72E-001	6.36E-002 +/- 6.52E-003
U-234	0.997	4761.50*	1.09E+000 +/- 2.16E-001	6.82E-002 +/- 6.99E-003
U-235	0.996	4385.50*	-8.53E-003 +/- 2.21E-002	7.43E-002 +/- 7.61E-003
U-238	0.997	4184.40*	8.06E-001 +/- 1.78E-001	5.21E-002 +/- 5.35E-003

AC
7/6/16

0000156061.CNF



Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:3475.1(keV)
Stop : 1024.6544.1(keV)
Acq. Start : Fri Jul 01 14:02:47 2016

ROI Type: 3

ROI Type: 1

B2109

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 10

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0	1
153:	0	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	1	0
169:	0	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0	0
185:	0	0	0	0	1	0	0	0	0
193:	0	0	1	0	0	1	1	1	1
201:	0	0	2	0	0	0	0	0	2
209:	1	1	0	0	0	2	0	0	3
217:	2	0	3	0	0	2	2	2	1
225:	0	4	1	4	1	7	3	4	4
233:	0	3	2	5	2	1	3	3	3
241:	3	6	9	4	5	3	4	0	0
249:	0	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0	1
313:	0	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0	0

369: 0 0 0 0 0 0 0 0 0

Sample Title: 10

Channel	1	2	3	4	5	6	7	8	9
377:	1	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	1	0	0	0
393:	0	0	4	1	0	0	0	0	0
401:	0	2	0	5	2	3	1	0	0
409:	1	3	3	2	6	4	3	3	3
417:	2	2	3	4	3	0	2	4	6
425:	3	1	2	7	3	4	7	6	1
433:	10	5	6	4	4	6	4	1	0
441:	0	0	0	0	0	0	0	0	0
449:	1	0	0	0	0	0	1	0	0
457:	0	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	1	0	0
505:	0	0	0	0	0	0	0	0	0
513:	0	1	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0	0
529:	1	0	0	0	0	0	0	0	0
537:	0	1	1	0	0	0	0	0	0
545:	0	0	0	1	0	0	0	0	0
553:	0	0	0	0	0	0	1	1	2
561:	1	2	1	1	4	0	0	0	3
569:	3	0	1	0	1	2	2	6	4
577:	2	4	5	2	5	3	4	6	7
585:	8	7	1	3	7	5	8	7	11
593:	12	9	12	6	14	10	8	16	11
601:	10	12	11	11	13	9	9	16	16
609:	12	17	16	22	15	19	15	2	0
617:	16	17	15	6	3	0	3	0	0
625:	0	0	1	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0
737:	0	0	0	0	1	0	0	0	0
745:	0	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 10

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



KB
7/6/16

Sample Description: CP-5017 00-02 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001560
 Batch Identification: 1606067A-UU
 Sample Identification: 11
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_040
 Chamber Serial Number: 06027396B
 Detector Serial Number: 91135
 Env. Background: System Bkgd 157586
 Reagent Blank: <not performed>

Sample Size: 1.524E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 10:48:10 AM
 Acquisition Date/Time: 7/1/2016 2:02:50 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.661 mL
 Effective Efficiency: 0.1964 +/- 0.0108
 Counting Efficiency: 0.1847 +/- 0.0032 on 12/11/2015 8:20:48 AM
 Chem. Recovery Factor: 1.0635 +/- 0.0611

Peak Match Tolerance: 0.150 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.290	405.81	9.75	1.19	0.00E+000	21.0
U-234	4.739	98.83	19.74	0.17	0.00E+000	3.2
U-235	4.441	7.00	79.20	0.00	0.00E+000	3.0
U-238	4.160	89.00	20.89	0.00	0.00E+000	4.4

T = Tracer Peak used for Effective Efficiency

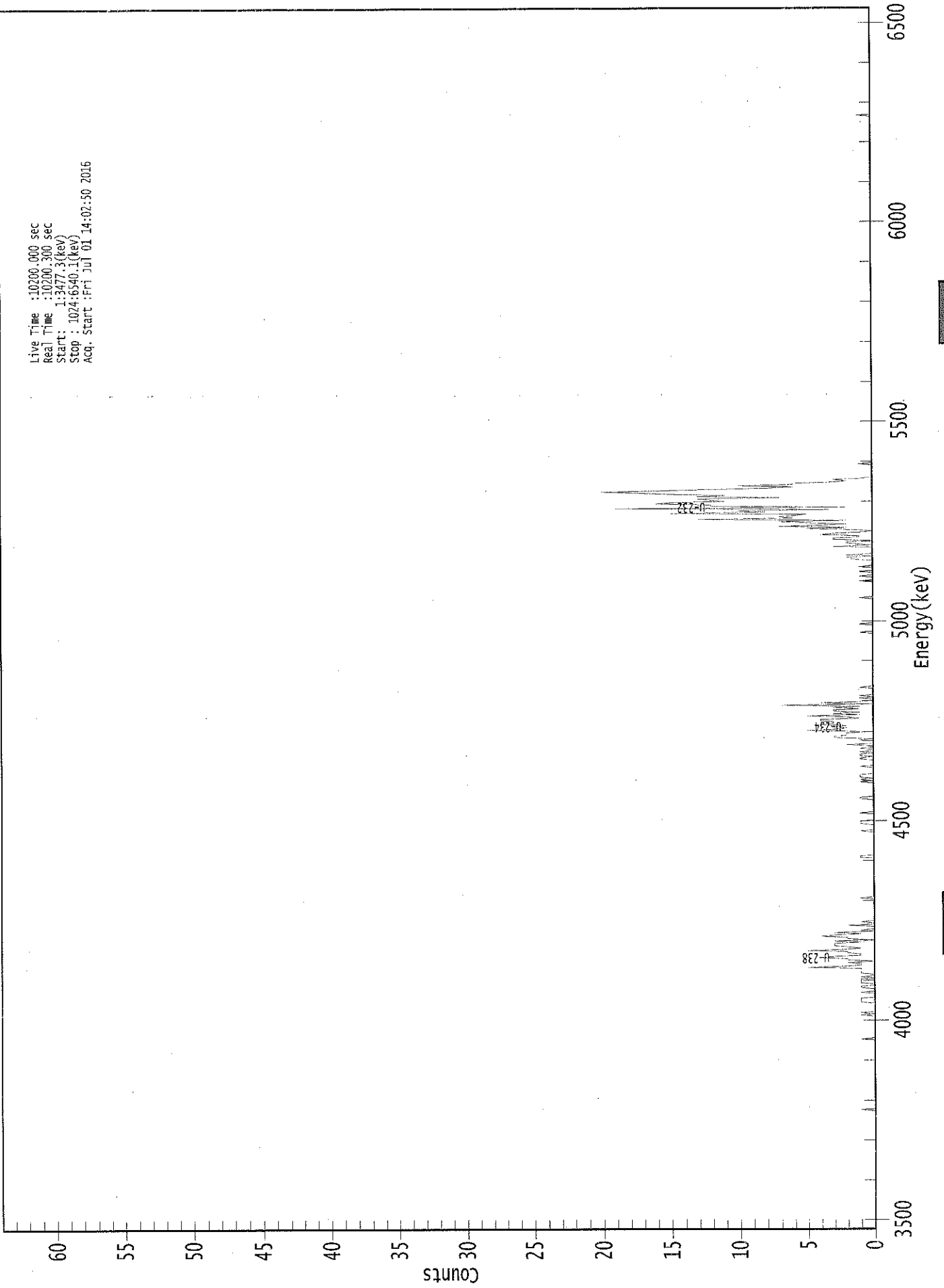
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	3.60E+000 +/- 3.87E-001	5.85E-002 +/- 6.28E-003
U-234	0.996	4761.50*	8.76E-001 +/- 1.97E-001	3.70E-002 +/- 3.97E-003
U-235	0.978	4385.50*	7.66E-002 +/- 6.12E-002	6.56E-002 +/- 7.04E-003
U-238	0.996	4184.40*	7.86E-001 +/- 1.85E-001	5.29E-002 +/- 5.69E-003

AG
7/6/16

0000156062.CNF

Live Time :10200.000 sec
Real Time :10200.300 sec
Start : 1:3477.3(kev)
Stop : 1024:6540.1(kev)
Acq. Start :Fri Jul 01 14:02:50 2016



ROI Type: 1

ROI Type: 3

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 11

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	1	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	1
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	1	0	1	0	0
185:	0	0	0	0	0	0	1	1
193:	1	1	0	0	0	0	1	0
201:	0	0	1	1	0	0	1	1
209:	1	1	0	1	0	0	1	1
217:	1	1	1	5	2	1	1	2
225:	0	2	2	4	3	1	1	2
233:	2	5	2	1	2	3	3	3
241:	1	3	0	2	2	4	3	1
249:	3	0	1	0	0	0	2	0
257:	0	1	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	1	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	1
313:	1	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	1	0	0
337:	0	0	0	1	1	1	0	0
345:	0	0	0	0	1	0	0	0
353:	0	0	0	0	0	0	0	0
361:	1	1	0	0	0	0	0	0

369: 0 0 0 0 0 0 1 0

Sample Title: 11

Channel	1	2	3	4	5	6	7	8
377:	1	0	1	1	1	0	0	0
385:	0	0	0	1	0	0	0	0
393:	0	1	1	0	1	1	0	1
401:	0	0	1	0	0	2	0	0
409:	0	1	0	3	3	2	2	2
417:	0	5	3	2	3	2	4	3
425:	3	4	4	1	2	5	1	3
433:	1	3	3	1	3	1	7	0
441:	4	1	0	0	1	0	1	0
449:	0	0	0	0	0	1	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	1	0	0	0	0
505:	0	0	1	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0
529:	1	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	1	0
545:	0	0	1	0	0	0	1	0
553:	0	0	1	0	0	0	0	0
561:	1	2	2	0	2	0	0	0
569:	0	0	0	3	0	1	2	2
577:	0	3	3	1	1	4	3	1
585:	0	1	5	2	7	4	2	5
593:	7	2	13	6	7	6	5	15
601:	8	10	3	19	2	12	12	16
609:	15	11	12	13	7	13	11	15
617:	17	20	16	12	8	6	10	6
625:	6	3	2	3	1	0	0	0
633:	0	0	0	0	0	0	0	0
641:	1	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 11

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	1	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



KB
7/11/16

Sample Description: CP-5020 00-02 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001560
 Batch Identification: 1606067A-UU
 Sample Identification: 12
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_049
 Chamber Serial Number: 10006121A
 Detector Serial Number: 49
 Env. Background: System Bkgd 157595
 Reagent Blank: <not performed>

Sample Size: 1.513E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/9/2016 10:48:10 AM
 Acquisition Date/Time: 7/1/2016 2:03:21 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.661 mL
 Effective Efficiency: 0.1272 +/- 0.0084
 Counting Efficiency: 0.1510 +/- 0.0027 on 12/11/2015 11:36:41 AM
 Chem. Recovery Factor: 0.8422 +/- 0.0576

Peak Match Tolerance: 0.150 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.274	263.00	12.11	0.00	0.00E+000	11.1
U-234	4.727	269.83	11.94	0.17	0.00E+000	4.7
U-235	4.382	18.00	47.46	0.00	0.00E+000	3.0
U-238	4.158	268.15	11.99	0.85	0.00E+000	16.0

T = Tracer Peak used for Effective Efficiency

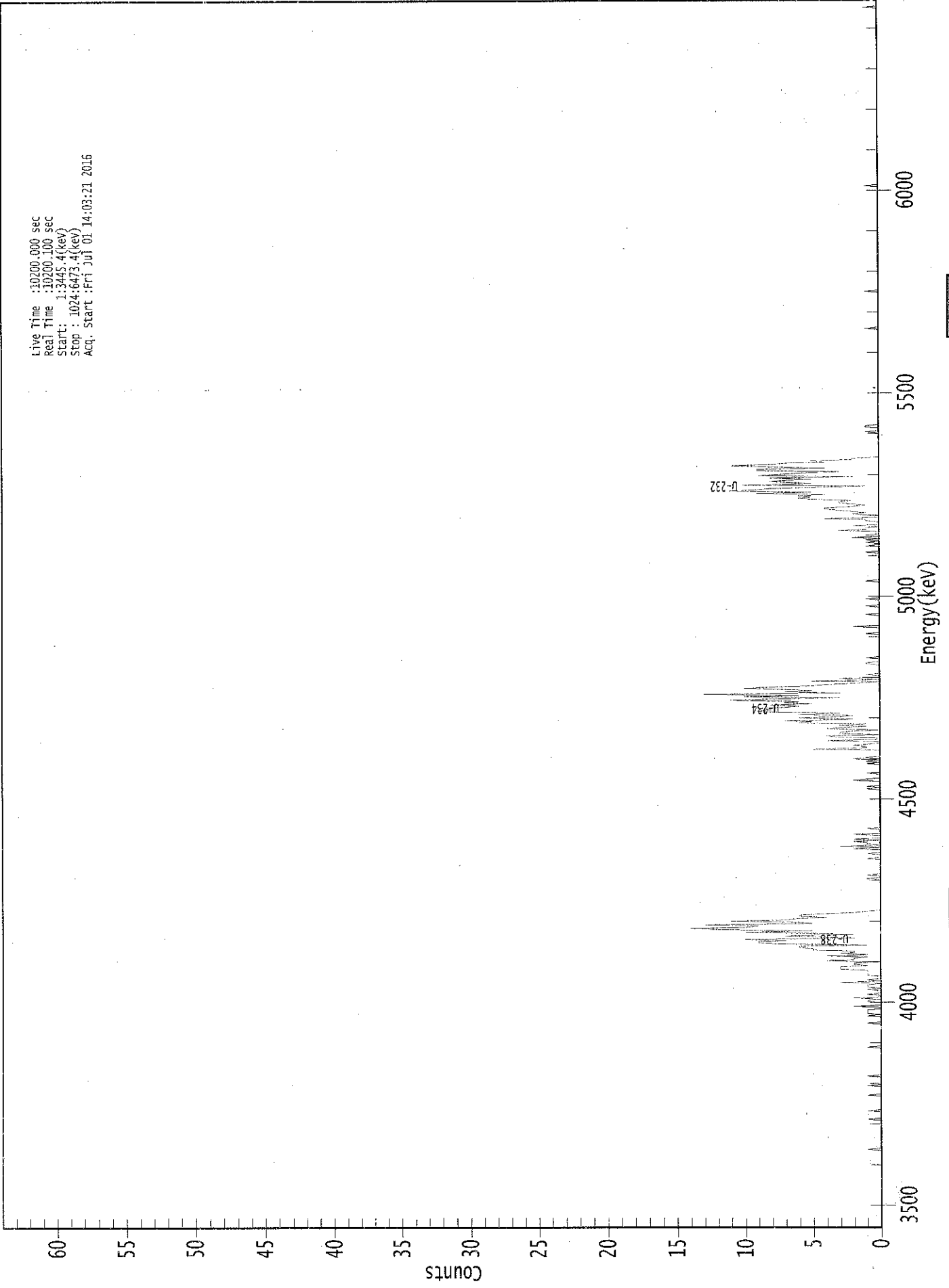
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	3.63E+000 +/- 4.69E-001	8.28E-002 +/- 1.07E-002
U-234	0.992	4761.50*	3.72E+000 +/- 6.55E-001	5.76E-002 +/- 7.44E-003
U-235	1.000	4385.50*	3.06E-001 +/- 1.51E-001	1.02E-001 +/- 1.32E-002
U-238	0.995	4184.40*	3.68E+000 +/- 6.50E-001	8.23E-002 +/- 1.06E-002

AG
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0000156063.CNF

Live Time :10200.000 sec
Real Time :10200.100 sec
Start : 1:3445.4(kev)
Stop : 1024:6473.4(kev)
Acq. Start :Fri Jul 01 14:03:21 2016



ROI Type: 1

ROI Type: 3

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 12

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	1	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	1	0	0	0	0	0
97:	0	1	0	0	0	0	0	0
105:	0	0	0	0	0	0	1	0
113:	0	0	0	0	0	0	1	0
121:	0	0	0	0	0	0	1	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	1	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	1	0	0	0	0	0
177:	1	0	1	1	1	1	0	0
185:	2	0	0	0	1	1	0	2
193:	0	0	1	0	0	0	1	0
201:	1	1	1	0	3	0	1	0
209:	0	0	1	1	1	1	1	3
217:	3	3	1	2	2	0	4	2
225:	2	1	4	1	3	2	2	5
233:	5	6	6	1	7	9	9	7
241:	10	2	5	7	2	5	10	5
249:	11	14	10	9	13	5	6	11
257:	7	6	4	6	6	4	2	1
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	1	0	0	1	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	1	0	0	0	1
313:	0	0	0	2	0	3	0	1
321:	1	2	0	2	0	0	0	2
329:	0	0	0	0	1	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	1	0	1

369: 0 0 0 0 2 1 0 0

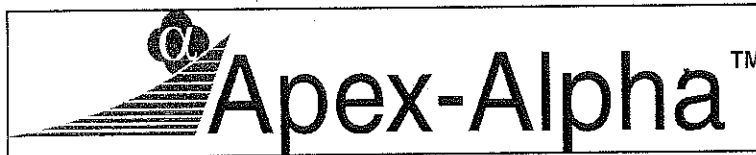
Sample Title: 12

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	1	0	0	0	0	0
385:	0	0	1	0	1	0	2	1
393:	0	0	0	0	0	0	5	1
401:	1	2	1	0	0	4	0	0
409:	3	4	0	3	3	2	0	4
417:	3	1	3	1	6	5	7	2
425:	6	3	2	6	3	8	9	8
433:	9	7	6	8	5	7	6	11
441:	8	3	10	6	13	3	7	5
449:	7	10	8	5	4	2	0	5
457:	0	3	0	0	1	0	0	0
465:	0	0	0	0	0	1	1	0
473:	0	0	1	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	1	0
497:	0	0	0	0	2	0	0	0
505:	0	0	0	0	0	0	1	0
513:	0	0	0	0	0	1	0	0
521:	0	0	0	1	0	0	0	0
529:	0	0	0	0	0	0	0	0
537:	0	0	1	0	0	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	1	0	0	0	0	1
569:	0	0	1	0	1	0	2	0
577:	1	0	0	0	3	1	1	0
585:	2	0	0	0	1	1	4	0
593:	0	1	2	1	2	3	4	4
601:	2	1	2	3	3	2	5	6
609:	5	6	4	9	5	11	9	8
617:	5	1	10	5	6	8	7	5
625:	8	2	9	7	6	3	9	9
633:	4	8	11	8	7	4	5	2
641:	2	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	1	0
665:	0	0	1	1	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	1	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	1	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 12

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	1	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	1	0	0	0	0	0	0	0



QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 7/1/2016

Time : 6:47:28 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 001	21f	ALL	Not Done	
Alpha 002	21f	ALL	Not Done	
Alpha 003	21f	ALL	Passed	7/1/2016 4:59:14 AM
Alpha 004	21f	ALL	Passed	7/1/2016 4:59:15 AM
Alpha 005	21f	ALL	Not Done	
Alpha 006	21f	ALL	Not Done	
Alpha 007	21f	ALL	Not Done	
Alpha 008	21f	ALL	Not Done	
Alpha 009	21f	ALL	Not Done	
Alpha 010	21f	ALL	Passed	7/1/2016 4:59:16 AM
Alpha 011	21f	ALL	Passed	7/1/2016 4:59:16 AM
Alpha 012	21f	ALL	Passed	7/1/2016 4:59:17 AM
Alpha 013	21f	ALL	Not Done	
Alpha 014	21f	ALL	Passed	7/1/2016 4:59:18 AM
Alpha 015	21f	Peak Energy <i>OK</i>	Action	7/1/2016 4:59:19 AM
Alpha 016	21f	ALL	Not Done	
Alpha 033	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:20 AM
Alpha 034	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:22 AM
Alpha 035	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:23 AM
Alpha 036	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:25 AM
Alpha 037	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:27 AM
Alpha 038	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:28 AM
Alpha 039	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:30 AM
Alpha 040	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:31 AM
Alpha 041	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:33 AM
Alpha 042	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:35 AM
Alpha 043	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:36 AM
Alpha 044	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:38 AM
Alpha 045	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:40 AM
Alpha 046	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:42 AM
Alpha 047	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:43 AM
Alpha 048	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:45 AM
Alpha 049	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:47 AM
Alpha 050	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:48 AM
Alpha 051	Alpha Analyst100DC	ALL	Not Done	
Alpha 052	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:50 AM
Alpha 053	Alpha Analyst100DC	Peak FWHM <i>OK</i>	Action	7/1/2016 4:59:52 AM
Alpha 054	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:54 AM
Alpha 055	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:56 AM
Alpha 056	Alpha Analyst100DC	ALL	Passed	7/1/2016 4:59:58 AM
Alpha 057	Alpha Analyst100DC	ALL	Passed	7/1/2016 5:00:00 AM
Alpha 058	Alpha Analyst100DC	ALL	Passed	7/1/2016 5:00:02 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 059	Alpha Analyst100DC	ALL	Passed	7/1/2016 5:00:04 AM
Alpha 060	Alpha Analyst100DC	ALL	Passed	7/1/2016 5:00:06 AM

APPROVED BY: *C*

APPROVAL DATE: *7/1/16*

***** LIBRARY LISTING REPORT *****

Nuclide Library Title: Uranium

Nuclide Library Description: U-232, -234, -235, -238

Nuclide Name	Half-Life (Seconds)	Energy (keV)	Energy Uncert. (keV)	Yield (%)	Yield Uncert. (Abs.+ -)
U-232	2.174E+009	5302.500*	0.000	99.8000	0.0000
U-234	7.731E+012	4761.500*	0.000	99.8000	0.0000
U-235	2.221E+016	4385.500*	0.000	80.9000	0.0000
U-238	1.410E+017	4184.400*	0.000	100.2300	0.0000

* = key line

TOTALS: 4 Nuclides 4 Energy Lines

SECTION IX
ANALYTICAL DATA (ISOTOPIC THORIUM)

Work Order	16-06067
Analysis Code	ThISO
Run	1
Date Received	6/14/2016
Lab Deadline	7/6/2016
Client	Auxier & Associates, Inc.
Project	PAP-KAN
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EML Th-01 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	Th-229
Radiometric Sol#	Th-18a
Tracer Act (dpm/g)	22.46
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		06/14/16 00:00	1.0000E+00
02	MBL	BLANK		06/14/16 00:00	1.5000E+00
03	DUP	CP-5030 05-10 QC	37	06/06/16 00:00	1.5064E+00
04	DO	CP-5030 05-10 QC	37	06/06/16 00:00	1.5363E+00
05	TRG	CP-5031 00-02 QC	38	06/02/16 00:00	1.5068E+00
06	TRG	CP-5023 02-05 QC	30	06/02/16 00:00	1.5237E+00
07	TRG	CP-5010 00-02 QC	50	06/07/16 00:00	1.5157E+00
08	TRG	CP-5010 09-15 QC	39	06/07/16 00:00	1.5430E+00
09	TRG	CP-5012 09-15 QC	55	06/07/16 00:00	1.5293E+00
10	TRG	CP-5014 09-15 QC	49	06/07/16 00:00	1.5262E+00
11	TRG	CP-5017 00-02 QC	47	06/08/16 00:00	1.5675E+00
12	TRG	CP-5020 00-02 QC	41	06/09/16 00:00	1.5992E+00

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ^ Indicates estimated SAF value.
 ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.



Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (gO)	Radiometric % Rec	Gross Carrier Added (ml)	Gross Filter Tare (g)	Gross Filter Final (g)	Gross Filter Wet (g)	Gross % Rec	Mass % Rec	SAF 1*	SAF 2*
01	LCS	0.4513	10.1		0.00								
02	MBL	0.2243	5.0		0.00								
03	DUP	0.2239	5.0		0.00								
04	DO	0.2241	5.0		0.00								
05	TRG	0.2235	5.0		0.00								
06	TRG	0.2243	5.0		0.00								
07	TRG	0.2238	5.0		0.00								
08	TRG	0.2231	5.0		0.00								
09	TRG	0.2244	5.0		0.00								
10	TRG	0.2243	5.0		0.00								
11	TRG	0.2240	5.0		0.00								
12	TRG	0.2238	5.0		0.00								

* SAF 1 is used for Gross Alpha and all other radionuclides. SAF 2 is used for Gross Beta only. * Indicates estimated SAF value.
** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep 10 Date/Time	Sep 10 By	Sep 11 Date/Time	Sep 11 By
01	LCS			06/20/16 10:43	JPACHELLA	07/01/16 10:01	JDEMELAS		
02	MBL			06/20/16 10:43	JPACHELLA	07/01/16 10:01	JDEMELAS		
03	DUP			06/20/16 10:43	JPACHELLA	07/01/16 10:01	JDEMELAS		
04	DO	06/20/16 07:41	KSALLINGS	06/20/16 10:43	JPACHELLA	07/01/16 10:01	JDEMELAS		
05	TRG	06/20/16 07:41	KSALLINGS	06/20/16 10:43	JPACHELLA	07/01/16 10:01	JDEMELAS		
06	TRG	06/20/16 07:41	KSALLINGS	06/20/16 10:43	JPACHELLA	07/01/16 10:01	JDEMELAS		
07	TRG	06/20/16 07:41	KSALLINGS	06/20/16 10:43	JPACHELLA	07/01/16 10:01	JDEMELAS		
08	TRG	06/20/16 07:41	KSALLINGS	06/20/16 10:43	JPACHELLA	07/01/16 10:01	JDEMELAS		
09	TRG	06/20/16 07:41	KSALLINGS	06/20/16 10:43	JPACHELLA	07/01/16 10:01	JDEMELAS		
10	TRG	06/20/16 07:41	KSALLINGS	06/20/16 10:43	JPACHELLA	07/01/16 10:01	JDEMELAS		
11	TRG	06/20/16 07:41	KSALLINGS	06/20/16 10:43	JPACHELLA	07/01/16 10:01	JDEMELAS		
12	TRG	06/20/16 07:41	KSALLINGS	06/20/16 10:43	JPACHELLA	07/01/16 10:01	JDEMELAS		

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. * Indicates estimated SAF value.
 ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Client	Auxier & Associates, Inc.
Eberline Analytical Work Order	16-06067
Analysis Code	THISO
Run	1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-228	LCS	LCS	pCi/g	5.98E+00	1.09E+00	1.13E-01	5.10E+00	117.26	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	7.06E-02	5.26E-02	5.19E-02					OK	OK
03	TH-228	DUP	CP-5030 05-10 QC	pCi/g	1.20E+00	2.65E-01	6.27E-02				OK	OK	
04	TH-228	DO	CP-5030 05-10 QC	pCi/g	1.34E+00	3.17E-01	6.33E-02					OK	
05	TH-228	TRG	CP-5031 00-02 QC	pCi/g	3.40E-01	2.16E-01	1.75E-01					OK	
06	TH-228	TRG	CP-5023 02-05 QC	pCi/g	1.26E+00	3.17E-01	5.58E-02					OK	
07	TH-228	TRG	CP-5010 00-02 QC	pCi/g	1.16E+00	3.07E-01	8.99E-02					OK	
08	TH-228	TRG	CP-5010 09-15 QC	pCi/g	1.41E+00	3.36E-01	4.77E-02					OK	
09	TH-228	TRG	CP-5012 09-15 QC	pCi/g	1.25E+00	2.76E-01	3.84E-02					OK	
10	TH-228	TRG	CP-5014 09-15 QC	pCi/g	1.21E+00	2.88E-01	6.06E-02					OK	
11	TH-228	TRG	CP-5017 00-02 QC	pCi/g	9.48E-01	2.60E-01	8.67E-02					OK	
12	TH-228	TRG	CP-5020 00-02 QC	pCi/g	9.86E-01	2.59E-01	8.35E-02					OK	

Client	Auxier & Associates, Inc.
Eberline Analytical Work Order	16-06067
Analysis Code	THISO
Run	1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-230	LCS	LCS	pCi/g	6.08E+00	1.11E+00	8.35E-02	5.35E+00	113.57	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	6.35E-02	4.95E-02	4.89E-02					OK	OK
03	TH-230	DUP	CP-5030 05-10 QC	pCi/g	1.19E+00	2.61E-01	5.23E-02				OK	OK	
04	TH-230	DO	CP-5030 05-10 QC	pCi/g	1.31E+00	3.09E-01	4.90E-02					OK	
05	TH-230	TRG	CP-5031 00-02 QC	pCi/g	1.01E+00	4.17E-01	1.35E-01					OK	
06	TH-230	TRG	CP-5023 02-05 QC	pCi/g	1.19E+00	3.02E-01	6.49E-02					OK	
07	TH-230	TRG	CP-5010 00-02 QC	pCi/g	1.76E+00	4.19E-01	9.77E-02					OK	
08	TH-230	TRG	CP-5010 09-15 QC	pCi/g	1.27E+00	3.08E-01	6.90E-02					OK	
09	TH-230	TRG	CP-5012 09-15 QC	pCi/g	1.34E+00	2.89E-01	5.74E-02					OK	
10	TH-230	TRG	CP-5014 09-15 QC	pCi/g	1.25E+00	2.93E-01	5.36E-02					OK	
11	TH-230	TRG	CP-5017 00-02 QC	pCi/g	1.23E+00	3.10E-01	6.17E-02					OK	
12	TH-230	TRG	CP-5020 00-02 QC	pCi/g	3.47E+00	6.96E-01	6.25E-02					OK	

 Run	1
	THISO
	Analysis Code
Eberline Analytical Work Order	16-06067
Client	Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
01	TH-230	LCS	06/14/16 00:00	1.00E+00	71.17	0.00	0.00		7/1/2016 10:01	
02	TH-230	MBL	06/14/16 00:00	1.50E+00	119.29	0.00	0.00		7/1/2016 10:01	
03	TH-230	DUP	06/06/16 00:00	1.51E+00	128.03	0.00	0.00		7/1/2016 10:01	
04	TH-230	DO	06/06/16 00:00	1.54E+00	108.53	0.00	0.00		7/1/2016 10:01	
05	TH-230	TRG	06/02/16 00:00	1.51E+00	39.02	0.00	0.00		7/1/2016 10:01	
06	TH-230	TRG	06/02/16 00:00	1.52E+00	111.94	0.00	0.00		7/1/2016 10:01	
07	TH-230	TRG	06/07/16 00:00	1.52E+00	109.24	0.00	0.00		7/1/2016 10:01	
08	TH-230	TRG	06/07/16 00:00	1.54E+00	102.52	0.00	0.00		7/1/2016 10:01	
09	TH-230	TRG	06/07/16 00:00	1.53E+00	146.53	0.00	0.00		7/1/2016 10:01	
10	TH-230	TRG	06/07/16 00:00	1.53E+00	142.64	0.00	0.00		7/1/2016 10:01	
11	TH-230	TRG	06/08/16 00:00	1.57E+00	101.22	0.00	0.00		7/1/2016 10:01	
12	TH-230	TRG	06/09/16 00:00	1.60E+00	106.21	0.00	0.00		7/1/2016 10:01	

591001

	Client	Auxier & Associates, Inc.
	Eberline Analytical Work Order	16-06067
	Analysis Code	THISO
Run	1	

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-232	LCS	LCS	pCi/g	5.24E+00	9.83E-01	1.05E-01	5.10E+00	102.80	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	3.56E-02	4.68E-02	7.58E-02					OK	OK
03	TH-232	DUP	CP-5030 05-10 QC	pCi/g	9.05E-01	2.15E-01	5.93E-02				INV	OK	OK
04	TH-232	DO	CP-5030 05-10 QC	pCi/g	1.27E+00	3.01E-01	3.89E-02					OK	OK
05	TH-232	TRG	CP-5031 00-02 QC	pCi/g	2.09E-01	1.62E-01	1.54E-01					OK	OK
06	TH-232	TRG	CP-5023 02-05 QC	pCi/g	9.68E-01	2.59E-01	6.16E-02					OK	OK
07	TH-232	TRG	CP-5010 00-02 QC	pCi/g	1.02E+00	2.77E-01	6.16E-02					OK	OK
08	TH-232	TRG	CP-5010 09-15 QC	pCi/g	1.31E+00	3.15E-01	5.81E-02					OK	OK
09	TH-232	TRG	CP-5012 09-15 QC	pCi/g	1.27E+00	2.78E-01	4.40E-02					OK	OK
10	TH-232	TRG	CP-5014 09-15 QC	pCi/g	1.34E+00	3.08E-01	4.69E-02					OK	OK
11	TH-232	TRG	CP-5017 00-02 QC	pCi/g	8.31E-01	2.33E-01	4.29E-02					OK	OK
12	TH-232	TRG	CP-5020 00-02 QC	pCi/g	8.76E-01	2.35E-01	6.73E-02					OK	OK

Preliminary Data Report & Analytical Calculations
Work Order: 16-06067-THISO-1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-232	LCS	07/06/16 05:41		A_Spec	Alpha_044	170	2.62 E+02	3.00 E-03	18.6
02	TH-232	MBL	07/06/16 05:41		A_Spec	Alpha_045	170	4.11 E+00	1.70 E-02	17.1
03	TH-232	DUP	07/06/16 05:41		A_Spec	Alpha_046	170	1.19 E+02	1.20 E-02	18.1
04	TH-232	DO	07/06/16 05:41		A_Spec	Alpha_047	170	1.36 E+02	1.00 E-03	17
05	TH-232	TRG	07/06/16 05:41		A_Spec	Alpha_048	170	8.15 E+00	5.00 E-03	17.6
06	TH-232	TRG	07/06/16 05:41		A_Spec	Alpha_049	170	9.42 E+01	5.00 E-03	15.1
07	TH-232	TRG	07/06/16 05:41		A_Spec	Alpha_050	170	9.33 E+01	4.00 E-03	14.7
08	TH-232	TRG	07/06/16 05:42		A_Spec	Alpha_052	170	1.35 E+02	0.00 E+00	17.3
09	TH-232	TRG	07/06/16 05:42		A_Spec	Alpha_053	170	1.63 E+02	4.00 E-03	15.2
10	TH-232	TRG	07/06/16 05:42		A_Spec	Alpha_054	170	1.50 E+02	3.00 E-03	13.6
11	TH-232	TRG	07/06/16 05:42		A_Spec	Alpha_055	170	8.08 E+01	1.00 E-03	16.2
12	TH-232	TRG	07/06/16 05:42		A_Spec	Alpha_056	170	9.25 E+01	9.00 E-03	16.5

Client	Auxier & Associates, Inc.
Eberline Analytical Work Order	16-06067
Analysis Code	THISO
Run	1

09100

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	06/14/16 00:00	1.0000	0.4513	10.1362		0.00		
02	MBL	BLANK	06/14/16 00:00	1.5000	0.2243	5.0378		0.00		
03	DUP	CP-5030 05-10 QC	06/06/16 00:00	1.5064	0.2239	5.0288		0.00		
04	DO	CP-5030 05-10 QC	06/06/16 00:00	1.5363	0.2241	5.0333		0.00		
05	TRG	CP-5031 00-02 QC	06/02/16 00:00	1.5068	0.2235	5.0198		0.00		
06	TRG	CP-5023 02-05 QC	06/02/16 00:00	1.5237	0.2243	5.0378		0.00		
07	TRG	CP-5010 00-02 QC	06/07/16 00:00	1.5157	0.2238	5.0265		0.00		
08	TRG	CP-5010 09-15 QC	06/07/16 00:00	1.5430	0.2231	5.0108		0.00		
09	TRG	CP-5012 09-15 QC	06/07/16 00:00	1.5293	0.2244	5.0400		0.00		
10	TRG	CP-5014 09-15 QC	06/07/16 00:00	1.5262	0.2243	5.0378		0.00		
11	TRG	CP-5017 00-02 QC	06/08/16 00:00	1.5675	0.2240	5.0310		0.00		
12	TRG	CP-5020 00-02 QC	06/09/16 00:00	1.5992	0.2238	5.0265		0.00		

48

56

Internal Work Order		Run	Analysis Code		Date	Technician	Technician Initials	Witness Initials
16-06067		1	ThISO		6/20/2016 10:28	JPACHELLA	<i>[Signature]</i>	
LCS & Matrix Spikes								
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	LCS Volume Used (g)	MS Volume Used (g)	LCS Volume Used (g)	MSD Volume Used (g)
Th-228	Th-8b	103.560	6/20/2016	0.100	0.1093		5.10	0.00
Th-230	Th-1b	23.520	6/20/2016	0.500	0.5051		5.35	0.00
Th-232	Th-8b	103.560	6/20/2016	0.100	0.1093		5.10	0.00
TC-99MS	TC-2a	22043.536	7/5/2014	0.1				
Tracers								
fraction	isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition	Balance Printer Tapes	
01	Th-229	Th-18a	22.460	6/20/2016	0.4513	0.2200	Tracer 0.4513 g	
02	Th-229	Th-18a	22.460	6/20/2016	0.2243	0.2200	LCS 0.2243 g	
03	Th-229	Th-18a	22.460	6/20/2016	0.2239	0.2200	0.2239 g	
04	Th-229	Th-18a	22.460	6/20/2016	0.2241	0.2200	0.2241 g	
05	Th-229	Th-18a	22.460	6/20/2016	0.2235	0.2200	METTLER TOLEDO 0.2235 g	
06	Th-229	Th-18a	22.460	6/20/2016	0.2243	0.2200	0.2243 g	
07	Th-229	Th-18a	22.460	6/20/2016	0.2238	0.2200	0.2238 g	
08	Th-229	Th-18a	22.460	6/20/2016	0.2231	0.2200	0.2231 g	
09	Th-229	Th-18a	22.460	6/20/2016	0.2244	0.2200	0.2244 g	
10	Th-229	Th-18a	22.460	6/20/2016	0.2243	0.2200	0.2243 g	
11	Th-229	Th-18a	22.460	6/20/2016	0.2240	0.2200	0.2240 g	
12	Th-229	Th-18a	22.460	6/20/2016	0.2238	0.2200	0.2238 g	
							Matrix Spike	

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
16-06067	1	THISO	grams	7/5/2016	JPACHELLA

Lab Fraction	Auxier & Associates, Inc. Client ID	Sample Type	Muffle Data		Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of Dilis	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Aliq	
01	LCS	LCS						1.0000E+00	1.0000E+00				
02	BLANK	MBL						1.5000E+00	1.5000E+00				
03	CP-5030 05-10 QC	DUP						1.5064E+00	1.5064E+00				
04	CP-5030 05-10 QC	DO						1.5363E+00	1.5363E+00				
05	CP-5031 00-02 QC	TRG						1.5068E+00	1.5068E+00				
06	CP-5023 02-05 QC	TRG						1.5237E+00	1.5237E+00				
07	CP-5010 00-02 QC	TRG						1.5157E+00	1.5157E+00				
08	CP-5010 09-15 QC	TRG						1.5430E+00	1.5430E+00				
09	CP-5012 09-15 QC	TRG						1.5293E+00	1.5293E+00				
10	CP-5014 09-15 QC	TRG						1.5262E+00	1.5262E+00				
11	CP-5017 00-02 QC	TRG						1.5675E+00	1.5675E+00				
12	CP-5020 00-02 QC	TRG						1.5992E+00	1.5992E+00				

Comments

Technician: JPachella Date: 6/20/16

**Rough Sample Preparation
 Log Book**

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
16-06067	7/5/2016	6/19/2016	6/20/2016	6/21/2016	KSALLINGS

Eberline Fraction	Auxier & Associates, Inc. Client ID	Tare (g)		Gross (g)		Net (g)		Percent		Gamma		Special Info
		Pan Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	
04	CP-5030 05-10 QC	14.6100	387.2900	464.6200	372.6800	450.0100	372.6800	17.18%	82.82%	0.0000	0.0000	
05	CP-5031 00-02 QC	14.5900	809.6600	845.3400	795.0700	830.7500	795.0700	4.29%	95.71%	0.0000	0.0000	
06	CP-5023 02-05 QC	14.6000	552.2800	653.6900	537.6800	639.0900	537.6800	15.87%	84.13%	0.0000	0.0000	
07	CP-5010 00-02 QC	14.6100	568.1200	662.9500	553.5100	648.3400	553.5100	14.63%	85.37%	0.0000	0.0000	
08	CP-5010 09-15 QC	14.6200	427.4500	537.1200	412.8300	522.5000	412.8300	20.99%	79.01%	0.0000	0.0000	
09	CP-5012 09-15 QC	14.5900	317.4600	393.5600	302.8700	378.9700	302.8700	20.08%	79.92%	0.0000	0.0000	
10	CP-5014 09-15 QC	14.5800	443.3500	549.8300	428.7700	535.2500	428.7700	19.89%	80.11%	0.0000	0.0000	
11	CP-5017 00-02 QC	14.5700	699.1600	806.9400	684.5900	792.3700	684.5900	13.60%	86.40%	0.0000	0.0000	
12	CP-5020 00-02 QC	14.5400	763.4700	909.9000	748.9300	895.3600	748.9300	16.35%	83.65%	0.0000	0.0000	

Comments
Special Codes
H: Hot, O: Organic Hazard, P: PCB Hazard, R: Rush, T: Other (see comments)

Kerry Seeg



Fld

Sample Description: SPIKE
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001561
 Batch Identification: 1606067A-TH
 Sample Identification: 01
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_044
 Chamber Serial Number: 04026481B
 Detector Serial Number: 84168
 Env. Background: System Bkgd 158396
 Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
 Sample Date/Time: 7/6/2016 11:09:00 AM
 Acquisition Date/Time: 7/6/2016 5:41:44 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.451 mL
 Effective Efficiency: 0.1327 +/- 0.0097
 Counting Efficiency: 0.1864 +/- 0.0033 on 12/11/2015 8:21:07 AM
 Chem. Recovery Factor: 0.7117 +/- 0.0535

Control Certificate Name: NatTh_Th-8
 Chem. Recov. of Control: TH-232 1.027954 +/- 0.103105
 Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.877	32.49	34.70	0.51	0.00E+000	6.0
TH-228	5.377	299.32	11.34	0.68	0.00E+000	4.6
TH-229 T	4.882	228.66	12.97	0.34	0.00E+000	4.9
TH-230	4.640	303.83	11.25	0.17	0.00E+000	7.3
TH-232	3.970	262.49	12.11	0.51	0.00E+000	29.7

T = Tracer Peak used for Effective Efficiency

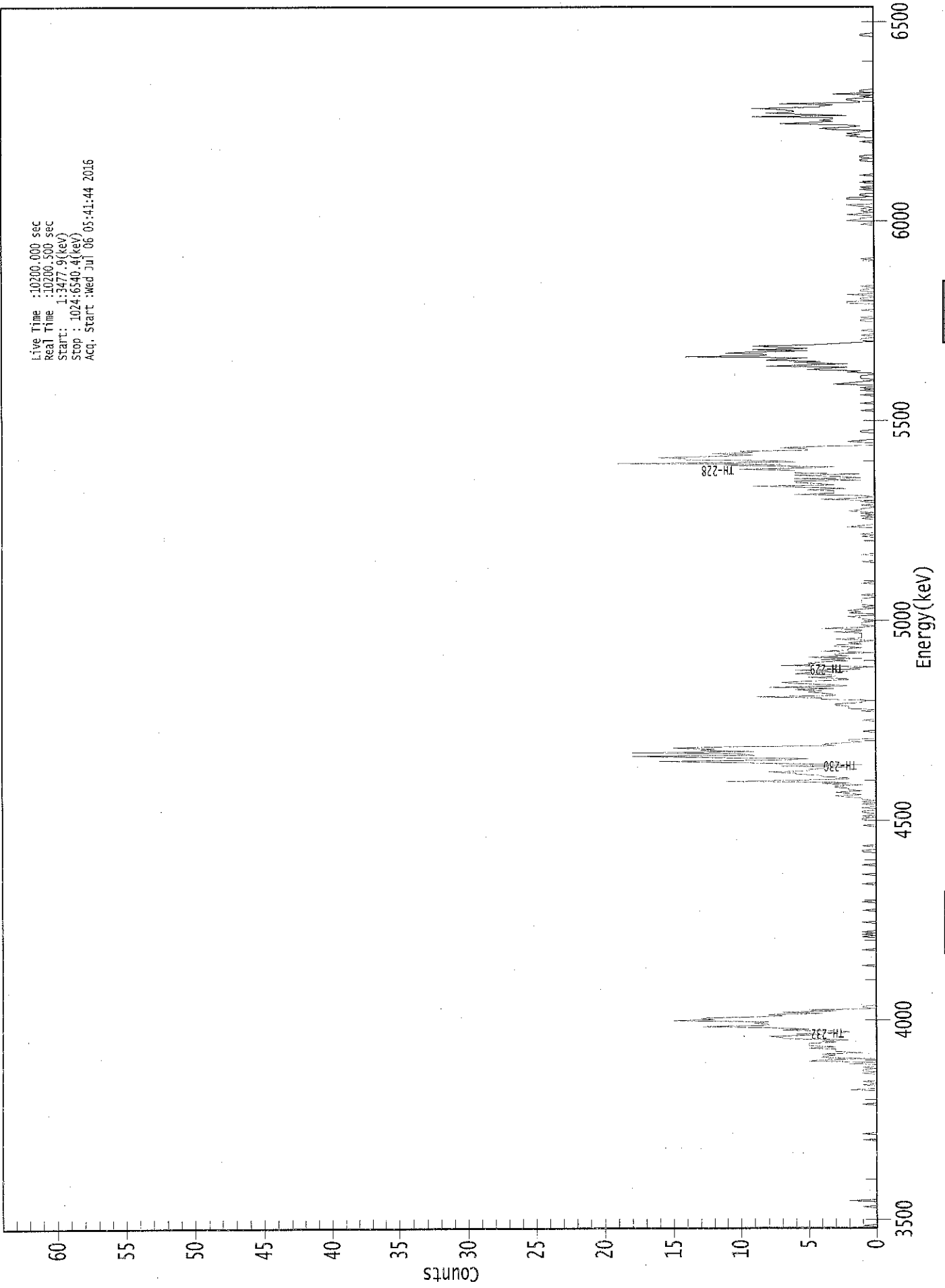
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.996	5850.00*	6.65E-001 +/- 2.50E-001	1.07E-001 +/- 1.54E-002
TH-228	0.997	5400.00*	5.98E+000 +/- 1.09E+000	1.13E-001 +/- 1.61E-002
TH-229	0.999	4872.00*	4.59E+000 +/- 6.57E-001	9.59E-002 +/- 1.37E-002
TH-230	0.995	4672.00*	6.08E+000 +/- 1.11E+000	8.35E-002 +/- 1.20E-002
TH-232	0.996	3997.00*	5.24E+000 +/- 9.83E-001	1.05E-001 +/- 1.50E-002

AG
7/6/16

0000156165.CNF

Live Time :10200.000 sec
Real Time :10200.500 sec
Start : 1:3477.9(kev)
Stop : 1024:6540.4(kev)
Acq. Start :Wed Jul 06 05:41:44 2016



ROI Type: 1

ROI Type: 3

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 01

Elapsed Live time: 10200

Elapsed Real Time: 10201

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	1	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	1	0	0	0	0	0	2
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0	0
73:	0	0	1	0	0	0	0	0	1
81:	0	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0	0
105:	1	0	0	0	0	0	0	0	0
113:	0	0	0	0	2	0	0	0	0
121:	1	0	0	1	0	0	0	0	0
129:	0	0	1	0	1	1	0	0	1
137:	0	0	2	0	5	4	0	0	4
145:	4	3	4	1	3	3	3	3	5
153:	3	5	5	5	3	4	2	7	7
161:	7	8	4	6	2	2	7	5	5
169:	8	13	8	8	9	8	15	12	12
177:	13	9	7	8	4	7	3	5	5
185:	0	1	1	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0	0
217:	0	0	0	0	1	0	0	0	0
225:	0	0	0	0	0	0	0	0	0
233:	0	1	0	0	0	0	0	0	0
241:	0	0	0	0	1	0	1	0	0
249:	1	0	0	0	0	0	0	0	0
257:	1	0	0	0	0	0	0	0	0
265:	0	0	1	0	0	0	0	0	0
273:	0	1	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	1	0	0	0	0	0	0	0	0
297:	1	0	0	0	0	0	0	0	0
305:	1	0	0	0	0	0	0	0	0
313:	0	0	0	1	1	0	0	0	0
321:	1	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0	0
337:	0	1	0	0	0	0	1	1	1
345:	0	1	0	0	1	1	0	0	0
353:	1	0	0	1	0	1	0	1	1
361:	1	2	3	1	2	3	1	2	2

369: 2 3 3 1 4 2 11 6

Sample Title: 01

Channel	1	2	3	4	5	6	7	8	9
377:	2	2	4	4	6	6	8	5	
385:	5	4	2	7	1	7	11	16	
393:	7	5	12	18	9	10	18	9	
401:	13	12	15	11	3	4	3	1	
409:	2	2	0	0	0	0	0	0	
417:	1	0	0	0	0	0	0	0	
425:	0	1	0	0	0	0	0	0	
433:	0	1	0	2	2	2	3	3	
441:	1	1	0	4	4	9	3	3	
449:	4	5	4	6	3	8	2	3	
457:	6	7	5	2	2	5	3	3	
465:	6	5	2	6	1	2	0	7	
473:	4	5	4	2	4	1	5	2	
481:	3	3	0	4	2	2	1	3	
489:	3	1	2	1	0	3	1	1	
497:	1	1	1	3	1	1	4	1	
505:	0	1	1	1	0	0	1	1	
513:	2	0	0	2	1	2	1	0	
521:	1	0	1	1	1	1	1	1	
529:	0	0	1	0	0	0	0	0	
537:	0	0	0	0	1	0	0	0	
545:	0	0	0	0	0	0	0	0	
553:	0	0	0	0	0	0	1	0	
561:	0	0	0	0	1	0	0	0	
569:	0	0	0	0	0	0	0	0	
577:	0	0	0	1	0	1	0	0	
585:	0	0	0	2	1	0	0	0	
593:	0	0	1	0	1	0	1	0	
601:	2	1	1	0	0	1	0	0	
609:	1	1	4	1	0	1	6	3	
617:	3	3	5	2	5	9	3	4	
625:	6	6	1	6	1	3	6	1	
633:	6	6	6	10	5	3	11	7	
641:	19	6	7	14	14	16	11	9	
649:	12	9	10	5	5	7	4	0	
657:	0	0	2	1	0	0	0	0	
665:	0	0	1	1	0	0	0	0	
673:	0	0	0	0	0	0	0	0	
681:	0	0	0	0	1	0	0	0	
689:	0	0	1	0	0	0	0	0	
697:	0	1	0	0	0	1	0	1	
705:	0	0	3	2	1	0	0	1	
713:	1	1	0	0	2	1	5	4	
721:	2	8	5	2	6	4	8	7	
729:	5	14	8	8	11	9	5	9	
737:	5	7	9	5	3	1	0	1	
745:	1	0	0	1	0	0	0	1	
753:	0	0	0	0	0	0	0	1	
761:	1	0	1	0	0	0	0	0	
769:	1	0	0	0	0	0	2	2	
777:	0	1	1	0	0	2	0	0	
785:	1	1	0	0	1	0	0	0	
793:	0	0	0	0	0	0	0	0	

801: 0 0 0 0 0 0 0 0

Sample Title: 01

Channel	1	2	3	4	5	6	7	8
809:	0	0	0	1	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	1	0	0	2	1	1	0	0
849:	2	1	0	1	0	1	0	1
857:	2	0	0	0	0	2	2	0
865:	1	1	0	0	0	1	0	1
873:	0	0	0	1	0	0	0	0
881:	0	1	0	0	0	0	0	0
889:	0	0	0	0	0	1	1	0
897:	1	1	0	0	0	0	0	0
905:	0	0	0	0	0	1	0	0
913:	0	1	2	1	2	1	0	3
921:	4	2	1	2	7	5	3	4
929:	3	3	9	2	5	8	6	6
937:	7	9	4	4	3	7	1	1
945:	2	2	0	1	0	3	0	1
953:	1	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	1	1
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



Apex-Alpha™

CHL

Sample Description: BLANK
 Spectrum File: \\OR-ALPHA1\Camberra\ApexAlpha\Root\Data\00001561
 Batch Identification: 1606067A-TH
 Sample Identification: 02
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_045
 Chamber Serial Number: 04026482A
 Detector Serial Number: 91131
 Env. Background: System Bkgd 158397
 Reagent Blank: <not performed>

Sample Size: 1.500E+000 +/- 0.000E+000 gram
 Sample Date/Time: 7/6/2016 11:09:00 AM
 Acquisition Date/Time: 7/6/2016 5:41:47 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S TH-18A
 Tracer Quantity: 0.224 mL
 Effective Efficiency: 0.2039 +/- 0.0167
 Counting Efficiency: 0.1710 +/- 0.0030 on 12/11/2015 8:21:05 AM
 Chem. Recovery Factor: 1.1929 +/- 0.0999

Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.831	7.96	79.20	2.04	0.00E+000	3.0
TH-228	5.395	8.15	72.72	0.85	0.00E+000	3.0
TH-229 T	4.894	174.66	14.85	0.34	0.00E+000	5.0
TH-230	4.616	7.32	76.28	0.68	0.00E+000	3.0
TH-232	3.983	4.11	130.52	2.89	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

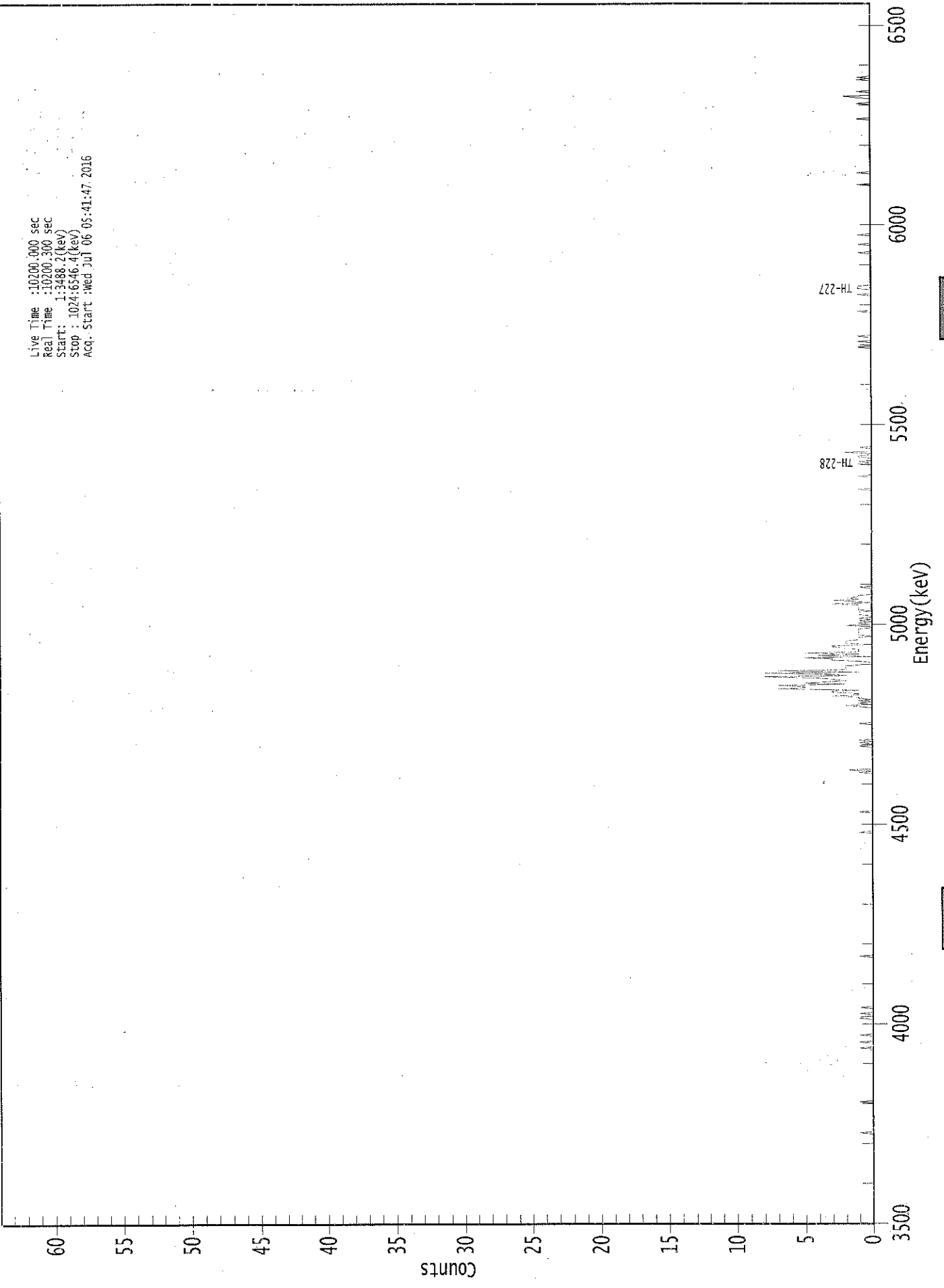
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	7.07E-002 +/- 5.71E-002	6.92E-002 +/- 1.11E-002
TH-228	1.000	5400.00*	7.06E-002 +/- 5.26E-002	5.19E-002 +/- 8.32E-003
TH-229	0.997	4872.00*	1.52E+000 +/- 2.44E-001	4.16E-002 +/- 6.68E-003
TH-230	0.984	4672.00*	6.35E-002 +/- 4.95E-002	4.89E-002 +/- 7.85E-003
TH-232	0.999	3997.00*	3.56E-002 +/- 4.68E-002	7.58E-002 +/- 1.22E-002

AG
7/6/16

0000156156.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:3488.2 (keV)
Stop : 1024:6546.4 (keV)
Acq. Start : Wed Jul 06 05:41:47 2016



ROI Type: 1

ROI Type: 3

07199

 ***** SPECTRAL DATA REPORT *****

Sample Title: 02

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	-----		-----		-----		-----	
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	1	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	1	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	1	0	0	0	0
153:	1	0	0	0	0	0	1	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	1	1	0	0
177:	1	0	0	0	0	1	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	1	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	1	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	1	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369: 0 0 0 0 0 0 0 0 0

Sample Title: 02

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	1	0	2	0	0	0
385:	0	0	0	0	0	0	0	0
393:	0	0	0	0	0	0	0	0
401:	1	0	0	1	0	1	0	0
409:	0	0	0	0	0	0	0	0
417:	0	0	0	1	0	0	0	0
425:	0	0	0	0	0	0	0	0
433:	0	1	2	0	1	0	1	0
441:	1	1	3	1	1	3	3	1
449:	7	5	5	7	2	5	3	2
457:	3	4	8	2	3	8	1	7
465:	2	2	2	2	1	0	0	1
473:	3	3	5	0	4	1	5	1
481:	1	1	2	3	3	0	2	2
489:	2	1	1	1	0	1	1	1
497:	1	1	1	0	0	2	0	1
505:	0	1	0	1	0	0	1	1
513:	1	0	1	1	1	1	1	3
521:	0	1	3	1	2	1	1	0
529:	0	0	0	0	0	1	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	0	0	1
617:	0	0	0	0	0	0	0	0
625:	0	0	1	0	0	0	0	0
633:	0	0	0	0	1	0	1	0
641:	0	0	1	1	0	0	2	0
649:	0	0	1	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	1	0
737:	0	0	0	1	0	0	0	1
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	1	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	1	0	0	0	0	1
785:	1	1	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 02

Channel								
809:	0	0	0	0	0	1	0	0
817:	0	0	0	0	1	0	0	0
825:	0	0	0	0	1	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	1	0
873:	0	0	0	0	0	0	0	0
881:	1	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	1	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	1	0	0	0	0	1
945:	2	0	0	0	1	0	0	0
953:	0	0	0	0	0	0	1	0
961:	1	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



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Sample Description: CP-5030 05-10 QC-DUP
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001561
 Batch Identification: 1606067A-TH
 Sample Identification: 03
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_046
 Chamber Serial Number: 04026482B
 Detector Serial Number: 58762
 Env. Background: System Bkgd 158398
 Reagent Blank: <not performed>

Sample Size: 1.506E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/6/2016 11:09:00 AM
 Acquisition Date/Time: 7/6/2016 5:41:50 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.224 mL
 Effective Efficiency: 0.2312 +/- 0.0180
 Counting Efficiency: 0.1806 +/- 0.0032 on 12/11/2015 8:21:03 AM
 Chem. Recovery Factor: 1.2803 +/- 0.1024

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.867	19.81	45.56	1.19	0.00E+000	3.0
TH-228	5.375	152.79	15.99	2.21	0.00E+000	17.3
TH-229 T	4.878	197.62	14.04	2.38	0.00E+000	15.6
TH-230	4.643	155.64	15.79	1.36	0.00E+000	7.7
TH-232	3.977	118.96	18.15	2.04	0.00E+000	11.0

T = Tracer Peak used for Effective Efficiency

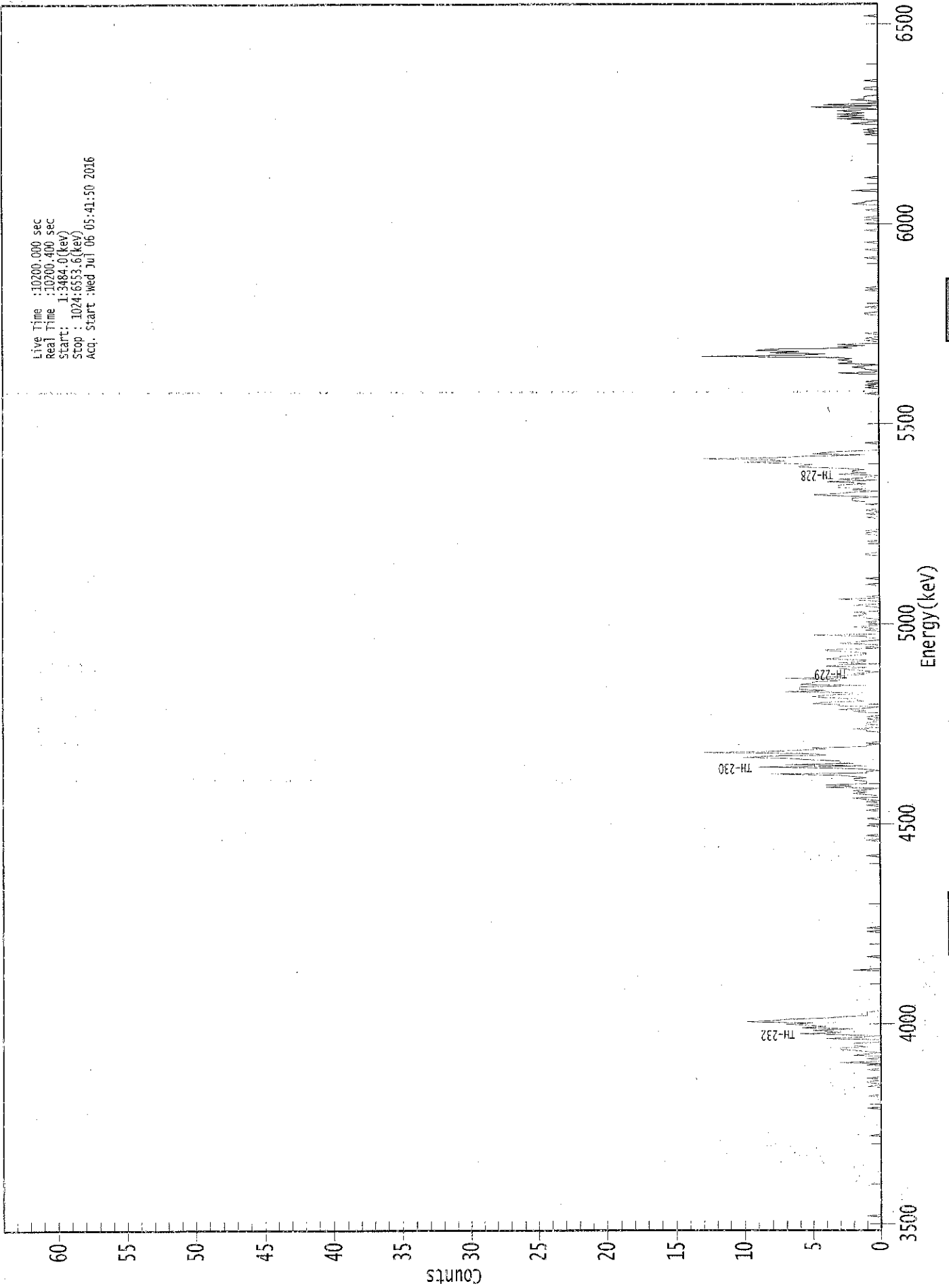
NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	1.55E-001 +/- 7.45E-002	5.15E-002 +/- 7.89E-003
TH-228	0.997	5400.00*	1.20E+000 +/- 2.65E-001	6.27E-002 +/- 9.59E-003
TH-229	1.000	4872.00*	1.51E+000 +/- 2.31E-001	6.27E-002 +/- 9.59E-003
TH-230	0.996	4672.00*	1.19E+000 +/- 2.61E-001	5.23E-002 +/- 8.00E-003
TH-232	0.998	3997.00*	9.05E-001 +/- 2.15E-001	5.93E-002 +/- 9.07E-003

AG
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0000156157.CNF

Live Time : 10200.000 sec
Real Time : 10200.400 sec
Start : 1:3484.0(kev)
Stop : 1024:6553.6(kev)
Acq. Start : Wed Jul 06 05:41:50 2016



ROI Type: 3

ROI Type: 1

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 03

Elapsed Live time: 10200
 Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	1	0	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0	1
81:	0	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	1	0
105:	0	0	0	0	0	0	0	0	0
113:	1	0	0	0	0	0	0	0	0
121:	1	0	0	1	1	0	0	0	1
129:	0	0	0	0	0	0	0	1	0
137:	0	0	1	0	3	0	0	0	1
145:	0	0	2	1	0	1	2	3	3
153:	3	1	2	2	2	0	0	0	0
161:	4	2	0	2	6	3	4	5	5
169:	2	6	4	5	7	5	10	8	8
177:	7	4	3	1	1	1	1	0	0
185:	0	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0	0
217:	0	2	0	0	0	0	0	0	0
225:	0	0	0	0	1	0	0	0	0
233:	0	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0	0
249:	0	1	0	0	1	0	0	0	0
257:	0	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0	0
313:	1	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	1	0	0	0
329:	0	1	0	0	0	0	0	0	0
337:	0	1	0	0	0	0	0	0	1
345:	0	0	0	0	0	0	1	0	0
353:	0	0	1	0	0	1	0	0	1
361:	2	0	0	1	2	1	2	1	1

369: 0 4 2 4 1 1 1 2

Sample Title: 03

Channel	1	2	3	4	5	6	7	8
377:	2	1	2	3	8	1	1	0
385:	1	3	9	1	7	2	3	3
393:	5	7	10	8	4	5	13	8
401:	6	4	5	1	1	0	1	0
409:	0	0	0	0	0	0	0	0
417:	1	1	2	0	0	0	1	1
425:	0	0	1	0	1	0	0	0
433:	2	1	3	1	0	3	3	5
441:	4	1	2	2	4	5	4	2
449:	2	7	4	6	6	6	1	6
457:	5	5	3	3	7	3	3	1
465:	2	0	1	2	3	1	4	3
473:	1	3	1	1	4	3	3	2
481:	1	1	2	4	4	0	1	0
489:	0	3	2	1	0	0	1	1
497:	5	0	0	0	1	0	1	2
505:	0	0	0	1	0	0	1	1
513:	2	1	1	2	0	0	0	0
521:	1	2	0	0	0	1	3	0
529:	1	0	0	0	0	0	0	0
537:	0	0	1	0	0	0	0	1
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	1	1	0	0	0
569:	0	0	0	0	0	0	1	0
577:	0	0	0	0	1	1	0	1
585:	0	0	0	0	0	0	0	0
593:	0	0	1	0	0	1	0	0
601:	1	0	0	0	0	1	1	1
609:	2	2	2	0	3	5	3	2
617:	0	2	1	3	3	3	1	2
625:	4	0	3	1	1	0	3	1
633:	2	2	1	3	6	6	5	7
641:	10	7	8	13	7	6	1	5
649:	4	3	0	0	0	0	0	0
657:	1	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	1	0	0	0	0	1	0
705:	1	0	0	1	0	0	0	0
713:	0	0	3	0	0	1	1	2
721:	1	0	3	2	2	3	2	3
729:	13	6	4	8	6	9	8	2
737:	3	1	3	0	0	1	0	1
745:	0	0	0	1	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	1	1	0	0	0
769:	0	1	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	1
785:	0	1	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 03

Channel								
809:	0	0	1	0	0	0	0	0
817:	0	1	0	0	0	0	0	1
825:	0	0	0	0	0	0	0	0
833:	0	1	0	0	0	0	0	1
841:	0	0	1	0	1	0	0	0
849:	0	0	1	0	0	0	0	2
857:	1	1	0	0	0	0	0	0
865:	0	0	2	0	0	0	0	0
873:	0	0	0	0	0	1	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	1	0	1	0	1	0	0
921:	0	0	2	1	0	0	3	1
929:	3	1	3	1	2	3	0	1
937:	5	0	4	1	0	0	2	1
945:	1	1	0	0	0	0	0	1
953:	1	0	0	0	0	0	1	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	1	0	0	0
1017:	0	0	0	0	0	0	0	0



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Sample Description: CP-5030 05-10 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001561
 Batch Identification: 1606067A-TH
 Sample Identification: 04
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_047
 Chamber Serial Number: 02030596A
 Detector Serial Number: 91086
 Env. Background: System Bkgd 158399
 Reagent Blank: <not performed>

Sample Size: 1.536E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/6/2016 11:09:00 AM
 Acquisition Date/Time: 7/6/2016 5:41:53 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.224 mL
 Effective Efficiency: 0.1850 +/- 0.0158
 Counting Efficiency: 0.1705 +/- 0.0030 on 12/11/2015 8:21:02 AM
 Chem. Recovery Factor: 1.0853 +/- 0.0947

Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.867	30.00	36.38	0.00	0.00E+000	5.9
TH-228	5.380	139.81	16.66	1.19	0.00E+000	6.4
TH-229 T	4.871	158.32	15.62	0.68	0.00E+000	4.0
TH-230	4.636	140.49	16.57	0.51	0.00E+000	7.0
TH-232	3.957	135.83	16.83	0.17	0.00E+000	3.6

T = Tracer Peak used for Effective Efficiency

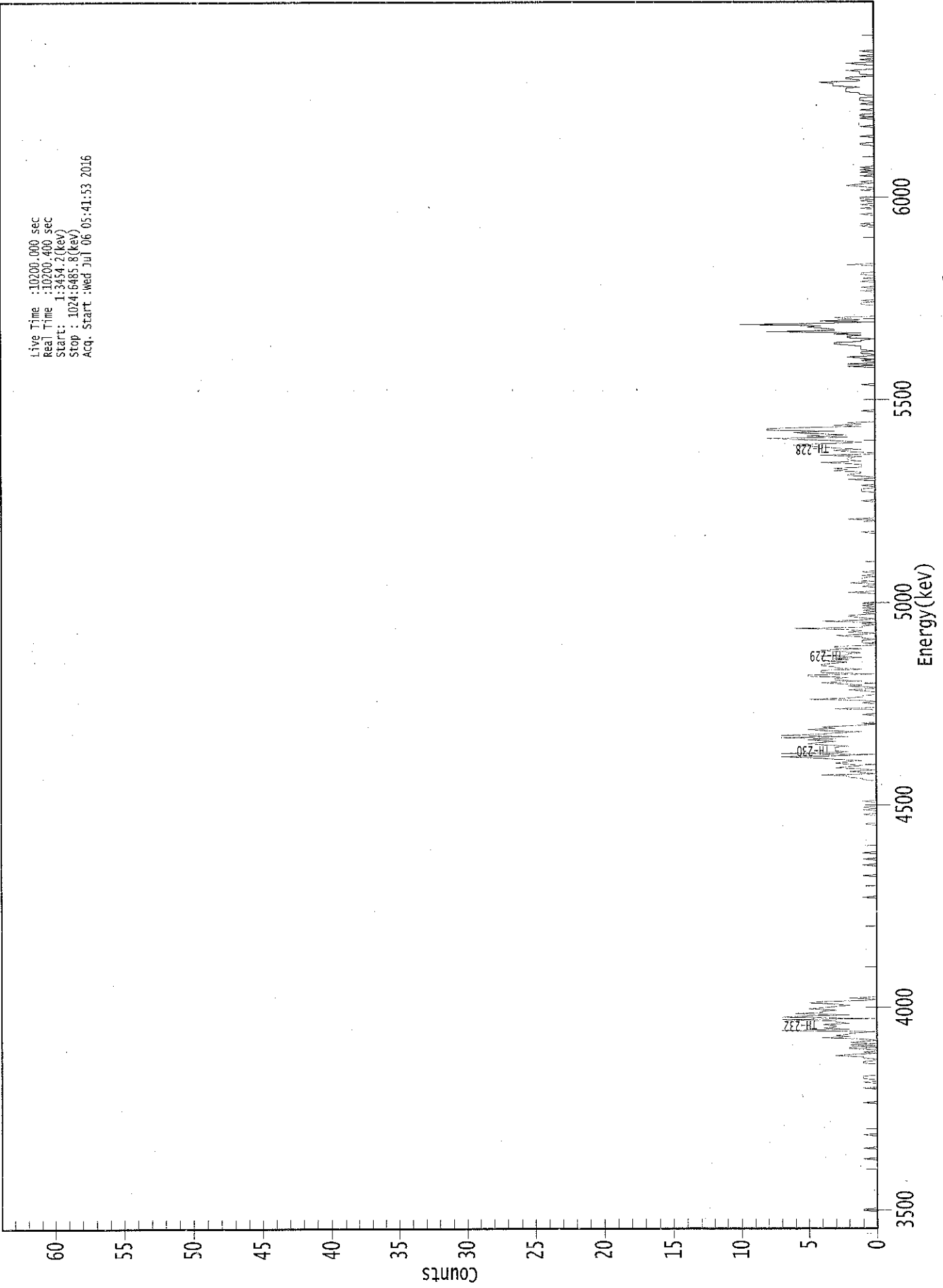
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	2.88E-001 +/- 1.15E-001	5.75E-002 +/- 9.63E-003
TH-228	0.998	5400.00*	1.34E+000 +/- 3.17E-001	6.33E-002 +/- 1.06E-002
TH-229	1.000	4872.00*	1.48E+000 +/- 2.48E-001	5.28E-002 +/- 8.85E-003
TH-230	0.993	4672.00*	1.31E+000 +/- 3.09E-001	4.90E-002 +/- 8.21E-003
TH-232	0.992	3997.00*	1.27E+000 +/- 3.01E-001	3.89E-002 +/- 6.52E-003

*K_a
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0000156166.CNF

Live Time :10200.000 sec
Real Time :10200.400 sec
Start : 1:34:42.2(keV)
Stop : 1024:6485.8(keV)
Acq. Start :Wed Jul 06 05:41:53 2016



ROI Type: 1

ROI Type: 3

369: 0 0 0 0 0 0 1 1

Sample Title: 04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	2	2	4	0	1	2	0	1
385:	3	2	1	2	3	2	1	3
393:	4	7	3	0	7	2	3	3
401:	3	3	2	4	5	4	3	5
409:	3	7	2	7	4	3	1	4
417:	5	3	4	2	0	1	0	0
425:	0	0	0	0	1	0	0	0
433:	0	3	0	0	0	0	1	0
441:	1	5	2	1	1	0	0	0
449:	1	2	0	0	2	1	3	4
457:	1	3	3	2	5	5	0	4
465:	4	4	1	3	3	4	4	3
473:	2	4	2	3	1	4	2	2
481:	1	3	4	1	3	3	0	0
489:	1	1	1	0	1	1	3	1
497:	0	2	1	2	6	1	1	0
505:	1	0	4	1	0	1	2	2
513:	0	1	0	1	0	1	0	1
521:	0	1	0	0	0	0	0	0
529:	0	0	2	0	0	0	0	1
537:	0	0	2	0	1	1	1	0
545:	1	0	0	1	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	1	0	0	0
585:	0	0	0	0	0	0	0	2
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	1	0
609:	0	0	0	0	0	0	1	1
617:	1	0	0	1	0	0	0	0
625:	2	0	0	2	2	1	1	3
633:	2	3	1	1	1	2	4	1
641:	2	2	2	1	4	0	0	2
649:	3	1	3	4	6	6	2	1
657:	3	5	8	2	5	2	5	6
665:	3	8	8	6	1	3	1	2
673:	0	0	0	0	0	0	0	0
681:	0	1	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	1
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	2	0
721:	2	0	0	1	0	1	2	0
729:	0	1	1	0	1	1	1	1
737:	2	3	3	1	1	0	2	2
745:	1	3	1	8	3	3	4	5
753:	4	10	4	0	4	1	2	3
761:	0	0	0	0	0	0	0	0
769:	0	0	1	1	0	1	0	0
777:	0	0	0	0	0	1	0	0
785:	1	0	0	0	0	1	0	0
793:	0	0	0	1	1	0	0	0

801: 0 0 0 2 0 0 0 0

Sample Title: 04

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	1	0	1	0	0
841:	0	0	0	0	0	1	0	0
849:	0	0	1	0	0	1	0	0
857:	1	0	1	1	0	0	0	0
865:	0	1	0	0	1	2	1	0
873:	1	0	0	0	0	1	0	0
881:	1	0	1	0	1	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	1
905:	1	0	0	0	0	0	1	0
913:	0	0	0	0	0	0	1	0
921:	0	0	0	0	0	1	0	1
929:	1	0	0	0	1	0	0	0
937:	0	1	0	0	1	1	1	0
945:	0	1	1	2	2	2	2	1
953:	3	3	3	4	1	1	2	2
961:	0	0	1	1	1	2	0	0
969:	0	0	1	2	0	0	1	0
977:	0	1	0	0	0	1	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



✓
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Sample Description: CP-5031 00-02 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001561
 Batch Identification: 1606067A-TH
 Sample Identification: 05
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_048
 Chamber Serial Number: 02030596B
 Detector Serial Number: 83111
 Env. Background: System Bkgd 158400
 Reagent Blank: <not performed>

Sample Size: 1.507E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/2/2016 11:09:00 AM
 Acquisition Date/Time: 7/6/2016 5:41:55 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.223 mL
 Effective Efficiency: 0.0685 +/- 0.0093
 Counting Efficiency: 0.1756 +/- 0.0031 on 12/11/2015 8:21:00 AM
 Chem. Recovery Factor: 0.3902 +/- 0.0531

Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.885	6.32	82.73	0.68	0.00E+000	3.0
TH-228	5.391	12.81	57.66	1.19	0.00E+000	3.0
TH-229 T	4.893	58.49	25.76	0.51	0.00E+000	4.0
TH-230	4.651	39.49	31.42	0.51	0.00E+000	4.5
TH-232	3.989	8.15	72.72	0.85	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

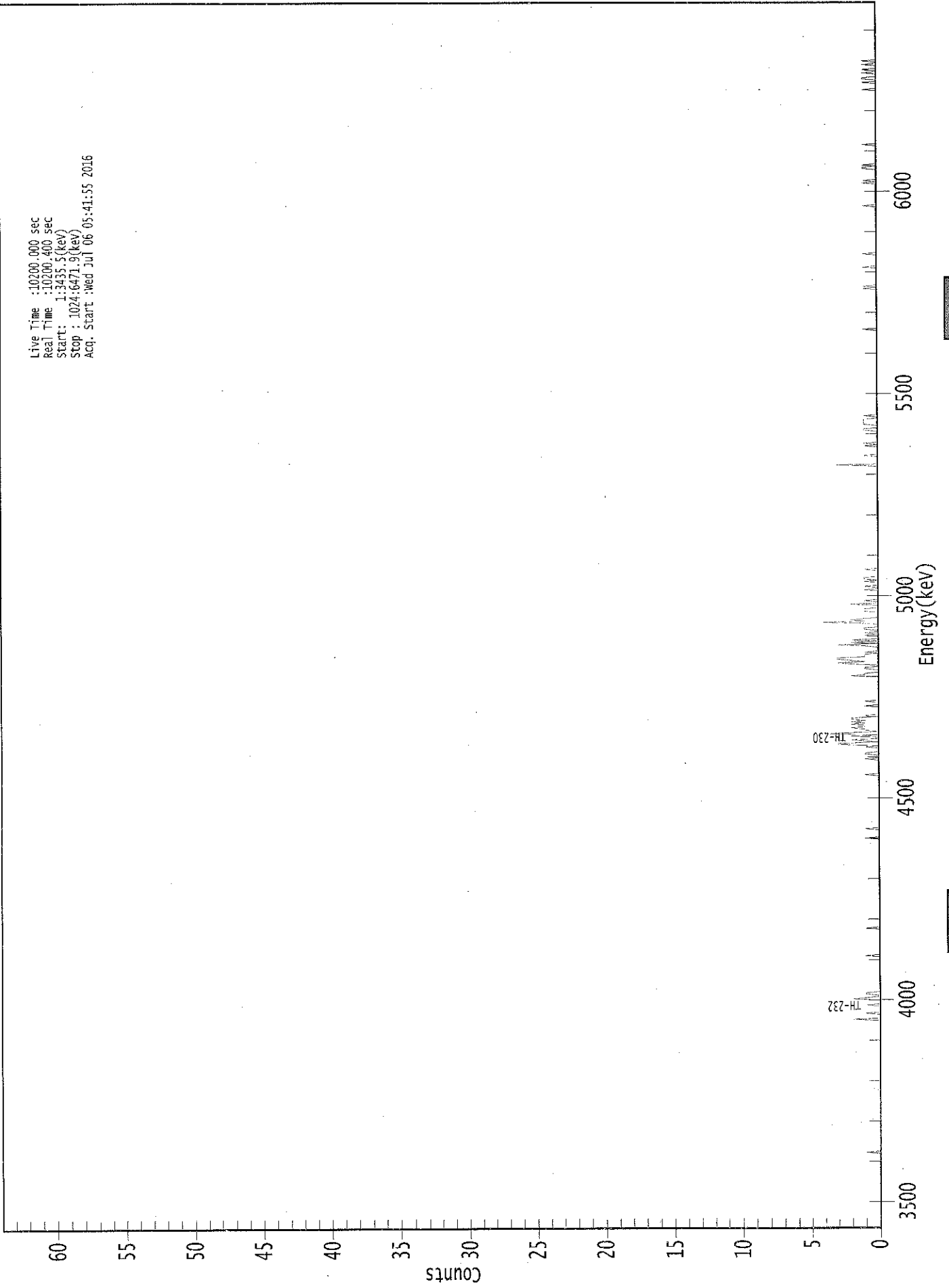
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.994	5850.00*	1.67E-001 +/- 1.45E-001	1.49E-001 +/- 3.94E-002
TH-228	1.000	5400.00*	3.40E-001 +/- 2.16E-001	1.75E-001 +/- 4.63E-002
TH-229	0.998	4872.00*	1.51E+000 +/- 3.99E-001	1.35E-001 +/- 3.58E-002
TH-230	0.998	4672.00*	1.01E+000 +/- 4.17E-001	1.35E-001 +/- 3.57E-002
TH-232	1.000	3997.00*	2.09E-001 +/- 1.62E-001	1.54E-001 +/- 4.07E-002

AG
7/6/16

0000156167.CNF

Live Time :10200.000 sec
Real Time :10200.400 sec
Start : 1:34:35.5(kev)
Stop : 1024:6471.9(kev)
Acq. Start :Wed Jul 06 05:41:55 2016



ROI Type: 1

ROI Type: 3

```

*****
***** S P E C T R A L D A T A R E P O R T *****
*****

```

Sample Title: 05

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel									
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	1
65:	0	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	2	0
177:	0	0	0	1	0	0	0	0	0
185:	0	0	1	0	0	0	0	0	2
193:	1	0	0	1	1	0	0	0	0
201:	0	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0	0
225:	0	0	0	1	0	0	0	0	0
233:	0	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0	0
249:	0	0	1	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	1	0	0	0
329:	0	0	0	0	0	1	0	0	0
337:	0	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0	0

369: 0 0 0 0 0 0 0 0

Sample Title: 05

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	1	0	0	0	0	0
385:	0	0	0	0	0	0	0	1
393:	0	0	0	1	1	0	0	0
401:	0	1	0	3	3	0	1	2
409:	0	0	2	0	4	2	0	1
417:	1	2	1	1	2	1	2	1
425:	2	2	0	1	0	0	0	0
433:	0	0	0	1	0	0	0	1
441:	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	2	1	1	0
465:	0	0	1	1	0	0	2	3
473:	1	2	3	3	1	1	1	0
481:	1	0	0	0	0	1	3	0
489:	2	0	2	0	0	0	1	0
497:	1	0	0	1	1	0	0	0
505:	1	4	1	2	1	0	0	0
513:	0	0	1	1	1	0	0	0
521:	2	0	0	1	0	0	0	0
529:	0	0	0	0	1	0	0	1
537:	0	0	0	1	0	1	1	0
545:	0	0	0	0	0	1	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	3	0	0	0
641:	0	0	0	0	1	0	0	0
649:	0	0	0	0	1	0	1	0
657:	0	0	0	0	0	0	0	0
665:	0	1	1	0	0	0	1	1
673:	1	1	1	0	0	1	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	1	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	1
785:	0	1	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 1 0 0 0 0 0 0

Sample Title: 05

Channel	1	2	3	4	5	6	7	8
809:	0	0	0	0	1	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	1	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	1
873:	0	1	0	0	0	0	0	0
881:	0	0	0	1	1	0	1	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	1
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	1	0	0
953:	0	0	0	1	0	0	1	1
961:	0	0	0	1	0	0	1	0
969:	0	0	1	0	0	1	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



716

Sample Description: CP-5023 02-05 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001561
 Batch Identification: 1606067A-TH
 Sample Identification: 06
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_049
 Chamber Serial Number: 10006121A
 Detector Serial Number: 49
 Env. Background: System Bkgd 158401
 Reagent Blank: <not performed>

Sample Size: 1.524E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/2/2016 11:09:00 AM
 Acquisition Date/Time: 7/6/2016 5:41:57 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S TH-18A
 Tracer Quantity: 0.224 mL
 Effective Efficiency: 0.1691 +/- 0.0151
 Counting Efficiency: 0.1510 +/- 0.0027 on 12/11/2015 11:36:41 AM
 Chem. Recovery Factor: 1.1194 +/- 0.1017

Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.835	20.49	43.93	0.51	0.00E+000	3.0
TH-228	5.386	118.49	18.05	0.51	0.00E+000	4.5
TH-229 T	4.888	144.81	16.37	1.19	0.00E+000	5.9
TH-230	4.648	115.98	18.29	1.02	0.00E+000	18.5
TH-232	3.978	94.15	20.31	0.85	0.00E+000	18.7

T = Tracer Peak used for Effective Efficiency

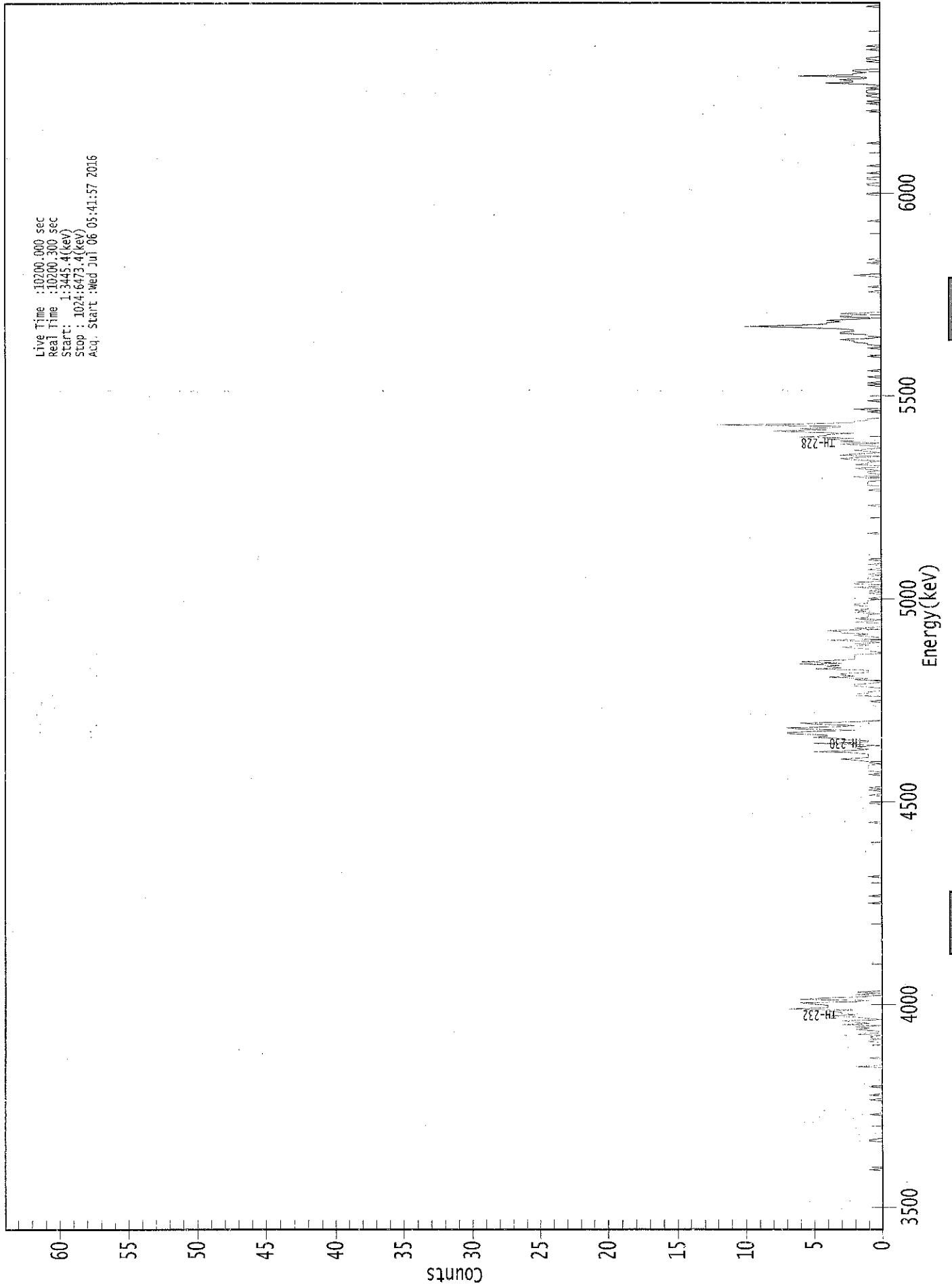
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	2.17E-001 +/- 1.02E-001	5.55E-002 +/- 9.69E-003
TH-228	0.999	5400.00*	1.26E+000 +/- 3.17E-001	5.58E-002 +/- 9.75E-003
TH-229	0.999	4872.00*	1.50E+000 +/- 2.61E-001	6.81E-002 +/- 1.19E-002
TH-230	0.997	4672.00*	1.19E+000 +/- 3.02E-001	6.49E-002 +/- 1.13E-002
TH-232	0.998	3997.00*	9.68E-001 +/- 2.59E-001	6.16E-002 +/- 1.07E-002

AG
7/6/16

0000156158.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:3445.4(kev)
Stop : 1024.6473.4(kev)
Acq. Start : Wed Jul 06 05:41:57 2016



ROI Type: 3

ROI Type: 1

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 06

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	0	1	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0	0
73:	0	0	1	1	0	0	0	0	0
81:	0	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0	0
97:	1	0	0	0	0	0	0	0	0
105:	0	0	0	0	1	0	0	0	0
113:	1	0	0	0	0	0	0	0	1
121:	0	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0	0
137:	2	0	0	0	0	0	0	0	1
145:	0	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	1	1	0	0
161:	1	1	0	2	0	0	1	2	0
169:	1	2	0	3	1	2	3	0	0
177:	1	2	4	2	3	3	4	2	0
185:	7	4	4	4	5	6	2	1	0
193:	6	4	2	0	2	0	2	0	0
201:	0	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0	0
273:	1	0	0	0	0	0	1	0	0
281:	0	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	1	0	0
297:	0	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0	0
337:	0	0	0	1	0	0	0	0	0
345:	0	0	0	0	0	0	0	0	0
353:	0	0	0	1	0	0	0	0	0
361:	0	0	1	0	0	0	1	0	0

369: 1 0 0 0 0 0 0 0

Sample Title: 06

Channel								
377:	0	0	0	1	0	0	1	1
385:	1	1	1	1	0	1	1	2
393:	3	1	1	1	1	2	5	2
401:	1	2	2	0	2	5	1	1
409:	3	3	5	4	4	7	7	5
417:	2	6	7	3	2	5	6	2
425:	0	0	0	0	0	0	0	0
433:	0	0	0	0	0	0	0	0
441:	1	0	0	0	0	2	2	1
449:	1	0	0	0	1	2	2	1
457:	0	0	2	1	4	2	3	3
465:	1	1	1	5	3	4	3	6
473:	3	6	4	2	2	2	2	2
481:	0	0	1	1	1	3	2	1
489:	2	0	1	4	0	0	1	2
497:	1	3	3	4	0	2	0	0
505:	0	0	2	1	0	2	1	1
513:	1	0	2	1	2	1	1	1
521:	2	2	1	1	1	0	1	0
529:	0	0	1	0	1	0	0	2
537:	0	0	2	2	0	0	1	1
545:	1	0	1	0	0	0	1	0
553:	0	0	1	0	0	0	1	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	1	0	0	0
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	1	0	0	0	0
609:	0	0	0	0	0	0	0	0
617:	1	0	0	0	1	1	1	1
625:	0	0	1	2	0	0	1	1
633:	0	1	2	0	0	2	1	1
641:	0	2	3	2	0	3	2	0
649:	1	2	1	0	0	1	3	0
657:	3	2	4	2	6	4	4	2
665:	6	8	4	6	3	3	12	5
673:	2	2	1	1	0	0	0	0
681:	0	1	0	2	0	0	0	0
689:	0	0	1	0	0	0	0	0
697:	0	0	0	0	0	0	0	1
705:	0	1	0	0	0	0	1	0
713:	0	0	0	1	0	0	0	0
721:	0	0	0	0	0	0	0	1
729:	0	0	0	0	0	0	1	0
737:	0	1	1	2	2	3	1	0
745:	1	1	3	3	2	2	3	6
753:	10	6	4	4	3	4	2	0
761:	3	3	1	3	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	1	0	0
785:	0	1	0	0	0	0	0	0
793:	0	0	1	2	0	0	0	0

801: 0 0 0 0 0 1 0 0

Sample Title: 06

Channel	1	2	3	4	5	6	7	8	9
809:	1	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0	0
841:	1	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	1	1
865:	0	0	0	0	0	0	0	1	1
873:	0	0	0	1	1	0	0	0	0
881:	1	0	0	0	0	0	0	1	0
889:	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0
905:	0	1	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	1	0	0	0
937:	0	0	1	0	1	0	0	0	0
945:	1	1	0	1	1	1	1	0	1
953:	0	0	1	4	2	2	2	3	1
961:	1	6	2	2	1	2	2	2	0
969:	0	0	0	0	0	0	1	0	1
977:	1	0	0	0	0	0	0	0	1
985:	0	0	1	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0
1017:	0	0	0	1	0	0	0	0	0

Apex-Alpha™

714

Sample Description: CP-5010 00-02 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001561
 Batch Identification: 1606067A-TH
 Sample Identification: 07
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_050
 Chamber Serial Number: 10006121B
 Detector Serial Number: 50
 Env. Background: System Bkgd 158402
 Reagent Blank: <not performed>

Sample Size: 1.516E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/7/2016 11:09:00 AM
 Acquisition Date/Time: 7/6/2016 5:41:59 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.224 mL
 Effective Efficiency: 0.1601 +/- 0.0147
 Counting Efficiency: 0.1465 +/- 0.0026 on 12/11/2015 11:36:39 AM
 Chem. Recovery Factor: 1.0924 +/- 0.1021

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.857	20.30	45.58	1.70	0.00E+000	3.0
TH-228	5.395	102.79	19.57	2.21	0.00E+000	6.9
TH-229 T	4.878	136.79	16.92	2.21	0.00E+000	5.3
TH-230	4.646	160.94	15.62	3.06	0.00E+000	13.6
TH-232	3.980	93.32	20.38	0.68	0.00E+000	6.9

T = Tracer Peak used for Effective Efficiency

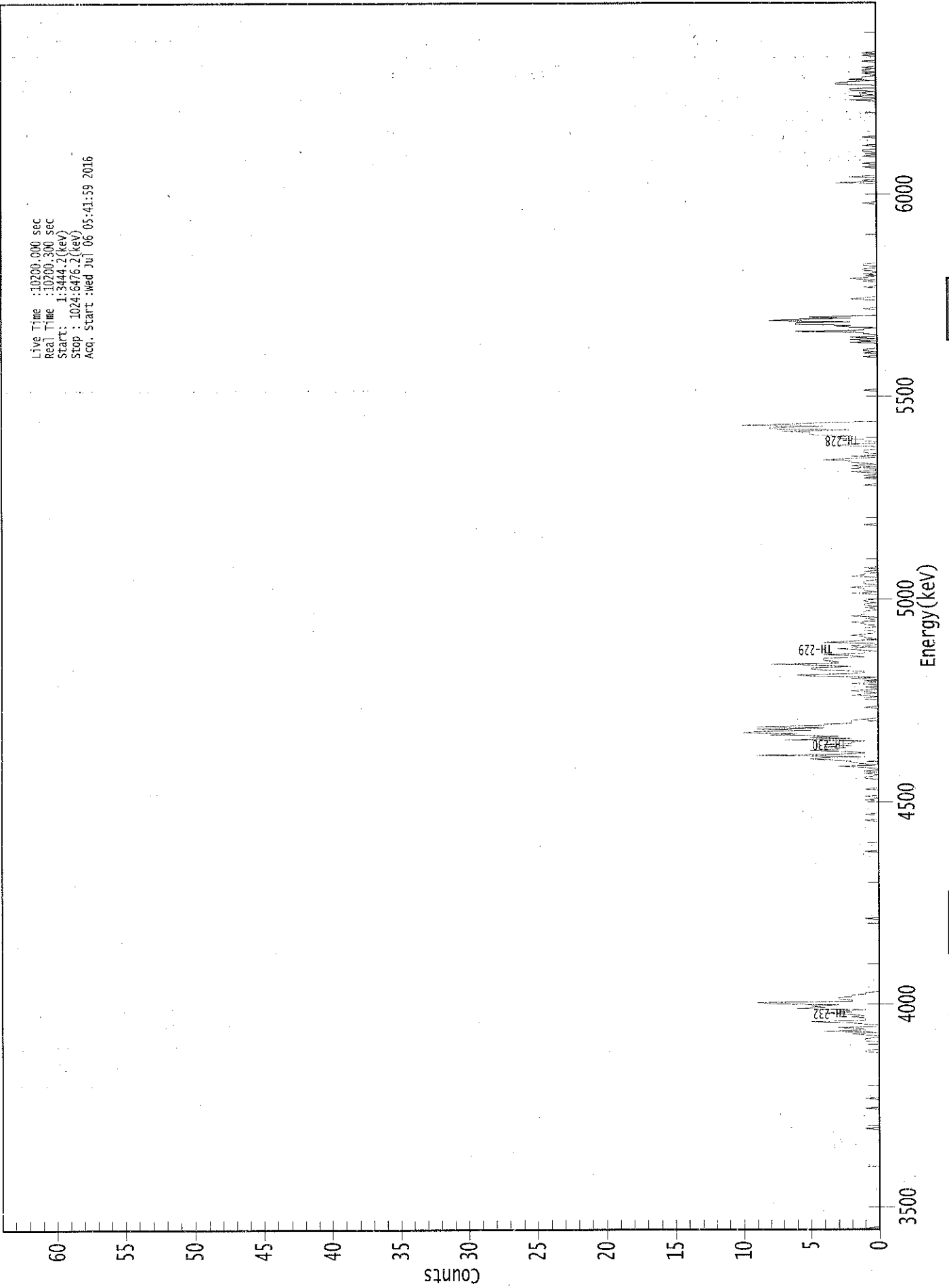
NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	2.28E-001 +/- 1.12E-001	8.25E-002 +/- 1.48E-002
TH-228	1.000	5400.00*	1.16E+000 +/- 3.07E-001	8.99E-002 +/- 1.62E-002
TH-229	1.000	4872.00*	1.50E+000 +/- 2.70E-001	8.77E-002 +/- 1.58E-002
TH-230	0.996	4672.00*	1.76E+000 +/- 4.19E-001	9.77E-002 +/- 1.76E-002
TH-232	0.998	3997.00*	1.02E+000 +/- 2.77E-001	6.16E-002 +/- 1.11E-002

AG
7/6/16

0000156159.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:3444.2(keV)
Stop : 1024:6476.2(keV)
Acq. Start : wed Jul 06 05:41:59 2016



ROI Type: 3

ROI Type: 1

***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 07

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	0	1	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0	0
81:	0	0	0	0	1	0	0	0	0
89:	0	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	1	0	0	0
105:	0	0	0	0	0	1	0	0	0
113:	0	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0	0
145:	0	0	0	0	1	1	0	0	0
153:	0	0	0	0	0	1	1	1	1
161:	0	0	1	2	0	4	1	1	1
169:	3	0	0	1	2	5	1	1	1
177:	1	2	1	2	4	2	3	1	1
185:	6	4	5	3	8	9	2	2	2
193:	3	3	2	2	1	1	0	0	0
201:	0	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0	0
257:	0	0	0	1	0	0	0	0	0
265:	0	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0	0
313:	0	0	0	1	0	0	0	0	0
321:	0	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	1	0	0	0
345:	0	0	1	0	0	0	0	0	0
353:	0	0	0	0	0	0	1	0	0
361:	0	1	0	0	0	0	0	1	1

369: 0 0 0 0 0 0 0 0 0

Sample Title: 07

Channel	1	2	3	4	5	6	7	8
377:	1	1	0	0	1	0	1	0
385:	0	1	3	0	1	2	2	3
393:	5	4	1	9	3	1	2	5
401:	3	3	4	2	4	2	2	1
409:	7	2	5	3	8	6	10	9
417:	5	9	4	9	4	4	2	2
425:	2	1	0	0	0	0	0	0
433:	0	0	0	1	0	0	0	0
441:	0	0	1	1	0	2	1	0
449:	1	2	0	0	1	0	0	2
457:	0	1	0	2	0	5	6	2
465:	1	1	4	5	5	2	4	8
473:	3	3	4	4	4	1	2	4
481:	1	1	0	2	3	0	2	0
489:	0	4	2	1	0	1	1	2
497:	1	0	0	1	1	1	0	0
505:	1	1	2	0	0	1	0	2
513:	1	1	1	1	0	0	1	0
521:	1	1	0	1	1	0	0	0
529:	0	0	2	0	1	1	1	2
537:	0	0	1	1	1	0	0	0
545:	2	1	1	0	1	0	0	1
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	1	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	0	0	0
617:	0	0	0	0	1	0	0	0
625:	0	0	1	0	1	0	0	2
633:	0	0	2	0	2	0	1	2
641:	2	4	2	0	2	0	0	1
649:	1	1	0	0	0	3	2	0
657:	0	1	1	3	3	2	5	5
665:	5	7	2	8	8	4	10	6
673:	4	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	1	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	1
729:	0	0	1	0	1	1	0	0
737:	0	0	0	2	0	2	0	2
745:	0	0	1	1	6	1	1	0
753:	3	2	6	6	2	8	7	2
761:	5	1	0	0	0	0	0	1
769:	0	0	0	0	0	0	0	2
777:	1	0	0	0	0	0	0	0
785:	0	1	0	0	0	0	1	0
793:	2	1	0	0	1	0	0	1

801: 1 0 0 1 1 0 0 0

Sample Title: 07

Channel	1	2	3	4	5	6	7	8
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	1
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	3	0	1	0	0	2	0	0
881:	0	0	0	0	0	1	0	0
889:	1	0	0	0	0	0	1	0
897:	0	0	1	1	0	0	0	0
905:	0	0	0	0	0	0	1	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	2	0	0
945:	2	0	1	1	0	2	2	0
953:	0	0	3	3	2	0	2	1
961:	1	0	0	1	0	1	1	0
969:	1	0	0	0	0	1	0	0
977:	0	0	1	0	1	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

✓
716

Sample Description: CP-5010 09-15 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001561
 Batch Identification: 1606067A-TH
 Sample Identification: 08
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_052
 Chamber Serial Number: 10006123B
 Detector Serial Number: 52
 Env. Background: System Bkgd 158403
 Reagent Blank: <not performed>

Sample Size: 1.543E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/7/2016 11:09:00 AM
 Acquisition Date/Time: 7/6/2016 5:42:01 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.223 mL
 Effective Efficiency: 0.1772 +/- 0.0155
 Counting Efficiency: 0.1729 +/- 0.0030 on 12/11/2015 11:36:36 AM
 Chem. Recovery Factor: 1.0252 +/- 0.0914

Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.776	22.15	42.57	0.85	0.00E+000	7.4
TH-228	5.394	141.66	16.49	0.34	0.00E+000	24.1
TH-229 T	4.877	150.98	16.01	1.02	0.00E+000	5.3
TH-230	4.657	130.47	17.28	1.53	0.00E+000	4.3
TH-232	3.977	135.00	16.93	0.00	0.00E+000	8.1

T = Tracer Peak used for Effective Efficiency

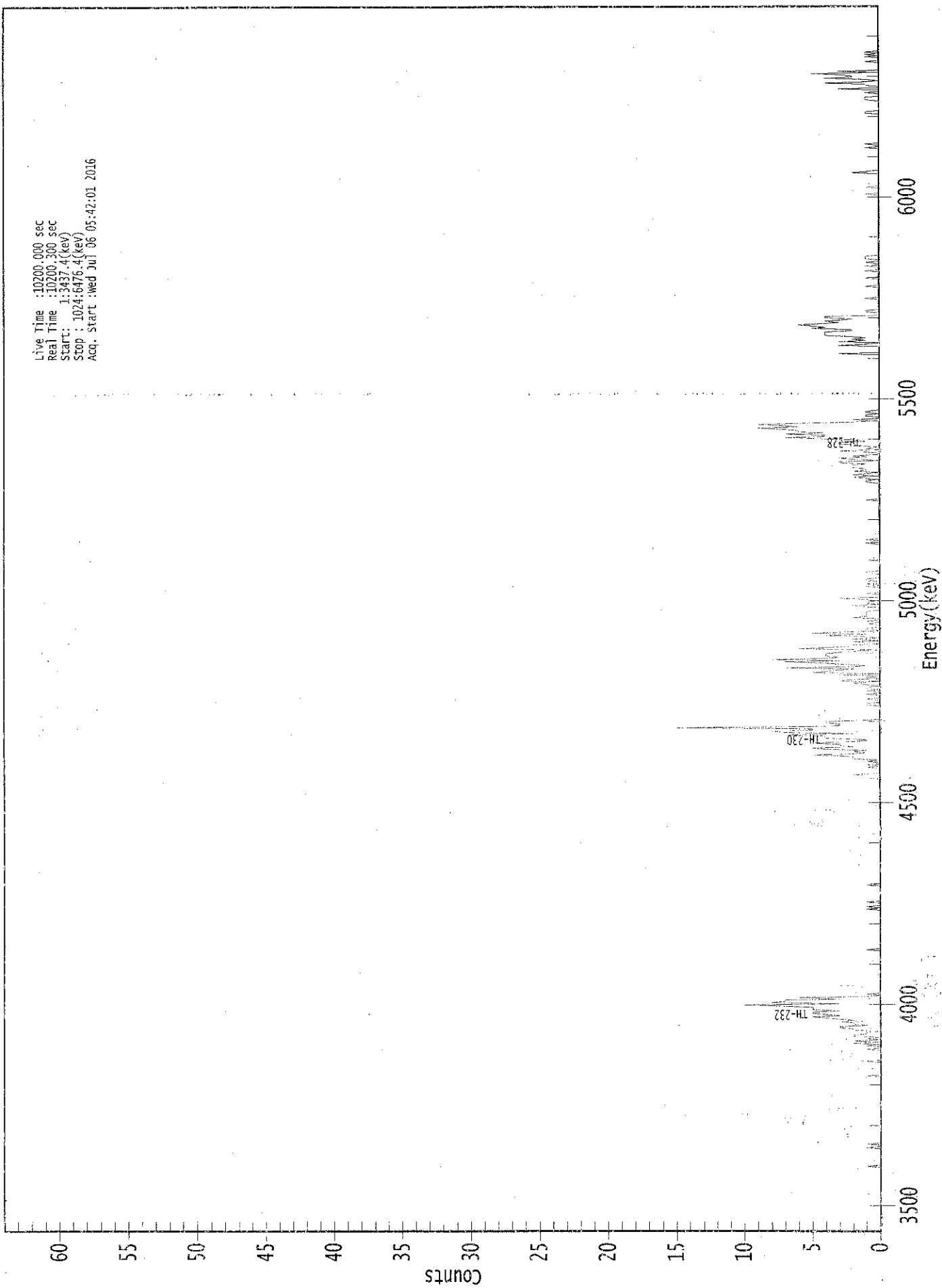
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.972	5850.00*	2.21E-001 +/- 1.01E-001	5.96E-002 +/- 1.02E-002
TH-228	1.000	5400.00*	1.44E+000 +/- 3.36E-001	4.77E-002 +/- 8.17E-003
TH-229	1.000	4872.00*	1.47E+000 +/- 2.52E-001	6.13E-002 +/- 1.05E-002
TH-230	0.999	4672.00*	1.27E+000 +/- 3.08E-001	6.90E-002 +/- 1.18E-002
TH-232	0.998	3997.00*	1.31E+000 +/- 3.15E-001	5.81E-002 +/- 9.95E-003

AG
7/6/16

0000156160.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:3437.4(kev)
Stop : 1024:6476.4(kev)
Acq. Start : Wed Jul 06 05:42:01 2016



ROI Type: 3

ROI Type: 1

***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 08

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	1	0	0
57:	0	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	1	0	0
73:	0	1	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0	0
129:	0	0	1	0	0	0	0	0	0
137:	0	0	0	0	0	0	1	0	0
145:	0	0	0	0	0	0	0	0	0
153:	1	0	0	1	0	2	0	2	0
161:	0	1	0	2	2	1	1	0	0
169:	2	2	3	3	1	2	2	3	0
177:	2	3	4	5	3	4	5	5	0
185:	3	5	5	5	7	10	3	8	0
193:	7	7	3	6	1	0	1	0	0
201:	0	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0
233:	0	0	0	1	0	0	0	0	0
241:	0	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	1	0	1	0
273:	0	0	0	1	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	0	1	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0	0

369: 0 0 0 0 0 0 0 0 0

Sample Title: 08

Channel	1	2	3	4	5	6	7	8	9
377:	0	0	1	1	1	2	0	0	
385:	0	0	0	1	0	1	0	0	
393:	1	0	2	2	2	5	2	1	
401:	2	1	4	5	2	3	3	5	
409:	3	1	1	4	4	4	7	2	
417:	7	8	5	5	15	4	3	3	
425:	4	4	1	0	0	0	0	0	
433:	0	0	0	0	0	0	0	1	
441:	1	0	0	0	1	0	0	0	
449:	1	0	0	1	0	1	1	0	
457:	1	2	1	3	2	0	1	0	
465:	3	0	5	4	3	2	7	2	
473:	1	3	4	7	3	8	4	3	
481:	4	4	4	3	2	0	6	4	
489:	2	2	0	1	2	0	2	0	
497:	1	4	1	5	2	0	1	1	
505:	0	0	0	1	0	1	0	0	
513:	2	1	1	1	1	1	0	0	
521:	0	1	2	0	1	1	0	1	
529:	3	0	0	0	1	0	0	0	
537:	0	0	1	0	1	0	0	1	
545:	1	0	0	0	0	1	1	0	
553:	0	0	0	0	0	0	0	0	
561:	0	0	0	0	0	0	0	0	
569:	0	0	0	0	0	0	1	0	
577:	0	1	0	0	0	0	0	0	
585:	0	0	0	0	0	0	0	0	
593:	0	0	0	0	0	0	0	0	
601:	0	0	0	0	0	0	0	0	
609:	0	0	1	0	0	0	0	0	
617:	0	0	0	0	0	0	0	0	
625:	0	1	1	0	1	2	0	2	
633:	1	0	2	1	1	2	2	2	
641:	1	3	3	0	2	3	1	2	
649:	0	0	1	3	0	1	0	1	
657:	2	3	3	1	2	4	7	4	
665:	4	7	4	6	6	7	9	6	
673:	7	9	6	2	0	2	0	0	
681:	1	1	0	1	1	0	0	0	
689:	0	0	0	0	0	0	0	0	
697:	0	0	0	0	0	0	0	0	
705:	0	0	0	0	0	0	0	0	
713:	0	0	0	0	0	0	0	0	
721:	0	0	0	0	0	0	0	0	
729:	0	0	0	0	3	0	0	0	
737:	0	0	0	3	1	0	3	1	
745:	2	1	2	4	4	4	4	2	
753:	2	5	4	5	6	4	3	4	
761:	3	2	4	4	0	0	0	1	
769:	1	0	0	0	0	0	0	0	
777:	0	0	1	0	0	0	0	0	
785:	0	0	0	0	1	0	0	0	
793:	0	0	0	1	0	0	0	0	

801: 0 1 0 0 0 1 0 0

Sample Title: 08

Channel	1	0	0	1	1	1	0	0
809:	1	0	0	1	1	1	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	1	0	0	0	0	0	1
873:	0	0	0	0	0	0	0	0
881:	0	0	0	2	1	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	1	0	0	1	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	1	1	0
937:	0	0	0	0	0	0	0	0
945:	1	1	1	0	0	0	1	0
953:	0	3	0	0	1	1	4	1
961:	0	1	4	2	2	3	5	0
969:	3	0	0	0	0	0	0	0
977:	1	0	0	0	1	0	1	0
985:	1	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

716

Sample Description: CP-5012 09-15 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001561
 Batch Identification: 1606067A-TH
 Sample Identification: 09
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_053
 Chamber Serial Number: 10006122A
 Detector Serial Number: 53
 Env. Background: System Bkgd 158404
 Reagent Blank: <not performed>

Sample Size: 1.529E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/7/2016 11:09:00 AM
 Acquisition Date/Time: 7/6/2016 5:42:03 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.224 mL
 Effective Efficiency: 0.2221 +/- 0.0175
 Counting Efficiency: 0.1516 +/- 0.0027 on 12/11/2015 11:36:34 AM
 Chem. Recovery Factor: 1.4653 +/- 0.1187

Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.832	22.15	42.57	0.85	0.00E+000	0.0
TH-228	5.384	155.66	15.73	0.34	0.00E+000	5.0
TH-229 T	4.381	190.32	14.24	0.68	0.00E+000	13.7
TH-230	4.644	171.30	15.06	1.70	0.00E+000	6.3
TH-232	3.967	163.32	15.37	0.68	0.00E+000	13.0

T = Tracer Peak used for Effective Efficiency

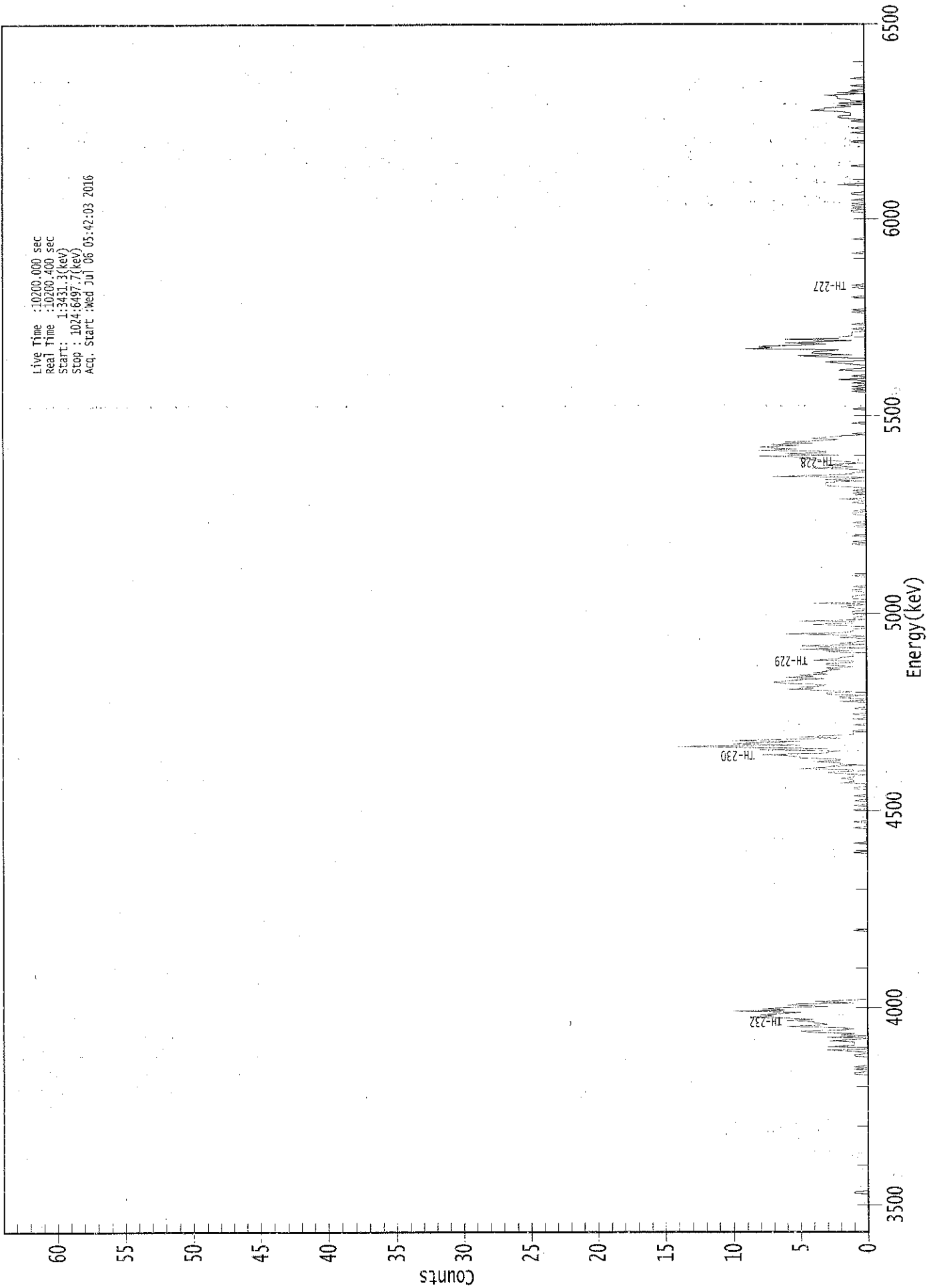
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	1.78E-001 +/- 8.05E-002	4.80E-002 +/- 7.43E-003
TH-228	0.999	5400.00*	1.25E+000 +/- 2.76E-001	3.84E-002 +/- 5.94E-003
TH-229	1.000	4872.00*	1.49E+000 +/- 2.31E-001	4.42E-002 +/- 6.84E-003
TH-230	0.996	4672.00*	1.34E+000 +/- 2.89E-001	5.74E-002 +/- 8.89E-003
TH-232	0.995	3997.00*	1.27E+000 +/- 2.78E-001	4.40E-002 +/- 6.81E-003

AG
7/6/16

0000156161.CNF

Live Time : 10200.000 sec
Real Time : 10200.400 sec
Start : 1:34:31.3 (keV)
Stop : 1024:6497.7 (keV)
Acq. Start : Wed Jul 06 05:42:03 2016



ROI Type: 1

ROI Type: 3

50205

SPECTRAL DATA REPORT

Sample Title: 09

Elapsed Live time: 10200

Elapsed Real Time: 10200

Table with 10 columns and 36 rows. Columns are separated by dashed lines. Values range from 0 to 10.

369: 0 1 0 0 0 0 0 0 1

Sample Title: 09

Channel	1	2	3	4	5	6	7	8	9
377:	1	0	0	0	2	1	1	1	1
385:	2	1	1	0	2	3	1	1	1
393:	5	3	3	0	2	2	4	2	2
401:	2	5	5	6	8	3	3	2	2
409:	8	3	9	14	5	10	9	5	5
417:	10	6	2	5	3	1	1	1	1
425:	1	0	0	0	0	1	0	0	0
433:	0	0	1	0	0	0	1	0	0
441:	0	0	0	1	0	0	0	0	0
449:	0	2	0	0	2	2	0	3	3
457:	3	1	3	6	4	5	3	3	3
465:	6	7	6	5	3	6	4	5	5
473:	3	4	3	3	2	3	1	2	2
481:	3	3	1	1	4	2	2	1	1
489:	1	1	1	3	1	5	0	3	3
497:	5	0	2	1	0	0	0	2	2
505:	0	2	6	2	1	1	1	0	0
513:	0	2	4	1	1	5	0	1	1
521:	1	0	0	1	1	1	0	0	0
529:	1	2	1	0	4	0	0	0	0
537:	1	1	1	0	0	0	1	1	1
545:	0	0	1	0	0	0	0	0	0
553:	0	0	0	1	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	1	0	0
585:	1	0	0	0	0	1	0	0	0
593:	0	0	0	0	0	1	0	0	0
601:	1	0	0	0	0	0	0	1	1
609:	1	0	1	0	0	0	0	0	0
617:	0	1	0	0	2	0	0	0	0
625:	0	1	0	1	0	0	1	3	3
633:	3	3	3	0	3	1	0	7	7
641:	3	1	1	0	0	1	4	1	1
649:	2	3	0	1	2	4	5	4	4
657:	8	2	6	3	3	8	5	7	7
665:	8	5	7	4	6	4	2	4	4
673:	3	2	0	1	0	0	0	0	0
681:	0	0	0	0	1	0	0	0	0
689:	0	0	0	0	0	0	0	0	0
697:	1	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	1	1
713:	0	1	0	1	0	0	1	0	0
721:	0	2	0	0	1	0	0	0	0
729:	0	2	1	0	0	0	1	2	2
737:	3	0	0	0	3	5	1	4	4
745:	4	3	2	9	7	8	5	3	3
753:	6	3	1	6	2	2	1	1	1
761:	1	1	0	0	1	0	0	0	0
769:	1	0	0	0	0	0	0	0	0
777:	0	0	1	0	1	0	0	0	0
785:	0	0	0	0	0	0	0	1	1
793:	0	0	0	0	0	0	0	1	1

801: 0 1 0 0 0 0 0 0

Sample Title: 09

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	1	0	0	0
833:	0	0	0	0	0	0	0	0
841:	1	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	1
865:	1	0	1	0	1	0	1	0
873:	0	1	0	0	0	0	1	1
881:	0	0	0	0	0	0	2	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	1	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	1	0	0	0	0	0
929:	0	0	1	0	0	0	1	0
937:	0	0	0	0	1	0	1	2
945:	2	1	1	1	2	4	3	3
953:	1	2	0	2	0	1	1	2
961:	2	2	3	0	2	0	1	0
969:	0	0	1	0	0	0	0	0
977:	1	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



C
7/6

Sample Description: CP-5014 09-15 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001561
 Batch Identification: 1606067A-TH
 Sample Identification: 10
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_054
 Chamber Serial Number: 10006122B
 Detector Serial Number: 54
 Env. Background: System Bkgd 158405
 Reagent Blank: <not performed>

Sample Size: 1.526E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/7/2016 11:09:00 AM
 Acquisition Date/Time: 7/6/2016 5:42:05 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.224 mL
 Effective Efficiency: 0.1944 +/- 0.0163
 Counting Efficiency: 0.1363 +/- 0.0025 on 12/11/2015 11:36:32 AM
 Chem. Recovery Factor: 1.4264 +/- 0.1220

Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.821	20.49	43.93	0.51	0.00E+000	3.0
TH-228	5.377	131.81	17.16	1.19	0.00E+000	5.0
TH-229 T	4.874	166.49	15.22	0.51	0.00E+000	3.5
TH-230	4.636	140.15	16.61	0.85	0.00E+000	8.1
TH-232	3.969	150.49	16.01	0.51	0.00E+000	38.6

T = Tracer Peak used for Effective Efficiency

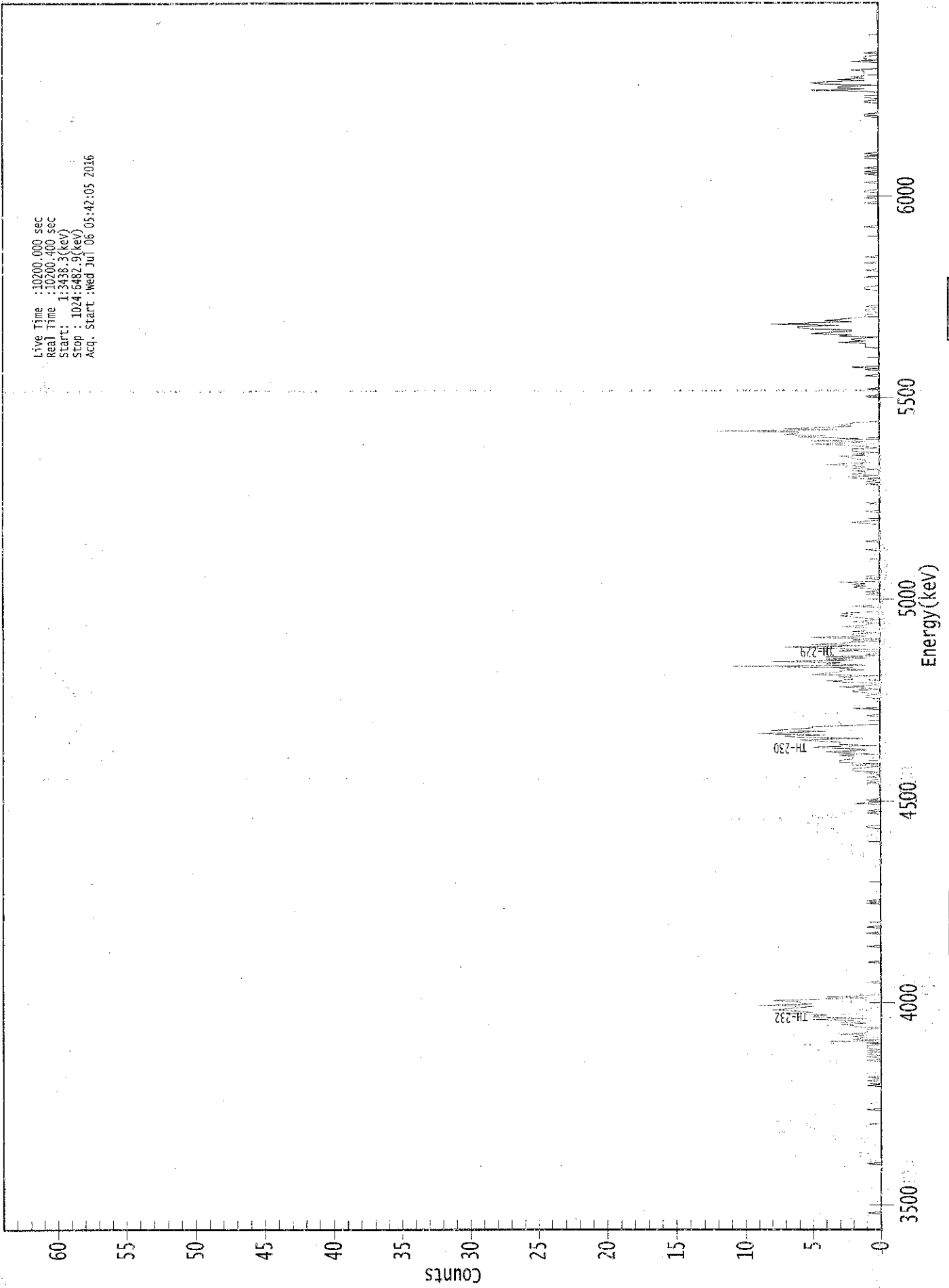
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.995	5850.00*	1.88E-001 +/- 8.82E-002	4.82E-002 +/- 7.90E-003
TH-228	0.997	5400.00*	1.21E+000 +/- 2.88E-001	6.06E-002 +/- 9.93E-003
TH-229	1.000	4872.00*	1.49E+000 +/- 2.45E-001	4.71E-002 +/- 7.72E-003
TH-230	0.993	4672.00*	1.25E+000 +/- 2.93E-001	5.36E-002 +/- 8.78E-003
TH-232	0.996	3997.00*	1.34E+000 +/- 3.08E-001	4.69E-002 +/- 7.68E-003

AG
7/6/16

0000156162.CNF

Live Time : 10200.000 sec
Real Time : 10200.400 sec
Start : 1:3438.3(kev)
Stop : 1024:6482.9(kev)
Acq. Start : Wed Jul 06 05:42:05 2016



ROI Type: 3

ROI Type: 1

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 10

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	1	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0	1
57:	0	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	1	0	0	0
105:	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0
121:	1	0	0	0	0	1	0	0	1
129:	0	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	1	0	0
145:	1	0	1	1	0	1	0	0	1
153:	1	1	0	1	0	4	0	0	2
161:	1	2	1	3	1	1	1	1	1
169:	0	2	2	3	1	3	2	2	5
177:	1	5	5	4	7	5	6	6	8
185:	7	6	5	9	5	6	6	6	8
193:	5	1	4	1	0	0	0	0	0
201:	0	0	0	0	0	0	0	1	0
209:	0	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0	1
225:	0	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	1	0	0	0
241:	0	0	0	0	0	0	0	0	1
249:	0	0	0	0	0	1	0	0	0
257:	0	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0	0
273:	1	0	1	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0	1
337:	1	0	0	0	0	0	0	0	0
345:	0	0	0	1	0	1	0	0	0
353:	0	0	0	2	0	0	1	0	0
361:	0	0	0	0	0	0	0	0	0

369: 0 0 0 0 1 0 1 0

Sample Title: 10

Channel	1	2	3	4	5	6	7	8	9
377:	0	1	0	0	1	0	2	2	
385:	2	1	0	2	0	3	3	3	
393:	2	2	2	3	0	3	4	1	
401:	1	4	5	0	3	3	3	5	
409:	6	1	6	7	4	9	7	4	
417:	8	6	5	5	2	0	0	0	
425:	0	0	0	0	1	0	0	0	
433:	0	0	2	0	0	0	0	0	
441:	0	0	0	1	1	1	0	1	
449:	2	2	0	1	3	1	0	0	
457:	3	4	2	2	3	0	5	4	
465:	3	3	1	3	2	11	1	4	
473:	3	8	2	4	1	4	0	1	
481:	0	0	3	0	4	7	1	5	
489:	3	2	0	2	0	5	1	2	
497:	2	0	2	1	1	1	3	1	
505:	1	0	2	1	0	1	2	3	
513:	2	3	1	0	0	0	0	2	
521:	0	0	0	0	0	0	0	0	
529:	0	1	0	1	0	0	1	2	
537:	1	2	1	3	0	0	1	0	
545:	1	0	0	0	0	0	0	0	
553:	0	0	0	0	0	0	0	0	
561:	0	0	0	0	0	0	1	0	
569:	0	0	0	0	0	1	0	0	
577:	0	0	0	0	0	0	0	0	
585:	0	0	0	0	1	2	1	0	
593:	0	0	0	0	0	0	1	0	
601:	0	0	0	0	0	1	0	0	
609:	0	0	0	0	0	0	0	0	
617:	0	0	0	0	0	1	0	1	
625:	0	1	2	2	0	2	1	1	
633:	2	0	2	1	2	4	2	1	
641:	1	1	2	2	3	1	2	0	
649:	2	2	2	0	1	2	5	3	
657:	1	5	0	3	6	4	7	6	
665:	6	12	3	7	4	2	3	2	
673:	2	0	0	0	0	0	0	0	
681:	0	0	0	0	0	0	0	0	
689:	0	0	0	0	0	0	1	0	
697:	0	0	0	0	1	0	0	0	
705:	0	0	0	0	0	0	0	1	
713:	0	0	0	0	1	0	2	0	
721:	0	0	0	0	0	0	0	0	
729:	0	0	0	0	0	0	0	1	
737:	1	1	1	3	1	2	2	0	
745:	3	2	5	4	2	2	5	6	
753:	6	3	8	5	2	4	3	2	
761:	1	1	1	0	0	1	1	0	
769:	0	1	0	0	0	0	0	0	
777:	0	0	0	0	0	0	0	1	
785:	1	1	0	0	0	0	0	0	
793:	0	1	0	0	0	0	0	1	

801: 0 0 0 0 0 1 0 0

Sample Title: 10

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	1	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	1	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	1
857:	0	0	0	1	0	0	0	0
865:	1	1	0	0	0	0	0	0
873:	1	0	0	0	0	0	0	1
881:	0	1	0	0	1	0	0	0
889:	0	0	0	0	1	1	0	0
897:	1	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	1
929:	1	1	0	0	0	0	0	0
937:	0	0	0	1	1	0	0	1
945:	1	0	0	0	1	5	1	3
953:	3	0	4	5	4	1	3	1
961:	2	1	1	1	1	1	2	0
969:	0	0	0	0	0	2	0	1
977:	1	1	0	0	1	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



Apex-Alpha™

716

Sample Description: CP-5017 00-02 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001561
 Batch Identification: 1606067A-TH
 Sample Identification: 11
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_055
 Chamber Serial Number: 10006124A
 Detector Serial Number: 55
 Env. Background: System Bkgd 158406
 Reagent Blank: <not performed>

Sample Size: 1.567E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 11:09:00 AM
 Acquisition Date/Time: 7/6/2016 5:42:07 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.224 mL
 Effective Efficiency: 0.1644 +/- 0.0148
 Counting Efficiency: 0.1625 +/- 0.0029 on 12/11/2015 11:36:31 AM
 Chem. Recovery Factor: 1.0122 +/- 0.0931

Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.764	35.32	33.35	0.68	0.00E+000	5.0
TH-228	5.401	89.62	21.02	2.38	0.00E+000	8.3
TH-229 T	4.912	140.64	16.62	1.36	0.00E+000	12.1
TH-230	4.664	119.00	18.04	0.00	0.00E+000	4.3
TH-232	3.991	80.83	21.83	0.17	0.00E+000	3.9

T = Tracer Peak used for Effective Efficiency

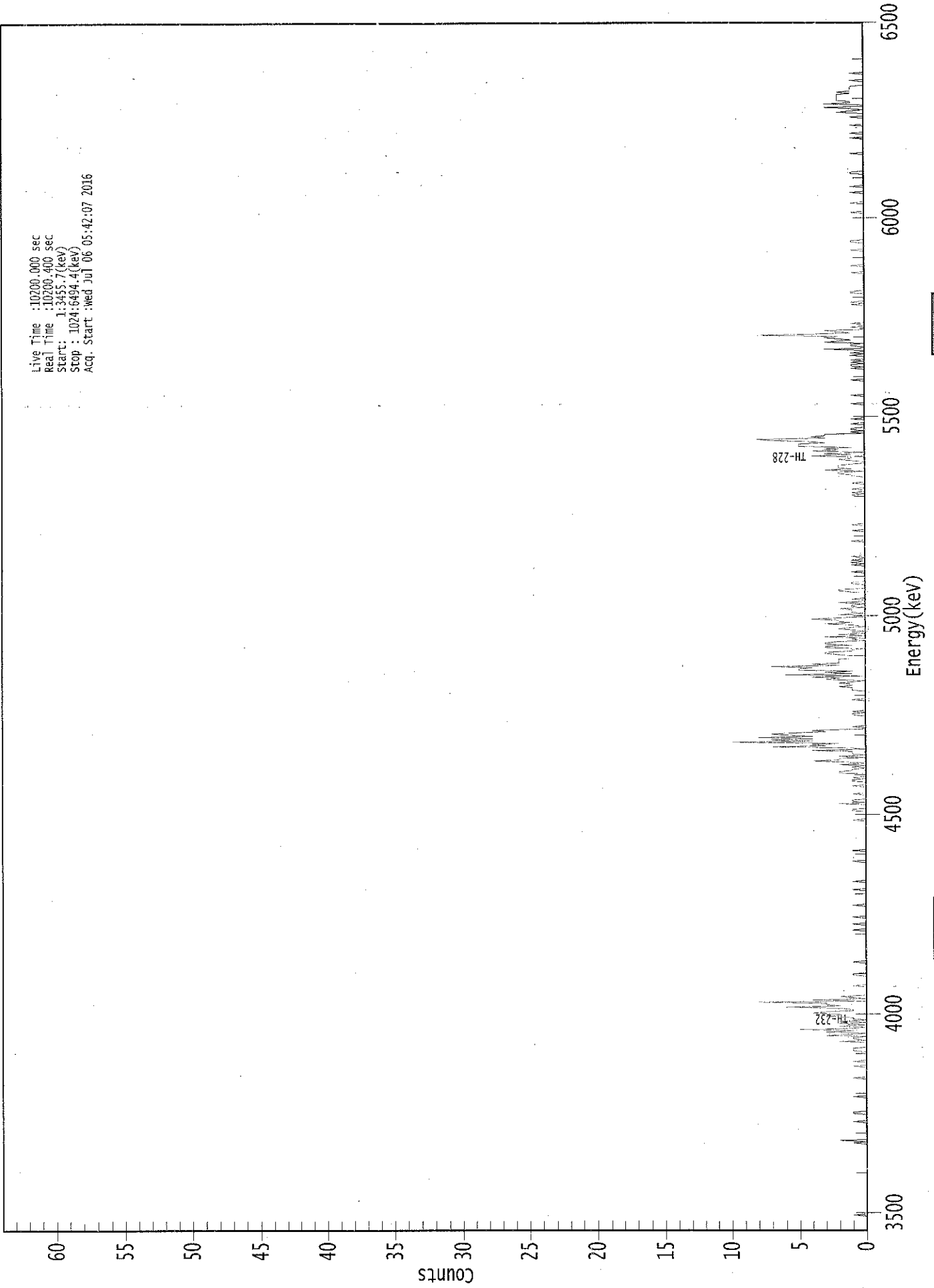
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.962	5850.00*	3.73E-001 +/- 1.41E-001	5.96E-002 +/- 1.05E-002
TH-228	1.000	5400.00*	9.48E-001 +/- 2.60E-001	8.67E-002 +/- 1.53E-002
TH-229	0.991	4872.00*	1.45E+000 +/- 2.57E-001	7.08E-002 +/- 1.25E-002
TH-230	1.000	4672.00*	1.23E+000 +/- 3.10E-001	6.17E-002 +/- 1.09E-002
TH-232	1.000	3997.00*	8.31E-001 +/- 2.33E-001	4.29E-002 +/- 7.59E-003

AG
7/6/16

0000156163.CNF

Live Time :10200.000 sec
Real Time :10200.400 sec
Start : 1:34:55.7(kev)
Stop : 1024:6494.4(kev)
Acq. Start :Wed Jul 06 05:42:07 2016



ROI Type: 3

ROI Type: 1

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 11

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	1	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0	0
73:	0	0	1	0	2	0	0	0	0
81:	0	0	0	0	0	0	0	0	0
89:	0	0	0	0	1	0	0	0	0
97:	0	0	0	1	1	0	0	0	0
105:	0	0	0	0	0	0	0	0	0
113:	0	1	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0	0
129:	0	1	0	0	0	0	0	0	0
137:	0	0	0	1	0	0	0	0	1
145:	0	0	0	0	0	0	0	0	0
153:	1	1	1	0	0	0	0	0	0
161:	2	0	1	1	0	3	1	0	0
169:	3	1	5	1	0	2	0	2	2
177:	0	2	0	1	1	3	2	2	2
185:	4	3	1	1	2	6	2	3	3
193:	3	8	0	4	0	1	2	0	0
201:	0	0	0	0	0	0	0	0	1
209:	0	0	0	0	0	0	0	0	0
217:	1	1	0	0	0	0	0	0	0
225:	0	0	0	1	0	0	0	0	0
233:	0	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	1	0	0
257:	0	0	0	1	0	0	0	0	0
265:	0	1	0	0	0	0	0	0	0
273:	0	0	0	1	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	1	0	0	0	0	0	0	0	1
297:	0	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0	0
313:	1	0	0	0	0	0	0	0	0
321:	0	1	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0
345:	0	0	0	1	0	0	0	0	0
353:	0	0	0	1	1	0	0	0	0
361:	0	2	0	1	1	0	0	0	0

369: 0 1 0 0 0 0 0 0

Sample Title: 11

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	1	0	0	0	1	1	0	1
385:	0	0	0	2	2	1	1	0
393:	1	0	2	0	1	4	2	2
401:	0	2	0	1	1	1	4	0
409:	1	7	3	4	2	10	4	7
417:	4	8	4	6	7	5	3	4
425:	0	0	1	0	0	0	0	0
433:	0	0	0	0	1	1	0	1
441:	0	0	0	0	0	0	0	0
449:	0	1	0	0	0	0	0	0
457:	0	1	1	1	2	1	1	2
465:	1	0	3	2	4	0	6	1
473:	3	1	5	5	4	7	2	4
481:	2	2	2	2	1	1	1	2
489:	3	3	1	1	0	3	3	1
497:	3	3	2	0	1	0	3	0
505:	2	0	1	0	1	2	1	0
513:	1	3	1	2	2	4	2	0
521:	0	2	0	1	1	1	2	0
529:	1	1	0	2	0	0	1	0
537:	0	0	0	0	1	2	2	0
545:	0	0	0	1	1	0	0	0
553:	0	0	0	0	0	1	0	0
561:	0	0	0	1	0	1	0	1
569:	0	0	1	0	0	0	0	0
577:	0	0	0	0	0	0	0	1
585:	0	0	0	0	0	0	0	0
593:	1	0	0	0	0	1	0	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	1	0
625:	1	0	0	1	0	0	0	0
633:	1	0	0	0	0	0	1	1
641:	2	2	0	3	1	2	2	2
649:	1	0	0	1	2	1	1	4
657:	1	3	0	4	2	3	1	5
665:	5	5	3	4	7	8	3	4
673:	3	3	0	1	0	1	1	0
681:	0	0	1	0	0	0	1	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	1	0	0	0	0
705:	0	0	1	0	0	0	0	0
713:	0	0	0	0	0	0	0	1
721:	0	0	0	0	0	0	0	0
729:	0	1	0	1	1	0	1	0
737:	1	0	0	0	1	0	1	0
745:	0	3	0	0	1	1	0	3
753:	2	1	2	3	2	8	4	1
761:	2	3	0	0	1	0	0	1
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	1
785:	0	1	0	0	0	0	0	0
793:	0	1	1	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 11

Channel								
809:	0	0	1	0	0	0	0	0
817:	1	0	0	0	0	0	0	0
825:	0	0	0	0	0	1	0	0
833:	0	0	0	0	1	1	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	1	0	0
865:	0	0	0	0	0	1	0	0
873:	0	0	0	0	0	0	1	0
881:	0	0	0	1	0	0	0	0
889:	0	0	0	0	0	0	1	1
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	1
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	1	0	0	0
929:	1	0	0	0	0	0	0	1
937:	0	0	0	0	0	0	1	0
945:	0	0	2	1	0	1	3	0
953:	0	3	1	1	2	2	2	2
961:	2	2	1	2	1	1	1	1
969:	1	0	0	0	0	1	0	0
977:	0	0	0	1	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

714

Sample Description: CP-5020 00-02 QC
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001561
 Batch Identification: 1606067A-TH
 Sample Identification: 12
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_056
 Chamber Serial Number: 10006124B
 Detector Serial Number: 56
 Env. Background: System Bkgd 158407
 Reagent Blank: <not performed>

Sample Size: 1.599E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/9/2016 11:09:00 AM
 Acquisition Date/Time: 7/6/2016 5:42:09 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.224 mL
 Effective Efficiency: 0.1749 +/- 0.0154
 Counting Efficiency: 0.1647 +/- 0.0029 on 12/11/2015 11:36:29 AM
 Chem. Recovery Factor: 1.0621 +/- 0.0953

Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.837	27.32	38.04	0.68	0.00E+000	3.0
TH-228	5.391	101.28	19.78	2.72	0.00E+000	4.3
TH-229 T	4.892	149.47	16.13	1.53	0.00E+000	12.3
TH-230	4.650	365.81	10.27	1.19	0.00E+000	16.6
TH-232	3.986	92.47	20.58	1.53	0.00E+000	3.6

T = Tracer Peak used for Effective Efficiency

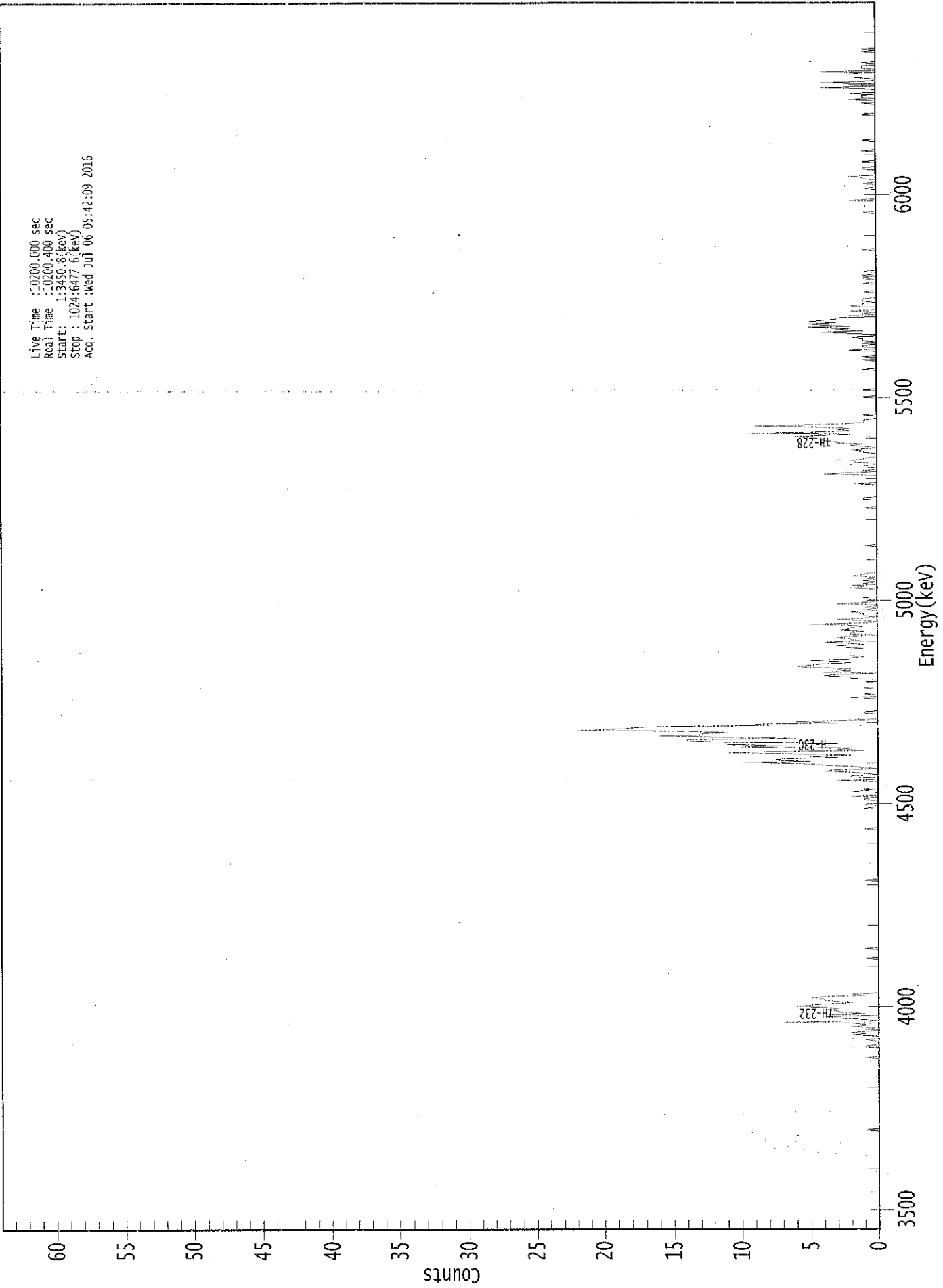
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	2.66E-001 +/- 1.11E-001	5.49E-002 +/- 9.47E-003
TH-228	1.000	5400.00*	9.86E-001 +/- 2.59E-001	8.35E-002 +/- 1.44E-002
TH-229	0.998	4872.00*	1.42E+000 +/- 2.45E-001	6.77E-002 +/- 1.17E-002
TH-230	0.998	4672.00*	3.47E+000 +/- 6.96E-001	6.25E-002 +/- 1.08E-002
TH-232	0.999	3997.00*	8.76E-001 +/- 2.35E-001	6.73E-002 +/- 1.16E-002

AG
7/6/16

0000156164.CNF

Live Time :10200.000 sec
Real Time :10200.400 sec
Start : 1:54:50.8(kev)
Stop : 1024:6477.6(kev)
Acq. Start :Wed Jul 06 05:42:09 2016



ROI Type: 3

ROI Type: 1

02200

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: 12

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0	0
81:	0	0	0	1	0	0	0	0	0
89:	0	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0	1
145:	0	0	0	0	0	0	0	0	0
153:	1	1	0	0	0	0	1	0	0
161:	0	2	1	1	2	1	0	1	1
169:	0	2	1	1	2	7	0	1	1
177:	3	4	0	4	1	3	3	4	4
185:	3	4	6	5	4	2	3	4	4
193:	4	5	4	1	2	0	0	0	0
201:	0	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0	0
225:	0	0	1	0	0	0	0	0	0
233:	0	0	1	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	0	0	0	1	0	0	0	0	0
297:	0	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	1	0	0
337:	0	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	1	1
353:	0	0	1	0	0	0	1	1	1
361:	0	2	0	0	0	2	0	1	1

369: 0 0 0 0 0 0 0 3 0

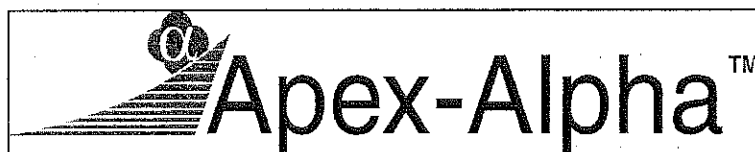
Sample Title: 12

Channel	1	2	3	4	5	6	7	8	9
377:	0	2	2	0	1	2	4	3	
385:	0	1	2	4	5	10	5	8	
393:	7	3	5	2	5	11	8	1	
401:	3	2	10	7	11	3	11	14	
409:	14	6	11	16	13	13	11	14	
417:	22	19	18	16	8	9	3	6	
425:	2	0	0	0	0	0	1	1	
433:	0	0	0	0	0	0	0	0	
441:	0	0	0	2	0	0	1	0	
449:	0	0	0	1	0	0	0	0	
457:	1	0	0	2	2	4	3	0	
465:	2	2	3	2	5	6	5	4	
473:	2	3	5	2	2	1	2	2	
481:	2	2	2	2	1	3	3	1	
489:	2	4	1	2	2	3	2	0	
497:	2	2	1	3	2	2	1	2	
505:	5	1	0	1	3	1	0	1	
513:	1	1	2	0	1	0	1	0	
521:	0	3	1	0	0	1	1	0	
529:	0	0	0	0	0	0	2	1	
537:	2	0	1	0	1	0	1	0	
545:	2	1	1	0	0	0	0	0	
553:	0	0	0	0	0	0	0	0	
561:	0	0	0	0	0	0	0	0	
569:	0	1	0	0	0	0	0	0	
577:	0	0	0	0	0	0	0	0	
585:	0	0	0	0	0	0	0	0	
593:	0	0	0	0	0	0	0	0	
601:	0	1	0	0	0	0	0	0	
609:	1	1	0	0	0	0	0	0	
617:	0	0	0	0	0	2	0	0	
625:	0	0	0	0	0	4	2	0	
633:	1	0	0	1	1	0	0	2	
641:	2	1	1	0	0	0	0	1	
649:	1	2	1	0	1	2	1	3	
657:	3	4	4	5	6	4	2	10	
665:	4	2	3	2	4	9	5	2	
673:	1	1	1	0	0	0	1	0	
681:	0	0	0	0	0	0	0	0	
689:	0	0	0	0	0	1	0	0	
697:	0	0	0	1	0	0	0	0	
705:	0	0	0	0	0	0	0	0	
713:	0	0	0	0	1	0	0	0	
721:	0	0	0	0	1	0	0	1	
729:	0	0	0	0	2	0	0	1	
737:	1	0	1	0	1	1	1	2	
745:	0	0	2	4	1	3	2	5	
753:	2	4	5	3	5	4	3	3	
761:	0	2	0	1	0	2	0	0	
769:	0	2	1	1	0	1	1	1	
777:	0	0	0	0	0	1	0	0	
785:	0	0	0	0	1	0	0	0	
793:	1	1	0	1	0	0	1	0	

801: 0 0 0 0 0 0 0 0

Sample Title: 12

Channel								
809:	0	0	0	0	0	0	0	0
817:	1	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	1
849:	0	0	0	0	0	0	0	0
857:	0	2	0	0	0	0	0	0
865:	0	0	0	1	0	0	0	1
873:	0	0	0	1	1	2	0	0
881:	0	0	0	1	1	0	0	0
889:	0	1	0	0	0	0	0	0
897:	0	0	1	0	0	0	0	0
905:	0	0	0	1	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	1	0	0	0	0	0	0	0
937:	0	0	1	0	0	2	0	1
945:	1	0	2	0	0	0	1	4
953:	0	2	0	4	1	0	0	1
961:	2	2	2	1	4	0	0	1
969:	1	1	0	0	1	0	0	0
977:	0	0	0	0	0	1	0	1
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



QA SUMMARY REPORT


Review Of QA Results - Pulser Check

Date : 7/6/2016

Time : 5:42:52 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 001	21f	ALL	Not Done	
Alpha 002	21f	ALL	Not Done	
Alpha 003	21f	ALL	Passed	7/6/2016 5:22:55 AM
Alpha 004	21f	ALL	Passed	7/6/2016 5:22:56 AM
Alpha 005	21f	ALL	Not Done	
Alpha 006	21f	ALL	Not Done	
Alpha 007	21f	ALL	Not Done	
Alpha 008	21f	ALL	Not Done	
Alpha 009	21f	ALL	Not Done	
Alpha 010	21f	ALL	Passed	7/6/2016 5:22:56 AM
Alpha 011	21f	ALL	Passed	7/6/2016 5:22:57 AM
Alpha 012	21f	ALL	Passed	7/6/2016 5:22:58 AM
Alpha 013	21f	ALL	Not Done	
Alpha 014	21f	ALL	Passed	7/6/2016 5:22:59 AM
Alpha 015	21f	Peak Energy <i>OK</i>	Action	7/6/2016 5:23:00 AM
Alpha 016	21f	ALL	Not Done	
Alpha 033	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:01 AM
Alpha 034	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:03 AM
Alpha 035	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:04 AM
Alpha 036	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:06 AM
Alpha 037	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:07 AM
Alpha 038	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:09 AM
Alpha 039	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:11 AM
Alpha 040	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:13 AM
Alpha 041	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:15 AM
Alpha 042	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:17 AM
Alpha 043	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:19 AM
Alpha 044	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:22 AM
Alpha 045	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:25 AM
Alpha 046	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:29 AM
Alpha 047	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:31 AM
Alpha 048	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:34 AM
Alpha 049	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:38 AM
Alpha 050	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:41 AM
Alpha 051	Alpha Analyst100DC	ALL	Not Done	
Alpha 052	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:46 AM
Alpha 053	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:49 AM
Alpha 054	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:52 AM
Alpha 055	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:55 AM
Alpha 056	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:23:59 AM
Alpha 057	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:24:02 AM
Alpha 058	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:24:05 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 059	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:24:08 AM
Alpha 060	Alpha Analyst100DC	ALL	Passed	7/6/2016 5:24:11 AM

APPROVED BY: _____ 

APPROVAL DATE: 7/6/16

***** LIBRARY LISTING REPORT *****

Nuclide Library Title: Thorium

Nuclide Library Description: Th-227,-228,-229,-230,-232

Nuclide Name	Half-Life (Seconds)	Energy (keV)	Energy Uncert. (keV)	Yield (%)	Yield Uncert. (Abs.+)
TH-227	6.873E+008	5850.000*	0.000	97.5000	0.0000
TH-228	6.034E+007	5400.000*	0.000	99.9400	0.0000
TH-229	2.487E+011	4872.000*	0.000	99.5200	0.0000
TH-230	2.379E+012	4672.000*	0.000	99.8200	0.0000
TH-232	4.434E+017	3997.000*	0.000	100.0000	0.0000

* = key line

TOTALS: 5 Nuclides 5 Energy Lines

SECTION X
ANALYTICAL DATA (GAMMA SPECTROSCOPY)

Work Order	16-06067
Analysis Code	Gamma
Run	1
Date Received	6/14/2016
Lab Deadline	7/5/2016
Client	Auxier & Associates, Inc.
Project	PAP-KAN
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	LANL ER-130 Modified
Instrument Type	Gamma Spectroscopy
Radiometric Tracer	
Radiometric Sol#	
Tracer Act (dpm/g)	
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		06/14/16 00:00	1.0000E+00
02	MBL	BLANK		06/14/16 00:00	1.0000E+00
03	DUP	CP-5030 05-10 QC	37	06/06/16 00:00	2.9375E+02
04	DO	CP-5030 05-10 QC	37	06/06/16 00:00	2.9375E+02
05	TRG	CP-5031 00-02 QC	38	06/02/16 00:00	7.3987E+02
06	TRG	CP-5023 02-05 QC	30	06/02/16 00:00	4.9415E+02
07	TRG	CP-5010 00-02 QC	50	06/07/16 00:00	5.0404E+02
08	TRG	CP-5010 09-15 QC	39	06/07/16 00:00	3.6723E+02
09	TRG	CP-5012 09-15 QC	55	06/07/16 00:00	2.5955E+02
10	TRG	CP-5014 09-15 QC	49	06/07/16 00:00	3.8047E+02
11	TRG	CP-5017 00-02 QC	47	06/08/16 00:00	6.3326E+02
12	TRG	CP-5020 00-02 QC	41	06/09/16 00:00	5.9717E+02

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ^ Indicates estimated SAF value.
** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

16-06067
Gamma
Run 1

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS				0.00								
02	MBL				0.00								
03	DUP				0.00								
04	DO				0.00								
05	TRG				0.00								
06	TRG				0.00								
07	TRG				0.00								
08	TRG				0.00								
09	TRG				0.00								
10	TRG				0.00								
11	TRG				0.00								
12	TRG				0.00								

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ^ Indicates estimated SAF value.

** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep 10 Date/Time	Sep 10 By	Sep 11 Date/Time	Sep 11 By
01	LCS								
02	MBL								
03	DUP								
04	DO	06/20/16 07:41	KSALLINGS						
05	TRG	06/20/16 07:41	KSALLINGS						
06	TRG	06/20/16 07:41	KSALLINGS						
07	TRG	06/20/16 07:41	KSALLINGS						
08	TRG	06/20/16 07:41	KSALLINGS						
09	TRG	06/20/16 07:41	KSALLINGS						
10	TRG	06/20/16 07:41	KSALLINGS						
11	TRG	06/20/16 07:41	KSALLINGS						
12	TRG	06/20/16 07:41	KSALLINGS						

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ^ Indicates estimated SAF value.
** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
01	CO-60	LCS	LCS	pCi/g	1.42E+02	9.85E+00	1.47E+00	1.37E+02	103.42	OK		06/14/16 00:00	1.00E+00	06/20/16 11:18	YES
01	CS-137	LCS	LCS	pCi/g	8.73E+01	8.38E+00	1.81E+00	8.69E+01	100.43	OK		06/14/16 00:00	1.00E+00	06/20/16 11:18	YES
02	AC-228	MBL	BLANK	pCi/g	-2.65E-02	1.40E-01	2.31E-01					06/14/16 00:00	1.00E+00	06/20/16 10:15	NO
02	BI-214	MBL	BLANK	pCi/g	-2.39E-02	8.56E-02	1.36E-01					06/14/16 00:00	1.00E+00	06/20/16 10:15	NO
02	K-40	MBL	BLANK	pCi/g	4.80E-01	3.18E-01	8.89E-01					06/14/16 00:00	1.00E+00	06/20/16 10:15	NO
02	PA-231	MBL	BLANK	pCi/g	1.92E-01	1.30E+00	2.11E+00					06/14/16 00:00	1.00E+00	06/20/16 10:15	NO
02	PB-210	MBL	BLANK	pCi/g	1.65E-01	2.66E-01	5.17E-01					06/14/16 00:00	1.00E+00	06/20/16 10:15	NO
02	PB-212	MBL	BLANK	pCi/g	5.43E-02	6.34E-02	1.09E-01					06/14/16 00:00	1.00E+00	06/20/16 10:15	NO
02	PB-214	MBL	BLANK	pCi/g	1.12E-01	8.20E-02	1.51E-01					06/14/16 00:00	1.00E+00	06/20/16 10:15	NO
02	TH-234	MBL	BLANK	pCi/g	4.23E-01	3.90E-01	6.59E-01					06/14/16 00:00	1.00E+00	06/20/16 10:15	NO
02	TL-208	MBL	BLANK	pCi/g	1.08E-02	1.17E-01	1.96E-01					06/14/16 00:00	1.00E+00	06/20/16 10:15	NO
03	AC-228	DUP	CP-5030 05-10 QC	pCi/g	2.58E+00	4.20E-01	9.64E-01				OK	06/06/16 00:00	2.94E+02	06/20/16 09:13	YES
03	BI-214	DUP	CP-5030 05-10 QC	pCi/g	1.37E+00	2.51E-01	3.84E-01				OK	06/06/16 00:00	2.94E+02	06/20/16 09:13	YES
03	K-40	DUP	CP-5030 05-10 QC	pCi/g	2.89E+01	3.54E+00	1.92E+00				OK	06/06/16 00:00	2.94E+02	06/20/16 09:13	YES
03	PA-231	DUP	CP-5030 05-10 QC	pCi/g	3.21E+00	2.25E+00	4.00E+00					06/06/16 00:00	2.94E+02	06/20/16 09:13	NO
03	PB-210	DUP	CP-5030 05-10 QC	pCi/g	2.82E+00	2.26E+00	3.71E+00					06/06/16 00:00	2.94E+02	06/20/16 09:13	YES
03	PB-212	DUP	CP-5030 05-10 QC	pCi/g	2.35E+00	2.81E-01	3.72E-01					06/06/16 00:00	2.94E+02	06/20/16 09:13	YES
03	PB-214	DUP	CP-5030 05-10 QC	pCi/g	1.64E+00	2.60E-01	3.80E-01					06/06/16 00:00	2.94E+02	06/20/16 09:13	YES
03	TH-234	DUP	CP-5030 05-10 QC	pCi/g	4.44E+00	2.34E+00	3.29E+00					06/06/16 00:00	2.94E+02	06/20/16 09:13	NO
03	TL-208	DUP	CP-5030 05-10 QC	pCi/g	1.52E+00	2.54E-01	3.47E-01					06/06/16 00:00	2.94E+02	06/20/16 09:13	YES
04	AC-228	DO	CP-5030 05-10 QC	pCi/g	2.38E+00	3.41E-01	5.24E-01					06/06/16 00:00	2.94E+02	06/20/16 10:16	YES
04	BI-214	DO	CP-5030 05-10 QC	pCi/g	1.58E+00	2.51E-01	2.99E-01					06/06/16 00:00	2.94E+02	06/20/16 10:16	YES
04	K-40	DO	CP-5030 05-10 QC	pCi/g	3.23E+01	3.79E+00	1.66E+00					06/06/16 00:00	2.94E+02	06/20/16 10:16	YES
04	PA-231	DO	CP-5030 05-10 QC	pCi/g	3.16E+00	2.41E+00	4.19E+00					06/06/16 00:00	2.94E+02	06/20/16 10:16	YES
04	PB-210	DO	CP-5030 05-10 QC	pCi/g	2.42E+00	2.29E+00	3.80E+00					06/06/16 00:00	2.94E+02	06/20/16 10:16	YES
04	PB-212	DO	CP-5030 05-10 QC	pCi/g	2.39E+00	2.76E-01	3.82E-01					06/06/16 00:00	2.94E+02	06/20/16 10:16	YES
04	PB-214	DO	CP-5030 05-10 QC	pCi/g	1.81E+00	2.37E-01	3.80E-01					06/06/16 00:00	2.94E+02	06/20/16 10:16	NO
04	TH-234	DO	CP-5030 05-10 QC	pCi/g	4.97E+00	2.38E+00	3.35E+00					06/06/16 00:00	2.94E+02	06/20/16 10:16	YES
04	TL-208	DO	CP-5030 05-10 QC	pCi/g	1.84E+00	2.88E-01	1.95E-01					06/06/16 00:00	2.94E+02	06/20/16 10:16	YES
05	AC-228	TRG	CP-5031 00-02 QC	pCi/g	1.78E-01	2.84E-01	5.00E-01					06/02/16 00:00	7.40E+02	06/20/16 09:14	NO
05	BI-214	TRG	CP-5031 00-02 QC	pCi/g	1.18E+00	2.37E-01	2.21E-01					06/02/16 00:00	7.40E+02	06/20/16 09:14	YES
05	K-40	TRG	CP-5031 00-02 QC	pCi/g	4.69E+00	1.37E+00	1.44E+00					06/02/16 00:00	7.40E+02	06/20/16 09:14	YES
05	PA-231	TRG	CP-5031 00-02 QC	pCi/g	5.47E-02	1.13E+00	3.52E+00					06/02/16 00:00	7.40E+02	06/20/16 09:14	NO
05	PB-210	TRG	CP-5031 00-02 QC	pCi/g	9.00E-01	5.55E-01	9.10E-01					06/02/16 00:00	7.40E+02	06/20/16 09:14	NO
05	PB-212	TRG	CP-5031 00-02 QC	pCi/g	3.83E-01	1.31E-01	2.24E-01					06/02/16 00:00	7.40E+02	06/20/16 09:14	NO
05	PB-214	TRG	CP-5031 00-02 QC	pCi/g	1.28E+00	2.54E-01	2.62E-01					06/02/16 00:00	7.40E+02	06/20/16 09:14	YES
05	TH-234	TRG	CP-5031 00-02 QC	pCi/g	1.77E+00	1.27E+00	2.09E+00					06/02/16 00:00	7.40E+02	06/20/16 09:14	YES
05	TL-208	TRG	CP-5031 00-02 QC	pCi/g	1.83E-01	2.16E-01	3.74E-01					06/02/16 00:00	7.40E+02	06/20/16 09:14	NO

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LSC %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
06	AC-228	TRG	CP-5023 02-05 QC	pCi/g	1.26E+00	2.74E-01	4.39E-01					06/02/16 00:00	4.94E+02	06/20/16 09:14	YES
06	BI-214	TRG	CP-5023 02-05 QC	pCi/g	1.07E+00	1.79E-01	2.30E-01					06/02/16 00:00	4.94E+02	06/20/16 09:14	YES
06	K-40	TRG	CP-5023 02-05 QC	pCi/g	1.88E+01	2.41E+00	1.38E+00					06/02/16 00:00	4.94E+02	06/20/16 09:14	YES
06	PA-231	TRG	CP-5023 02-05 QC	pCi/g	-1.96E+00	2.30E+00	2.51E+00					06/02/16 00:00	4.94E+02	06/20/16 09:14	NO
06	PB-210	TRG	CP-5023 02-05 QC	pCi/g	2.19E+00	1.47E+00	2.39E+00					06/02/16 00:00	4.94E+02	06/20/16 09:14	YES
06	PB-212	TRG	CP-5023 02-05 QC	pCi/g	1.71E+00	2.97E-01	2.43E-01					06/02/16 00:00	4.94E+02	06/20/16 09:14	YES
06	PB-214	TRG	CP-5023 02-05 QC	pCi/g	1.14E+00	1.83E-01	2.10E-01					06/02/16 00:00	4.94E+02	06/20/16 09:14	YES
06	TH-234	TRG	CP-5023 02-05 QC	pCi/g	1.46E+00	1.35E+00	2.24E+00					06/02/16 00:00	4.94E+02	06/20/16 09:14	YES
06	TL-208	TRG	CP-5023 02-05 QC	pCi/g	9.92E-01	1.69E-01	1.33E-01					06/02/16 00:00	4.94E+02	06/20/16 09:14	YES
07	AC-228	TRG	CP-5010 00-02 QC	pCi/g	1.07E+00	3.51E-01	6.64E-01					06/07/16 00:00	5.04E+02	06/20/16 09:14	NO
07	BI-214	TRG	CP-5010 00-02 QC	pCi/g	1.82E+00	2.50E-01	3.58E-01					06/07/16 00:00	5.04E+02	06/20/16 09:14	YES
07	K-40	TRG	CP-5010 00-02 QC	pCi/g	1.61E+01	2.21E+00	1.32E+00					06/07/16 00:00	5.04E+02	06/20/16 09:14	YES
07	PA-231	TRG	CP-5010 00-02 QC	pCi/g	3.90E-01	2.49E+00	3.66E+00					06/07/16 00:00	5.04E+02	06/20/16 09:14	NO
07	PB-210	TRG	CP-5010 00-02 QC	pCi/g	2.14E+00	1.90E+00	3.14E+00					06/07/16 00:00	5.04E+02	06/20/16 09:14	YES
07	PB-212	TRG	CP-5010 00-02 QC	pCi/g	1.55E+00	1.85E-01	2.66E-01					06/07/16 00:00	5.04E+02	06/20/16 09:14	YES
07	PB-214	TRG	CP-5010 00-02 QC	pCi/g	2.03E+00	2.16E-01	4.40E-01					06/07/16 00:00	5.04E+02	06/20/16 09:14	YES
07	TH-234	TRG	CP-5010 00-02 QC	pCi/g	2.02E+00	1.95E+00	3.24E+00					06/07/16 00:00	5.04E+02	06/20/16 09:14	YES
07	TL-208	TRG	CP-5010 00-02 QC	pCi/g	1.16E+00	2.30E-01	1.58E-01					06/07/16 00:00	5.04E+02	06/20/16 09:14	YES
08	AC-228	TRG	CP-5010 09-15 QC	pCi/g	1.76E+00	3.53E-01	4.32E-01					06/07/16 00:00	3.67E+02	06/20/16 10:16	YES
08	BI-214	TRG	CP-5010 09-15 QC	pCi/g	1.11E+00	2.11E-01	2.35E-01					06/07/16 00:00	3.67E+02	06/20/16 10:16	YES
08	K-40	TRG	CP-5010 09-15 QC	pCi/g	2.57E+01	3.20E+00	1.40E+00					06/07/16 00:00	3.67E+02	06/20/16 10:16	YES
08	PA-231	TRG	CP-5010 09-15 QC	pCi/g	2.44E-01	1.66E+00	3.36E+00					06/07/16 00:00	3.67E+02	06/20/16 10:16	NO
08	PB-210	TRG	CP-5010 09-15 QC	pCi/g	2.24E+00	1.40E+00	2.24E+00					06/07/16 00:00	3.67E+02	06/20/16 10:16	NO
08	PB-212	TRG	CP-5010 09-15 QC	pCi/g	1.65E+00	2.73E-01	4.02E-01					06/07/16 00:00	3.67E+02	06/20/16 10:16	YES
08	PB-214	TRG	CP-5010 09-15 QC	pCi/g	1.21E+00	2.37E-01	3.31E-01					06/07/16 00:00	3.67E+02	06/20/16 10:16	YES
08	TH-234	TRG	CP-5010 09-15 QC	pCi/g	2.63E+00	1.88E+00	3.09E+00					06/07/16 00:00	3.67E+02	06/20/16 10:16	YES
08	TL-208	TRG	CP-5010 09-15 QC	pCi/g	1.23E+00	2.49E-01	2.57E-01					06/07/16 00:00	3.67E+02	06/20/16 10:16	YES
09	AC-228	TRG	CP-5012 09-15 QC	pCi/g	2.68E+00	4.91E-01	8.91E-01					06/07/16 00:00	2.60E+02	06/20/16 10:16	YES
09	BI-214	TRG	CP-5012 09-15 QC	pCi/g	1.98E+00	3.88E-01	5.42E-01					06/07/16 00:00	2.60E+02	06/20/16 10:16	YES
09	K-40	TRG	CP-5012 09-15 QC	pCi/g	3.05E+01	4.13E+00	1.92E+00					06/07/16 00:00	2.60E+02	06/20/16 10:16	YES
09	PA-231	TRG	CP-5012 09-15 QC	pCi/g	7.00E+00	3.91E+00	6.59E+00					06/07/16 00:00	2.60E+02	06/20/16 10:16	NO
09	PB-210	TRG	CP-5012 09-15 QC	pCi/g	3.40E+00	3.08E+00	5.10E+00					06/07/16 00:00	2.60E+02	06/20/16 10:16	YES
09	PB-212	TRG	CP-5012 09-15 QC	pCi/g	2.71E+00	3.33E-01	5.94E-01					06/07/16 00:00	2.60E+02	06/20/16 10:16	YES
09	PB-214	TRG	CP-5012 09-15 QC	pCi/g	1.96E+00	2.79E-01	9.73E-01					06/07/16 00:00	2.60E+02	06/20/16 10:16	NO
09	TH-234	TRG	CP-5012 09-15 QC	pCi/g	2.05E+00	2.74E+00	3.67E+00					06/07/16 00:00	2.60E+02	06/20/16 10:16	YES
09	TL-208	TRG	CP-5012 09-15 QC	pCi/g	1.94E+00	4.09E-01	3.06E-01					06/07/16 00:00	2.60E+02	06/20/16 10:16	YES
10	AC-228	TRG	CP-5014 09-15 QC	pCi/g	1.84E+00	3.85E-01	7.38E-01					06/07/16 00:00	3.80E+02	06/20/16 11:17	NO
10	BI-214	TRG	CP-5014 09-15 QC	pCi/g	1.21E+00	2.02E-01	2.20E-01					06/07/16 00:00	3.80E+02	06/20/16 11:17	YES

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
10	K-40	TRG	CP-5014 09-15 QC	pCi/g	2.84E+01	3.22E+00	1.24E+00					06/07/16 00:00	3.80E+02	06/20/16 11:17	YES
10	PA-231	TRG	CP-5014 09-15 QC	pCi/g	1.72E+00	1.95E+00	3.30E+00					06/07/16 00:00	3.80E+02	06/20/16 11:17	NO
10	PB-210	TRG	CP-5014 09-15 QC	pCi/g	3.88E+00	2.11E+00	2.99E+00					06/07/16 00:00	3.80E+02	06/20/16 11:17	NO
10	PB-212	TRG	CP-5014 09-15 QC	pCi/g	1.61E+00	2.27E-01	3.61E-01					06/07/16 00:00	3.80E+02	06/20/16 11:17	NO
10	PB-214	TRG	CP-5014 09-15 QC	pCi/g	1.47E+00	1.95E-01	3.28E-01					06/07/16 00:00	3.80E+02	06/20/16 11:17	YES
10	TH-234	TRG	CP-5014 09-15 QC	pCi/g	2.43E+00	2.20E+00	3.66E+00					06/07/16 00:00	3.80E+02	06/20/16 11:17	NO
10	TL-208	TRG	CP-5014 09-15 QC	pCi/g	1.61E+00	2.12E-01	1.50E-01					06/07/16 00:00	3.80E+02	06/20/16 11:17	YES
11	AC-228	TRG	CP-5017 00-02 QC	pCi/g	1.06E+00	2.10E-01	3.50E-01					06/08/16 00:00	6.33E+02	06/20/16 11:17	YES
11	BI-214	TRG	CP-5017 00-02 QC	pCi/g	8.86E-01	1.40E-01	1.89E-01					06/08/16 00:00	6.33E+02	06/20/16 11:17	YES
11	K-40	TRG	CP-5017 00-02 QC	pCi/g	1.77E+01	2.09E+00	6.97E-01					06/08/16 00:00	6.33E+02	06/20/16 11:17	YES
11	PA-231	TRG	CP-5017 00-02 QC	pCi/g	-1.68E+00	1.72E+00	1.95E+00					06/08/16 00:00	6.33E+02	06/20/16 11:17	NO
11	PB-210	TRG	CP-5017 00-02 QC	pCi/g	5.79E-01	8.00E-01	1.24E+00					06/08/16 00:00	6.33E+02	06/20/16 11:17	NO
11	PB-212	TRG	CP-5017 00-02 QC	pCi/g	7.41E-01	1.77E-01	2.27E-01					06/08/16 00:00	6.33E+02	06/20/16 11:17	NO
11	PB-214	TRG	CP-5017 00-02 QC	pCi/g	8.29E-01	1.62E-01	1.78E-01					06/08/16 00:00	6.33E+02	06/20/16 11:17	YES
11	TH-234	TRG	CP-5017 00-02 QC	pCi/g	1.69E+00	1.31E+00	2.17E+00					06/08/16 00:00	6.33E+02	06/20/16 11:17	YES
11	TL-208	TRG	CP-5017 00-02 QC	pCi/g	9.86E-01	1.66E-01	1.04E-01					06/08/16 00:00	6.33E+02	06/20/16 11:17	YES
12	AC-228	TRG	CP-5020 00-02 QC	pCi/g	9.64E-01	2.74E-01	5.13E-01					06/09/16 00:00	5.97E+02	06/20/16 11:18	YES
12	BI-214	TRG	CP-5020 00-02 QC	pCi/g	3.81E+00	3.42E-01	2.62E-01					06/09/16 00:00	5.97E+02	06/20/16 11:18	YES
12	K-40	TRG	CP-5020 00-02 QC	pCi/g	1.86E+01	2.27E+00	2.56E+00					06/09/16 00:00	5.97E+02	06/20/16 11:18	YES
12	PA-231	TRG	CP-5020 00-02 QC	pCi/g	6.19E-01	9.93E-01	4.01E+00					06/09/16 00:00	5.97E+02	06/20/16 11:18	NO
12	PB-210	TRG	CP-5020 00-02 QC	pCi/g	4.62E+00	2.12E+00	3.38E+00					06/09/16 00:00	5.97E+02	06/20/16 11:18	YES
12	PB-212	TRG	CP-5020 00-02 QC	pCi/g	1.36E+00	1.75E-01	4.61E-01					06/09/16 00:00	5.97E+02	06/20/16 11:18	YES
12	PB-214	TRG	CP-5020 00-02 QC	pCi/g	4.39E+00	3.42E-01	3.83E-01					06/09/16 00:00	5.97E+02	06/20/16 11:18	YES
12	TH-234	TRG	CP-5020 00-02 QC	pCi/g	2.94E+00	2.26E+00	3.76E+00					06/09/16 00:00	5.97E+02	06/20/16 11:18	YES
12	TL-208	TRG	CP-5020 00-02 QC	pCi/g	1.01E+00	1.85E-01	1.33E-01					06/09/16 00:00	5.97E+02	06/20/16 11:18	YES

1hr

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	06/14/16 00:00	1.0000				0.00		
02	MBL	BLANK	06/14/16 00:00	1.0000				0.00		
03	DUP	CP-5030 05-10 QC	06/06/16 00:00	293.7500				0.00		
04	DO	CP-5030 05-10 QC	06/06/16 00:00	293.7500				0.00		
05	TRG	CP-5031 00-02 QC	06/02/16 00:00	739.8700				0.00		
06	TRG	CP-5023 02-05 QC	06/02/16 00:00	494.1500				0.00		
07	TRG	CP-5010 00-02 QC	06/07/16 00:00	504.0400				0.00		
08	TRG	CP-5010 09-15 QC	06/07/16 00:00	367.2300				0.00		
09	TRG	CP-5012 09-15 QC	06/07/16 00:00	259.5500				0.00		
10	TRG	CP-5014 09-15 QC	06/07/16 00:00	380.4700				0.00		
11	TRG	CP-5017 00-02 QC	06/08/16 00:00	633.2600				0.00		
12	TRG	CP-5020 00-02 QC	06/09/16 00:00	597.1700				0.00		

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

GAS-1302

94268

Sand in 16 Ounce PP Taral Jar Filled to Top

Customer: Eberline Analytical Corporation
P.O. No.: 1304009, Item 7 **Product Code:** 8401-EG-SAN
Reference Date: 01-Jul-2013 12:00 PM EST **Grams of Master Source:** 0.017994

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solutions. Additional radionuclides were added gravimetrically from solutions calibrated by gamma-ray spectrometry, ionization chamber, or liquid scintillation counting. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Nuclide	Gamma-Ray Energy (keV)	Half-Life, Days	Master Source* γ ps/gram	This Source γ ps	Uncertainty*, %			Calibration Method*
					u_A	u_B	U	
Am-241	59.5	1.580E+06	—	2.094E+03	0.1	1.7	3.5	4 π LS
Cd-109	88.0	4.626E+02	1.641E+05	2.952E+03	0.5	2.3	4.7	HPGe
Co-57	122.1	2.718E+02	8.865E+04	1.595E+03	0.4	2.0	4.1	HPGe
Ce-139	165.9	1.376E+02	1.243E+05	2.236E+03	0.4	1.9	3.9	HPGe
Hg-203	279.2	4.661E+01	2.627E+05	4.727E+03	0.3	1.9	3.8	HPGe
Sn-113	391.7	1.151E+02	1.736E+05	3.124E+03	0.4	1.9	3.9	HPGe
Cs-137	661.7	1.098E+04	1.120E+05	2.015E+03	0.7	1.9	4.0	HPGe
Y-88	898.0	1.066E+02	4.197E+05	7.553E+03	0.5	1.9	3.9	HPGe
Co-60	1173.2	1.925E+03	2.074E+05	3.732E+03	0.6	1.9	4.0	HPGe
Co-60	1332.5	1.925E+03	2.074E+05	3.732E+03	0.7	1.9	4.0	HPGe
Y-88	1836.1	1.066E+02	4.444E+05	7.996E+03	0.7	1.9	4.0	HPGe

* Master Source refers to Analytics' 8-isotope mixture which is calibrated quarterly.

Calibration Methods: 4 π LS - 4 pi Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber. **Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

(Certificate continued on reverse side)



Aliquot Worksheet

Work Order	16-06067	Run	1	Analysis Code	Gamma	Rpt Units	grams	Lab Deadline	7/5/2016	Technician	KSALLINGS
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Lab Fraction	Auxier & Associates, Inc.		Sample		Muffle Data		Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
	Client ID	Type	No. of Dilis	Dil Factor	Ratio Post/Pre	Ratio	Aliquot	Net Equiv	Net Equiv	Water Added (ml)	H3 Dist Aliq				
01	LCS	LCS					1.0000E+00	1.0000E+00							
02	BLANK	MBL					1.0000E+00	1.0000E+00							
03	CP-5030 05-10 QC	DUP					2.9375E+02	2.9375E+02							
04	CP-5030 05-10 QC	DO					2.9375E+02	2.9375E+02							
05	CP-5031 00-02 QC	TRG					7.3987E+02	7.3987E+02							
06	CP-5023 02-05 QC	TRG					4.9415E+02	4.9415E+02							
07	CP-5010 00-02 QC	TRG					5.0404E+02	5.0404E+02							
08	CP-5010 09-15 QC	TRG					3.6723E+02	3.6723E+02							
09	CP-5012 09-15 QC	TRG					2.5955E+02	2.5955E+02							
10	CP-5014 09-15 QC	TRG					3.8047E+02	3.8047E+02							
11	CP-5017 00-02 QC	TRG					6.3326E+02	6.3326E+02							
12	CP-5020 00-02 QC	TRG					5.9717E+02	5.9717E+02							

Comments	
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Technician: Kenny Sells Date: 6/20/16

6
00235
6/20/16

**Rough Sample Preparation
 Log Book**

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
16-06067	7/5/2016	6/19/2016	6/20/2016	6/21/2016	KSALLINGS

Eberline Fraction	Client ID	Tare (g)		Gross (g)		Net (g)		Percent		Gamma		Special Info
		Pan Wt		Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	
04	CP-5030 05-10 QC	14.6100		464.6200	387.2900	450.0100	372.6800	17.18%	82.82%	0.0000	0.0000	
05	CP-5031 00-02 QC	14.5900		845.3400	809.6600	830.7500	795.0700	4.29%	95.71%	0.0000	0.0000	
06	CP-5023 02-05 QC	14.6000		653.6900	552.2800	639.0900	537.6800	15.87%	84.13%	0.0000	0.0000	
07	CP-5010 00-02 QC	14.6100		662.9500	568.1200	648.3400	553.5100	14.63%	85.37%	0.0000	0.0000	
08	CP-5010 09-15 QC	14.6200		537.1200	427.4500	522.5000	412.8300	20.99%	79.01%	0.0000	0.0000	
09	CP-5012 09-15 QC	14.5900		393.5600	317.4600	378.9700	302.8700	20.08%	79.92%	0.0000	0.0000	
10	CP-5014 09-15 QC	14.5800		549.8300	443.3500	535.2500	428.7700	19.89%	80.11%	0.0000	0.0000	
11	CP-5017 00-02 QC	14.5700		806.9400	699.1600	792.3700	684.5900	13.60%	86.40%	0.0000	0.0000	
12	CP-5020 00-02 QC	14.5400		909.9000	763.4700	895.3600	748.9300	16.35%	83.65%	0.0000	0.0000	

Comments
Special Codes
H: Hot, O: Organic Hazard, P: PCB Hazard, R: Rush, T: Other (see comments)

Technician: Kerry Selby

Date: Analysis: Rough Prep Logbook

Analysis: Gamma Page No. 9706

6/20/2016 7:41 AM

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6/20/16Analysis Report for 1606067-01
GAS 1302

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606067-01
Sample Description : GAS 1302
Sample Type : SOIL

Sample Size : 7.360E+02 grams
Facility : Countroom

Sample Taken On : 7/1/2013 9:09:35AM
Acquisition Started : 6/20/2016 11:18:14AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE4
Geometry : GAS-1402
Live Time : 1800.0 seconds
Real Time : 1818.3 seconds

Dead Time : 1.00 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 14 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 10/25/2014
Efficiency Calibration Used Done On : 11/8/2014
Efficiency Calibration Description :

Sample Number : 39156

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/20/16

Analysis Report for 1606067-01

GAS 1302

PEAK LOCATE REPORT

Peak Locate Performed on : 6/20/2016 11:48:35AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
1	22.40	21.65	0.0000	0.00
2	32.10	31.35	0.0000	0.00
3	53.81	53.07	0.0000	0.00
4	59.55	58.81	0.0000	0.00
5	87.91	87.19	0.0000	0.00
6	122.18	121.46	0.0000	0.00
7	136.34	135.63	0.0000	0.00
8	166.65	165.95	0.0000	0.00
9	662.02	661.55	0.0000	0.00
10	698.37	697.92	0.0000	0.00
11	1173.78	1173.59	0.0000	0.00
12	1333.11	1333.00	0.0000	0.00
13	1494.21	1494.20	0.0000	0.00
14	1836.82	1837.03	0.0000	0.00
15	1999.99	2000.32	0.0000	0.00
16	2019.11	2019.45	0.0000	0.00
17	2031.37	2031.71	0.0000	0.00
18	2238.15	2238.64	0.0000	0.00
19	2260.35	2260.85	0.0000	0.00
20	2506.71	2507.40	0.0000	0.00
21	2615.09	2615.86	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606067-01

GAS 1302

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 11:48:35AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
1	22.40	19 -	25	21.65	4.94E+04	664.58	4.58E+04	2.46
2	32.10	29 -	34	31.35	1.10E+03	222.60	9.08E+03	2.20
M 3	53.81	42 -	62	53.07	1.83E+04	933.33	4.65E+04	6.63
m 4	59.55	42 -	62	58.81	5.62E+04	584.14	1.50E+04	2.30
5	87.91	80 -	93	87.19	1.85E+04	552.44	2.53E+04	2.36
6	122.18	117 -	126	121.46	2.77E+03	319.05	1.29E+04	2.34
7	136.34	133 -	140	135.63	3.49E+02	244.34	9.69E+03	3.15
8	166.65	163 -	169	165.95	2.61E+02	209.37	7.76E+03	1.63
9	662.02	656 -	666	661.55	1.21E+04	267.58	3.06E+03	2.52
10	698.37	695 -	701	697.92	8.15E+01	96.63	1.64E+03	1.78
11	1173.78	1166 -	1181	1173.59	9.57E+03	241.11	1.96E+03	2.69
12	1333.11	1326 -	1340	1333.00	8.73E+03	194.07	2.79E+02	2.88
13	1494.21	1489 -	1498	1494.20	1.87E+01	15.78	2.45E+01	7.30
14	1836.82	1833 -	1842	1837.03	2.71E+01	14.66	1.58E+01	5.43
15	1999.99	1995 -	2006	2000.32	1.34E+01	10.00	5.19E+00	6.73
16	2019.11	2015 -	2025	2019.45	1.24E+01	13.22	1.71E+01	6.91
17	2031.37	2028 -	2035	2031.71	1.40E+01	7.48	0.00E+00	3.99
18	2238.15	2233 -	2242	2238.64	8.00E+00	10.10	1.00E+01	6.82
19	2260.35	2257 -	2264	2260.85	7.00E+00	7.21	4.00E+00	2.88
20	2506.71	2502 -	2512	2507.40	3.50E+01	11.83	0.00E+00	3.00
21	2615.09	2611 -	2618	2615.86	7.00E+00	5.29	0.00E+00	1.98

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 11:48:35AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Analysis Report for 1606067-01

GAS 1302

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	22.40	19 - 25	4.94E+04	664.58	4.58E+04	4.06E+02
	2	32.10	29 - 34	1.10E+03	222.60	9.08E+03	1.75E+02
M	3	53.81	42 - 62	1.83E+04	933.33	4.65E+04	3.55E+02
m	4	59.55	42 - 62	5.62E+04	584.14	1.50E+04	2.01E+02
	5	87.91	80 - 93	1.85E+04	552.44	2.53E+04	3.95E+02
	6	122.18	117 - 126	2.77E+03	319.05	1.29E+04	2.48E+02
	7	136.34	133 - 140	3.49E+02	244.34	9.69E+03	1.98E+02
	8	166.65	163 - 169	2.61E+02	209.37	7.76E+03	1.70E+02
	9	662.02	656 - 666	1.21E+04	267.58	3.06E+03	1.25E+02
	10	698.37	695 - 701	8.15E+01	96.63	1.64E+03	7.80E+01
	11	1173.78	1166 - 1181	9.57E+03	241.11	1.96E+03	1.16E+02
	12	1333.11	1326 - 1340	8.73E+03	194.07	2.79E+02	4.31E+01
	13	1494.21	1489 - 1498	1.87E+01	15.78	2.45E+01	1.08E+01
	14	1836.82	1833 - 1842	2.71E+01	14.66	1.58E+01	8.49E+00
	15	1999.99	1995 - 2006	1.34E+01	10.00	5.19E+00	5.60E+00
	16	2019.11	2015 - 2025	1.24E+01	13.22	1.71E+01	9.19E+00
	17	2031.37	2028 - 2035	1.40E+01	7.48	0.00E+00	0.00E+00
	18	2238.15	2233 - 2242	8.00E+00	10.10	1.00E+01	6.88E+00
	19	2260.35	2257 - 2264	7.00E+00	7.21	4.00E+00	4.03E+00
	20	2506.71	2502 - 2512	3.50E+01	11.83	0.00E+00	0.00E+00
	21	2615.09	2611 - 2618	7.00E+00	5.29	0.00E+00	0.00E+00

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/20/2016 11:48:35AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	22.40	19 -	25	21.65	4.94E+04	664.58	4.58E+04	.....

: 00241

Analysis Report for 1606067-01

GAS 1302

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	2	32.10	29 -	34	31.35	1.10E+03	222.60	9.08E+03	.....
M	3	53.81	42 -	62	53.07	1.83E+04	933.33	4.65E+04	.....
m	4	59.55	42 -	62	58.81	5.62E+04	584.14	1.50E+04	AM-241
	5	87.91	80 -	93	87.19	1.85E+04	552.44	2.53E+04	CD-109 SN-126 LU-176
	6	122.18	117 -	126	121.46	2.77E+03	319.05	1.29E+04	CO-57 EU-152 EU-154
	7	136.34	133 -	140	135.63	3.49E+02	244.34	9.69E+03	CO-57 SE-75
	8	166.65	163 -	169	165.95	2.61E+02	209.37	7.76E+03	CE-139
	9	662.02	656 -	666	661.55	1.21E+04	267.58	3.06E+03	CS-137
	10	698.37	695 -	701	697.92	8.15E+01	96.63	1.64E+03	.....
	11	1173.78	1166 -	1181	1173.59	9.57E+03	241.11	1.96E+03	CO-60
	12	1333.11	1326 -	1340	1333.00	8.73E+03	194.07	2.79E+02	CO-60
	13	1494.21	1489 -	1498	1494.20	1.87E+01	15.78	2.45E+01	.....
	14	1836.82	1833 -	1842	1837.03	2.71E+01	14.66	1.58E+01	Y-88
	15	1999.99	1995 -	2006	2000.32	1.34E+01	10.00	5.19E+00	.....
	16	2019.11	2015 -	2025	2019.45	1.24E+01	13.22	1.71E+01	.....
	17	2031.37	2028 -	2035	2031.71	1.40E+01	7.48	0.00E+00	.....
	18	2238.15	2233 -	2242	2238.64	8.00E+00	10.10	1.00E+01	.....
	19	2260.35	2257 -	2264	2260.85	7.00E+00	7.21	4.00E+00	.....
	20	2506.71	2502 -	2512	2507.40	3.50E+01	11.83	0.00E+00	.....
	21	2615.09	2611 -	2618	2615.86	7.00E+00	5.29	0.00E+00	TL-208

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/20/2016 11:48:35AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	22.40	4.94E+04	664.58	3.04E-02	1.78E-03
	2	32.10	1.10E+03	222.60	2.90E-02	1.78E-03
M	3	53.81	1.83E+04	933.33	2.49E-02	1.78E-03
m	4	59.55	5.62E+04	584.14	2.39E-02	1.78E-03
	5	87.91	1.85E+04	552.44	1.96E-02	1.63E-03

Analysis Report for 1606067-01

GAS 1302

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
6	122.18	2.77E+03	319.05	1.59E-02	1.53E-03
7	136.34	3.49E+02	244.34	1.48E-02	1.42E-03
8	166.65	2.61E+02	209.37	1.27E-02	1.21E-03
9	662.02	1.21E+04	267.58	3.57E-03	3.40E-04
10	698.37	8.15E+01	96.63	3.39E-03	3.20E-04
11	1173.78	9.57E+03	241.11	2.05E-03	1.73E-04
12	1333.11	8.73E+03	194.07	1.83E-03	2.16E-04
13	1494.21	1.87E+01	15.78	1.65E-03	1.82E-04
14	1836.82	2.71E+01	14.66	1.39E-03	1.11E-04
15	1999.99	1.34E+01	10.00	1.30E-03	1.11E-04
16	2019.11	1.24E+01	13.22	1.29E-03	1.11E-04
17	2031.37	1.40E+01	7.48	1.28E-03	1.11E-04
18	2238.15	8.00E+00	10.10	1.19E-03	1.11E-04
19	2260.35	7.00E+00	7.21	1.18E-03	1.11E-04
20	2506.71	3.50E+01	11.83	1.10E-03	1.11E-04
21	2615.09	7.00E+00	5.29	1.07E-03	1.11E-04

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000 sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/20/2016 11:48:35AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039130.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	22.40	4.94E+04	664.58			4.94E+04	6.65E+02
2	32.10	1.10E+03	222.60			1.10E+03	2.23E+02
M	3	53.81	1.83E+04	1.47E+00	1.13E+00	1.83E+04	9.33E+02
m	4	59.55	5.62E+04			5.62E+04	5.84E+02
	5	87.91	1.85E+04			1.85E+04	5.52E+02
	6	122.18	2.77E+03			2.77E+03	3.19E+02
	7	136.34	3.49E+02			3.49E+02	2.44E+02
	8	166.65	2.61E+02			2.61E+02	2.09E+02
	9	662.02	1.21E+04			1.21E+04	2.68E+02
	10	698.37	8.15E+01			8.15E+01	9.66E+01
	11	1173.78	9.57E+03			9.57E+03	2.41E+02
	12	1333.11	8.73E+03	4.24E-01	8.84E-01	8.73E+03	1.94E+02
	13	1494.21	1.87E+01			1.87E+01	1.58E+01
	14	1836.82	2.71E+01			2.71E+01	1.47E+01

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Analysis Report for 1606067-01

GAS 1302

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
15	1999.99	1.34E+01	10.00			1.34E+01	1.00E+01
16	2019.11	1.24E+01	13.22			1.24E+01	1.32E+01
17	2031.37	1.40E+01	7.48			1.40E+01	7.48E+00
18	2238.15	8.00E+00	10.10			8.00E+00	1.01E+01
19	2260.35	7.00E+00	7.21			7.00E+00	7.21E+00
20	2506.71	3.50E+01	11.83			3.50E+01	1.18E+01
21	2615.09	7.00E+00	5.29	4.14E-01	4.93E-01	6.59E+00	5.31E+00

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/20/2016 11:48:35AM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039130.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	22.40	4.94E+04	664.58			4.94E+04	6.65E+02
	32.10	1.10E+03	222.60			1.10E+03	2.23E+02
M	53.81	1.83E+04	933.33	1.47E+00	1.13E+00	1.83E+04	9.33E+02
m	59.55	5.62E+04	584.14			5.62E+04	5.84E+02
	87.91	1.85E+04	552.44			1.85E+04	5.52E+02
	122.18	2.77E+03	319.05			2.77E+03	3.19E+02
	136.34	3.49E+02	244.34			3.49E+02	2.44E+02
	166.65	2.61E+02	209.37			2.61E+02	2.09E+02
	662.02	1.21E+04	267.58			1.21E+04	2.68E+02
	698.37	8.15E+01	96.63			8.15E+01	9.66E+01
	1173.78	9.57E+03	241.11			9.57E+03	2.41E+02
	1333.11	8.73E+03	194.07	4.24E-01	8.84E-01	8.73E+03	1.94E+02
	1494.21	1.87E+01	15.78			1.87E+01	1.58E+01
	1836.82	2.71E+01	14.66			2.71E+01	1.47E+01
	1999.99	1.34E+01	10.00			1.34E+01	1.00E+01
	2019.11	1.24E+01	13.22			1.24E+01	1.32E+01
	2031.37	1.40E+01	7.48			1.40E+01	7.48E+00
	2238.15	8.00E+00	10.10			8.00E+00	1.01E+01
	2260.35	7.00E+00	7.21			7.00E+00	7.21E+00
	2506.71	3.50E+01	11.83			3.50E+01	1.18E+01
	2615.09	7.00E+00	5.29	4.14E-01	4.93E-01	6.59E+00	5.31E+00

: 00244

Analysis Report for 1606067-01

GAS 1302

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.921	122.06 *		85.51	6.65E+01	1.00E+01
		136.48 *		10.60	7.32E+01	5.18E+01
CO-60	0.943	1173.22 *		100.00	1.41E+02	1.23E+01
		1332.49 *		100.00	1.44E+02	1.73E+01
CD-109	0.971	88.03 *		3.72	2.62E+03	2.79E+02
SN-126	0.981	87.57 *		37.00	5.20E+01	4.59E+00
CS-137	0.979	661.65 *		85.12	8.73E+01	8.55E+00
CE-139	0.662	165.85 *		80.35	1.23E+02	9.96E+01
AM-241	1.000	59.54 *		35.90	1.34E+02	1.01E+01

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 11:48:35AM

Peak Locate From Channel : 1

Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	22.40	2.74252E+01	0.67		

Analysis Report for 1606067-01

GAS 1302

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M 2	32.10	6.12152E-01	10.10		
3	53.81	1.01716E+01	2.55		
10	698.37	4.52673E-02	59.29		
13	1494.21	1.04122E-02	42.10		
14	1836.82	1.50556E-02	27.05	Tol.	Y-88
15	1999.99	7.44792E-03	37.30		
16	2019.11	6.90476E-03	53.18		
17	2031.37	7.77778E-03	26.73		
18	2238.15	4.44444E-03	63.12		
19	2260.35	3.88889E-03	51.51		
20	2506.71	1.94444E-02	16.90	Sum	
21	2615.09	3.65881E-03	40.35	Tol.	TL-208

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.92	122.06 *	85.51	6.65E+01	1.00E+01
		136.48 *	10.60	7.32E+01	5.18E+01
CO-60	0.94	1173.22 *	100.00	1.41E+02	1.23E+01
		1332.49 *	100.00	1.44E+02	1.73E+01
CD-109	0.97	88.03 *	3.72	2.62E+03	2.79E+02
SN-126	0.98	87.57 *	37.00	5.20E+01	4.59E+00
CS-137	0.97	661.65 *	85.12	8.73E+01	8.55E+00
CE-139	0.66	165.85 *	80.35	1.23E+02	9.96E+01
AM-241	1.00	59.54 *	35.90	1.34E+02	1.01E+01

Analysis Report for 1606067-01

GAS 1302

* = Energy line found in the spectrum.
 - = Manually added nuclide.
 ? = Manually edited nuclide.
 @ = Energy line not used for Weighted Mean Activity
 Energy Tolerance : 1.000 keV
 Nuclide confidence index threshold = 0.30
 Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
CO-57	0.921	6.68E+01	9.83E+00	
CO-60	0.943	1.42E+02	1.00E+01	
? CD-109	0.971	2.62E+03	2.79E+02	
? SN-126	0.981	5.20E+01	4.59E+00	
CS-137	0.979	8.73E+01	8.55E+00	
CE-139	0.662	1.23E+02	9.96E+01	
AM-241	1.000	1.34E+02	1.01E+01	

? = nuclide is part of an undetermined solution
 X = nuclide rejected by the interference analysis
 @ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1606067-01
GAS 1302

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 11:48:35AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	22.40	2.74252E+01	0.67		
2	32.10	6.12152E-01	10.10		
M 3	53.81	1.01716E+01	2.55		
10	698.37	4.52673E-02	59.29		
13	1494.21	1.04122E-02	42.10		
14	1836.82	1.50556E-02	27.05	Tol.	Y-88
15	1999.99	7.44792E-03	37.30		
16	2019.11	6.90476E-03	53.18		
17	2031.37	7.77778E-03	26.73		
18	2238.15	4.44444E-03	63.12		
19	2260.35	3.88889E-03	51.51		
20	2506.71	1.94444E-02	16.90	Sum	
21	2615.09	3.65881E-03	40.35	Tol.	TL-208

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	2.90E+06	1.22E+07	1.22E+07
+	NA-22	1274.54	99.94	3.08E-01	1.44E+00	1.44E+00
+	@ NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09	99.86	1.00E+26		1.00E+26

Analysis Report for 1606067-01

GAS 1302

	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
+	AL-26	1808.65	99.76	-1.99E-02	3.50E-01	3.50E-01
+	K-40	1460.81	10.67	2.17E+00	3.43E+00	3.43E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-1.78E+01	4.72E-01	4.72E-01
		78.34	96.00	-1.76E-01		5.13E-01
+	SC-46	889.25	99.98	-4.48E+01	1.09E+04	1.09E+04
		1120.51	99.99	4.47E+03		1.11E+04
+	@ V-48	983.52	99.98	1.00E+26	1.00E+26	1.00E+26
	@	1312.10	97.50	1.00E+26		1.00E+26
+	CR-51	320.08	9.83	8.10E+11	4.61E+12	4.61E+12
+	MN-54	834.83	99.97	1.25E+00	1.40E+01	1.40E+01
+	CO-56	846.75	99.96	6.38E+03	4.26E+03	1.83E+04
		1037.75	14.03	1.14E+04		1.44E+05
		1238.25	67.00	-6.55E+03		1.43E+04
		1771.40	15.51	-3.01E+03		3.47E+04
		2598.48	16.90	0.00E+00		4.26E+03
+	CO-57	122.06	* 85.51	6.65E+01	1.20E+01	1.20E+01
		136.48	* 10.60	7.32E+01		8.38E+01
+	CO-58	810.76	99.40	-8.34E+03	4.82E+04	4.82E+04
+	FE-59	1099.22	56.50	-1.16E+07	3.09E+07	5.60E+07
		1291.56	43.20	1.13E+07		3.09E+07
+	CO-60	1173.22	* 100.00	1.41E+02	1.47E+00	3.45E+00
		1332.49	* 100.00	1.44E+02		1.47E+00
+	ZN-65	1115.52	50.75	-1.60E+00	6.28E+01	6.28E+01
+	@ GA-67	93.31	35.70	1.00E+26	1.00E+26	1.00E+26
	@	208.95	2.24	1.00E+26		1.00E+26
	@	300.22	16.00	1.00E+26		1.00E+26
+	SE-75	121.11	16.70	1.19E+04	4.46E+02	1.77E+03
		136.00	59.20	-5.12E+01		4.46E+02
		264.65	59.80	-1.50E+02		5.99E+02
		279.53	25.20	-2.97E+01		1.46E+03
		400.65	11.40	-3.04E+02		3.96E+03
+	RB-82	776.52	13.00	-6.88E+12	5.23E+13	5.23E+13
+	RB-83	520.41	46.00	-4.09E+03	1.21E+04	1.21E+04
		529.64	30.30	-2.68E+03		1.83E+04
		552.65	16.40	4.44E+03		3.37E+04
+	KR-85	513.99	0.43	6.41E+01	2.60E+02	2.60E+02
+	SR-85	513.99	99.27	2.52E+04	1.02E+05	1.02E+05
+	Y-88	898.02	93.40	2.10E+02	5.44E+02	1.77E+03
		1836.01	99.38	-1.57E+01		5.44E+02
+	NB-93M	16.57	9.43	-1.55E+02	5.08E+00	5.08E+00
+	NB-94	702.63	100.00	2.59E-01	9.91E-01	9.91E-01
		871.10	100.00	7.03E-02		1.35E+00
+	NB-95	765.79	99.81	-1.42E+09	2.23E+09	2.23E+09
+	@ NB-95M	235.69	25.00	1.00E+26	1.00E+26	1.00E+26
+	ZR-95	724.18	43.70	1.87E+05	2.48E+05	3.03E+05
		756.72	55.30	6.29E+03		2.48E+05

Analysis Report for 1606067-01

GAS 1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	@ MO-99	181.06	6.20	1.00E+26	1.00E+26	1.00E+26
	@	739.58	12.80	1.00E+26		1.00E+26
	@	778.00	4.50	1.00E+26		1.00E+26
+	RU-103	497.08	89.00	3.55E+07	2.05E+08	2.05E+08
+	RU-106	621.84	9.80	2.34E+01	7.63E+01	7.63E+01
+	AG-108M	433.93	89.90	6.60E-01	1.05E+00	1.05E+00
		614.37	90.40	-5.21E-01		1.06E+00
		722.95	90.50	6.74E-01		1.17E+00
+	CD-109	88.03	* 3.72	2.62E+03	1.12E+02	1.12E+02
+	AG-110M	657.75	93.14	2.92E+00	3.15E+01	4.92E+01
		677.61	10.53	-5.04E+01		1.83E+02
		706.67	16.46	1.60E+01		1.21E+02
		763.93	21.98	-2.50E+01		9.99E+01
		884.67	71.63	-1.53E+01		3.85E+01
		1384.27	23.94	1.33E+01		3.15E+01
+	CD-113M	263.70	0.02	-1.69E+03	3.37E+03	3.37E+03
+	SN-113	255.12	1.93	6.98E+03	8.83E+02	2.41E+04
		391.69	64.90	3.20E+02		8.83E+02
+	TE123M	159.00	84.10	-1.48E+02	3.29E+02	3.29E+02
+	SB-124	602.71	97.87	8.67E+04	1.76E+05	2.61E+05
		645.85	7.26	-5.37E+05		3.57E+06
		722.78	11.10	-3.26E+05		2.46E+06
		1691.02	49.00	6.13E+04		1.76E+05
+	I-125	35.49	6.49	-3.15E+06	1.29E+06	1.29E+06
+	SB-125	176.33	6.89	-6.07E+00	6.55E+00	1.67E+01
		427.89	29.33	-2.13E+00		6.55E+00
		463.38	10.35	-5.25E+00		2.03E+01
		600.56	17.80	2.63E+00		1.12E+01
		635.90	11.32	-1.60E+00		1.78E+01
+	@ SB-126	414.70	83.30	1.00E+26	1.00E+26	1.00E+26
	@	666.33	99.60	1.00E+26		1.00E+26
	@	695.00	99.60	1.00E+26		1.00E+26
	@	720.50	53.80	1.00E+26		1.00E+26
+	SN-126	87.57	* 37.00	5.20E+01	2.23E+00	2.23E+00
+	@ SB-127	473.00	25.00	1.00E+26	1.00E+26	1.00E+26
	@	685.20	35.70	1.00E+26		1.00E+26
	@	783.80	14.70	1.00E+26		1.00E+26
+	I-129	29.78	57.00	-3.32E+00	6.82E-01	6.82E-01
		33.60	13.20	-1.40E+00		2.28E+00
		39.58	7.52	-1.79E+01		4.49E+00
+	@ I-131	284.30	6.05	1.00E+26	1.00E+26	1.00E+26
	@	364.48	81.20	1.00E+26		1.00E+26
	@	636.97	7.26	1.00E+26		1.00E+26
	@	722.89	1.80	1.00E+26		1.00E+26
+	@ TE-132	49.72	13.10	1.00E+26	1.00E+26	1.00E+26
	@	228.16	88.00	1.00E+26		1.00E+26
+	BA-133	81.00	33.00	-6.83E-01	1.59E+00	1.80E+00
		302.84	17.80	-2.24E+00		4.80E+00

Analysis Report for 1606067-01

GAS 1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BA-133	356.01	60.00	1.20E-01	1.59E+00	1.59E+00
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	@ XE-133	81.00	38.00	1.00E+26	1.00E+26	1.00E+26
+	CS-134	563.23	8.38	-1.46E+01	2.65E+00	2.87E+01
		569.32	15.43	-1.76E+00		1.60E+01
		604.70	97.60	2.54E-01		2.65E+00
		795.84	85.40	1.22E+00		3.60E+00
		801.93	8.73	4.22E+00		3.57E+01
+	CS-135	268.24	16.00	-2.64E+00	4.21E+00	4.21E+00
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	@ CS-136	153.22	7.46	1.00E+26	1.00E+26	1.00E+26
	@	163.89	4.61	1.00E+26		1.00E+26
	@	176.55	13.56	1.00E+26		1.00E+26
	@	273.65	12.66	1.00E+26		1.00E+26
	@	340.57	48.50	1.00E+26		1.00E+26
	@	818.50	99.70	1.00E+26		1.00E+26
	@	1048.07	79.60	1.00E+26		1.00E+26
	@	1235.34	19.70	1.00E+26		1.00E+26
+	CS-137	661.65	* 85.12	8.73E+01	1.81E+00	1.81E+00
+	LA-138	788.74	34.00	-1.65E+00	5.10E-01	3.27E+00
		1435.80	66.00	-9.88E-02		5.10E-01
+	CE-139	165.85	* 80.35	1.23E+02	1.62E+02	1.62E+02
+	@ BA-140	162.64	6.70	1.00E+26	1.00E+26	1.00E+26
	@	304.84	4.50	1.00E+26		1.00E+26
	@	423.70	3.20	1.00E+26		1.00E+26
	@	437.55	2.00	1.00E+26		1.00E+26
	@	537.32	25.00	1.00E+26		1.00E+26
+	@ LA-140	328.77	20.50	1.00E+26	1.00E+26	1.00E+26
	@	487.03	45.50	1.00E+26		1.00E+26
	@	815.85	23.50	1.00E+26		1.00E+26
	@	1596.49	95.49	1.00E+26		1.00E+26
+	CE-141	145.44	48.40	-1.26E+09	1.14E+10	1.14E+10
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	-1.80E+01	6.40E+01	6.40E+01
+	PM-144	476.78	42.00	1.06E+01	7.70E+00	1.87E+01
		618.01	98.60	2.44E+00		7.75E+00
		696.49	99.49	-9.34E-01		7.70E+00
+	PM-145	36.85	21.70	-5.69E+00	8.80E-01	1.60E+00
		37.36	39.70	-3.75E+00		8.80E-01
		42.30	15.10	-4.35E+00		2.91E+00
		72.40	2.31	1.82E+01		2.23E+01
+	PM-146	453.90	39.94	-1.79E+00	3.55E+00	3.55E+00
		735.90	14.01	-3.91E+00		1.06E+01
		747.13	13.10	3.14E+00		1.19E+01

Analysis Report for 1606067-01

GAS 1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	@ ND-147	91.11	28.90	1.00E+26	1.00E+26	1.00E+26
	@	531.02	13.10	1.00E+26		1.00E+26
+	@ PM-149	285.90	3.10	1.00E+26	1.00E+26	1.00E+26
+	EU-152	121.78	20.50	2.07E+01	2.57E+00	3.15E+00
		244.69	5.40	-6.37E+00		1.44E+01
		344.27	19.13	-3.28E-01		4.61E+00
		778.89	9.20	-2.16E+00		1.42E+01
		964.01	10.40	7.35E+00		1.78E+01
		1085.78	7.22	-1.00E+01		2.38E+01
		1112.02	9.60	1.01E+01		1.84E+01
		1407.95	14.94	8.58E-01		2.57E+00
+	GD-153	97.43	31.30	-5.71E+00	2.87E+01	2.87E+01
		103.18	22.20	1.93E+01		4.20E+01
+	EU-154	123.07	40.50	1.14E+01	1.74E+00	1.74E+00
		723.30	19.70	3.85E+00		6.69E+00
		873.19	11.50	-4.53E+00		1.47E+01
		996.32	10.30	2.08E+00		1.76E+01
		1004.76	17.90	2.54E+00		1.04E+01
		1274.45	35.50	4.96E-01		2.33E+00
+	EU-155	86.50	30.90	9.18E+01	3.05E+00	3.85E+00
		105.30	20.70	-1.93E+00		3.05E+00
+	@ EU-156	811.77	10.40	1.00E+26	1.00E+26	1.00E+26
	@	1153.47	7.20	1.00E+26		1.00E+26
	@	1230.71	8.90	1.00E+26		1.00E+26
+	HO-166M	184.41	72.60	-2.57E-01	7.97E-01	7.97E-01
		280.45	29.60	-7.93E-01		2.32E+00
		410.94	11.10	-4.42E-01		7.81E+00
		711.69	54.10	2.22E-01		1.82E+00
+	TM-171	66.72	0.14	-2.96E+04	8.81E+02	8.81E+02
+	HF-172	81.75	4.52	-9.28E+00	1.46E+01	3.32E+01
		125.81	11.30	-1.43E+00		1.46E+01
+	@ LU-172	181.53	20.60	1.00E+26	1.00E+26	1.00E+26
	@	810.06	16.63	1.00E+26		1.00E+26
	@	912.12	15.25	1.00E+26		1.00E+26
	@	1093.66	62.50	1.00E+26		1.00E+26
+	LU-173	100.72	5.24	1.47E+01	1.46E+01	3.51E+01
		272.11	21.20	6.64E+00		1.46E+01
+	HF-175	343.40	84.00	-6.85E+03	4.17E+04	4.17E+04
+	LU-176	88.34	13.30	1.37E+02	7.19E-01	5.84E+00
		201.83	86.00	-1.13E-01		7.19E-01
		306.78	94.00	4.51E-02		7.59E-01
+	TA-182	67.75	41.20	-2.82E+04	7.48E+02	7.48E+02
		1121.30	34.90	8.46E+02		2.83E+03
		1189.05	16.23	-5.65E+02		4.30E+03
		1221.41	26.98	-3.96E+02		2.15E+03
		1231.02	11.44	1.50E+03		4.83E+03
+	IR-192	308.46	29.68	-2.76E+03	5.45E+04	6.22E+04
		468.07	48.10	2.13E+04		5.45E+04
+	HG-203	279.19	77.30	-1.85E+05	9.09E+06	9.09E+06

Analysis Report for 1606067-01

GAS 1302

	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
+	BI-207	569.67	97.72	-1.09E-01	9.91E-01	9.91E-01
		1063.62	74.90	-4.67E-01		2.08E+00
+	TL-208	583.14	30.22	-1.57E+00	7.97E-01	3.00E+00
		860.37	4.48	-6.96E+00		2.90E+01
		2614.66	35.85	3.72E-01		7.97E-01
+	BI-210M	262.00	45.00	3.18E-01	1.50E+00	1.50E+00
		300.00	23.00	-1.28E-01		3.04E+00
+	PB-210	46.50	4.25	2.06E+01	1.34E+01	1.34E+01
+	PB-211	404.84	2.90	1.32E+01	2.97E+01	2.97E+01
		831.96	2.90	-2.55E+01		4.27E+01
+	BI-212	727.17	11.80	2.54E+00	8.87E+00	8.87E+00
		1620.62	2.75	-4.42E+00		1.08E+01
+	PB-212	238.63	44.60	1.30E+00	1.53E+00	1.53E+00
		300.09	3.41	-8.61E-01		2.05E+01
+	BI-214	609.31	46.30	1.01E-01	2.02E+00	2.04E+00
		1120.29	15.10	3.76E+00		9.30E+00
		1764.49	15.80	-6.19E-01		2.02E+00
		2204.22	4.98	5.77E-01		6.17E+00
+	PB-214	295.21	19.19	-7.30E-01	2.09E+00	3.62E+00
		351.92	37.19	1.39E-01		2.09E+00
+	RN-219	401.80	6.50	-3.97E+00	1.30E+01	1.30E+01
+	RA-223	323.87	3.88	-5.10E+00	1.89E+01	1.89E+01
+	RA-224	240.98	3.95	3.95E+00	1.72E+01	1.72E+01
+	@ RA-225	40.00	31.00	1.00E+26	1.00E+26	1.00E+26
+	RA-226	186.21	3.28	-4.90E+00	1.78E+01	1.78E+01
+	TH-227	50.10	8.40	2.00E+01	5.89E+00	7.18E+00
		236.00	11.50	-7.65E-01		5.89E+00
		256.20	6.30	1.55E+00		1.07E+01
+	AC-228	338.32	11.40	2.87E+00	5.34E+00	6.68E+00
		911.07	27.70	2.12E+00		5.34E+00
		969.11	16.60	-2.48E+00		9.12E+00
+	TH-230	48.44	16.90	9.75E+00	3.39E+00	3.39E+00
		62.85	4.60	-1.35E+02		2.20E+01
		67.67	0.37	-4.39E+03		1.16E+02
+	PA-231	283.67	1.60	-7.77E+00	3.05E+01	4.28E+01
		302.67	2.30	-1.42E+01		3.05E+01
+	TH-231	25.64	14.70	-1.26E+01	5.43E+00	5.43E+00
		84.21	6.40	3.35E+01		1.05E+01
+	PA-233	311.98	38.60	-3.26E+11	2.34E+12	2.34E+12
+	PA-234	131.20	20.40	-1.15E+00	2.32E+00	2.32E+00
		733.99	8.80	-3.43E+00		1.16E+01
		946.00	12.00	5.54E+00		1.38E+01
+	PA-234M	1001.03	0.92	-8.52E+01	1.57E+02	1.57E+02
+	TH-234	63.29	3.80	-2.16E+02	2.28E+01	2.28E+01
+	U-235	143.76	10.50	-9.69E-01	4.64E+00	4.64E+00
		163.35	4.70	-2.29E+00		1.14E+01
		205.31	4.70	-1.28E+01		1.32E+01

Analysis Report for 1606067-01

GAS 1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NP-237	86.50	12.60	1.49E+02	6.24E+00	6.24E+00
+	@ NP-239	106.10	22.70	1.00E+26	1.00E+26	1.00E+26
	@	228.18	10.70	1.00E+26		1.00E+26
	@	277.60	14.10	1.00E+26		1.00E+26
+	AM-241	59.54 *	35.90	1.34E+02	2.85E+00	2.85E+00
+	AM-243	74.67	66.00	2.49E-01	7.05E-01	7.05E-01
+	CM-243	209.75	3.29	-5.33E+00	5.30E+00	2.11E+01
		228.14	10.60	7.15E-01		6.86E+00
		277.60	14.00	1.26E+00		5.30E+00

- + = Nuclide identified during the nuclide identification
 * = Energy line found in the spectrum
 > = MDA value not calculated
 @ = Half-life too short to be able to perform the decay correction
 ? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	1.22E+07	1.22E+07	2.90E+06	6.01E+06
NA-22	1274.54	99.94	1.44E+00	1.44E+00	3.08E-01	6.90E-01
@ NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	2754.09	99.86	1.00E+26		1.00E+26	1.00E+20
AL-26	1808.65	99.76	3.50E-01	3.50E-01	-1.99E-02	1.55E-01
K-40	1460.81	10.67	3.43E+00	3.43E+00	2.17E+00	1.56E+00
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	4.72E-01	4.72E-01	-1.78E+01	2.35E-01
	78.34	96.00	5.13E-01		-1.76E-01	2.55E-01
SC-46	889.25	99.98	1.09E+04	1.09E+04	-4.48E+01	5.35E+03
	1120.51	99.99	1.11E+04		4.47E+03	5.43E+03
@ V-48	983.52	99.98	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1312.10	97.50	1.00E+26		1.00E+26	1.00E+20

Analysis Report for 1606087-01

GAS 1302

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CR-51	320.08	9.83	4.61E+12	4.61E+12	8.10E+11	2.28E+12
MN-54	834.83	99.97	1.40E+01	1.40E+01	1.25E+00	6.88E+00
CO-56	846.75	99.96	1.83E+04	4.26E+03	6.38E+03	9.03E+03
	1037.75	14.03	1.44E+05		1.14E+04	7.10E+04
	1238.25	67.00	1.43E+04		-6.55E+03	6.85E+03
	1771.40	15.51	3.47E+04		-3.01E+03	1.56E+04
	2598.48	16.90	4.26E+03		0.00E+00	0.00E+00
+ CO-57	122.06	* 85.51	1.20E+01	1.20E+01	6.65E+01	5.96E+00
	136.48	* 10.60	8.38E+01		7.32E+01	4.16E+01
CO-58	810.76	99.40	4.82E+04	4.82E+04	-8.34E+03	2.37E+04
FE-59	1099.22	56.50	5.60E+07	3.09E+07	-1.16E+07	2.76E+07
	1291.56	43.20	3.09E+07		1.13E+07	1.47E+07
+ CO-60	1173.22	* 100.00	3.45E+00	1.47E+00	1.41E+02	1.70E+00
	1332.49	* 100.00	1.47E+00		1.44E+02	7.13E-01
ZN-65	1115.52	50.75	6.28E+01	6.28E+01	-1.60E+00	3.08E+01
@ GA-67	93.31	35.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	208.95	2.24	1.00E+26		1.00E+26	1.00E+20
@	300.22	16.00	1.00E+26		1.00E+26	1.00E+20
SE-75	121.11	16.70	1.77E+03	4.46E+02	1.19E+04	8.81E+02
	136.00	59.20	4.46E+02		-5.12E+01	2.21E+02
	264.65	59.80	5.99E+02		-1.50E+02	2.97E+02
	279.53	25.20	1.46E+03		-2.97E+01	7.21E+02
	400.65	11.40	3.96E+03		-3.04E+02	1.96E+03
RB-82	776.52	13.00	5.23E+13	5.23E+13	-6.88E+12	2.57E+13
RB-83	520.41	46.00	1.21E+04	1.21E+04	-4.09E+03	5.97E+03
	529.64	30.30	1.83E+04		-2.68E+03	9.03E+03
	552.65	16.40	3.37E+04		4.44E+03	1.66E+04
KR-85	513.99	0.43	2.60E+02	2.60E+02	6.41E+01	1.28E+02
SR-85	513.99	99.27	1.02E+05	1.02E+05	2.52E+04	5.05E+04
Y-88	898.02	93.40	1.77E+03	5.44E+02	2.10E+02	8.74E+02
	1836.01	99.38	5.44E+02		-1.57E+01	2.49E+02
NB-93M	16.57	9.43	5.08E+00	5.08E+00	-1.55E+02	2.53E+00
NB-94	702.63	100.00	9.91E-01	9.91E-01	2.59E-01	4.87E-01
	871.10	100.00	1.35E+00		7.03E-02	6.63E-01
NB-95	765.79	99.81	2.23E+09	2.23E+09	-1.42E+09	1.10E+09
@ NB-95M	235.69	25.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
ZR-95	724.18	43.70	3.03E+05	2.48E+05	1.87E+05	1.49E+05
	756.72	55.30	2.48E+05		6.29E+03	1.22E+05
@ MO-99	181.06	6.20	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	739.58	12.80	1.00E+26		1.00E+26	1.00E+20
@	778.00	4.50	1.00E+26		1.00E+26	1.00E+20
RU-103	497.08	89.00	2.05E+08	2.05E+08	3.55E+07	1.01E+08
RU-106	621.84	9.80	7.63E+01	7.63E+01	2.34E+01	3.76E+01
AG-108M	433.93	89.90	1.05E+00	1.05E+00	6.60E-01	5.21E-01
	614.37	90.40	1.06E+00		-5.21E-01	5.21E-01
	722.95	90.50	1.17E+00		6.74E-01	5.76E-01
+ CD-109	88.03	* 3.72	1.12E+02	1.12E+02	2.62E+03	5.59E+01
AG-110M	657.75	93.14	4.92E+01	3.15E+01	2.92E+00	2.44E+01
	677.61	10.53	1.83E+02		-5.04E+01	9.00E+01
	706.67	16.46	1.21E+02		1.60E+01	5.95E+01
	763.93	21.98	9.99E+01		-2.50E+01	4.91E+01
	884.67	71.63	3.85E+01		-1.53E+01	1.90E+01
	1384.27	23.94	3.15E+01		1.33E+01	1.44E+01

Analysis Report for 1606067-01

GAS 1302

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CD-113M	263.70	0.02	3.37E+03	3.37E+03	-1.69E+03	1.67E+03
SN-113	255.12	1.93	2.41E+04	8.83E+02	6.98E+03	1.20E+04
	391.69	64.90	8.83E+02		3.20E+02	4.36E+02
TE123M	159.00	84.10	3.29E+02	3.29E+02	-1.48E+02	1.63E+02
SB-124	602.71	97.87	2.61E+05	1.76E+05	8.67E+04	1.28E+05
	645.85	7.26	3.57E+06		-5.37E+05	1.76E+06
	722.78	11.10	2.46E+06		-3.26E+05	1.21E+06
	1691.02	49.00	1.76E+05		6.13E+04	7.78E+04
I-125	35.49	6.49	1.29E+06	1.29E+06	-3.15E+06	6.40E+05
SB-125	176.33	6.89	1.67E+01	6.55E+00	-6.07E+00	8.26E+00
	427.89	29.33	6.55E+00		-2.13E+00	3.24E+00
	463.38	10.35	2.03E+01		-5.25E+00	1.00E+01
	600.56	17.80	1.12E+01		2.63E+00	5.51E+00
	635.90	11.32	1.78E+01		-1.60E+00	8.77E+00
@ SB-126	414.70	83.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	666.33	99.60	1.00E+26		1.00E+26	1.00E+20
@	695.00	99.60	1.00E+26		1.00E+26	1.00E+20
@	720.50	53.80	1.00E+26		1.00E+26	1.00E+20
+ SN-126	87.57	* 37.00	2.23E+00	2.23E+00	5.20E+01	1.11E+00
@ SB-127	473.00	25.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	685.20	35.70	1.00E+26		1.00E+26	1.00E+20
@	783.80	14.70	1.00E+26		1.00E+26	1.00E+20
I-129	29.78	57.00	6.82E-01	6.82E-01	-3.32E+00	3.40E-01
	33.60	13.20	2.28E+00		-1.40E+00	1.13E+00
	39.58	7.52	4.49E+00		-1.79E+01	2.23E+00
@ I-131	284.30	6.05	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	364.48	81.20	1.00E+26		1.00E+26	1.00E+20
@	636.97	7.26	1.00E+26		1.00E+26	1.00E+20
@	722.89	1.80	1.00E+26		1.00E+26	1.00E+20
@ TE-132	49.72	13.10	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	228.16	88.00	1.00E+26		1.00E+26	1.00E+20
BA-133	81.00	33.00	1.80E+00	1.59E+00	-6.83E-01	8.96E-01
	302.84	17.80	4.80E+00		-2.24E+00	2.38E+00
	356.01	60.00	1.59E+00		1.20E-01	7.84E-01
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@ XE-133	81.00	38.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
CS-134	563.23	8.38	2.87E+01	2.65E+00	-1.46E+01	1.41E+01
	569.32	15.43	1.60E+01		-1.76E+00	7.88E+00
	604.70	97.60	2.65E+00		2.54E-01	1.31E+00
	795.84	85.40	3.60E+00		1.22E+00	1.77E+00
	801.93	8.73	3.57E+01		4.22E+00	1.75E+01
CS-135	268.24	16.00	4.21E+00	4.21E+00	-2.64E+00	2.09E+00
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
@ CS-136	153.22	7.46	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	163.89	4.61	1.00E+26		1.00E+26	1.00E+20
@	176.55	13.56	1.00E+26		1.00E+26	1.00E+20
@	273.65	12.66	1.00E+26		1.00E+26	1.00E+20
@	340.57	48.50	1.00E+26		1.00E+26	1.00E+20
@	818.50	99.70	1.00E+26		1.00E+26	1.00E+20
@	1048.07	79.60	1.00E+26		1.00E+26	1.00E+20
@	1235.34	19.70	1.00E+26		1.00E+26	1.00E+20

Analysis Report for 1606067-01

GAS 1302

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	CS-137	661.65	*	85.12	1.81E+00	1.81E+00	8.73E+01	8.97E-01
	LA-138	788.74		34.00	3.27E+00	5.10E-01	-1.65E+00	1.61E+00
		1435.80		66.00	5.10E-01		-9.88E-02	2.30E-01
+	CE-139	165.85	*	80.35	1.62E+02	1.62E+02	1.23E+02	8.04E+01
@	BA-140	162.64		6.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		304.84		4.50	1.00E+26		1.00E+26	1.00E+20
@		423.70		3.20	1.00E+26		1.00E+26	1.00E+20
@		437.55		2.00	1.00E+26		1.00E+26	1.00E+20
@		537.32		25.00	1.00E+26		1.00E+26	1.00E+20
@	LA-140	328.77		20.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		487.03		45.50	1.00E+26		1.00E+26	1.00E+20
@		815.85		23.50	1.00E+26		1.00E+26	1.00E+20
@		1596.49		95.49	1.00E+26		1.00E+26	1.00E+20
	CE-141	145.44		48.40	1.14E+10	1.14E+10	-1.26E+09	5.65E+09
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	6.40E+01	6.40E+01	-1.80E+01	3.18E+01
	PM-144	476.78		42.00	1.87E+01	7.70E+00	1.06E+01	9.24E+00
		618.01		98.60	7.75E+00		2.44E+00	3.82E+00
		696.49		99.49	7.70E+00		-9.34E-01	3.78E+00
	PM-145	36.85		21.70	1.60E+00	8.80E-01	-5.69E+00	7.95E-01
		37.36		39.70	8.80E-01		-3.75E+00	4.37E-01
		42.30		15.10	2.91E+00		-4.35E+00	1.45E+00
		72.40		2.31	2.23E+01		1.82E+01	1.11E+01
	PM-146	453.90		39.94	3.55E+00	3.55E+00	-1.79E+00	1.75E+00
		735.90		14.01	1.06E+01		-3.91E+00	5.20E+00
		747.13		13.10	1.19E+01		3.14E+00	5.85E+00
@	ND-147	91.11		28.90	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		531.02		13.10	1.00E+26		1.00E+26	1.00E+20
@	PM-149	285.90		3.10	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	EU-152	121.78		20.50	3.15E+00	2.57E+00	2.07E+01	1.57E+00
		244.69		5.40	1.44E+01		-6.37E+00	7.14E+00
		344.27		19.13	4.61E+00		-3.28E-01	2.28E+00
		778.89		9.20	1.42E+01		-2.16E+00	6.98E+00
		964.01		10.40	1.78E+01		7.35E+00	8.76E+00
		1085.78		7.22	2.38E+01		-1.00E+01	1.17E+01
		1112.02		9.60	1.84E+01		1.01E+01	9.04E+00
		1407.95		14.94	2.57E+00		8.58E-01	1.16E+00
	GD-153	97.43		31.30	2.87E+01	2.87E+01	-5.71E+00	1.42E+01
		103.18		22.20	4.20E+01		1.93E+01	2.08E+01
	EU-154	123.07		40.50	1.74E+00	1.74E+00	1.14E+01	8.64E-01
		723.30		19.70	6.69E+00		3.85E+00	3.29E+00
		873.19		11.50	1.47E+01		-4.53E+00	7.24E+00
		996.32		10.30	1.76E+01		2.08E+00	8.68E+00
		1004.76		17.90	1.04E+01		2.54E+00	5.11E+00
		1274.45		35.50	2.33E+00		4.96E-01	1.11E+00
	EU-155	86.50		30.90	3.85E+00	3.05E+00	9.18E+01	1.92E+00
		105.30		20.70	3.05E+00		-1.93E+00	1.51E+00
@	EU-156	811.77		10.40	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1153.47		7.20	1.00E+26		1.00E+26	1.00E+20
@		1230.71		8.90	1.00E+26		1.00E+26	1.00E+20
	HO-166M	184.41		72.60	7.97E-01	7.97E-01	-2.57E-01	3.95E-01

Analysis Report for 1606067-01

GAS 1302

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
HO-166M	280.45	29.60	2.32E+00	7.97E-01	-7.93E-01	1.15E+00
	410.94	11.10	7.81E+00		-4.42E-01	3.86E+00
	711.69	54.10	1.82E+00		2.22E-01	8.95E-01
TM-171	66.72	0.14	8.81E+02	8.81E+02	-2.96E+04	4.38E+02
HF-172	81.75	4.52	3.32E+01	1.46E+01	-9.28E+00	1.65E+01
	125.81	11.30	1.46E+01		-1.43E+00	7.24E+00
@ LU-172	181.53	20.60	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	810.06	16.63	1.00E+26		1.00E+26	1.00E+20
@	912.12	15.25	1.00E+26		1.00E+26	1.00E+20
@	1093.66	62.50	1.00E+26		1.00E+26	1.00E+20
LU-173	100.72	5.24	3.51E+01	1.46E+01	1.47E+01	1.74E+01
	272.11	21.20	1.46E+01		6.64E+00	7.23E+00
HF-175	343.40	84.00	4.17E+04	4.17E+04	-6.85E+03	2.06E+04
LU-176	88.34	13.30	5.84E+00	7.19E-01	1.37E+02	2.91E+00
	201.83	86.00	7.19E-01		-1.13E-01	3.57E-01
	306.78	94.00	7.59E-01		4.51E-02	3.76E-01
TA-182	67.75	41.20	7.48E+02	7.48E+02	-2.82E+04	3.72E+02
	1121.30	34.90	2.83E+03		8.46E+02	1.39E+03
	1189.05	16.23	4.30E+03		-5.65E+02	2.09E+03
	1221.41	26.98	2.15E+03		-3.96E+02	1.04E+03
	1231.02	11.44	4.83E+03		1.50E+03	2.33E+03
IR-192	308.46	29.68	6.22E+04	5.45E+04	-2.76E+03	3.08E+04
	468.07	48.10	5.45E+04		2.13E+04	2.70E+04
HG-203	279.19	77.30	9.09E+06	9.09E+06	-1.85E+05	4.50E+06
BI-207	569.67	97.72	9.91E-01	9.91E-01	-1.09E-01	4.88E-01
	1063.62	74.90	2.08E+00		-4.67E-01	1.02E+00
TL-208	583.14	30.22	3.00E+00	7.97E-01	-1.57E+00	1.48E+00
	860.37	4.48	2.90E+01		-6.96E+00	1.43E+01
	2614.66	35.85	7.97E-01		3.72E-01	3.27E-01
BI-210M	262.00	45.00	1.50E+00	1.50E+00	3.18E-01	7.44E-01
	300.00	23.00	3.04E+00		-1.28E-01	1.51E+00
PB-210	46.50	4.25	1.34E+01	1.34E+01	2.06E+01	6.66E+00
PB-211	404.84	2.90	2.97E+01	2.97E+01	1.32E+01	1.47E+01
	831.96	2.90	4.27E+01		-2.55E+01	2.10E+01
BI-212	727.17	11.80	8.87E+00	8.87E+00	2.54E+00	4.36E+00
	1620.62	2.75	1.08E+01		-4.42E+00	4.76E+00
PB-212	238.63	44.60	1.53E+00	1.53E+00	1.30E+00	7.57E-01
	300.09	3.41	2.05E+01		-8.61E-01	1.02E+01
BI-214	609.31	46.30	2.04E+00	2.02E+00	1.01E-01	1.00E+00
	1120.29	15.10	9.30E+00		3.76E+00	4.57E+00
	1764.49	15.80	2.02E+00		-6.19E-01	8.90E-01
	2204.22	4.98	6.17E+00		5.77E-01	2.62E+00
PB-214	295.21	19.19	3.62E+00	2.09E+00	-7.30E-01	1.79E+00
	351.92	37.19	2.09E+00		1.39E-01	1.03E+00
RN-219	401.80	6.50	1.30E+01	1.30E+01	-3.97E+00	6.45E+00
RA-223	323.87	3.88	1.89E+01	1.89E+01	-5.10E+00	9.35E+00
RA-224	240.98	3.95	1.72E+01	1.72E+01	3.95E+00	8.51E+00
@ RA-225	40.00	31.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
RA-226	186.21	3.28	1.78E+01	1.78E+01	-4.90E+00	8.85E+00
TH-227	50.10	8.40	7.18E+00	5.89E+00	2.00E+01	3.58E+00
	236.00	11.50	5.89E+00		-7.65E-01	2.92E+00
	256.20	6.30	1.07E+01		1.55E+00	5.30E+00
AC-228	338.32	11.40	6.68E+00	5.34E+00	2.87E+00	3.30E+00

Analysis Report for 1606067-01

GAS 1302

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AC-228	911.07	27.70	5.34E+00	5.34E+00	2.12E+00	2.63E+00
	969.11	16.60	9.12E+00		-2.48E+00	4.49E+00
TH-230	48.44	16.90	3.39E+00	3.39E+00	9.75E+00	1.69E+00
	62.85	4.60	2.20E+01		-1.35E+02	1.10E+01
	67.67	0.37	1.16E+02		-4.39E+03	5.78E+01
PA-231	283.67	1.60	4.28E+01	3.05E+01	-7.77E+00	2.12E+01
	302.67	2.30	3.05E+01		-1.42E+01	1.51E+01
TH-231	25.64	14.70	5.43E+00	5.43E+00	-1.26E+01	2.71E+00
	84.21	6.40	1.05E+01		3.35E+01	5.24E+00
PA-233	311.98	38.60	2.34E+12	2.34E+12	-3.26E+11	1.16E+12
PA-234	131.20	20.40	2.32E+00	2.32E+00	-1.15E+00	1.15E+00
	733.99	8.80	1.16E+01		-3.43E+00	5.70E+00
	946.00	12.00	1.38E+01		5.54E+00	6.79E+00
PA-234M	1001.03	0.92	1.57E+02	1.57E+02	-8.52E+01	7.70E+01
TH-234	63.29	3.80	2.28E+01	2.28E+01	-2.16E+02	1.14E+01
U-235	143.76	10.50	4.64E+00	4.64E+00	-9.69E-01	2.30E+00
	163.35	4.70	1.14E+01		-2.29E+00	5.68E+00
	205.31	4.70	1.32E+01		-1.28E+01	6.56E+00
NP-237	86.50	12.60	6.24E+00	6.24E+00	1.49E+02	3.11E+00
@ NP-239	106.10	22.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	228.18	10.70	1.00E+26		1.00E+26	1.00E+20
@	277.60	14.10	1.00E+26		1.00E+26	1.00E+20
+ AM-241	59.54	* 35.90	2.85E+00	2.85E+00	1.34E+02	1.42E+00
AM-243	74.67	66.00	7.05E-01	7.05E-01	2.49E-01	3.51E-01
CM-243	209.75	3.29	2.11E+01	5.30E+00	-5.33E+00	1.04E+01
	228.14	10.60	6.86E+00		7.15E-01	3.40E+00
	277.60	14.00	5.30E+00		1.26E+00	2.63E+00

- + = Nuclide identified during the nuclide identification
 * = Energy line found in the spectrum
 > = MDA value not calculated
 @ = Half-life too short to be able to perform the decay correction

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User
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Analysis Report for 1606067-01
GAS 1302

No Data Review Comments Entered.

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: GAS 1302

Elapsed Live time: 1800
 Elapsed Real Time: 1818

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	3	355	1292
17:	1361	1509	2910	10284	20110	17432	8426	7348
25:	5774	2259	800	703	708	895	1237	1180
33:	858	764	823	883	899	891	943	1066
41:	1213	1361	1489	1550	1785	2070	2391	3022
49:	3342	3417	3396	3372	3486	3675	3837	4199
57:	6923	18037	23449	12456	2649	955	962	1023
65:	1111	1173	1190	1253	1144	1248	1225	1234
73:	1191	1249	1218	1183	1241	1160	1147	1215
81:	1234	1257	1305	1324	1545	3514	7627	6797
89:	2554	796	660	675	677	644	651	675
97:	644	688	661	639	672	697	653	649
105:	639	658	621	638	639	717	655	693
113:	672	677	642	692	664	648	733	1014
121:	1644	1684	942	670	620	605	635	609
129:	599	622	621	636	616	701	670	754
137:	679	591	589	594	587	554	610	581
145:	581	578	544	579	582	588	584	549
153:	547	567	562	563	509	597	563	574
161:	552	552	598	541	630	673	558	582
169:	557	520	569	541	516	504	529	524
177:	520	568	558	525	584	527	514	560
185:	564	584	565	560	566	583	589	600
193:	547	567	553	582	558	552	589	550
201:	543	550	557	506	526	532	533	564
209:	523	564	619	554	604	568	598	609
217:	560	575	628	581	530	559	559	506
225:	556	531	535	531	547	560	470	506
233:	497	519	507	463	518	532	520	454
241:	482	495	463	446	447	471	447	431
249:	424	454	431	458	432	413	443	457
257:	428	413	428	408	429	434	393	410
265:	396	370	363	425	396	406	403	395
273:	422	387	430	412	368	378	391	347
281:	383	375	364	371	368	372	360	373
289:	362	367	356	359	389	347	351	356
297:	335	327	355	341	351	364	353	355
305:	342	313	356	381	363	301	326	355
313:	349	333	326	378	335	354	321	336
321:	342	337	332	325	302	353	332	312
329:	328	336	343	315	314	328	371	331
337:	326	311	304	333	333	325	308	305
345:	321	293	314	307	316	329	316	336
353:	311	289	329	322	325	316	294	314
361:	299	317	317	321	317	288	306	304

369: 289 336 287 308 293 294 305 283

Sample Title: GAS 1302

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	276	282	298	283	286	315	306	305
385:	263	294	271	305	315	290	302	294
393:	276	307	316	288	298	277	273	290
401:	328	306	301	286	287	285	308	310
409:	299	297	281	299	287	276	302	299
417:	293	280	297	313	291	327	292	299
425:	288	298	296	320	328	305	292	307
433:	329	298	286	302	307	288	268	273
441:	327	307	318	306	328	306	311	316
449:	360	306	294	316	293	313	313	267
457:	309	346	302	342	287	321	298	300
465:	315	304	313	340	316	314	316	294
473:	308	313	283	291	292	296	254	248
481:	230	249	237	258	230	243	266	244
489:	214	245	244	230	242	227	211	229
497:	219	219	213	215	243	215	212	187
505:	217	230	228	208	218	240	235	217
513:	244	186	222	200	204	212	208	197
521:	185	182	234	191	201	200	206	200
529:	196	198	187	181	165	203	179	191
537:	184	191	177	194	175	215	167	185
545:	187	174	189	160	186	196	173	165
553:	162	184	180	179	153	185	158	167
561:	166	188	165	169	156	156	157	190
569:	172	169	183	176	172	168	177	168
577:	163	165	147	177	160	147	153	175
585:	170	159	159	163	189	176	168	178
593:	150	161	164	148	155	177	174	162
601:	186	176	141	172	182	143	164	164
609:	169	149	161	151	154	145	171	150
617:	170	156	161	166	172	167	165	150
625:	153	172	148	150	173	147	167	154
633:	144	143	166	140	149	146	155	174
641:	137	141	153	144	172	163	155	136
649:	160	153	145	154	166	169	164	157
657:	146	184	407	1677	4139	4419	1905	380
665:	155	111	126	136	116	140	143	124
673:	166	127	131	130	137	126	115	128
681:	118	131	146	131	138	142	136	128
689:	127	141	131	127	128	106	127	114
697:	131	155	136	127	111	124	154	146
705:	121	120	130	124	119	119	132	123
713:	127	144	128	122	136	108	146	150
721:	119	124	150	118	149	141	155	153
729:	120	128	133	130	136	139	124	141
737:	101	130	123	135	126	148	152	128
745:	116	137	116	149	155	127	165	146
753:	116	131	143	141	139	139	148	135
761:	124	120	138	131	148	128	156	129
769:	112	148	149	139	135	143	116	138
777:	123	118	161	171	153	127	153	143
785:	131	140	138	121	141	122	129	133
793:	129	152	141	117	139	135	148	124

801: 142 127 138 148 144 128 137 150

Sample Title: GAS 1302

Channel	1	2	3	4	5	6	7	8
809:	124	132	123	158	148	148	137	148
817:	137	137	149	158	148	151	147	144
825:	150	166	143	152	163	141	149	140
833:	156	156	125	162	174	177	150	155
841:	147	175	177	158	150	139	153	154
849:	178	158	161	162	143	162	150	158
857:	146	140	158	163	164	161	143	153
865:	157	171	165	187	138	176	160	168
873:	159	144	152	168	161	150	178	142
881:	167	149	154	161	170	159	176	159
889:	152	168	194	130	151	187	157	160
897:	185	181	150	173	173	176	183	190
905:	159	161	201	179	152	198	191	187
913:	175	152	172	170	152	189	160	196
921:	187	189	174	170	196	189	183	215
929:	176	174	211	173	188	200	212	191
937:	191	186	187	192	209	190	210	188
945:	216	207	199	227	223	209	183	202
953:	217	212	209	196	180	212	203	200
961:	183	204	174	208	182	162	181	171
969:	161	157	160	166	154	159	153	148
977:	170	144	143	154	145	153	138	155
985:	158	132	136	118	146	119	145	139
993:	140	154	144	142	127	141	148	140
1001:	135	170	120	133	154	152	153	159
1009:	138	154	140	142	131	140	143	143
1017:	137	120	128	119	120	122	148	137
1025:	132	133	119	148	132	144	132	125
1033:	134	124	148	146	127	131	136	125
1041:	116	132	126	126	120	114	120	138
1049:	126	132	111	121	133	136	126	121
1057:	131	131	127	123	124	131	119	142
1065:	123	141	132	142	150	121	112	112
1073:	141	122	127	140	144	115	132	119
1081:	143	127	122	142	115	119	124	127
1089:	137	125	130	136	142	113	123	129
1097:	143	115	137	129	136	124	143	147
1105:	132	136	121	143	146	123	123	128
1113:	123	120	128	118	128	95	106	100
1121:	122	95	106	97	85	85	81	80
1129:	77	99	78	80	82	79	83	75
1137:	89	60	76	93	82	74	75	75
1145:	65	68	75	83	88	74	77	70
1153:	75	63	86	74	80	76	64	81
1161:	71	72	68	66	83	69	77	69
1169:	69	99	315	1344	3058	3202	1553	404
1177:	92	43	64	49	42	55	51	47
1185:	50	48	38	50	46	47	40	40
1193:	52	33	50	49	39	55	46	38
1201:	42	50	53	35	45	31	34	40
1209:	37	29	39	38	28	32	36	24
1217:	38	23	38	26	25	40	29	17
1225:	29	34	32	28	24	25	36	22

1233: 25 20 25 24 20 21 16 12

Sample Title: GAS 1302

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1241:	24	19	20	18	23	20	14	29
1249:	11	14	23	16	19	17	20	13
1257:	17	21	16	17	23	14	17	24
1265:	14	19	20	16	12	16	15	15
1273:	22	19	20	23	13	14	12	17
1281:	19	11	23	14	15	19	21	19
1289:	18	15	22	7	14	16	14	13
1297:	11	13	14	11	16	16	14	17
1305:	24	17	26	13	13	16	19	11
1313:	15	13	15	22	22	19	13	17
1321:	13	24	14	18	19	13	13	24
1329:	33	115	725	2030	2951	2156	681	96
1337:	14	8	7	1	6	6	5	5
1345:	5	3	9	5	7	1	5	6
1353:	6	8	3	7	8	3	5	4
1361:	5	9	3	7	7	7	0	6
1369:	7	7	2	7	2	4	6	1
1377:	2	2	3	4	9	4	6	4
1385:	1	2	6	4	3	3	4	5
1393:	3	3	2	3	3	1	3	3
1401:	4	4	2	4	3	2	1	3
1409:	7	2	4	4	1	2	1	3
1417:	5	6	3	2	5	5	2	6
1425:	0	3	4	4	3	5	6	4
1433:	2	2	6	1	5	2	6	2
1441:	3	7	0	3	2	5	4	2
1449:	3	4	3	4	2	2	2	0
1457:	5	3	7	7	2	3	5	3
1465:	0	3	2	1	2	5	1	2
1473:	3	5	3	3	2	2	8	4
1481:	4	1	2	5	3	2	5	4
1489:	0	6	1	1	3	5	7	4
1497:	4	0	1	3	2	2	4	4
1505:	3	4	4	2	2	2	1	3
1513:	3	2	4	2	5	6	1	2
1521:	3	1	1	4	1	5	5	3
1529:	1	2	8	2	6	1	2	3
1537:	2	2	2	2	4	2	5	3
1545:	1	1	4	1	6	2	3	5
1553:	1	5	3	3	3	1	5	3
1561:	3	3	0	5	3	2	1	3
1569:	2	2	1	3	4	5	4	3
1577:	2	2	4	2	2	2	4	1
1585:	2	2	4	2	0	6	5	4
1593:	5	4	5	6	2	1	2	3
1601:	4	1	3	2	0	0	1	2
1609:	1	3	2	5	0	5	3	3
1617:	2	4	3	0	2	4	2	1
1625:	0	3	4	1	6	5	3	4
1633:	1	1	1	4	2	2	4	3
1641:	3	3	1	1	3	3	0	1
1649:	3	3	3	7	2	5	4	1
1657:	5	4	3	3	3	2	1	0

1665: 5 1 1 5 1 3 2 1

Sample Title: GAS 1302

Channel	1	2	3	4	5	6	7	8
1673:	2	1	0	1	2	2	5	1
1681:	3	1	2	1	3	1	2	2
1689:	3	1	3	1	2	4	2	1
1697:	0	2	5	3	1	1	0	3
1705:	2	2	3	3	3	2	1	1
1713:	2	2	2	3	4	1	5	3
1721:	1	1	2	3	2	1	3	5
1729:	0	0	1	1	4	1	2	1
1737:	2	1	2	1	2	1	2	2
1745:	1	2	1	5	0	1	3	4
1753:	2	2	3	2	2	1	0	1
1761:	1	2	1	3	2	3	1	1
1769:	2	1	4	3	3	3	1	1
1777:	7	0	5	3	0	2	3	2
1785:	3	2	3	1	2	0	0	1
1793:	1	5	2	1	3	1	1	2
1801:	1	2	4	1	2	1	2	2
1809:	0	1	2	5	1	4	2	0
1817:	3	1	2	2	1	1	0	1
1825:	1	4	1	0	2	1	3	1
1833:	0	5	3	4	7	7	5	1
1841:	3	0	2	4	2	4	1	2
1849:	2	2	3	2	2	1	2	4
1857:	4	2	1	0	4	0	2	2
1865:	2	1	0	2	3	0	1	1
1873:	3	2	0	2	1	2	2	2
1881:	2	0	2	1	0	3	1	2
1889:	2	4	0	3	2	1	3	2
1897:	2	4	2	2	0	3	1	0
1905:	0	1	1	3	1	0	1	0
1913:	2	1	4	2	1	1	1	2
1921:	2	1	1	2	1	0	2	3
1929:	3	3	4	3	2	4	3	3
1937:	5	1	0	3	3	2	0	1
1945:	0	2	3	3	0	2	1	1
1953:	5	2	0	5	1	2	1	0
1961:	0	1	0	7	1	3	2	1
1969:	0	3	2	0	1	2	3	0
1977:	2	2	1	2	3	0	1	2
1985:	0	1	2	1	2	2	1	2
1993:	1	1	0	3	0	2	0	4
2001:	1	3	1	1	1	0	0	4
2009:	1	0	1	2	1	1	0	5
2017:	0	1	3	3	1	5	1	2
2025:	0	2	0	0	1	2	5	1
2033:	2	3	0	0	3	0	1	2
2041:	1	2	0	4	1	2	0	2
2049:	2	1	2	1	2	3	2	1
2057:	0	0	2	0	1	0	1	2
2065:	2	2	1	0	0	2	1	0
2073:	0	2	1	1	2	3	1	2
2081:	3	2	0	1	1	0	3	2
2089:	2	1	0	2	2	2	0	1

2097: 1 1 1 1 3 0 2 5

Sample Title: GAS 1302

Channel	1	2	3	4	5	6	7	8
2105:	1	2	3	2	1	1	1	3
2113:	1	2	0	4	1	1	0	1
2121:	2	0	1	5	1	1	1	2
2129:	1	2	2	1	1	1	0	2
2137:	0	2	0	2	1	0	1	0
2145:	2	2	1	1	1	0	1	2
2153:	1	1	1	2	1	1	1	2
2161:	0	1	2	1	1	1	2	2
2169:	0	1	2	1	2	3	0	1
2177:	1	2	3	1	1	0	2	1
2185:	0	0	1	4	1	1	2	0
2193:	1	1	0	0	0	2	1	1
2201:	0	0	1	2	2	0	1	1
2209:	1	2	0	1	1	0	1	1
2217:	1	1	1	0	2	0	1	1
2225:	1	0	0	0	1	0	1	2
2233:	0	1	3	1	0	1	2	2
2241:	3	0	0	1	1	2	0	4
2249:	1	0	0	0	2	0	1	0
2257:	0	1	0	2	2	3	1	0
2265:	1	2	2	0	2	3	3	4
2273:	3	1	1	1	0	2	0	1
2281:	1	0	2	1	1	3	0	0
2289:	4	1	1	1	0	0	1	2
2297:	2	1	1	2	1	1	0	3
2305:	1	0	1	0	1	0	2	0
2313:	1	2	2	0	1	0	1	2
2321:	0	0	4	1	0	1	0	1
2329:	1	1	0	3	1	1	1	0
2337:	2	1	0	1	1	0	0	0
2345:	1	2	1	0	1	1	1	0
2353:	0	2	0	0	1	1	2	1
2361:	0	2	0	1	0	1	0	0
2369:	0	1	0	0	0	0	0	1
2377:	0	0	0	1	0	0	0	1
2385:	0	0	0	1	0	0	1	1
2393:	2	0	1	0	0	1	1	0
2401:	0	0	1	0	0	1	1	2
2409:	0	0	0	2	0	0	0	0
2417:	1	0	1	0	0	1	0	0
2425:	1	0	0	0	0	0	0	0
2433:	1	0	0	0	0	0	0	2
2441:	0	1	0	0	0	0	0	0
2449:	0	0	1	1	0	1	0	0
2457:	0	1	0	0	1	1	0	0
2465:	0	0	0	0	0	2	0	1
2473:	0	0	0	0	1	2	1	0
2481:	0	0	1	1	0	0	0	0
2489:	1	0	0	0	0	1	2	0
2497:	0	1	0	0	0	0	0	0
2505:	1	9	10	10	2	1	2	0
2513:	0	0	0	0	0	0	0	0
2521:	0	0	0	1	0	0	0	0

2529: 0 0 1 0 0 0 1 0

Sample Title: GAS 1302

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2537:	0	0	0	0	0	0	1	0
2545:	0	0	0	1	0	0	0	0
2553:	0	0	1	0	0	0	0	0
2561:	0	0	0	0	0	0	0	0
2569:	0	0	0	0	0	0	0	0
2577:	0	0	0	0	0	0	0	0
2585:	0	0	0	0	0	0	0	0
2593:	0	0	0	0	0	0	0	0
2601:	0	0	0	0	0	0	0	0
2609:	0	0	0	0	0	1	1	3
2617:	2	0	0	0	0	0	0	0
2625:	0	0	0	0	0	1	0	0
2633:	0	0	0	0	0	0	0	0
2641:	0	0	0	0	0	0	0	0
2649:	0	0	0	0	0	0	0	1
2657:	1	1	0	0	0	0	0	0
2665:	1	0	0	0	0	0	0	0
2673:	0	0	0	0	0	0	0	0
2681:	1	1	0	0	1	0	0	0
2689:	1	0	0	0	0	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	0	0	0	0	0	0	0	1
2713:	0	0	0	0	0	0	0	0
2721:	0	0	0	0	0	0	1	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	0	0	0	0	0	0	2
2753:	0	0	0	0	0	1	0	0
2761:	0	0	0	0	0	0	0	1
2769:	1	1	0	0	0	0	0	0
2777:	0	0	0	0	0	0	0	0
2785:	0	2	1	0	0	0	0	0
2793:	0	1	0	0	0	0	1	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	0	0	0	0	1
2817:	1	0	0	0	0	0	0	0
2825:	0	0	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	1	0	0	0
2849:	1	0	0	0	0	0	1	0
2857:	0	0	1	1	0	0	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	1	0	0	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	0	0	0	0	0	0
2897:	0	0	0	0	0	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	1	0	0	0
2929:	0	0	0	1	0	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961: 0 0 0 1 0 0 0 0

Sample Title: GAS 1302

Channel								
2969:	0	0	0	0	0	0	0	0
2977:	0	0	1	0	1	0	0	0
2985:	0	0	0	0	0	1	0	0
2993:	0	0	0	0	0	0	0	0
3001:	0	0	0	1	0	0	0	0
3009:	0	0	0	0	0	0	1	0
3017:	1	0	0	0	0	0	0	0
3025:	0	0	0	0	0	0	0	0
3033:	0	0	0	0	0	0	0	0
3041:	0	0	0	0	0	0	0	0
3049:	0	0	0	0	0	0	0	0
3057:	1	0	0	0	0	0	0	0
3065:	0	0	0	0	0	0	0	0
3073:	0	0	0	0	0	0	0	0
3081:	0	0	0	0	0	0	0	0
3089:	0	0	0	0	0	0	0	0
3097:	0	0	0	0	1	1	0	0
3105:	0	0	0	0	0	0	0	0
3113:	0	1	0	0	0	0	0	0
3121:	0	1	0	0	0	0	0	0
3129:	0	0	0	0	0	0	0	0
3137:	0	0	0	1	1	0	0	0
3145:	0	1	0	0	0	0	0	0
3153:	0	0	0	0	0	0	0	0
3161:	0	0	0	0	0	0	0	0
3169:	0	0	0	0	0	0	0	0
3177:	0	0	0	0	0	0	0	0
3185:	0	0	0	0	1	0	0	0
3193:	0	0	0	1	0	0	0	0
3201:	0	0	0	0	0	0	0	0
3209:	0	0	0	0	0	0	0	0
3217:	0	0	0	0	0	0	0	0
3225:	0	0	0	0	1	0	0	0
3233:	0	0	0	0	0	0	0	0
3241:	0	0	0	0	0	0	0	0
3249:	0	0	0	0	0	0	0	0
3257:	0	0	0	0	0	0	0	0
3265:	1	0	0	0	0	0	1	0
3273:	0	0	0	0	0	0	0	0
3281:	0	0	0	0	0	0	1	0
3289:	0	0	0	0	0	0	0	0
3297:	0	2	0	0	1	0	0	0
3305:	0	0	0	0	0	1	0	1
3313:	0	0	0	0	0	0	0	0
3321:	0	0	0	0	0	0	0	0
3329:	0	0	0	0	0	0	0	0
3337:	0	0	0	0	0	0	0	0
3345:	0	0	0	1	0	0	0	0
3353:	0	0	0	0	0	0	0	0
3361:	0	1	0	0	0	0	0	0
3369:	0	0	0	0	0	0	0	0
3377:	0	0	0	0	0	0	1	0
3385:	0	0	0	0	0	0	0	0

3393: 0 0 0 0 0 0 0 0 0

Sample Title: GAS 1302

Channel	1	2	3	4	5	6	7	8	9
3401:	0	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	1	0	0	0
3465:	0	0	0	1	0	0	1	0	0
3473:	0	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0	0
3505:	0	0	0	0	0	0	0	0	0
3513:	0	0	0	0	0	1	0	0	0
3521:	0	1	0	0	0	1	0	0	0
3529:	0	1	0	0	0	0	0	0	0
3537:	0	0	0	0	0	0	0	0	0
3545:	0	0	0	1	0	0	0	0	0
3553:	1	0	0	0	1	0	0	0	0
3561:	0	0	0	0	0	0	0	0	0
3569:	0	0	0	0	0	0	0	0	1
3577:	0	0	0	0	0	0	0	0	0
3585:	0	0	0	0	0	0	0	0	0
3593:	1	0	0	0	0	0	0	0	0
3601:	0	0	0	0	0	0	0	0	0
3609:	0	0	0	0	0	0	0	0	1
3617:	0	0	0	0	0	0	0	0	0
3625:	0	0	0	0	1	0	0	0	0
3633:	0	0	0	0	0	0	0	0	0
3641:	0	0	0	0	0	0	0	0	0
3649:	0	0	0	0	0	0	0	0	1
3657:	0	0	0	1	0	0	0	0	0
3665:	0	0	1	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0	1
3681:	0	0	0	0	0	0	0	0	0
3689:	0	0	0	0	0	0	0	0	0
3697:	0	0	1	0	0	0	0	0	0
3705:	0	0	0	0	0	0	0	0	0
3713:	0	0	1	0	0	0	0	0	0
3721:	0	1	0	0	0	0	0	0	0
3729:	0	0	0	0	0	0	0	0	0
3737:	1	0	0	0	0	0	0	0	0
3745:	0	0	0	0	0	0	0	0	0
3753:	0	0	0	0	0	0	0	0	0
3761:	0	0	0	0	0	0	0	0	0
3769:	0	1	0	0	0	0	0	0	0
3777:	0	1	0	0	0	0	0	0	0
3785:	0	0	0	0	0	0	0	0	0
3793:	0	0	0	0	0	0	0	0	0
3801:	0	0	0	0	0	0	0	0	0
3809:	0	1	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0	0

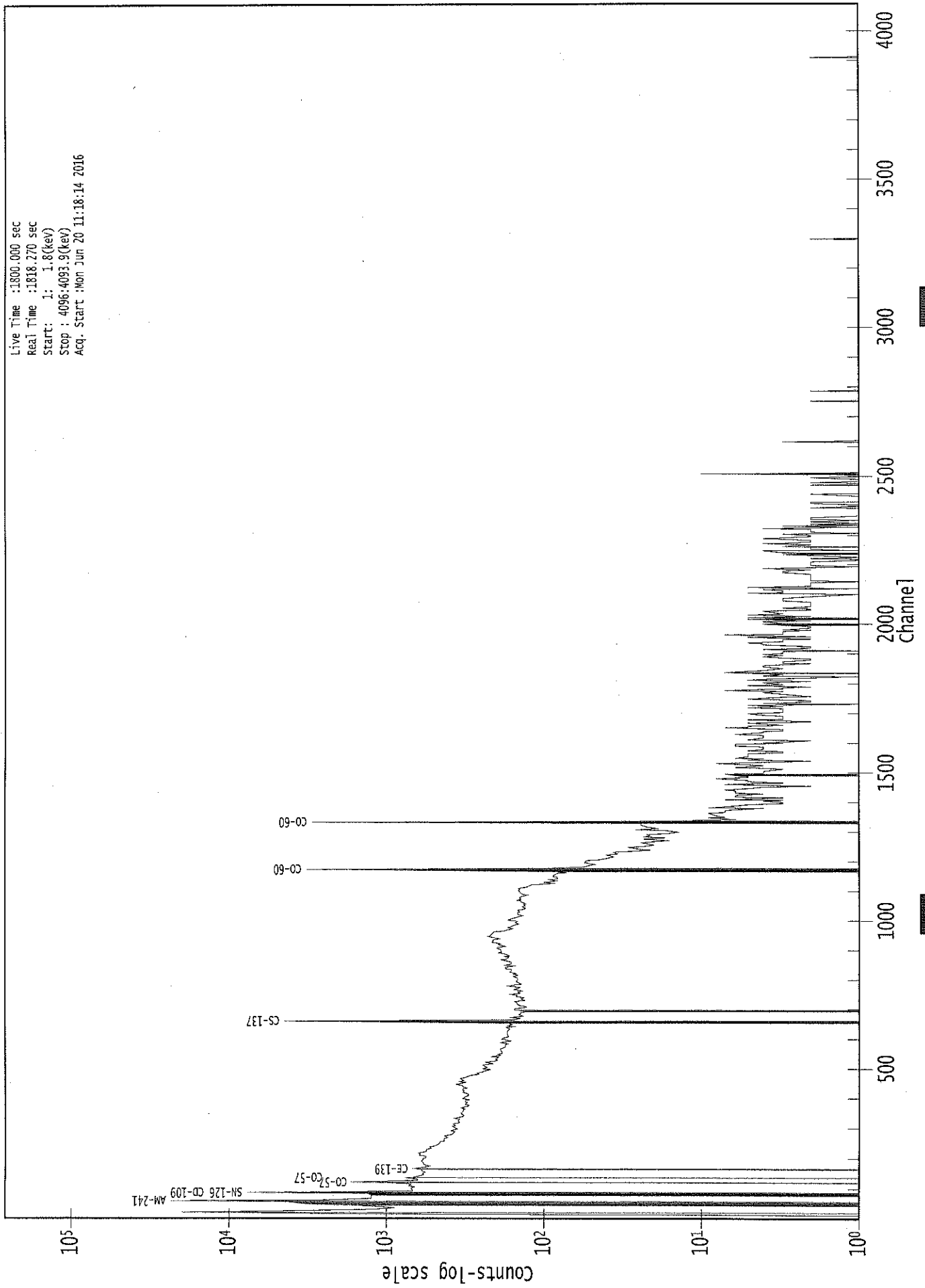
3825: 0 0 0 0 0 0 0 0 0

Sample Title: GAS 1302

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	0	1	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	1	0	0
3905:	0	0	0	0	0	2	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	1	0	0	0
3929:	0	0	0	0	0	0	0	0
3937:	0	0	0	0	0	0	0	0
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	1	0	0	0	0	0	0	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	0	0	0	0	0
3993:	0	0	0	0	0	0	0	0
4001:	0	0	0	0	0	0	0	1
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	0
4025:	0	0	0	0	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	1	0	0

0000039156.CNF

Live Time :1800.000 sec
Real Time :1818.270 sec
Start: 1: 1.8(keV)
Stop : 4096.4093.9(keV)
Acq. Start :Mon Jun 20 11:18:14 2016



*veb
6/20/16*Analysis Report for 1606067-02
BLANK

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606067-02
Sample Description : BLANK
Sample Type : SOIL

Sample Size : 7.834E+02 grams
Facility : Countroom

Sample Taken On : 6/20/2016 9:09:55AM
Acquisition Started : 6/20/2016 10:15:58AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE4
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3602.9 seconds

Dead Time : 0.08 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 15 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 10/25/2014
Efficiency Calibration Used Done On : 11/8/2014
Efficiency Calibration Description :

Sample Number : 39149

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

*AG
6/20/16*

Analysis Report for 1606067-02

BLANK

PEAK LOCATE REPORT

Peak Locate Performed on : 6/20/2016 11:16:02AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
1	52.33	51.59	0.0000	0.00
2	62.00	61.26	0.0000	0.00
3	81.86	81.13	0.0000	0.00
4	93.54	92.82	0.0000	0.00
5	133.72	133.02	0.0000	0.00
6	240.88	240.22	0.0000	0.00
7	347.56	346.95	0.0000	0.00
8	470.92	470.36	0.0000	0.00
9	518.34	517.80	0.0000	0.00
10	617.35	616.86	0.0000	0.00
11	663.16	662.69	0.0000	0.00
12	702.90	702.45	0.0000	0.00
13	882.94	882.59	0.0000	0.00
14	944.42	944.10	0.0000	0.00
15	1001.06	1000.77	0.0000	0.00
16	1049.33	1049.06	0.0000	0.00
17	1147.34	1147.13	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606067-02

BLANK

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 11:16:02AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
1	52.33	49 -	55	51.59	3.35E+01	31.16	1.49E+02	3.39
2	62.00	56 -	66	61.26	4.71E+01	45.73	2.56E+02	1.49
3	81.86	79 -	83	81.13	2.64E+01	23.89	1.01E+02	2.32
4	93.54	87 -	98	92.82	9.63E+01	47.41	2.29E+02	1.92
5	133.72	130 -	136	133.02	2.22E+01	26.00	1.04E+02	1.23
6	240.88	234 -	247	240.22	6.99E+01	36.73	1.18E+02	7.05
M 7	347.56	344 -	355	346.95	1.36E+01	14.28	2.45E+01	3.36
8	470.92	466 -	474	470.36	1.99E+01	15.01	2.21E+01	5.33
m 9	518.34	503 -	520	517.80	1.28E+01	12.53	1.92E+01	3.18
10	617.35	614 -	620	616.86	1.41E+01	10.62	9.84E+00	4.68
11	663.16	657 -	667	662.69	2.44E+01	16.16	2.12E+01	3.07
12	702.90	695 -	711	702.45	2.29E+01	18.99	2.62E+01	11.03
13	882.94	879 -	887	882.59	1.25E+01	8.96	5.07E+00	4.23
14	944.42	941 -	947	944.10	8.18E+00	8.28	5.64E+00	3.35
15	1001.06	998 -	1003	1000.77	6.00E+00	7.35	6.00E+00	1.45
16	1049.33	1045 -	1052	1049.06	8.56E+00	11.31	1.49E+01	3.11
17	1147.34	1144 -	1149	1147.13	4.58E+00	5.74	2.83E+00	2.72

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 11:16:02AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Analysis Report for 1606067-02

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Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	52.33	49 -	55	3.35E+01	31.16	1.49E+02	2.38E+01
2	62.00	56 -	66	4.71E+01	45.73	2.56E+02	3.59E+01
3	81.86	79 -	83	2.64E+01	23.89	1.01E+02	1.77E+01
4	93.54	87 -	98	9.63E+01	47.41	2.29E+02	3.55E+01
5	133.72	130 -	136	2.22E+01	26.00	1.04E+02	1.99E+01
6	240.88	234 -	247	6.99E+01	36.73	1.18E+02	2.69E+01
M 7	347.56	344 -	355	1.36E+01	14.28	2.45E+01	8.15E+00
8	470.92	466 -	474	1.99E+01	15.01	2.21E+01	9.92E+00
m 9	518.34	503 -	520	1.28E+01	12.53	1.92E+01	7.21E+00
10	617.35	614 -	620	1.41E+01	10.62	9.84E+00	6.18E+00
11	663.16	657 -	667	2.44E+01	16.16	2.12E+01	1.05E+01
12	702.90	695 -	711	2.29E+01	18.99	2.62E+01	1.35E+01
13	882.94	879 -	887	1.25E+01	8.96	5.07E+00	4.53E+00
14	944.42	941 -	947	8.18E+00	8.28	5.64E+00	4.92E+00
15	1001.06	998 -	1003	6.00E+00	7.35	6.00E+00	4.50E+00
16	1049.33	1045 -	1052	8.56E+00	11.31	1.49E+01	7.96E+00
17	1147.34	1144 -	1149	4.58E+00	5.74	2.83E+00	3.15E+00

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/20/2016 11:16:02AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	52.33	49 -	55	51.59	3.35E+01	31.16	1.49E+02	.....
2	62.00	56 -	66	61.26	4.71E+01	45.73	2.56E+02	TH-230
3	81.86	79 -	83	81.13	2.64E+01	23.89	1.01E+02	HF-172 XE-133 BA-133
4	93.54	87 -	98	92.82	9.63E+01	47.41	2.29E+02	GA-67
5	133.72	130 -	136	133.02	2.22E+01	26.00	1.04E+02	CE-144
6	240.88	234 -	247	240.22	6.99E+01	36.73	1.18E+02	RA-224

: 00275

Analysis Report for 1606067-02

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	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	7	347.56	344 -	355	346.95	1.36E+01	14.28	2.45E+01	.....
	8	470.92	466 -	474	470.36	1.99E+01	15.01	2.21E+01	.....
m	9	518.34	503 -	520	517.80	1.28E+01	12.53	1.92E+01	.....
	10	617.35	614 -	620	616.86	1.41E+01	10.62	9.84E+00	PM-144
	11	663.16	657 -	667	662.69	2.44E+01	16.16	2.12E+01	.....
	12	702.90	695 -	711	702.45	2.29E+01	18.99	2.62E+01	NB-94
	13	882.94	879 -	887	882.59	1.25E+01	8.96	5.07E+00	.....
	14	944.42	941 -	947	944.10	8.18E+00	8.28	5.64E+00	.....
	15	1001.06	998 -	1003	1000.77	6.00E+00	7.35	6.00E+00	PA-234M
	16	1049.33	1045 -	1052	1049.06	8.56E+00	11.31	1.49E+01	.....
	17	1147.34	1144 -	1149	1147.13	4.58E+00	5.74	2.83E+00	.....

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/20/2016 11:16:02AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	52.33	3.35E+01	31.16	2.52E-02	1.78E-03
	2	62.00	4.71E+01	45.73	2.35E-02	1.77E-03
	3	81.86	2.64E+01	23.89	2.04E-02	1.66E-03
	4	93.54	9.63E+01	47.41	1.89E-02	1.61E-03
	5	133.72	2.22E+01	26.00	1.50E-02	1.44E-03
	6	240.88	6.99E+01	36.73	9.34E-03	9.80E-04
M	7	347.56	1.36E+01	14.28	6.69E-03	7.85E-04
	8	470.92	1.99E+01	15.01	4.99E-03	6.20E-04
m	9	518.34	1.28E+01	12.53	4.55E-03	5.50E-04
	10	617.35	1.41E+01	10.62	3.83E-03	4.05E-04
	11	663.16	2.44E+01	16.16	3.56E-03	3.39E-04
	12	702.90	2.29E+01	18.99	3.37E-03	3.17E-04
	13	882.94	1.25E+01	8.96	2.69E-03	2.16E-04
	14	944.42	8.18E+00	8.28	2.52E-03	2.02E-04
	15	1001.06	6.00E+00	7.35	2.38E-03	1.95E-04
	16	1049.33	8.56E+00	11.31	2.28E-03	1.89E-04
	17	1147.34	4.58E+00	5.74	2.10E-03	1.76E-04

Analysis Report for 1606067-02

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M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000 sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/20/2016 11:16:02AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039130.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	52.33	3.35E+01	31.16			3.35E+01	3.12E+01
2	62.00	4.71E+01	45.73			4.71E+01	4.57E+01
3	81.86	2.64E+01	23.89			2.64E+01	2.39E+01
4	93.54	9.63E+01	47.41	5.58E+01	4.47E+00	4.05E+01	4.76E+01
5	133.72	2.22E+01	26.00			2.22E+01	2.60E+01
6	240.88	6.99E+01	36.73			6.99E+01	3.67E+01
M 7	347.56	1.36E+01	14.28			1.36E+01	1.43E+01
8	470.92	1.99E+01	15.01			1.99E+01	1.50E+01
m 9	518.34	1.28E+01	12.53			1.28E+01	1.25E+01
10	617.35	1.41E+01	10.62			1.41E+01	1.06E+01
11	663.16	2.44E+01	16.16			2.44E+01	1.62E+01
12	702.90	2.29E+01	18.99			2.29E+01	1.90E+01
13	882.94	1.25E+01	8.96			1.25E+01	8.96E+00
14	944.42	8.18E+00	8.28			8.18E+00	8.28E+00
15	1001.06	6.00E+00	7.35			6.00E+00	7.35E+00
16	1049.33	8.56E+00	11.31			8.56E+00	1.13E+01
17	1147.34	4.58E+00	5.74			4.58E+00	5.74E+00

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

Analysis Report for 1606067-02

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AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/20/2016 11:16:02AM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039130.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	52.33	3.35E+01	31.16			3.35E+01	3.12E+01
2	62.00	4.71E+01	45.73			4.71E+01	4.57E+01
3	81.86	2.64E+01	23.89			2.64E+01	2.39E+01
4	93.54	9.63E+01	47.41	5.58E+01	4.47E+00	4.05E+01	4.76E+01
5	133.72	2.22E+01	26.00			2.22E+01	2.60E+01
6	240.88	6.99E+01	36.73			6.99E+01	3.67E+01
M 7	347.56	1.36E+01	14.28			1.36E+01	1.43E+01
8	470.92	1.99E+01	15.01			1.99E+01	1.50E+01
m 9	518.34	1.28E+01	12.53			1.28E+01	1.25E+01
10	617.35	1.41E+01	10.62			1.41E+01	1.06E+01
11	663.16	2.44E+01	16.16			2.44E+01	1.62E+01
12	702.90	2.29E+01	18.99			2.29E+01	1.90E+01
13	882.94	1.25E+01	8.96			1.25E+01	8.96E+00
14	944.42	8.18E+00	8.28			8.18E+00	8.28E+00
15	1001.06	6.00E+00	7.35			6.00E+00	7.35E+00
16	1049.33	8.56E+00	11.31			8.56E+00	1.13E+01
17	1147.34	4.58E+00	5.74			4.58E+00	5.74E+00

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
GA-67	0.596	93.31 *	35.70	5.82E-02	9.47E-02

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Analysis Report for 1606067-02

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Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
GA-67	0.596	208.95	2.24		
		300.22	16.00		
XE-133	0.889	81.00 *	38.00	3.28E-02	2.99E-02
CE-144	0.995	133.54 *	10.80	1.32E-01	1.55E-01
RA-224	0.999	240.98 *	3.95	1.82E+00	9.73E-01
PA-234M	1.000	1001.03 *	0.92	2.62E+00	3.22E+00

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 11:16:02AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	52.33	9.29784E-03	46.55		
2	62.00	1.30754E-02	48.58	Tol.	TH-230
M 7	347.56	3.76720E-03	52.66		
8	470.92	5.53763E-03	37.64		
m 9	518.34	3.56243E-03	48.85		
10	617.35	3.91082E-03	37.71	Tol.	PM-144
11	663.16	6.78175E-03	33.09		
12	702.90	6.36574E-03	41.44	Tol.	NB-94
13	882.94	3.46296E-03	35.93		
14	944.42	2.27273E-03	50.58		
16	1049.33	2.37847E-03	66.07		
17	1147.34	1.27315E-03	62.67		

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

Analysis Report for 1606067-02

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NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
GA-67	0.59	93.31 *	35.70	5.82E-02	9.47E-02
		208.95	2.24		
		300.22	16.00		
XE-133	0.88	81.00 *	38.00	3.28E-02	2.99E-02
CE-144	0.99	133.54 *	10.80	1.32E-01	1.55E-01
RA-224	0.99	240.98 *	3.95	1.82E+00	9.73E-01
PA-234M	1.00	1001.03 *	0.92	2.62E+00	3.22E+00

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
GA-67	0.596	5.82E-02	9.47E-02	
XE-133	0.889	3.28E-02	2.99E-02	
CE-144	0.995	1.32E-01	1.55E-01	
RA-224	0.999	1.82E+00	9.73E-01	
PA-234M	1.000	2.62E+00	3.22E+00	

Analysis Report for 1606067-02

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- ? = nuclide is part of an undetermined solution
- X = nuclide rejected by the interference analysis
- @ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1606067-02
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UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 11:16:02AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	52.33	9.29784E-03	46.55		
2	62.00	1.30754E-02	48.58	Tol.	TH-230
M 7	347.56	3.76720E-03	52.66		
8	470.92	5.53763E-03	37.64		
m 9	518.34	3.56243E-03	48.85		
10	617.35	3.91082E-03	37.71	Tol.	PM-144
11	663.16	6.78175E-03	33.09		
12	702.90	6.36574E-03	41.44	Tol.	NB-94
13	882.94	3.46296E-03	35.93		
14	944.42	2.27273E-03	50.58		
16	1049.33	2.37847E-03	66.07		
17	1147.34	1.27315E-03	62.67		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-8.43E-02	4.68E-01	4.68E-01
+	NA-22	1274.54	99.94	-5.04E-03	5.43E-02	5.43E-02
+	NA-24	1368.53	99.99	2.07E-02	7.33E-02	8.68E-02
		2754.09	99.86	9.97E-03		7.33E-02
+	AL-26	1808.65	99.76	2.73E-02	8.21E-02	8.21E-02

Analysis Report for 1606067-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	K-40	1460.81	10.67	4.80E-01	8.89E-01	8.89E-01
+	AR-41	1293.64	99.16	-3.07E-02	1.23E-01	1.23E-01
+	TI-44	67.88	94.40	5.13E-03	2.64E-02	2.64E-02
		78.34	96.00	4.69E-05		2.84E-02
+	SC-46	889.25	99.98	1.11E-02	6.51E-02	6.51E-02
		1120.51	99.99	3.30E-02		9.27E-02
+	V-48	983.52	99.98	-1.26E-02	6.29E-02	6.29E-02
		1312.10	97.50	8.87E-03		6.97E-02
+	CR-51	320.08	9.83	1.21E-01	4.94E-01	4.94E-01
+	MN-54	834.83	99.97	1.45E-03	6.78E-02	6.78E-02
+	CO-56	846.75	99.96	1.71E-03	6.88E-02	6.88E-02
		1037.75	14.03	-1.30E-01		4.45E-01
		1238.25	67.00	-8.14E-03		1.03E-01
		1771.40	15.51	-1.73E-01		4.01E-01
		2598.48	16.90	2.11E-01		6.33E-01
+	CO-57	122.06	85.51	1.57E-03	3.28E-02	3.28E-02
		136.48	10.60	9.49E-03		2.87E-01
+	CO-58	810.76	99.40	2.77E-02	8.09E-02	8.09E-02
+	FE-59	1099.22	56.50	-3.27E-02	1.02E-01	1.02E-01
		1291.56	43.20	-9.45E-03		1.55E-01
+	CO-60	1173.22	100.00	2.33E-02	7.40E-02	7.40E-02
		1332.49	100.00	-4.81E-03		8.32E-02
+	ZN-65	1115.52	50.75	1.75E-02	1.77E-01	1.77E-01
+	GA-67	93.31	* 35.70	5.82E-02	1.12E-01	1.12E-01
		208.95	2.24	3.74E-01		1.84E+00
		300.22	16.00	1.14E-01		3.07E-01
+	SE-75	121.11	16.70	-8.91E-02	5.08E-02	1.60E-01
		136.00	59.20	-8.47E-03		5.08E-02
		264.65	59.80	1.41E-03		6.70E-02
		279.53	25.20	-8.40E-02		1.66E-01
		400.65	11.40	-7.20E-03		4.30E-01
+	RB-82	776.52	13.00	-7.58E-02	5.69E-01	5.69E-01
+	RB-83	520.41	46.00	-5.22E-03	1.22E-01	1.22E-01
		529.64	30.30	-7.11E-03		1.67E-01
		552.65	16.40	-8.64E-02		3.62E-01
+	KR-85	513.99	0.43	2.49E+01	2.07E+01	2.07E+01
+	SR-85	513.99	99.27	1.09E-01	9.06E-02	9.06E-02
+	Y-88	898.02	93.40	-1.16E-02	6.46E-02	6.46E-02
		1836.01	99.38	-1.22E-02		8.34E-02
+	NB-93M	16.57	9.43	3.34E-01	2.25E-01	2.25E-01
+	NB-94	702.63	100.00	4.29E-03	6.12E-02	6.84E-02
		871.10	100.00	1.41E-02		6.12E-02
+	NB-95	765.79	99.81	-1.44E-02	6.80E-02	6.80E-02
+	NB-95M	235.69	25.00	-1.63E-02	1.80E-01	1.80E-01
+	ZR-95	724.18	43.70	4.15E-02	1.27E-01	1.65E-01
		756.72	55.30	-1.87E-02		1.27E-01
+	MO-99	181.06	6.20	-7.78E-01	5.59E-01	5.87E-01

Analysis Report for 1606067-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	MO-99	739.58	12.80	-3.73E-02	5.59E-01	5.59E-01
		778.00	4.50	-3.27E-01		1.63E+00
+	RU-103	497.08	89.00	4.86E-03	6.12E-02	6.12E-02
+	RU-106	621.84	9.80	-2.45E-03	5.64E-01	5.64E-01
+	AG-108M	433.93	89.90	-6.97E-03	5.12E-02	5.12E-02
		614.37	90.40	8.47E-03		7.66E-02
		722.95	90.50	3.96E-02		8.09E-02
+	CD-109	88.03	3.72	-4.99E-02	6.62E-01	6.62E-01
+	AG-110M	657.75	93.14	3.56E-03	7.17E-02	7.17E-02
		677.61	10.53	8.02E-02		5.86E-01
		706.67	16.46	4.17E-02		4.09E-01
		763.93	21.98	-1.93E-02		3.16E-01
		884.67	71.63	9.41E-03		1.03E-01
		1384.27	23.94	-7.56E-03		2.72E-01
+	CD-113M	263.70	0.02	2.40E+01	1.77E+02	1.77E+02
+	SN-113	255.12	1.93	6.45E-01	6.98E-02	2.03E+00
		391.69	64.90	-1.52E-02		6.98E-02
+	TE123M	159.00	84.10	3.07E-04	3.89E-02	3.89E-02
+	SB-124	602.71	97.87	1.83E-02	6.38E-02	6.38E-02
		645.85	7.26	1.88E-01		8.49E-01
		722.78	11.10	2.15E-01		6.60E-01
		1691.02	49.00	4.39E-03		9.69E-02
+	I-125	35.49	6.49	3.16E-02	2.89E-01	2.89E-01
+	SB-125	176.33	6.89	-1.21E-01	1.63E-01	4.93E-01
		427.89	29.33	4.24E-02		1.63E-01
		463.38	10.35	0.00E+00		4.82E-01
		600.56	17.80	1.03E-01		3.49E-01
		635.90	11.32	1.90E-03		4.86E-01
+	SB-126	414.70	83.30	6.67E-03	5.71E-02	6.41E-02
		666.33	99.60	-1.09E-02		7.07E-02
		695.00	99.60	1.35E-04		5.71E-02
		720.50	53.80	-2.46E-02		1.22E-01
+	SN-126	87.57	37.00	-5.00E-03	6.63E-02	6.63E-02
+	SB-127	473.00	25.00	-1.65E-02	1.53E-01	2.17E-01
		685.20	35.70	1.55E-02		1.53E-01
		783.80	14.70	1.80E-01		5.13E-01
+	I-129	29.78	57.00	-5.95E-03	3.35E-02	3.35E-02
		33.60	13.20	2.74E-02		1.43E-01
		39.58	7.52	-2.69E-01		2.46E-01
+	I-131	284.30	6.05	-3.33E-01	5.90E-02	6.98E-01
		364.48	81.20	4.57E-03		5.90E-02
		636.97	7.26	-2.97E-01		7.20E-01
		722.89	1.80	1.33E+00		4.09E+00
+	TE-132	49.72	13.10	5.27E-02	4.57E-02	1.86E-01
		228.16	88.00	1.09E-02		4.57E-02
+	BA-133	81.00	33.00	2.90E-02	8.08E-02	8.08E-02
		302.84	17.80	2.48E-02		2.72E-01
		356.01	60.00	-1.72E-02		9.17E-02
+	I-133	529.87	86.30	-2.63E-03	6.19E-02	6.19E-02

Analysis Report for 1606067-02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	XE-133	81.00	*	38.00	3.28E-02	4.75E-02	4.75E-02
+	CS-134	563.23		8.38	-2.80E-01	6.53E-02	6.56E-01
		569.32		15.43	2.26E-02		3.60E-01
		604.70		97.60	-1.60E-02		6.53E-02
		795.84		85.40	8.40E-03		7.34E-02
		801.93		8.73	-3.40E-01		7.47E-01
+	CS-135	268.24		16.00	-8.14E-02	2.53E-01	2.53E-01
+	I-135	1131.51		22.50	-1.24E-01	2.91E-01	3.76E-01
		1260.41		28.60	0.00E+00		2.91E-01
		1678.03		9.54	2.38E-01		8.55E-01
+	CS-136	153.22		7.46	4.29E-02	6.27E-02	4.25E-01
		163.89		4.61	1.62E-02		7.36E-01
		176.55		13.56	-6.17E-02		2.52E-01
		273.65		12.66	5.94E-02		3.42E-01
		340.57		48.50	2.41E-02		8.44E-02
		818.50		99.70	-1.28E-02		6.27E-02
		1048.07		79.60	5.16E-02		1.19E-01
		1235.34		19.70	7.72E-02		3.74E-01
+	CS-137	661.65		85.12	4.32E-02	9.15E-02	9.15E-02
+	LA-138	788.74		34.00	2.25E-02	1.28E-01	1.94E-01
		1435.80		66.00	3.24E-03		1.28E-01
+	CE-139	165.85		80.35	2.88E-02	4.37E-02	4.37E-02
+	BA-140	162.64		6.70	2.29E-02	1.97E-01	5.01E-01
		304.84		4.50	-1.32E-01		1.03E+00
		423.70		3.20	3.71E-01		1.62E+00
		437.55		2.00	7.75E-03		2.41E+00
		537.32		25.00	-1.11E-01		1.97E-01
+	LA-140	328.77		20.50	-6.37E-02	6.95E-02	2.01E-01
		487.03		45.50	-1.63E-03		1.14E-01
		815.85		23.50	3.91E-02		3.16E-01
		1596.49		95.49	1.15E-02		6.95E-02
+	CE-141	145.44		48.40	3.70E-02	6.97E-02	6.97E-02
+	CE-143	57.36		11.80	-2.31E-01	1.07E-01	1.87E-01
		293.26		42.00	-4.38E-02		1.07E-01
		664.55		5.20	8.38E-01		1.49E+00
+	CE-144	133.54	*	10.80	1.32E-01	2.53E-01	2.53E-01
+	PM-144	476.78		42.00	-4.58E-02	6.11E-02	1.13E-01
		618.01		98.60	-4.24E-03		6.11E-02
		696.49		99.49	7.88E-04		6.67E-02
+	PM-145	36.85		21.70	-1.13E-02	4.85E-02	8.52E-02
		37.36		39.70	1.04E-02		4.85E-02
		42.30		15.10	2.96E-02		1.37E-01
		72.40		2.31	3.51E-02		1.06E+00
+	PM-146	453.90		39.94	1.30E-02	1.27E-01	1.27E-01
		735.90		14.01	2.34E-01		5.32E-01
		747.13		13.10	1.92E-01		5.66E-01
+	ND-147	91.11		28.90	1.34E-01	1.13E-01	1.13E-01
		531.02		13.10	8.28E-02		3.98E-01
+	PM-149	285.90		3.10	4.43E-01	1.48E+00	1.48E+00

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	EU-152	121.78	20.50	6.53E-03	1.36E-01	1.36E-01
		244.69	5.40	6.07E-02		8.33E-01
		344.27	19.13	3.94E-02		2.30E-01
		778.89	9.20	-1.57E-01		7.87E-01
		964.01	10.40	1.12E-01		7.02E-01
		1085.78	7.22	-2.00E-02		1.05E+00
		1112.02	9.60	1.66E-01		9.30E-01
		1407.95	14.94	-1.29E-01		4.43E-01
+	GD-153	97.43	31.30	-2.21E-03	9.25E-02	9.25E-02
		103.18	22.20	-4.31E-02		1.13E-01
+	EU-154	123.07	40.50	-5.78E-03	6.84E-02	6.84E-02
		723.30	19.70	1.82E-01		3.72E-01
		873.19	11.50	-7.27E-02		4.86E-01
		996.32	10.30	0.00E+00		6.47E-01
		1004.76	17.90	-6.76E-02		4.09E-01
		1274.45	35.50	-1.42E-02		1.53E-01
+	EU-155	86.50	30.90	-5.95E-03	7.99E-02	7.99E-02
		105.30	20.70	5.30E-02		1.34E-01
+	EU-156	811.77	10.40	2.31E-01	7.60E-01	7.60E-01
		1153.47	7.20	-1.96E-01		9.03E-01
		1230.71	8.90	1.18E-01		8.26E-01
+	HO-166M	184.41	72.60	4.50E-02	6.01E-02	6.01E-02
		280.45	29.60	-5.90E-02		1.44E-01
		410.94	11.10	8.64E-03		4.75E-01
		711.69	54.10	2.66E-02		1.20E-01
+	TM-171	66.72	0.14	1.71E+00	1.78E+01	1.78E+01
+	HF-172	81.75	4.52	3.42E-02	2.61E-01	5.72E-01
		125.81	11.30	7.67E-02		2.61E-01
+	LU-172	181.53	20.60	-1.07E-01	9.93E-02	1.87E-01
		810.06	16.63	1.67E-01		4.86E-01
		912.12	15.25	-8.09E-02		4.23E-01
		1093.66	62.50	-3.52E-02		9.93E-02
+	LU-173	100.72	5.24	4.79E-02	1.99E-01	4.98E-01
		272.11	21.20	-4.02E-02		1.99E-01
+	HF-175	343.40	84.00	1.76E-02	5.30E-02	5.30E-02
+	LU-176	88.34	13.30	-1.40E-02	4.70E-02	2.19E-01
		201.83	86.00	4.06E-03		4.70E-02
		306.78	94.00	-9.82E-03		4.70E-02
+	TA-182	67.75	41.20	1.18E-02	6.05E-02	6.05E-02
		1121.30	34.90	7.00E-03		2.33E-01
		1189.05	16.23	0.00E+00		4.37E-01
		1221.41	26.98	-3.59E-02		2.16E-01
		1231.02	11.44	9.14E-02		6.41E-01
+	IR-192	308.46	29.68	-5.04E-02	1.12E-01	1.50E-01
		468.07	48.10	-3.97E-03		1.12E-01
+	HG-203	279.19	77.30	-2.74E-02	5.40E-02	5.40E-02
+	BI-207	569.67	97.72	3.57E-03	5.69E-02	5.69E-02
		1063.62	74.90	-4.96E-02		7.45E-02
+	TL-208	583.14	30.22	1.08E-02	1.96E-01	1.96E-01

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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
TL-208	860.37	4.48	-5.08E-01	1.96E-01	1.09E+00
	2614.66	35.85	9.98E-02		3.00E-01
+ BI-210M	262.00	45.00	1.63E-02	9.14E-02	9.14E-02
	300.00	23.00	1.56E-01		2.18E-01
+ PB-210	46.50	4.25	1.65E-01	5.17E-01	5.17E-01
+ PB-211	404.84	2.90	9.52E-02	1.77E+00	1.77E+00
	831.96	2.90	-6.18E-01		2.18E+00
+ BI-212	727.17	11.80	-1.28E-01	5.60E-01	5.60E-01
	1620.62	2.75	1.51E-01		3.19E+00
+ PB-212	238.63	44.60	5.43E-02	1.09E-01	1.09E-01
	300.09	3.41	1.06E+00		1.47E+00
+ BI-214	609.31	46.30	-2.39E-02	1.36E-01	1.36E-01
	1120.29	15.10	2.18E-01		6.14E-01
	1764.49	15.80	1.02E-01		5.08E-01
	2204.22	4.98	-2.66E-01		1.48E+00
+ PB-214	295.21	19.19	-2.14E-03	1.51E-01	2.37E-01
	351.92	37.19	1.12E-01		1.51E-01
+ RN-219	401.80	6.50	1.13E-02	7.65E-01	7.65E-01
+ RA-223	323.87	3.88	4.71E-01	1.18E+00	1.18E+00
+ RA-224	240.98	* 3.95	1.82E+00	1.47E+00	1.47E+00
+ RA-225	40.00	31.00	-6.56E-02	5.99E-02	5.99E-02
+ RA-226	186.21	3.28	8.00E-01	1.33E+00	1.33E+00
+ TH-227	50.10	8.40	8.13E-02	2.86E-01	2.86E-01
	236.00	11.50	-3.51E-02		3.86E-01
	256.20	6.30	7.36E-02		6.18E-01
+ AC-228	338.32	11.40	9.96E-02	2.31E-01	3.80E-01
	911.07	27.70	-2.65E-02		2.31E-01
	969.11	16.60	-7.74E-02		4.09E-01
+ TH-230	48.44	16.90	4.85E-02	1.41E-01	1.41E-01
	62.85	4.60	3.08E-01		5.31E-01
	67.67	0.37	1.31E+00		6.73E+00
+ PA-231	283.67	1.60	-4.04E-01	2.11E+00	2.71E+00
	302.67	2.30	1.92E-01		2.11E+00
+ TH-231	25.64	14.70	3.08E-02	1.42E-01	1.42E-01
	84.21	6.40	-2.83E-02		4.03E-01
+ PA-233	311.98	38.60	2.35E-02	1.22E-01	1.22E-01
+ PA-234	131.20	20.40	-1.59E-02	1.50E-01	1.50E-01
	733.99	8.80	7.29E-02		7.76E-01
	946.00	12.00	-7.40E-02		5.75E-01
+ PA-234M	1001.03	* 0.92	2.62E+00	5.12E+00	5.12E+00
+ TH-234	63.29	3.80	4.23E-01	6.59E-01	6.59E-01
+ U-235	143.76	10.50	3.28E-02	3.06E-01	3.06E-01
	163.35	4.70	1.58E-02		7.18E-01
	205.31	4.70	-1.63E-01		8.63E-01
+ NP-237	86.50	12.60	-1.46E-02	1.96E-01	1.96E-01
+ NP-239	106.10	22.70	4.95E-02	1.26E-01	1.26E-01
	228.18	10.70	-6.63E-02		3.67E-01
	277.60	14.10	8.71E-02		3.24E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	AM-241	59.54	35.90	3.62E-03	6.47E-02	6.47E-02
+	AM-243	74.67	66.00	-5.54E-03	3.83E-02	3.83E-02
+	CM-243	209.75	3.29	1.78E-01	3.20E-01	1.23E+00
		228.14	10.60	8.90E-02		3.74E-01
		277.60	14.00	8.61E-02		3.20E-01

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	4.68E-01	4.68E-01	-8.43E-02	2.09E-01
NA-22	1274.54	99.94	5.43E-02	5.43E-02	-5.04E-03	2.03E-02
NA-24	1368.53	99.99	8.68E-02	7.33E-02	2.07E-02	3.56E-02
	2754.09	99.86	7.33E-02		9.97E-03	2.32E-02
AL-26	1808.65	99.76	8.21E-02	8.21E-02	2.73E-02	3.18E-02
K-40	1460.81	10.67	8.89E-01	8.89E-01	4.80E-01	3.72E-01
AR-41	1293.64	99.16	1.23E-01	1.23E-01	-3.07E-02	4.89E-02
TI-44	67.88	94.40	2.64E-02	2.64E-02	5.13E-03	1.26E-02
	78.34	96.00	2.84E-02		4.69E-05	1.35E-02
SC-46	889.25	99.98	6.51E-02	6.51E-02	1.11E-02	2.77E-02
	1120.51	99.99	9.27E-02		3.30E-02	4.03E-02
V-48	983.52	99.98	6.29E-02	6.29E-02	-1.26E-02	2.61E-02
	1312.10	97.50	6.97E-02		8.87E-03	2.77E-02
CR-51	320.08	9.83	4.94E-01	4.94E-01	1.21E-01	2.29E-01
MN-54	834.83	99.97	6.78E-02	6.78E-02	1.45E-03	2.94E-02
CO-56	846.75	99.96	6.88E-02	6.88E-02	1.71E-03	2.98E-02
	1037.75	14.03	4.45E-01		-1.30E-01	1.83E-01
	1238.25	67.00	1.03E-01		-8.14E-03	4.17E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CO-56	1771.40	15.51	4.01E-01	6.88E-02	-1.73E-01	1.42E-01
	2598.48	16.90	6.33E-01		2.11E-01	2.45E-01
CO-57	122.06	85.51	3.28E-02	3.28E-02	1.57E-03	1.54E-02
	136.48	10.60	2.87E-01		9.49E-03	1.35E-01
CO-58	810.76	99.40	8.09E-02	8.09E-02	2.77E-02	3.60E-02
FE-59	1099.22	56.50	1.02E-01	1.02E-01	-3.27E-02	4.05E-02
	1291.56	43.20	1.55E-01		-9.45E-03	6.14E-02
CO-60	1173.22	100.00	7.40E-02	7.40E-02	2.33E-02	3.07E-02
	1332.49	100.00	8.32E-02		-4.81E-03	3.45E-02
ZN-65	1115.52	50.75	1.77E-01	1.77E-01	1.75E-02	7.64E-02
+ GA-67	93.31	*	1.12E-01	1.12E-01	5.82E-02	5.43E-02
	208.95		1.84E+00		3.74E-01	8.66E-01
	300.22		3.07E-01		1.14E-01	1.43E-01
SE-75	121.11	16.70	1.60E-01	5.08E-02	-8.91E-02	7.50E-02
	136.00	59.20	5.08E-02		-8.47E-03	2.39E-02
	264.65	59.80	6.70E-02		1.41E-03	3.10E-02
	279.53	25.20	1.66E-01		-8.40E-02	7.65E-02
	400.65	11.40	4.30E-01		-7.20E-03	1.95E-01
RB-82	776.52	13.00	5.69E-01	5.69E-01	-7.58E-02	2.52E-01
RB-83	520.41	46.00	1.22E-01	1.22E-01	-5.22E-03	5.46E-02
	529.64	30.30	1.67E-01		-7.11E-03	7.40E-02
	552.65	16.40	3.62E-01		-8.64E-02	1.63E-01
KR-85	513.99	0.43	2.07E+01	2.07E+01	2.49E+01	9.71E+00
SR-85	513.99	99.27	9.06E-02	9.06E-02	1.09E-01	4.25E-02
Y-88	898.02	93.40	6.46E-02	6.46E-02	-1.16E-02	2.71E-02
	1836.01	99.38	8.34E-02		-1.22E-02	3.23E-02
NB-93M	16.57	9.43	2.25E-01	2.25E-01	3.34E-01	1.08E-01
NB-94	702.63	100.00	6.84E-02	6.12E-02	4.29E-03	3.03E-02
	871.10	100.00	6.12E-02		1.41E-02	2.59E-02
NB-95	765.79	99.81	6.80E-02	6.80E-02	-1.44E-02	2.98E-02
NB-95M	235.69	25.00	1.80E-01	1.80E-01	-1.63E-02	8.43E-02
ZR-95	724.18	43.70	1.65E-01	1.27E-01	4.15E-02	7.33E-02
	756.72	55.30	1.27E-01		-1.87E-02	5.62E-02
MO-99	181.06	6.20	5.87E-01	5.59E-01	-7.78E-01	2.75E-01
	739.58	12.80	5.59E-01		-3.73E-02	2.47E-01
	778.00	4.50	1.63E+00		-3.27E-01	7.21E-01
RU-103	497.08	89.00	6.12E-02	6.12E-02	4.86E-03	2.75E-02
RU-106	621.84	9.80	5.64E-01	5.64E-01	-2.45E-03	2.47E-01
AG-108M	433.93	89.90	5.12E-02	5.12E-02	-6.97E-03	2.29E-02
	614.37	90.40	7.66E-02		8.47E-03	3.46E-02
	722.95	90.50	8.09E-02		3.96E-02	3.61E-02
CD-109	88.03	3.72	6.62E-01	6.62E-01	-4.99E-02	3.13E-01
AG-110M	657.75	93.14	7.17E-02	7.17E-02	3.56E-03	3.20E-02
	677.61	10.53	5.86E-01		8.02E-02	2.57E-01
	706.67	16.46	4.09E-01		4.17E-02	1.81E-01
	763.93	21.98	3.16E-01		-1.93E-02	1.39E-01
	884.67	71.63	1.03E-01		9.41E-03	4.49E-02
	1384.27	23.94	2.72E-01		-7.56E-03	1.05E-01
CD-113M	263.70	0.02	1.77E+02	1.77E+02	2.40E+01	8.18E+01
SN-113	255.12	1.93	2.03E+00	6.98E-02	6.45E-01	9.38E-01
	391.69	64.90	6.98E-02		-1.52E-02	3.15E-02
TE123M	159.00	84.10	3.89E-02	3.89E-02	3.07E-04	1.83E-02
SB-124	602.71	97.87	6.38E-02	6.38E-02	1.83E-02	2.85E-02

Analysis Report for 1606067-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
SB-124	645.85	7.26	8.49E-01	6.38E-02	1.88E-01	3.76E-01
	722.78	11.10	6.60E-01		2.15E-01	2.94E-01
	1691.02	49.00	9.69E-02		4.39E-03	3.06E-02
I-125	35.49	6.49	2.89E-01	2.89E-01	3.16E-02	1.37E-01
	SB-125	176.33	6.89	4.93E-01	1.63E-01	-1.21E-01	2.31E-01
SB-126	427.89	29.33	1.63E-01	5.71E-02	4.24E-02	7.34E-02
	463.38	10.35	4.82E-01		0.00E+00	2.17E-01
	600.56	17.80	3.49E-01		1.03E-01	1.56E-01
	635.90	11.32	4.86E-01		1.90E-03	2.12E-01
	414.70	83.30	6.41E-02		6.67E-03	2.93E-02
	666.33	99.60	7.07E-02		-1.09E-02	3.17E-02
SN-126	695.00	99.60	5.71E-02	6.63E-02	1.35E-04	2.47E-02
	720.50	53.80	1.22E-01		-2.46E-02	5.37E-02
SB-127	87.57	37.00	6.63E-02	1.53E-01	-5.00E-03	3.14E-02
	473.00	25.00	2.17E-01		-1.65E-02	9.78E-02
I-129	685.20	35.70	1.53E-01	3.35E-02	1.55E-02	6.60E-02
	783.80	14.70	5.13E-01		1.80E-01	2.27E-01
	29.78	57.00	3.35E-02		-5.95E-03	1.60E-02
	33.60	13.20	1.43E-01		2.74E-02	6.79E-02
I-131	39.58	7.52	2.46E-01	5.90E-02	-2.69E-01	1.17E-01
	284.30	6.05	6.98E-01		-3.33E-01	3.22E-01
	364.48	81.20	5.90E-02		4.57E-03	2.70E-02
	636.97	7.26	7.20E-01		-2.97E-01	3.12E-01
TE-132	722.89	1.80	4.09E+00	4.57E-02	1.33E+00	1.82E+00
	49.72	13.10	1.86E-01		5.27E-02	8.89E-02
	228.16	88.00	4.57E-02		1.09E-02	2.13E-02
BA-133	81.00	33.00	8.08E-02	8.08E-02	2.90E-02	3.85E-02
	302.84	17.80	2.72E-01		2.48E-02	1.27E-01
	356.01	60.00	9.17E-02		-1.72E-02	4.25E-02
	I-133	529.87	86.30		6.19E-02	6.19E-02	-2.63E-03	2.74E-02
+ XE-133	81.00	*	4.75E-02	4.75E-02	3.28E-02	2.21E-02
CS-134	563.23	8.38	6.56E-01	6.53E-02	-2.80E-01	2.91E-01
	569.32	15.43	3.60E-01		2.26E-02	1.60E-01
	604.70	97.60	6.53E-02		-1.60E-02	2.93E-02
	795.84	85.40	7.34E-02		8.40E-03	3.16E-02
	801.93	8.73	7.47E-01		-3.40E-01	3.23E-01
	CS-135	268.24	16.00		2.53E-01	2.53E-01	-8.14E-02	1.17E-01
I-135	1131.51	22.50	3.76E-01	2.91E-01	-1.24E-01	1.56E-01
	1260.41	28.60	2.91E-01		0.00E+00	1.17E-01
	1678.03	9.54	8.55E-01		2.38E-01	3.20E-01
	CS-136	153.22	7.46		4.25E-01	6.27E-02	4.29E-02	1.99E-01
CS-137	163.89	4.61	7.36E-01	9.15E-02	1.62E-02	3.46E-01
	176.55	13.56	2.52E-01		-6.17E-02	1.18E-01
	273.65	12.66	3.42E-01		5.94E-02	1.59E-01
	340.57	48.50	8.44E-02		2.41E-02	3.83E-02
	818.50	99.70	6.27E-02		-1.28E-02	2.68E-02
	1048.07	79.60	1.19E-01		5.16E-02	5.22E-02
	1235.34	19.70	3.74E-01		7.72E-02	1.53E-01
	LA-138	661.65	85.12		9.15E-02	9.15E-02	4.32E-02	4.15E-02
CE-139	788.74	34.00	1.94E-01	1.28E-01	2.25E-02	8.45E-02
	1435.80	66.00	1.28E-01		3.24E-03	5.23E-02
BA-140	165.85	80.35	4.37E-02	4.37E-02	2.88E-02	2.06E-02
	162.64	6.70	5.01E-01	1.97E-01	2.29E-02	2.35E-01

Analysis Report for 1606067-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)		
BA-140	304.84	4.50	1.03E+00	1.97E-01	-1.32E-01	4.74E-01		
	423.70	3.20	1.62E+00		3.71E-01	7.37E-01		
	437.55	2.00	2.41E+00		7.75E-03	1.08E+00		
	537.32	25.00	1.97E-01		-1.11E-01	8.65E-02		
LA-140	328.77	20.50	2.01E-01	6.95E-02	-6.37E-02	9.16E-02		
	487.03	45.50	1.14E-01		-1.63E-03	5.09E-02		
	815.85	23.50	3.16E-01		3.91E-02	1.39E-01		
	1596.49	95.49	6.95E-02		1.15E-02	2.60E-02		
CE-141	145.44	48.40	6.97E-02	6.97E-02	3.70E-02	3.30E-02		
CE-143	57.36	11.80	1.87E-01	1.07E-01	-2.31E-01	8.89E-02		
	293.26	42.00	1.07E-01		-4.38E-02	4.96E-02		
	664.55	5.20	1.49E+00		8.38E-01	6.71E-01		
+ CE-144	133.54	* 10.80	2.53E-01	2.53E-01	1.32E-01	1.18E-01		
PM-144	476.78	42.00	1.13E-01	6.11E-02	-4.58E-02	5.05E-02		
	618.01	98.60	6.11E-02		-4.24E-03	2.71E-02		
	696.49	99.49	6.67E-02		7.88E-04	2.95E-02		
PM-145	36.85	21.70	8.52E-02	4.85E-02	-1.13E-02	4.05E-02		
	37.36	39.70	4.85E-02		1.04E-02	2.31E-02		
	42.30	15.10	1.37E-01		2.96E-02	6.51E-02		
	72.40	2.31	1.06E+00		3.51E-02	5.03E-01		
PM-146	453.90	39.94	1.27E-01	1.27E-01	1.30E-02	5.71E-02		
	735.90	14.01	5.32E-01		2.34E-01	2.37E-01		
	747.13	13.10	5.66E-01		1.92E-01	2.52E-01		
ND-147	91.11	28.90	1.13E-01	1.13E-01	1.34E-01	5.39E-02		
	531.02	13.10	3.98E-01		8.28E-02	1.76E-01		
PM-149	285.90	3.10	1.48E+00	1.48E+00	4.43E-01	6.86E-01		
EU-152	121.78	20.50	1.36E-01	1.36E-01	6.53E-03	6.42E-02		
	244.69	5.40	8.33E-01		6.07E-02	3.91E-01		
	344.27	19.13	2.30E-01		3.94E-02	1.05E-01		
	778.89	9.20	7.87E-01		-1.57E-01	3.47E-01		
	964.01	10.40	7.02E-01		1.12E-01	3.00E-01		
	1085.78	7.22	1.05E+00		-2.00E-02	4.42E-01		
	1112.02	9.60	9.30E-01		1.66E-01	4.03E-01		
	1407.95	14.94	4.43E-01		-1.29E-01	1.72E-01		
	GD-153	97.43	31.30		9.25E-02	9.25E-02	-2.21E-03	4.40E-02
		103.18	22.20		1.13E-01		-4.31E-02	5.32E-02
EU-154	123.07	40.50	6.84E-02	6.84E-02	-5.78E-03	3.22E-02		
	723.30	19.70	3.72E-01		1.82E-01	1.66E-01		
	873.19	11.50	4.86E-01		-7.27E-02	2.02E-01		
	996.32	10.30	6.47E-01		0.00E+00	2.71E-01		
	1004.76	17.90	4.09E-01		-6.76E-02	1.74E-01		
	1274.45	35.50	1.53E-01		-1.42E-02	5.72E-02		
EU-155	86.50	30.90	7.99E-02	7.99E-02	-5.95E-03	3.78E-02		
	105.30	20.70	1.34E-01		5.30E-02	6.36E-02		
EU-156	811.77	10.40	7.60E-01	7.60E-01	2.31E-01	3.37E-01		
	1153.47	7.20	9.03E-01		-1.96E-01	3.65E-01		
	1230.71	8.90	8.26E-01		1.18E-01	3.38E-01		
HO-166M	184.41	72.60	6.01E-02	6.01E-02	4.50E-02	2.85E-02		
	280.45	29.60	1.44E-01		-5.90E-02	6.66E-02		
	410.94	11.10	4.75E-01		8.64E-03	2.17E-01		
	711.69	54.10	1.20E-01		2.66E-02	5.26E-02		
TM-171	66.72	0.14	1.78E+01	1.78E+01	1.71E+00	8.48E+00		
HF-172	81.75	4.52	5.72E-01	2.61E-01	3.42E-02	2.72E-01		

Analysis Report for 1606067-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
HF-172	125.81	11.30	2.61E-01	2.61E-01	7.67E-02	1.23E-01
LU-172	181.53	20.60	1.87E-01	9.93E-02	-1.07E-01	8.82E-02
	810.06	16.63	4.86E-01		1.67E-01	2.16E-01
	912.12	15.25	4.23E-01		-8.09E-02	1.78E-01
	1093.66	62.50	9.93E-02		-3.52E-02	4.01E-02
LU-173	100.72	5.24	4.98E-01	1.99E-01	4.79E-02	2.35E-01
	272.11	21.20	1.99E-01		-4.02E-02	9.22E-02
HF-175	343.40	84.00	5.30E-02	5.30E-02	1.76E-02	2.42E-02
LU-176	88.34	13.30	2.19E-01	4.70E-02	-1.40E-02	1.05E-01
	201.83	86.00	4.70E-02		4.06E-03	2.21E-02
	306.78	94.00	4.70E-02		-9.82E-03	2.16E-02
TA-182	67.75	41.20	6.05E-02	6.05E-02	1.18E-02	2.88E-02
	1121.30	34.90	2.33E-01		7.00E-03	9.90E-02
	1189.05	16.23	4.37E-01		0.00E+00	1.79E-01
	1221.41	26.98	2.16E-01		-3.59E-02	8.36E-02
	1231.02	11.44	6.41E-01		9.14E-02	2.63E-01
IR-192	308.46	29.68	1.50E-01	1.12E-01	-5.04E-02	6.89E-02
	468.07	48.10	1.12E-01		-3.97E-03	5.06E-02
HG-203	279.19	77.30	5.40E-02	5.40E-02	-2.74E-02	2.49E-02
BI-207	569.67	97.72	5.69E-02	5.69E-02	3.57E-03	2.52E-02
	1063.62	74.90	7.45E-02		-4.96E-02	2.96E-02
TL-208	583.14	30.22	1.96E-01	1.96E-01	1.08E-02	8.74E-02
	860.37	4.48	1.09E+00		-5.08E-01	4.42E-01
	2614.66	35.85	3.00E-01		9.98E-02	1.16E-01
BI-210M	262.00	45.00	9.14E-02	9.14E-02	1.63E-02	4.24E-02
	300.00	23.00	2.18E-01		1.56E-01	1.02E-01
PB-210	46.50	4.25	5.17E-01	5.17E-01	1.65E-01	2.47E-01
PB-211	404.84	2.90	1.77E+00	1.77E+00	9.52E-02	8.09E-01
	831.96	2.90	2.18E+00		-6.18E-01	9.34E-01
BI-212	727.17	11.80	5.60E-01	5.60E-01	-1.28E-01	2.46E-01
	1620.62	2.75	3.19E+00		1.51E-01	1.29E+00
PB-212	238.63	44.60	1.09E-01	1.09E-01	5.43E-02	5.12E-02
	300.09	3.41	1.47E+00		1.06E+00	6.87E-01
BI-214	609.31	46.30	1.36E-01	1.36E-01	-2.39E-02	6.09E-02
	1120.29	15.10	6.14E-01		2.18E-01	2.67E-01
	1764.49	15.80	5.08E-01		1.02E-01	1.97E-01
	2204.22	4.98	1.48E+00		-2.66E-01	5.25E-01
PB-214	295.21	19.19	2.37E-01	1.51E-01	-2.14E-03	1.10E-01
	351.92	37.19	1.51E-01		1.12E-01	7.03E-02
RN-219	401.80	6.50	7.65E-01	7.65E-01	1.13E-02	3.48E-01
RA-223	323.87	3.88	1.18E+00	1.18E+00	4.71E-01	5.45E-01
+ RA-224	240.98	* 3.95	1.47E+00	1.47E+00	1.82E+00	6.99E-01
RA-225	40.00	31.00	5.99E-02	5.99E-02	-6.56E-02	2.84E-02
RA-226	186.21	3.28	1.33E+00	1.33E+00	8.00E-01	6.31E-01
TH-227	50.10	8.40	2.86E-01	2.86E-01	8.13E-02	1.37E-01
	236.00	11.50	3.86E-01		-3.51E-02	1.81E-01
	256.20	6.30	6.18E-01		7.36E-02	2.86E-01
AC-228	338.32	11.40	3.80E-01	2.31E-01	9.96E-02	1.73E-01
	911.07	27.70	2.31E-01		-2.65E-02	9.75E-02
	969.11	16.60	4.09E-01		-7.74E-02	1.73E-01
TH-230	48.44	16.90	1.41E-01	1.41E-01	4.85E-02	6.75E-02
	62.85	4.60	5.31E-01		3.08E-01	2.53E-01
	67.67	0.37	6.73E+00		1.31E+00	3.21E+00

Analysis Report for 1606067-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PA-231	283.67	1.60	2.71E+00	2.11E+00	-4.04E-01	1.26E+00
	302.67	2.30	2.11E+00		1.92E-01	9.79E-01
TH-231	25.64	14.70	1.42E-01	1.42E-01	3.08E-02	6.81E-02
	84.21	6.40	4.03E-01		-2.83E-02	1.91E-01
PA-233	311.98	38.60	1.22E-01	1.22E-01	2.35E-02	5.64E-02
PA-234	131.20	20.40	1.50E-01	1.50E-01	-1.59E-02	7.06E-02
	733.99	8.80	7.76E-01		7.29E-02	3.42E-01
	946.00	12.00	5.75E-01		-7.40E-02	2.45E-01
+ PA-234M	1001.03 *	0.92	5.12E+00	5.12E+00	2.62E+00	1.97E+00
TH-234	63.29	3.80	6.59E-01	6.59E-01	4.23E-01	3.15E-01
U-235	143.76	10.50	3.06E-01	3.06E-01	3.28E-02	1.44E-01
	163.35	4.70	7.18E-01		1.58E-02	3.37E-01
	205.31	4.70	8.63E-01		-1.63E-01	4.06E-01
NP-237	86.50	12.60	1.96E-01	1.96E-01	-1.46E-02	9.28E-02
NP-239	106.10	22.70	1.26E-01	1.26E-01	4.95E-02	5.95E-02
	228.18	10.70	3.67E-01		-6.63E-02	1.71E-01
	277.60	14.10	3.24E-01		8.71E-02	1.50E-01
AM-241	59.54	35.90	6.47E-02	6.47E-02	3.62E-03	3.08E-02
AM-243	74.67	66.00	3.83E-02	3.83E-02	-5.54E-03	1.82E-02
CM-243	209.75	3.29	1.23E+00	3.20E-01	1.78E-01	5.80E-01
	228.14	10.60	3.74E-01		8.90E-02	1.74E-01
	277.60	14.00	3.20E-01		8.61E-02	1.49E-01

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date

Comment

User

Analysis Report for 1606067-02

BLANK

No Data Review Comments Entered.

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*****
*****  S P E C T R A L  D A T A  R E P O R T  *****
*****
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Sample Title: BLANK

Elapsed Live time: 3600

Elapsed Real Time: 3603

Channel									
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	10	58	
17:	40	29	29	28	26	33	21	16	
25:	18	32	12	7	17	13	14	11	
33:	21	16	12	11	19	16	9	8	
41:	21	15	7	20	16	31	20	15	
49:	10	19	22	23	19	9	6	13	
57:	13	13	14	18	17	19	28	15	
65:	18	7	20	16	7	16	17	6	
73:	17	15	15	20	16	12	12	17	
81:	22	20	6	12	10	13	10	12	
89:	12	13	17	50	39	13	14	16	
97:	11	4	12	9	12	8	17	11	
105:	7	9	17	15	12	11	12	10	
113:	15	11	14	6	11	8	6	6	
121:	12	15	7	10	14	8	9	10	
129:	10	9	11	12	20	7	6	9	
137:	3	14	6	13	12	11	6	14	
145:	12	11	8	13	14	5	5	8	
153:	8	13	7	12	9	5	6	9	
161:	9	12	15	7	10	10	6	9	
169:	11	9	8	2	8	14	9	8	
177:	5	7	11	11	11	8	10	9	
185:	20	20	20	9	10	10	9	4	
193:	11	9	5	6	10	16	9	12	
201:	4	12	11	8	4	11	11	10	
209:	13	7	10	8	7	10	5	5	
217:	5	8	6	7	8	9	10	9	
225:	4	8	5	7	13	4	6	6	
233:	6	3	11	7	10	11	19	13	
241:	11	8	9	7	12	8	0	8	
249:	6	4	5	5	7	5	6	4	
257:	10	6	5	3	5	6	5	8	
265:	7	6	8	3	4	5	4	6	
273:	8	11	5	4	9	7	7	2	
281:	6	7	3	7	7	7	7	3	
289:	9	7	5	2	2	4	8	7	
297:	6	11	9	5	8	4	7	3	
305:	9	3	4	9	4	4	5	6	
313:	4	8	8	5	4	6	4	8	
321:	5	8	5	5	3	4	4	0	
329:	4	4	5	6	4	2	6	6	
337:	2	1	7	3	7	3	2	1	
345:	2	3	10	6	2	5	5	10	
353:	11	7	4	5	4	5	5	5	
361:	6	7	4	2	2	7	2	4	

369: 3 4 4 6 1 4 5 7

Sample Title: BLANK

Channel	1	2	3	4	5	6	7	8	9
377:	2	3	2	3	7	5	6	6	
385:	6	6	3	2	4	4	4	2	
393:	3	6	2	4	1	2	6	2	
401:	3	8	5	3	5	4	3	4	
409:	4	4	6	4	2	7	3	6	
417:	3	3	6	4	2	4	3	7	
425:	1	3	4	2	4	1	3	0	
433:	3	2	5	5	2	5	3	2	
441:	0	9	2	1	5	2	2	5	
449:	3	5	5	2	3	3	1	1	
457:	5	3	3	2	8	1	2	5	
465:	0	3	2	4	5	0	6	5	
473:	5	1	1	2	1	4	1	2	
481:	6	3	1	3	2	3	4	7	
489:	0	2	3	1	4	4	2	2	
497:	4	1	3	5	2	3	3	4	
505:	3	1	0	4	12	14	12	12	
513:	12	3	3	2	5	7	2	0	
521:	3	3	1	3	3	2	3	2	
529:	2	2	5	1	0	4	1	2	
537:	1	7	0	3	0	3	6	3	
545:	3	1	3	2	5	2	3	0	
553:	3	5	3	3	4	7	3	1	
561:	6	0	3	1	3	4	0	6	
569:	1	1	2	4	0	3	4	1	
577:	2	3	3	4	3	0	4	4	
585:	1	2	2	2	4	2	1	1	
593:	5	1	1	1	3	1	2	4	
601:	3	6	2	2	3	1	0	4	
609:	2	4	7	1	2	0	5	4	
617:	3	3	4	0	1	1	0	2	
625:	3	1	0	0	1	3	2	0	
633:	4	4	2	2	2	0	0	0	
641:	4	2	2	2	2	4	0	3	
649:	1	1	3	4	3	3	4	1	
657:	2	3	2	2	3	5	9	1	
665:	5	3	0	1	0	1	2	3	
673:	0	2	3	2	4	2	0	1	
681:	4	1	1	2	2	1	0	0	
689:	2	2	1	1	5	0	1	4	
697:	1	1	0	7	2	1	2	1	
705:	1	6	4	2	1	2	0	2	
713:	1	2	4	1	1	1	2	3	
721:	4	3	3	0	4	3	1	1	
729:	2	1	3	2	1	3	4	1	
737:	1	3	5	1	1	2	2	5	
745:	2	1	1	2	4	3	2	3	
753:	1	1	1	1	6	2	1	3	
761:	2	3	1	4	1	2	1	1	
769:	2	1	2	5	2	4	1	2	
777:	2	2	1	1	4	2	3	3	
785:	1	2	3	0	1	1	3	1	
793:	0	0	1	3	2	1	2	3	

801: 1 1 2 1 1 2 0 4

Sample Title: BLANK

Channel	1	2	3	4	5	6	7	8
809:	5	0	3	3	3	2	1	2
817:	2	1	1	1	1	1	1	2
825:	0	1	1	2	2	2	2	0
833:	1	0	1	2	4	2	2	2
841:	0	1	2	1	0	2	3	1
849:	2	2	1	3	1	1	3	0
857:	1	0	1	0	0	1	2	1
865:	1	0	2	2	1	1	0	2
873:	0	1	1	1	1	0	0	3
881:	0	3	4	2	1	1	1	0
889:	2	2	2	0	2	2	0	0
897:	1	2	2	2	0	0	2	1
905:	1	2	0	1	3	1	2	1
913:	2	0	0	0	2	2	1	1
921:	2	0	2	1	1	1	1	1
929:	0	1	1	0	1	0	2	1
937:	1	2	2	0	2	0	2	3
945:	2	2	0	0	0	2	1	2
953:	2	1	0	1	1	1	1	0
961:	2	1	4	1	1	0	1	2
969:	3	0	0	1	2	0	2	1
977:	2	2	1	1	1	1	1	2
985:	1	0	0	0	3	0	0	3
993:	1	0	1	1	0	1	1	1
1001:	4	2	0	1	0	0	1	2
1009:	2	0	0	2	3	2	2	2
1017:	2	1	2	0	1	1	2	2
1025:	1	1	0	1	1	1	1	1
1033:	0	0	1	0	2	1	0	1
1041:	2	1	2	2	1	2	2	4
1049:	0	5	2	0	1	0	0	1
1057:	3	0	0	1	1	0	2	0
1065:	0	0	1	3	1	1	0	1
1073:	0	0	2	1	2	2	0	1
1081:	5	1	1	1	1	1	1	0
1089:	3	1	0	1	0	1	0	0
1097:	0	3	1	0	0	0	1	1
1105:	2	1	0	3	1	0	0	1
1113:	2	1	2	4	2	1	1	1
1121:	1	2	0	3	0	0	1	0
1129:	0	1	1	2	1	1	1	1
1137:	2	3	1	1	0	0	0	0
1145:	0	2	1	3	0	1	0	1
1153:	1	1	2	0	0	2	0	1
1161:	2	0	0	1	1	0	0	1
1169:	1	1	0	2	0	1	1	1
1177:	1	1	0	0	1	0	2	2
1185:	0	1	0	2	0	3	1	0
1193:	0	0	0	1	0	1	1	1
1201:	1	1	2	2	0	0	1	0
1209:	2	0	2	2	2	1	1	0
1217:	0	1	0	1	0	0	1	0
1225:	1	1	1	0	0	0	0	1

1233: 2 2 1 0 0 1 0 0

Sample Title: BLANK

Channel	1	2	3	4	5	6	7	8
1241:	1	1	0	1	1	0	0	2
1249:	2	1	1	1	1	0	1	0
1257:	1	1	0	0	0	0	2	2
1265:	0	1	1	0	1	1	0	0
1273:	1	0	0	1	0	0	0	1
1281:	0	0	1	1	0	2	0	0
1289:	0	1	1	0	0	2	1	0
1297:	0	0	0	3	1	1	0	0
1305:	1	0	1	2	1	2	0	0
1313:	0	0	0	0	0	1	0	0
1321:	1	2	1	2	1	0	1	1
1329:	1	0	0	0	3	0	3	0
1337:	2	0	2	2	0	1	1	0
1345:	0	1	2	1	1	0	0	0
1353:	0	0	0	0	0	0	1	0
1361:	0	1	1	4	1	0	1	0
1369:	1	0	0	0	0	0	1	2
1377:	0	0	2	1	0	0	1	0
1385:	1	0	0	1	0	0	1	1
1393:	1	2	0	0	0	1	0	2
1401:	0	1	3	1	0	2	0	0
1409:	1	0	0	0	1	1	0	0
1417:	1	1	0	0	0	1	1	2
1425:	0	2	0	1	1	2	0	0
1433:	0	1	0	1	1	2	1	1
1441:	1	0	0	0	1	0	0	0
1449:	1	1	0	1	0	0	0	0
1457:	1	1	2	1	1	2	1	0
1465:	0	0	0	0	1	0	3	0
1473:	0	1	2	3	0	1	0	0
1481:	0	1	0	2	2	0	1	1
1489:	1	3	1	0	0	0	0	0
1497:	0	0	0	0	1	0	0	3
1505:	1	0	0	1	1	0	0	0
1513:	0	0	0	1	0	1	0	1
1521:	0	0	0	0	0	1	1	0
1529:	0	0	3	0	0	0	1	0
1537:	2	0	1	0	2	0	0	0
1545:	0	0	0	1	0	2	0	1
1553:	1	0	0	0	1	1	0	0
1561:	0	0	0	0	1	1	0	0
1569:	0	0	1	0	0	1	0	0
1577:	0	0	0	0	0	2	1	0
1585:	0	0	0	2	0	0	0	1
1593:	0	0	1	0	1	1	0	0
1601:	0	0	0	0	1	1	0	1
1609:	0	0	0	1	0	3	0	1
1617:	0	1	0	1	2	1	0	1
1625:	0	0	0	0	0	0	1	0
1633:	0	1	0	0	1	1	0	0
1641:	0	1	0	1	1	1	0	2
1649:	0	0	1	0	2	2	0	0
1657:	1	1	0	0	0	1	0	0

1665: 1 0 0 0 0 2 0 0

Sample Title: BLANK

Channel	1	2	3	4	5	6	7	8
1673:	0	0	0	0	1	0	1	1
1681:	0	0	0	0	0	2	0	1
1689:	0	0	0	0	0	0	0	0
1697:	0	0	0	1	0	1	0	0
1705:	0	2	1	0	2	0	0	0
1713:	1	0	0	0	1	0	0	0
1721:	0	0	0	0	1	2	0	1
1729:	1	0	0	0	1	0	0	0
1737:	1	0	0	0	0	0	0	0
1745:	1	0	0	0	0	1	0	0
1753:	0	0	1	1	0	0	0	0
1761:	0	0	0	1	1	1	0	0
1769:	0	1	1	0	0	0	0	0
1777:	0	0	1	0	0	0	1	2
1785:	1	2	1	0	0	1	0	0
1793:	0	0	0	1	0	0	1	0
1801:	0	0	0	0	0	0	1	0
1809:	0	0	0	2	1	0	0	0
1817:	0	0	1	0	0	0	0	0
1825:	0	1	0	1	1	0	0	0
1833:	1	0	0	0	0	2	0	1
1841:	0	1	0	0	0	1	0	0
1849:	0	1	1	0	0	0	0	1
1857:	0	0	2	0	0	0	0	2
1865:	0	0	0	0	0	0	0	0
1873:	0	0	0	0	0	0	1	0
1881:	0	1	0	0	2	1	1	1
1889:	0	0	0	0	2	0	0	1
1897:	0	0	0	1	2	0	0	0
1905:	0	0	2	0	0	0	0	0
1913:	0	0	0	0	0	0	0	0
1921:	0	1	0	0	1	0	1	0
1929:	0	0	2	1	0	0	0	1
1937:	0	0	0	1	1	0	0	1
1945:	0	0	1	0	0	0	0	1
1953:	0	1	0	1	0	0	0	1
1961:	0	0	0	0	0	1	0	0
1969:	1	2	0	1	0	1	1	0
1977:	1	0	0	0	0	1	1	0
1985:	0	0	0	1	0	0	1	0
1993:	0	0	0	1	1	0	0	0
2001:	1	1	1	0	0	0	0	1
2009:	1	0	0	1	0	0	0	0
2017:	0	0	0	0	0	0	0	1
2025:	0	0	0	0	0	0	1	0
2033:	0	0	0	0	0	0	0	0
2041:	0	2	0	0	0	0	0	0
2049:	0	0	0	0	0	0	0	0
2057:	0	0	0	0	0	0	0	1
2065:	0	0	1	0	0	1	0	1
2073:	0	1	0	0	0	0	0	0
2081:	0	0	1	2	0	0	0	0
2089:	0	1	0	0	0	0	1	0

2097: 0 0 1 0 1 0 0 0

Sample Title: BLANK

Channel	1	2	3	4	5	6	7	8	9
2105:	1	2	0	0	0	0	1	0	
2113:	0	0	1	1	0	0	0	0	
2121:	0	0	0	0	0	0	0	0	
2129:	1	0	0	0	0	0	0	0	
2137:	0	0	0	0	0	1	0	0	
2145:	0	0	0	0	0	0	0	0	
2153:	0	0	0	0	1	0	0	0	
2161:	2	0	0	0	0	0	0	0	
2169:	0	2	2	0	2	1	0	0	
2177:	0	1	0	0	1	0	0	0	
2185:	0	0	0	0	0	0	0	0	
2193:	0	0	1	0	1	0	0	0	
2201:	0	0	0	1	0	0	0	1	
2209:	0	0	0	0	1	0	0	0	
2217:	0	0	0	1	1	0	0	1	
2225:	0	0	0	0	1	0	0	0	
2233:	1	1	0	1	0	0	1	0	
2241:	0	0	0	0	0	0	0	0	
2249:	1	1	0	0	2	0	0	0	
2257:	0	0	1	0	0	0	0	0	
2265:	0	1	0	2	0	0	0	0	
2273:	0	1	1	2	0	2	1	0	
2281:	1	0	0	0	0	0	0	0	
2289:	0	0	0	0	0	0	0	0	
2297:	1	0	0	1	1	0	0	0	
2305:	0	0	1	0	1	0	0	1	
2313:	0	0	0	1	0	0	0	0	
2321:	0	0	0	0	0	1	0	0	
2329:	0	0	0	1	0	0	0	0	
2337:	0	0	0	1	0	0	0	0	
2345:	1	0	0	2	0	0	0	1	
2353:	1	0	1	0	0	1	0	0	
2361:	0	0	0	0	1	0	1	0	
2369:	0	1	0	0	0	0	0	0	
2377:	0	0	0	0	0	0	0	1	
2385:	0	0	0	0	0	0	0	0	
2393:	0	1	0	1	0	0	0	1	
2401:	0	0	0	0	0	0	0	0	
2409:	0	0	0	0	0	0	0	0	
2417:	0	1	0	0	0	0	1	0	
2425:	1	0	0	0	0	0	0	0	
2433:	0	0	0	0	1	0	0	0	
2441:	1	0	0	1	0	0	0	0	
2449:	0	0	0	0	0	1	0	0	
2457:	1	0	0	0	1	0	0	0	
2465:	0	0	0	1	0	0	0	0	
2473:	1	1	0	0	0	0	0	1	
2481:	0	0	0	0	0	0	0	0	
2489:	0	0	0	0	1	0	0	0	
2497:	0	0	1	1	0	0	0	0	
2505:	0	0	0	0	0	1	0	0	
2513:	0	0	0	1	0	0	1	0	
2521:	0	0	0	0	0	1	0	1	

2529: 0 0 0 1 0 0 0 0

Sample Title: BLANK

2537:	0	0	0	2	0	0	0	0
2545:	0	1	0	0	0	0	0	0
2553:	1	1	0	0	0	0	0	0
2561:	0	1	0	0	0	0	0	0
2569:	0	1	0	2	0	0	0	0
2577:	0	0	0	0	0	0	1	0
2585:	0	0	0	0	0	0	0	0
2593:	0	0	0	0	1	0	1	0
2601:	2	0	0	0	0	0	0	0
2609:	0	0	0	0	0	0	1	0
2617:	2	1	0	0	0	0	0	0
2625:	0	0	0	2	0	0	0	0
2633:	0	0	1	0	1	0	1	1
2641:	0	0	0	0	0	0	0	0
2649:	1	0	0	0	0	0	0	0
2657:	0	0	0	0	0	0	1	0
2665:	0	0	0	0	0	1	0	1
2673:	0	0	0	0	0	0	1	0
2681:	0	1	0	0	0	0	0	0
2689:	1	0	0	0	0	0	0	0
2697:	0	0	1	0	1	0	0	0
2705:	0	0	0	0	0	0	0	0
2713:	0	0	0	0	0	0	0	1
2721:	0	0	0	0	0	0	0	0
2729:	1	0	0	0	0	0	0	1
2737:	0	0	0	0	0	0	1	1
2745:	0	0	0	0	0	1	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	0	1	0	0	0
2769:	0	0	0	0	0	0	0	1
2777:	0	1	0	0	0	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	1
2801:	0	0	0	0	0	0	0	0
2809:	0	0	1	1	1	0	0	1
2817:	0	0	0	0	0	0	0	0
2825:	1	1	0	1	1	0	0	0
2833:	0	0	0	0	0	0	0	1
2841:	0	0	0	0	0	0	0	0
2849:	1	0	0	0	0	0	1	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	0	0	0	0	0
2873:	1	0	0	0	1	0	0	1
2881:	0	0	0	0	1	0	0	1
2889:	0	0	0	0	0	0	0	0
2897:	1	0	0	0	1	0	0	0
2905:	0	0	0	2	0	0	0	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	0
2929:	1	0	0	0	1	0	0	0
2937:	0	0	1	0	0	1	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	0	0	0	1	0	0

2961: 0 0 0 0 0 1 0 0

Sample Title: BLANK

Channel	1	2	3	4	5	6	7	8
2969:	0	0	0	1	0	0	0	0
2977:	0	0	0	1	0	0	0	0
2985:	0	0	0	0	0	0	0	0
2993:	1	0	0	1	0	0	0	0
3001:	0	0	2	0	0	1	0	0
3009:	0	0	0	0	1	0	0	0
3017:	0	0	0	0	0	0	0	0
3025:	0	0	1	0	0	0	0	0
3033:	0	0	0	1	0	0	0	0
3041:	0	1	0	0	0	0	0	0
3049:	1	0	0	0	0	0	1	0
3057:	0	0	1	0	0	0	0	0
3065:	0	0	0	0	0	0	0	0
3073:	0	0	0	0	0	0	0	0
3081:	0	0	0	0	0	0	0	0
3089:	0	0	0	0	0	0	0	0
3097:	0	0	0	0	0	0	0	0
3105:	0	0	0	0	0	0	0	0
3113:	0	0	1	0	0	0	0	1
3121:	0	0	0	0	0	1	0	1
3129:	0	0	0	0	0	0	0	0
3137:	0	0	0	0	0	1	0	0
3145:	0	0	0	0	0	0	0	0
3153:	0	0	0	0	1	0	1	0
3161:	0	0	1	1	0	0	0	0
3169:	0	0	1	0	0	0	1	0
3177:	0	0	1	0	0	1	0	0
3185:	1	0	0	1	0	0	1	0
3193:	0	0	0	0	1	0	2	0
3201:	0	0	0	0	0	0	0	0
3209:	0	0	1	0	0	0	0	1
3217:	0	1	0	0	2	0	0	0
3225:	0	0	0	0	0	0	0	0
3233:	0	0	0	0	0	0	0	0
3241:	0	0	0	1	0	0	0	0
3249:	0	0	0	0	0	0	0	0
3257:	0	2	1	0	0	0	0	0
3265:	0	0	0	0	1	0	0	0
3273:	0	0	0	0	1	0	0	0
3281:	0	0	0	0	0	0	0	1
3289:	0	1	0	0	0	0	0	0
3297:	0	0	0	0	0	0	0	0
3305:	0	0	0	0	0	0	0	0
3313:	0	0	0	0	0	0	0	0
3321:	0	0	0	0	0	0	0	0
3329:	0	0	0	0	0	0	0	0
3337:	0	0	0	0	0	1	0	0
3345:	0	0	0	1	0	0	0	0
3353:	0	0	0	0	0	0	0	0
3361:	0	0	0	0	0	0	0	0
3369:	0	0	1	1	0	0	1	0
3377:	0	0	0	0	0	0	1	0
3385:	0	0	0	0	0	0	0	0

3393: 0 0 2 0 0 0 0 0

Sample Title: BLANK

Channel	1	2	3	4	5	6	7	8	9
3401:	0	0	0	0	0	0	0	1	
3409:	0	0	0	0	0	1	0	0	
3417:	0	0	0	0	0	0	0	0	
3425:	0	0	1	0	1	0	0	0	
3433:	0	0	0	0	0	0	0	0	
3441:	0	0	0	0	0	1	0	0	
3449:	0	0	0	0	0	0	0	0	
3457:	1	0	0	0	0	0	0	0	
3465:	0	0	0	0	0	0	0	0	
3473:	1	0	0	0	0	0	0	1	
3481:	0	0	0	0	0	1	0	0	
3489:	0	1	0	0	0	0	0	0	
3497:	1	0	0	0	0	0	0	0	
3505:	0	0	1	0	0	0	0	0	
3513:	0	0	0	0	0	0	0	0	
3521:	0	0	0	0	0	0	0	0	
3529:	0	0	1	1	0	0	0	0	
3537:	0	0	0	0	0	0	0	0	
3545:	0	1	0	0	0	0	0	0	
3553:	0	0	0	1	1	0	0	0	
3561:	0	0	0	0	0	0	0	0	
3569:	0	0	0	0	0	0	0	0	
3577:	0	0	0	0	0	0	0	0	
3585:	0	1	0	0	0	1	0	0	
3593:	0	0	0	0	0	0	0	0	
3601:	0	0	0	0	0	0	0	1	
3609:	0	0	0	0	0	0	1	0	
3617:	0	0	0	0	0	0	1	0	
3625:	1	0	0	0	0	0	0	0	
3633:	0	0	0	0	0	0	1	0	
3641:	0	0	0	0	0	0	0	0	
3649:	1	0	1	0	0	0	0	0	
3657:	0	1	0	1	0	0	0	0	
3665:	0	0	0	0	0	0	0	0	
3673:	0	0	0	0	0	0	1	0	
3681:	0	0	0	0	0	0	0	0	
3689:	0	0	0	0	1	0	0	0	
3697:	0	0	0	0	0	0	0	0	
3705:	0	0	0	0	0	0	0	0	
3713:	1	0	0	0	0	0	1	0	
3721:	0	0	0	0	0	2	0	0	
3729:	0	0	0	0	0	0	0	0	
3737:	1	0	0	0	0	0	0	0	
3745:	0	0	0	0	0	0	0	0	
3753:	0	0	0	0	0	0	1	0	
3761:	0	0	0	0	0	0	0	0	
3769:	0	0	0	0	0	0	0	0	
3777:	0	0	0	0	0	0	0	0	
3785:	0	0	0	1	0	0	0	0	
3793:	0	0	0	0	0	0	1	0	
3801:	0	0	0	0	0	0	0	0	
3809:	0	0	0	0	0	0	0	0	
3817:	0	0	0	0	0	0	0	0	

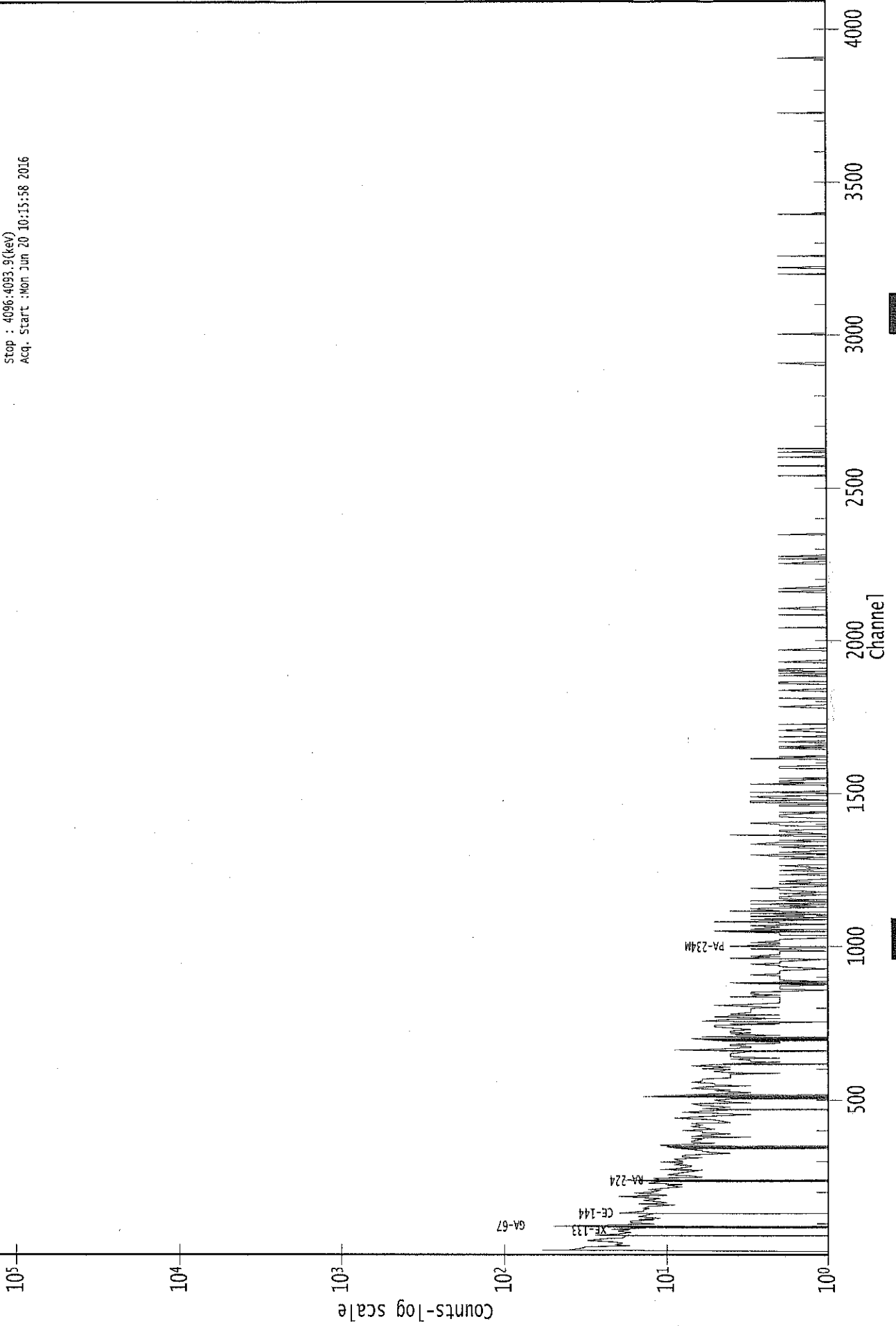
3825: 0 0 0 0 0 1 0 1

Sample Title: BLANK

Channel	1	2	3	4	5	6	7	8
3833:	0	0	0	0	0	0	1	0
3841:	0	0	1	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	1	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	1	0	0	0	0	0	0	1
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	1	0	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	2	0	0	0	0	1	0	0
3913:	0	0	0	0	1	0	0	1
3921:	0	0	0	0	0	0	1	0
3929:	0	0	1	1	0	0	0	0
3937:	0	0	0	0	0	1	0	1
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	1	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	1	0	0	0	0	0	0	0
3985:	0	0	0	0	0	0	0	0
3993:	0	0	0	0	0	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	1	0	1	0	0
4017:	0	0	0	0	0	1	1	0
4025:	0	0	0	0	0	0	0	0
4033:	0	0	0	0	0	0	1	0
4041:	0	0	0	0	1	1	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	1	1	0	1
4065:	0	1	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	1	0	0	0

0000039149.CNF

Live Time :3600.000 sec
Real Time :3602.940 sec
Start: 1: 1.8(keV)
Stop : 4096.4093.9(keV)
Acq. Start :Mon Jun 20 10:15:58 2016



KB
6/20/16Analysis Report for 1606067-03
CP-5030 05-10 QC

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606067-03
Sample Description : CP-5030 05-10 QC
Sample Type : SOIL

Sample Size : 2.938E+02 grams
Facility : Countroom

Sample Taken On : 6/6/2016 9:10:20AM
Acquisition Started : 6/20/2016 9:13:55AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE1
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.1 seconds

Dead Time : 0.03 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 19 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 10/25/2014
Efficiency Calibration Used Done On : 10/25/2014
Efficiency Calibration Description :

Sample Number : 39145

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/20/16

Analysis Report for 1606067-03

CP-5030 05-10 QC

PEAK LOCATE REPORT

Peak Locate Performed on : 6/20/2016 10:13:59AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096
 Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.93	47.29	0.0000	0.00
2	76.72	77.06	0.0000	0.00
3	87.80	88.13	0.0000	0.00
4	90.80	91.14	0.0000	0.00
5	130.10	130.42	0.0000	0.00
6	186.72	187.03	0.0000	0.00
7	209.49	209.79	0.0000	0.00
8	239.23	239.51	0.0000	0.00
9	242.23	242.51	0.0000	0.00
10	270.43	270.71	0.0000	0.00
11	277.63	277.90	0.0000	0.00
12	295.82	296.08	0.0000	0.00
13	301.42	301.69	0.0000	0.00
14	339.11	339.37	0.0000	0.00
15	352.55	352.80	0.0000	0.00
16	409.43	409.65	0.0000	0.00
17	511.30	511.49	0.0000	0.00
18	581.01	581.18	0.0000	0.00
19	583.74	583.91	0.0000	0.00
20	610.02	610.18	0.0000	0.00
21	698.97	699.10	0.0000	0.00
22	727.87	727.99	0.0000	0.00
23	771.57	771.68	0.0000	0.00
24	795.56	795.66	0.0000	0.00
25	861.83	861.90	0.0000	0.00
26	883.11	883.17	0.0000	0.00
27	911.37	911.42	0.0000	0.00
28	933.96	934.01	0.0000	0.00
29	965.96	966.00	0.0000	0.00
30	969.88	969.91	0.0000	0.00
31	1001.75	1001.78	0.0000	0.00
32	1093.97	1093.96	0.0000	0.00
33	1121.16	1121.14	0.0000	0.00
34	1238.38	1238.32	0.0000	0.00
35	1245.92	1245.86	0.0000	0.00
36	1270.74	1270.66	0.0000	0.00
37	1379.01	1378.90	0.0000	0.00
38	1461.66	1461.51	0.0000	0.00
39	1516.45	1516.29	0.0000	0.00
40	1536.71	1536.54	0.0000	0.00
41	1588.41	1588.22	0.0000	0.00
42	1594.47	1594.28	0.0000	0.00

Analysis Report for 1606067-03
CP-5030 05-10 QC

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1631.61	1631.40	0.0000	0.00
44	1663.66	1663.44	0.0000	0.00
45	1765.49	1765.23	0.0000	0.00
46	1838.47	1838.19	0.0000	0.00
47	2150.07	2149.67	0.0000	0.00
48	2205.07	2204.65	0.0000	0.00
49	2271.23	2270.78	0.0000	0.00
50	2425.65	2425.14	0.0000	0.00
51	2615.48	2614.89	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606067-03

CP-5030 05-10 QC

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 10:13:59AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
1	46.93	44 -	49	47.29	1.23E+02	64.27	7.29E+02	1.90
2	76.72	73 -	81	77.06	8.91E+02	125.23	1.87E+03	2.98
m 3	87.80	83 -	98	88.13	1.94E+02	59.50	6.65E+02	1.48
m 4	90.80	83 -	98	91.14	1.57E+02	57.38	6.01E+02	1.49
5	130.10	128 -	133	130.42	5.59E+01	57.53	5.98E+02	1.28
6	186.72	183 -	190	187.03	2.35E+02	69.60	6.47E+02	1.40
7	209.49	206 -	213	209.79	8.18E+01	64.75	6.44E+02	1.87
M 8	239.23	234 -	245	239.51	8.06E+02	68.46	3.30E+02	1.68
m 9	242.23	234 -	245	242.51	1.59E+02	64.30	3.72E+02	1.87
10	270.43	268 -	273	270.71	8.69E+01	39.74	2.42E+02	2.07
11	277.63	275 -	281	277.90	4.85E+01	42.68	2.93E+02	2.47
12	295.82	291 -	299	296.08	1.93E+02	59.33	4.22E+02	1.41
13	301.42	300 -	306	301.69	5.57E+01	42.87	2.81E+02	1.74
14	339.11	336 -	345	339.37	1.78E+02	57.11	3.62E+02	1.41
15	352.55	349 -	357	352.80	3.69E+02	60.95	3.40E+02	1.63
16	409.43	406 -	412	409.65	3.77E+01	33.11	1.73E+02	1.79
17	511.30	507 -	515	511.49	1.62E+02	43.67	1.93E+02	2.61
M 18	581.01	578 -	587	581.18	2.56E+01	30.77	1.11E+02	1.96
m 19	583.74	578 -	587	583.91	2.42E+02	40.14	1.18E+02	1.96
20	610.02	606 -	614	610.18	2.33E+02	49.81	2.39E+02	1.49
21	698.97	692 -	709	699.10	5.97E+01	53.08	2.37E+02	11.71
22	727.87	724 -	731	727.99	6.01E+01	33.88	1.50E+02	1.30
23	771.57	765 -	779	771.68	6.41E+01	47.06	1.92E+02	7.14
24	795.56	792 -	799	795.66	3.23E+01	26.38	9.94E+01	1.85
25	861.83	858 -	866	861.90	4.58E+01	29.15	1.00E+02	2.19
26	883.11	879 -	887	883.17	3.03E+01	23.57	6.53E+01	3.16
27	911.37	900 -	917	911.42	1.97E+02	51.76	1.75E+02	1.62
28	933.96	930 -	938	934.01	2.65E+01	21.24	5.11E+01	3.33
M 29	965.96	965 -	985	966.00	2.52E+01	12.57	3.74E+01	1.99
m 30	969.88	965 -	985	969.91	1.18E+02	28.74	8.06E+01	1.89
31	1001.75	998 -	1006	1001.78	3.30E+01	21.98	5.40E+01	3.63
32	1093.97	1091 -	1098	1093.96	2.72E+01	18.11	3.76E+01	4.70
33	1121.16	1117 -	1125	1121.14	6.15E+01	29.35	9.49E+01	2.34
M 34	1238.38	1232 -	1248	1238.32	3.58E+01	27.06	8.14E+01	3.09
m 35	1245.92	1232 -	1248	1245.86	1.27E+01	18.99	5.77E+01	3.09
36	1270.74	1264 -	1276	1270.66	3.39E+01	28.20	7.61E+01	4.12
37	1379.01	1373 -	1384	1378.90	1.80E+01	21.35	4.80E+01	1.06
38	1461.66	1457 -	1468	1461.51	6.07E+02	53.93	6.00E+01	2.34
39	1516.45	1512 -	1519	1516.29	9.39E+00	12.49	1.92E+01	1.46
40	1536.71	1533 -	1540	1536.54	1.30E+01	7.21	0.00E+00	1.45

Analysis Report for 1606067-03

CP-5030 05-10 QC

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1588.41	1585 -	1591	1588.22	1.70E+01	12.85	1.79E+01	2.53
42	1594.47	1592 -	1600	1594.28	1.51E+01	13.00	1.38E+01	2.45
43	1631.61	1628 -	1634	1631.40	1.14E+01	8.02	3.23E+00	2.07
44	1663.66	1661 -	1666	1663.44	5.86E+00	6.08	2.29E+00	1.89
45	1765.49	1761 -	1769	1765.23	4.54E+01	17.23	1.71E+01	3.02
46	1838.47	1836 -	1840	1838.19	6.13E+00	6.67	3.75E+00	2.71
47	2150.07	2147 -	2152	2149.67	6.00E+00	4.90	0.00E+00	1.92
48	2205.07	2201 -	2207	2204.65	9.83E+00	9.84	1.03E+01	1.33
49	2271.23	2265 -	2277	2270.78	1.65E+01	11.06	6.90E+00	6.64
50	2425.65	2423 -	2427	2425.14	7.00E+00	5.29	0.00E+00	1.66
51	2615.48	2609 -	2618	2614.89	6.50E+01	18.17	1.00E+01	2.63

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 10:13:59AM

Peak Analysis From Channel : 1
Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	46.93	44 -	49	1.23E+02	64.27	7.29E+02	4.96E+01
2	76.72	73 -	81	8.91E+02	125.23	1.87E+03	9.05E+01
m 3	87.80	83 -	98	1.94E+02	59.50	6.65E+02	4.24E+01
m 4	90.80	83 -	98	1.57E+02	57.38	6.01E+02	4.03E+01
5	130.10	128 -	133	5.59E+01	57.53	5.98E+02	4.57E+01
6	186.72	183 -	190	2.35E+02	69.60	6.47E+02	5.14E+01
7	209.49	206 -	213	8.18E+01	64.75	6.44E+02	5.11E+01
M 8	239.23	234 -	245	8.06E+02	68.46	3.30E+02	2.98E+01
m 9	242.23	234 -	245	1.59E+02	64.30	3.72E+02	3.17E+01
10	270.43	268 -	273	8.69E+01	39.74	2.42E+02	2.88E+01
11	277.63	275 -	281	4.85E+01	42.68	2.93E+02	3.32E+01
12	295.82	291 -	299	1.93E+02	59.33	4.22E+02	4.31E+01
13	301.42	300 -	306	5.57E+01	42.87	2.81E+02	3.30E+01
14	339.11	336 -	345	1.78E+02	57.11	3.62E+02	2.24E+01
15	352.55	349 -	357	3.69E+02	60.95	3.40E+02	3.89E+01
16	409.43	406 -	412	3.77E+01	33.11	1.73E+02	2.53E+01
17	511.30	507 -	515	1.62E+02	43.67	1.93E+02	2.91E+01

: 00310

Analysis Report for 1606067-03

CP-5030 05-10 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	18	581.01	578 -	587	2.56E+01	30.77	1.11E+02	1.73E+01
m	19	583.74	578 -	587	2.42E+02	40.14	1.18E+02	1.79E+01
	20	610.02	606 -	614	2.33E+02	49.81	2.39E+02	3.24E+01
	21	698.97	692 -	709	5.97E+01	53.08	2.37E+02	4.17E+01
	22	727.87	724 -	731	6.01E+01	33.88	1.50E+02	2.48E+01
	23	771.57	765 -	779	6.41E+01	47.06	1.92E+02	3.64E+01
	24	795.56	792 -	799	3.23E+01	26.38	9.94E+01	2.92E+01
	25	861.83	858 -	866	4.58E+01	29.15	1.00E+02	2.12E+01
	26	883.11	879 -	887	3.03E+01	23.57	6.53E+01	1.71E+01
	27	911.37	900 -	917	1.97E+02	51.76	1.75E+02	1.61E+01
	28	933.96	930 -	938	2.65E+01	21.24	5.11E+01	1.53E+01
M	29	965.96	965 -	985	2.52E+01	12.57	3.74E+01	1.01E+01
m	30	969.88	965 -	985	1.18E+02	28.74	8.06E+01	1.48E+01
	31	1001.75	998 -	1006	3.30E+01	21.98	5.40E+01	1.54E+01
	32	1093.97	1091 -	1098	2.72E+01	18.11	3.76E+01	1.22E+01
	33	1121.16	1117 -	1125	6.15E+01	29.35	9.49E+01	2.04E+01
M	34	1238.38	1232 -	1248	3.58E+01	27.06	8.14E+01	1.48E+01
m	35	1245.92	1232 -	1248	1.27E+01	18.99	5.77E+01	1.25E+01
	36	1270.74	1264 -	1276	3.39E+01	28.20	7.61E+01	2.11E+01
	37	1379.01	1373 -	1384	1.80E+01	21.35	4.80E+01	1.61E+01
	38	1461.66	1457 -	1468	6.07E+02	53.93	6.00E+01	1.80E+01
	39	1516.45	1512 -	1519	9.39E+00	12.49	1.92E+01	8.95E+00
	40	1536.71	1533 -	1540	1.30E+01	7.21	0.00E+00	0.00E+00
	41	1588.41	1585 -	1591	1.70E+01	12.85	1.79E+01	8.10E+00
	42	1594.47	1592 -	1600	1.51E+01	13.00	1.38E+01	8.57E+00
	43	1631.61	1628 -	1634	1.14E+01	8.02	3.23E+00	3.56E+00
	44	1663.66	1661 -	1666	5.86E+00	6.08	2.29E+00	3.03E+00
	45	1765.49	1761 -	1769	4.54E+01	17.23	1.71E+01	8.83E+00
	46	1838.47	1836 -	1840	6.13E+00	6.67	3.75E+00	3.68E+00
	47	2150.07	2147 -	2152	6.00E+00	4.90	0.00E+00	0.00E+00
	48	2205.07	2201 -	2207	9.83E+00	9.84	1.03E+01	6.23E+00
	49	2271.23	2265 -	2277	1.65E+01	11.06	6.90E+00	6.15E+00
	50	2425.65	2423 -	2427	7.00E+00	5.29	0.00E+00	0.00E+00
	51	2615.48	2609 -	2618	6.50E+01	18.17	1.00E+01	6.88E+00

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

Analysis Report for 1606067-03

CP-5030 05-10 QC

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/20/2016 10:13:59AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	44 -	49	47.29	1.23E+02	64.27	7.29E+02	PB-210
	2	73 -	81	77.06	8.91E+02	125.23	1.87E+03	.....
m	3	83 -	98	88.13	1.94E+02	59.50	6.65E+02	SN-126 CD-109 LU-176
	4	83 -	98	91.14	1.57E+02	57.38	6.01E+02	ND-147
m	5	128 -	133	130.42	5.59E+01	57.53	5.98E+02	.....
	6	183 -	190	187.03	2.35E+02	69.60	6.47E+02	RA-226
	7	206 -	213	209.79	8.18E+01	64.75	6.44E+02	CM-243 GA-67
M	8	234 -	245	239.51	8.06E+02	68.46	3.30E+02	PB-212
m	9	234 -	245	242.51	1.59E+02	64.30	3.72E+02	.....
	10	268 -	273	270.71	8.69E+01	39.74	2.42E+02	.....
	11	275 -	281	277.90	4.85E+01	42.68	2.93E+02	CM-243 NP-239
	12	291 -	299	296.08	1.93E+02	59.33	4.22E+02	PB-214
	13	300 -	306	301.69	5.57E+01	42.87	2.81E+02	.....
	14	336 -	345	339.37	1.78E+02	57.11	3.62E+02	AC-228
	15	349 -	357	352.80	3.69E+02	60.95	3.40E+02	PB-214
	16	406 -	412	409.65	3.77E+01	33.11	1.73E+02	.....
	17	507 -	515	511.49	1.62E+02	43.67	1.93E+02	.....
M	18	578 -	587	581.18	2.56E+01	30.77	1.11E+02	.....
m	19	578 -	587	583.91	2.42E+02	40.14	1.18E+02	TL-208
	20	606 -	614	610.18	2.33E+02	49.81	2.39E+02	BI-214
	21	692 -	709	699.10	5.97E+01	53.08	2.37E+02	.....
	22	724 -	731	727.99	6.01E+01	33.88	1.50E+02	BI-212
	23	765 -	779	771.68	6.41E+01	47.06	1.92E+02	.....
	24	792 -	799	795.66	3.23E+01	26.38	9.94E+01	CS-134
	25	858 -	866	861.90	4.58E+01	29.15	1.00E+02	.....
	26	879 -	887	883.17	3.03E+01	23.57	6.53E+01	.....
	27	900 -	917	911.42	1.97E+02	51.76	1.75E+02	AC-228 LU-172
	28	930 -	938	934.01	2.65E+01	21.24	5.11E+01	.....
M	29	965 -	985	966.00	2.52E+01	12.57	3.74E+01	.....
m	30	965 -	985	969.91	1.18E+02	28.74	8.06E+01	AC-228
	31	998 -	1006	1001.78	3.30E+01	21.98	5.40E+01	PA-234M
	32	1091 -	1098	1093.96	2.72E+01	18.11	3.76E+01	LU-172
	33	1117 -	1125	1121.14	6.15E+01	29.35	9.49E+01	TA-182 SC-46 BI-214
M	34	1232 -	1248	1238.32	3.58E+01	27.06	8.14E+01	CO-56

: 00312

Analysis Report for 1606067-03

CP-5030 05-10 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	35	1245.92	1232 -	1248	1245.86	1.27E+01	18.99	5.77E+01	.....
	36	1270.74	1264 -	1276	1270.66	3.39E+01	28.20	7.61E+01	.....
	37	1379.01	1373 -	1384	1378.90	1.80E+01	21.35	4.80E+01	.....
	38	1461.66	1457 -	1468	1461.51	6.07E+02	53.93	6.00E+01	K-40
	39	1516.45	1512 -	1519	1516.29	9.39E+00	12.49	1.92E+01	.....
	40	1536.71	1533 -	1540	1536.54	1.30E+01	7.21	0.00E+00	.....
	41	1588.41	1585 -	1591	1588.22	1.70E+01	12.85	1.79E+01	.....
	42	1594.47	1592 -	1600	1594.28	1.51E+01	13.00	1.38E+01	.....
	43	1631.61	1628 -	1634	1631.40	1.14E+01	8.02	3.23E+00	.....
	44	1663.66	1661 -	1666	1663.44	5.86E+00	6.08	2.29E+00	.....
	45	1765.49	1761 -	1769	1765.23	4.54E+01	17.23	1.71E+01	BI-214
	46	1838.47	1836 -	1840	1838.19	6.13E+00	6.67	3.75E+00	.....
	47	2150.07	2147 -	2152	2149.67	6.00E+00	4.90	0.00E+00	.....
	48	2205.07	2201 -	2207	2204.65	9.83E+00	9.84	1.03E+01	BI-214
	49	2271.23	2265 -	2277	2270.78	1.65E+01	11.06	6.90E+00	.....
	50	2425.65	2423 -	2427	2425.14	7.00E+00	5.29	0.00E+00	.....
	51	2615.48	2609 -	2618	2614.89	6.50E+01	18.17	1.00E+01	TL-208

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/20/2016 10:13:59AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.93	1.23E+02	64.27	1.71E-02	1.78E-03
	2	76.72	8.91E+02	125.23	2.77E-02	2.36E-03
m	3	87.80	1.94E+02	59.50	2.85E-02	2.73E-03
m	4	90.80	1.57E+02	57.38	2.86E-02	2.69E-03
	5	130.10	5.59E+01	57.53	2.66E-02	2.09E-03
	6	186.72	2.35E+02	69.60	2.23E-02	2.02E-03
	7	209.49	8.18E+01	64.75	2.09E-02	1.85E-03
M	8	239.23	8.06E+02	68.46	1.92E-02	1.63E-03
m	9	242.23	1.59E+02	64.30	1.90E-02	1.61E-03
	10	270.43	8.69E+01	39.74	1.77E-02	1.40E-03
	11	277.63	4.85E+01	42.68	1.74E-02	1.35E-03
	12	295.82	1.93E+02	59.33	1.67E-02	1.31E-03
	13	301.42	5.57E+01	42.87	1.65E-02	1.29E-03

: 00313

Analysis Report for 1606067-03

CP-5030 05-10 QC

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	14	339.11	1.78E+02	57.11	1.52E-02	1.22E-03
	15	352.55	3.69E+02	60.95	1.47E-02	1.19E-03
	16	409.43	3.77E+01	33.11	1.32E-02	1.10E-03
	17	511.30	1.62E+02	43.67	1.12E-02	9.90E-04
M	18	581.01	2.56E+01	30.77	1.02E-02	9.18E-04
m	19	583.74	2.42E+02	40.14	1.02E-02	9.15E-04
	20	610.02	2.33E+02	49.81	9.82E-03	8.88E-04
	21	698.97	5.97E+01	53.08	8.83E-03	8.01E-04
	22	727.87	6.01E+01	33.88	8.55E-03	7.75E-04
	23	771.57	6.41E+01	47.06	8.16E-03	7.36E-04
	24	795.56	3.23E+01	26.38	7.97E-03	7.14E-04
	25	861.83	4.58E+01	29.15	7.47E-03	6.55E-04
	26	883.11	3.03E+01	23.57	7.33E-03	6.36E-04
	27	911.37	1.97E+02	51.76	7.15E-03	6.15E-04
	28	933.96	2.65E+01	21.24	7.01E-03	6.04E-04
M	29	965.96	2.52E+01	12.57	6.82E-03	5.87E-04
m	30	969.88	1.18E+02	28.74	6.80E-03	5.85E-04
	31	1001.75	3.30E+01	21.98	6.63E-03	5.68E-04
	32	1093.97	2.72E+01	18.11	6.18E-03	5.20E-04
	33	1121.16	6.15E+01	29.35	6.06E-03	5.06E-04
M	34	1238.38	3.58E+01	27.06	5.61E-03	4.68E-04
m	35	1245.92	1.27E+01	18.99	5.59E-03	4.66E-04
	36	1270.74	3.39E+01	28.20	5.50E-03	4.62E-04
	37	1379.01	1.80E+01	21.35	5.18E-03	4.40E-04
	38	1461.66	6.07E+02	53.93	4.97E-03	4.19E-04
	39	1516.45	9.39E+00	12.49	4.84E-03	4.05E-04
	40	1536.71	1.30E+01	7.21	4.80E-03	4.00E-04
	41	1588.41	1.70E+01	12.85	4.69E-03	3.87E-04
	42	1594.47	1.51E+01	13.00	4.68E-03	3.86E-04
	43	1631.61	1.14E+01	8.02	4.61E-03	3.77E-04
	44	1663.66	5.86E+00	6.08	4.56E-03	3.69E-04
	45	1765.49	4.54E+01	17.23	4.39E-03	3.43E-04
	46	1838.47	6.13E+00	6.67	4.29E-03	3.26E-04
	47	2150.07	6.00E+00	4.90	3.99E-03	3.26E-04
	48	2205.07	9.83E+00	9.84	3.95E-03	3.26E-04
	49	2271.23	1.65E+01	11.06	3.91E-03	3.26E-04
	50	2425.65	7.00E+00	5.29	3.84E-03	3.26E-04
	51	2615.48	6.50E+01	18.17	3.79E-03	3.26E-04

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000 sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/20/2016 10:13:59AM

: 00314

Analysis Report for 1606067-03

CP-5030 05-10 QC

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038676.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.	
	1	46.93	1.23E+02	64.27	4.33E+01	8.35E+00	8.01E+01	6.48E+01
	2	76.72	8.91E+02	125.23			8.91E+02	1.25E+02
m	3	87.80	1.94E+02	59.50			1.94E+02	5.95E+01
m	4	90.80	1.57E+02	57.38			1.57E+02	5.74E+01
	5	130.10	5.59E+01	57.53			5.59E+01	5.75E+01
	6	186.72	2.35E+02	69.60	5.81E+01	8.50E+00	1.77E+02	7.01E+01
	7	209.49	8.18E+01	64.75			8.18E+01	6.47E+01
M	8	239.23	8.06E+02	68.46	1.81E+01	5.76E+00	7.88E+02	6.87E+01
m	9	242.23	1.59E+02	64.30			1.59E+02	6.43E+01
	10	270.43	8.69E+01	39.74			8.69E+01	3.97E+01
	11	277.63	4.85E+01	42.68			4.85E+01	4.27E+01
	12	295.82	1.93E+02	59.33	1.02E+00	5.38E+00	1.92E+02	5.96E+01
	13	301.42	5.57E+01	42.87			5.57E+01	4.29E+01
	14	339.11	1.78E+02	57.11	3.86E+00	4.98E+00	1.74E+02	5.73E+01
	15	352.55	3.69E+02	60.95	7.25E+00	4.86E+00	3.62E+02	6.11E+01
	16	409.43	3.77E+01	33.11			3.77E+01	3.31E+01
	17	511.30	1.62E+02	43.67	7.58E+01	5.38E+00	8.66E+01	4.40E+01
M	18	581.01	2.56E+01	30.77			2.56E+01	3.08E+01
m	19	583.74	2.42E+02	40.14	6.11E+00	3.78E+00	2.36E+02	4.03E+01
	20	610.02	2.33E+02	49.81	6.74E+00	3.64E+00	2.26E+02	4.99E+01
	21	698.97	5.97E+01	53.08			5.97E+01	5.31E+01
	22	727.87	6.01E+01	33.88			6.01E+01	3.39E+01
	23	771.57	6.41E+01	47.06			6.41E+01	4.71E+01
	24	795.56	3.23E+01	26.38			3.23E+01	2.64E+01
	25	861.83	4.58E+01	29.15			4.58E+01	2.92E+01
	26	883.11	3.03E+01	23.57			3.03E+01	2.36E+01
	27	911.37	1.97E+02	51.76	4.21E+00	2.98E+00	1.93E+02	5.18E+01
	28	933.96	2.65E+01	21.24			2.65E+01	2.12E+01
M	29	965.96	2.52E+01	12.57			2.52E+01	1.26E+01
m	30	969.88	1.18E+02	28.74			1.18E+02	2.87E+01
	31	1001.75	3.30E+01	21.98	4.72E+00	2.83E+00	2.83E+01	2.22E+01
	32	1093.97	2.72E+01	18.11			2.72E+01	1.81E+01
	33	1121.16	6.15E+01	29.35			6.15E+01	2.93E+01
M	34	1238.38	3.58E+01	27.06			3.58E+01	2.71E+01
m	35	1245.92	1.27E+01	18.99			1.27E+01	1.90E+01
	36	1270.74	3.39E+01	28.20			3.39E+01	2.82E+01
	37	1379.01	1.80E+01	21.35			1.80E+01	2.14E+01
	38	1461.66	6.07E+02	53.93	6.83E+00	2.10E+00	6.00E+02	5.40E+01
	39	1516.45	9.39E+00	12.49			9.39E+00	1.25E+01
	40	1536.71	1.30E+01	7.21			1.30E+01	7.21E+00
	41	1588.41	1.70E+01	12.85			1.70E+01	1.29E+01
	42	1594.47	1.51E+01	13.00			1.51E+01	1.30E+01
	43	1631.61	1.14E+01	8.02			1.14E+01	8.02E+00
	44	1663.66	5.86E+00	6.08			5.86E+00	6.08E+00
	45	1765.49	4.54E+01	17.23	1.66E+00	1.65E+00	4.38E+01	1.73E+01
	46	1838.47	6.13E+00	6.67			6.13E+00	6.67E+00
	47	2150.07	6.00E+00	4.90			6.00E+00	4.90E+00
	48	2205.07	9.83E+00	9.84			9.83E+00	9.84E+00
	49	2271.23	1.65E+01	11.06			1.65E+01	1.11E+01

Analysis Report for 1606067-03

CP-5030 05-10 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
50	2425.65	7.00E+00	5.29			7.00E+00	5.29E+00
51	2615.48	6.50E+01	18.17	4.95E+00	1.35E+00	6.00E+01	1.82E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

AREA CORRECTION REPORT

REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/20/2016 10:13:59AM

Ref. Peak Energy : 0.00

Reference Date :

Peak Ratio : 0.00

Uncertainty : 0.00

Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038676.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.	
	1	46.93	1.23E+02	64.27	4.33E+01	8.35E+00	8.01E+01	6.48E+01
	2	76.72	8.91E+02	125.23			8.91E+02	1.25E+02
m	3	87.80	1.94E+02	59.50			1.94E+02	5.95E+01
m	4	90.80	1.57E+02	57.38			1.57E+02	5.74E+01
	5	130.10	5.59E+01	57.53			5.59E+01	5.75E+01
	6	186.72	2.35E+02	69.60	5.81E+01	8.50E+00	1.77E+02	7.01E+01
	7	209.49	8.18E+01	64.75			8.18E+01	6.47E+01
M	8	239.23	8.06E+02	68.46	1.81E+01	5.76E+00	7.88E+02	6.87E+01
m	9	242.23	1.59E+02	64.30			1.59E+02	6.43E+01
	10	270.43	8.69E+01	39.74			8.69E+01	3.97E+01
	11	277.63	4.85E+01	42.68			4.85E+01	4.27E+01
	12	295.82	1.93E+02	59.33	1.02E+00	5.38E+00	1.92E+02	5.96E+01
	13	301.42	5.57E+01	42.87			5.57E+01	4.29E+01
	14	339.11	1.78E+02	57.11	3.86E+00	4.98E+00	1.74E+02	5.73E+01
	15	352.55	3.69E+02	60.95	7.25E+00	4.86E+00	3.62E+02	6.11E+01
	16	409.43	3.77E+01	33.11			3.77E+01	3.31E+01
	17	511.30	1.62E+02	43.67	7.58E+01	5.38E+00	8.66E+01	4.40E+01
M	18	581.01	2.56E+01	30.77			2.56E+01	3.08E+01
m	19	583.74	2.42E+02	40.14	6.11E+00	3.78E+00	2.36E+02	4.03E+01
	20	610.02	2.33E+02	49.81	6.74E+00	3.64E+00	2.26E+02	4.99E+01
	21	698.97	5.97E+01	53.08			5.97E+01	5.31E+01
	22	727.87	6.01E+01	33.88			6.01E+01	3.39E+01
	23	771.57	6.41E+01	47.06			6.41E+01	4.71E+01
	24	795.56	3.23E+01	26.38			3.23E+01	2.64E+01
	25	861.83	4.58E+01	29.15			4.58E+01	2.92E+01
	26	883.11	3.03E+01	23.57			3.03E+01	2.36E+01

: 00316

Analysis Report for 1806067-03

CP-5030 05-10 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	27 911.37	1.97E+02	51.76	4.21E+00	2.98E+00	1.93E+02	5.18E+01
	28 933.96	2.65E+01	21.24			2.65E+01	2.12E+01
M	29 965.96	2.52E+01	12.57			2.52E+01	1.26E+01
m	30 969.88	1.18E+02	28.74			1.18E+02	2.87E+01
	31 1001.75	3.30E+01	21.98	4.72E+00	2.83E+00	2.83E+01	2.22E+01
	32 1093.97	2.72E+01	18.11			2.72E+01	1.81E+01
	33 1121.16	6.15E+01	29.35			6.15E+01	2.93E+01
M	34 1238.38	3.58E+01	27.06			3.58E+01	2.71E+01
m	35 1245.92	1.27E+01	18.99			1.27E+01	1.90E+01
	36 1270.74	3.39E+01	28.20			3.39E+01	2.82E+01
	37 1379.01	1.80E+01	21.35			1.80E+01	2.14E+01
	38 1461.66	6.07E+02	53.93	6.83E+00	2.10E+00	6.00E+02	5.40E+01
	39 1516.45	9.39E+00	12.49			9.39E+00	1.25E+01
	40 1536.71	1.30E+01	7.21			1.30E+01	7.21E+00
	41 1588.41	1.70E+01	12.85			1.70E+01	1.29E+01
	42 1594.47	1.51E+01	13.00			1.51E+01	1.30E+01
	43 1631.61	1.14E+01	8.02			1.14E+01	8.02E+00
	44 1663.66	5.86E+00	6.08			5.86E+00	6.08E+00
	45 1765.49	4.54E+01	17.23	1.66E+00	1.65E+00	4.38E+01	1.73E+01
	46 1838.47	6.13E+00	6.67			6.13E+00	6.67E+00
	47 2150.07	6.00E+00	4.90			6.00E+00	4.90E+00
	48 2205.07	9.83E+00	9.84			9.83E+00	9.84E+00
	49 2271.23	1.65E+01	11.06			1.65E+01	1.11E+01
	50 2425.65	7.00E+00	5.29			7.00E+00	5.29E+00
	51 2615.48	6.50E+01	18.17	4.95E+00	1.35E+00	6.00E+01	1.82E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.892	1460.81 *	10.67	2.89E+01	3.62E+00
CD-109	0.991	88.03 *	3.72	4.79E+00	1.56E+00
SN-126	0.992	87.57 *	37.00	4.71E-01	1.51E-01
ND-147	0.634	91.11 *	28.90	1.18E+00	4.45E-01
		531.02 *	13.10		
TL-208	0.814	583.14 *	30.22	1.96E+00	3.79E-01

: 00317

Analysis Report for 1606067-03
 CP-5030 05-10 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.814	860.37	4.48		
		2614.66 *	35.85	1.13E+00	3.56E-01
PB-210	0.970	46.50 *	4.25	2.82E+00	2.30E+00
BI-212	0.704	727.17 *	11.80	1.52E+00	8.69E-01
		1620.62	2.75		
PB-212	0.842	238.63 *	44.60	2.35E+00	2.87E-01
		300.09	3.41		
BI-214	0.900	609.31 *	46.30	1.27E+00	3.03E-01
		1120.29 *	15.10	1.72E+00	8.32E-01
		1764.49 *	15.80	1.61E+00	6.50E-01
		2204.22 *	4.98	1.28E+00	1.28E+00
PB-214	0.940	295.21 *	19.19	1.54E+00	4.91E-01
		351.92 *	37.19	1.69E+00	3.16E-01
RA-226	0.959	186.21 *	3.28	6.18E+00	1.16E+01
AC-228	0.946	338.32 *	11.40	2.58E+00	8.73E-01
		911.07 *	27.70	2.49E+00	7.03E-01
		969.11 *	16.60	2.66E+00	6.90E-01
PA-234M	0.919	1001.03 *	0.92	1.19E+01	9.34E+00
CM-243	0.373	209.75 *	3.29	3.05E+00	2.43E+00
		228.14	10.60		
		277.60 *	14.00	5.09E-01	4.50E-01

* = Energy line found in the spectrum.
 - = Manually added nuclide.
 ? = Manually edited nuclide.
 Energy Tolerance : 1.000 keV
 Nuclide confidence index threshold = 0.30
 Errors quoted at 2.000sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 10:13:59AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.72	2.47589E-01	7.03	
	5	130.10	1.55352E-02	51.44	
m	9	242.23	4.42303E-02	20.19	
	10	270.43	2.41319E-02	22.87	
	13	301.42	1.54705E-02	38.48	
	16	409.43	1.04805E-02	43.88	
	17	511.30	2.40503E-02	25.41	
M	18	581.01	7.11580E-03	60.06	

Analysis Report for 1606067-03

CP-5030 05-10 QC

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
21	698.97	1.65793E-02	44.47		
23	771.57	1.78056E-02	36.71		
24	795.56	8.96680E-03	40.86		
25	861.83	1.27257E-02	31.81	Sum	
26	883.11	8.42593E-03	38.86		
28	933.96	7.35043E-03	40.13		
M 29	965.96	6.99259E-03	24.97		
32	1093.97	7.56039E-03	33.27	Tol.	LU-172
M 34	1238.38	9.94733E-03	37.79		
m 35	1245.92	3.54029E-03	74.49		
36	1270.74	9.42901E-03	41.53		
37	1379.01	5.00000E-03	59.32		
39	1516.45	2.60965E-03	66.47		
40	1536.71	3.61111E-03	27.74		
41	1588.41	4.73291E-03	37.72		
42	1594.47	4.19192E-03	43.07	D-Esc	
43	1631.61	3.16239E-03	35.20		
44	1663.66	1.62698E-03	51.93		
46	1838.47	1.70139E-03	54.46		
47	2150.07	1.66667E-03	40.82		
49	2271.23	4.59722E-03	33.40		
50	2425.65	1.94444E-03	37.80		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.89	1460.81 *	10.67	2.89E+01	3.62E+00
CD-109	0.99	88.03 *	3.72	4.79E+00	1.56E+00
SN-126	0.99	87.57 *	37.00	4.71E-01	1.51E-01
ND-147	0.63	91.11 *	28.90	1.18E+00	4.45E-01
		531.02	13.10		
TL-208	0.81	583.14 *	30.22	1.96E+00	3.79E-01

Analysis Report for 1606067-03

CP-5030 05-10 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.81	860.37	4.48		
		2614.66 *	35.85	1.13E+00	3.56E-01
PB-210	0.97	46.50 *	4.25	2.82E+00	2.30E+00
BI-212	0.70	727.17 *	11.80	1.52E+00	8.69E-01
		1620.62	2.75		
PB-212	0.84	238.63 *	44.60	2.35E+00	2.87E-01
		300.09	3.41		
BI-214	0.90	609.31 *	46.30	1.27E+00	3.03E-01
		1120.29 *	15.10	1.72E+00	8.32E-01
		1764.49 *	15.80	1.61E+00	6.50E-01
		2204.22 *	4.98	1.28E+00	1.28E+00
PB-214	0.94	295.21 *	19.19	1.54E+00	4.91E-01
		351.92 *	37.19	1.69E+00	3.16E-01
RA-226	0.95	186.21 *	3.28	6.18E+00	1.16E+01
AC-228	0.94	338.32 *	11.40	2.58E+00	8.73E-01
		911.07 *	27.70	2.49E+00	7.03E-01
		969.11 *	16.60	2.66E+00	6.90E-01
PA-234M	0.91	1001.03 *	0.92	1.19E+01	9.34E+00
CM-243	0.37	209.75 *	3.29	3.05E+00	2.43E+00
		228.14	10.60		
		277.60 *	14.00	5.09E-01	4.50E-01

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	0.892	2.89E+01	3.62E+00	
?	0.991	4.79E+00	1.56E+00	
?	0.992	4.71E-01	1.51E-01	
	0.634	1.18E+00	4.45E-01	
	0.814	1.52E+00	2.60E-01	
	0.970	2.82E+00	2.30E+00	

Analysis Report for 1606067-03

CP-5030 05-10 QC

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
BI-212	0.704	1.52E+00	8.69E-01	
PB-212	0.842	2.35E+00	2.87E-01	
BI-214	0.900	1.37E+00	2.56E-01	
PB-214	0.940	1.64E+00	2.66E-01	
RA-226	0.959	6.18E+00	1.16E+01	
AC-228	0.946	2.58E+00	4.29E-01	
PA-234M	0.919	1.19E+01	9.34E+00	
CM-243	0.373	5.94E-01	4.42E-01	

? = nuclide is part of an undetermined solution

X = nuclide rejected by the interference analysis

@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1606067-03

CP-5030 05-10 QC

 UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 10:13:59AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
2	76.72	2.47589E-01	7.03		
5	130.10	1.55352E-02	51.44		
m 9	242.23	4.42303E-02	20.19		
10	270.43	2.41319E-02	22.87		
13	301.42	1.54705E-02	38.48		
16	409.43	1.04805E-02	43.88		
17	511.30	2.40503E-02	25.41		
M 18	581.01	7.11580E-03	60.06		
21	698.97	1.65793E-02	44.47		
23	771.57	1.78056E-02	36.71		
24	795.56	8.96680E-03	40.86		
25	861.83	1.27257E-02	31.81	Sum	
26	883.11	8.42593E-03	38.86		
28	933.96	7.35043E-03	40.13		
M 29	965.96	6.99259E-03	24.97		
32	1093.97	7.56039E-03	33.27	Tol.	LU-172
M 34	1238.38	9.94733E-03	37.79		
m 35	1245.92	3.54029E-03	74.49		
36	1270.74	9.42901E-03	41.53		
37	1379.01	5.00000E-03	59.32		
39	1516.45	2.60965E-03	66.47		
40	1536.71	3.61111E-03	27.74		
41	1588.41	4.73291E-03	37.72		
42	1594.47	4.19192E-03	43.07	D-Esc	
43	1631.61	3.16239E-03	35.20		
44	1663.66	1.62698E-03	51.93		
46	1838.47	1.70139E-03	54.46		
47	2150.07	1.66667E-03	40.82		
49	2271.23	4.59722E-03	33.40		
50	2425.65	1.94444E-03	37.80		

Analysis Report for 1606067-03
CP-5030 05-10 QC

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \WOR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-2.41E-01	1.20E+00	1.20E+00
+	NA-22	1274.54	99.94	-4.01E-02	1.44E-01	1.44E-01
+	NA-24	1368.53	99.99	2.68E+04	2.83E+05	5.43E+05
		2754.09	99.86	2.56E+04		2.83E+05
+	AL-26	1808.65	99.76	-5.91E-03	8.34E-02	8.34E-02
+	K-40	1460.81	* 10.67	2.89E+01	1.92E+00	1.92E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-1.32E-01	1.10E-01	1.10E-01
		78.34	96.00	2.16E-01		1.49E-01
+	SC-46	889.25	99.98	2.42E-02	1.19E-01	1.19E-01
		1120.51	99.99	3.06E-01		2.33E-01
+	V-48	983.52	99.98	1.72E-02	2.11E-01	2.11E-01
		1312.10	97.50	-8.63E-02		2.41E-01
+	CR-51	320.08	9.83	-3.23E-01	1.12E+00	1.12E+00
+	MN-54	834.83	99.97	1.83E-03	1.37E-01	1.37E-01
+	CO-56	846.75	99.96	2.86E-02	1.21E-01	1.21E-01
		1037.75	14.03	1.07E-01		9.92E-01
		1238.25	67.00	3.31E-01		3.41E-01
		1771.40	15.51	1.55E-01		7.08E-01
		2598.48	16.90	6.01E-02		4.85E-01
+	CO-57	122.06	85.51	-3.47E-02	8.77E-02	8.77E-02
		136.48	10.60	5.16E-02		7.58E-01
+	CO-58	810.76	99.40	2.07E-02	1.26E-01	1.26E-01
+	FE-59	1099.22	56.50	5.61E-02	2.83E-01	2.83E-01
		1291.56	43.20	3.38E-02		4.04E-01
+	CO-60	1173.22	100.00	2.28E-02	1.36E-01	1.39E-01
		1332.49	100.00	1.81E-02		1.36E-01
+	ZN-65	1115.52	50.75	-3.93E-02	2.73E-01	2.73E-01
+	GA-67	93.31	35.70	1.38E+01	6.53E+00	6.53E+00
		208.95	2.24	1.00E+02		8.80E+01
		300.22	16.00	-3.35E+01		1.15E+01
+	SE-75	121.11	16.70	8.99E-02	1.37E-01	4.84E-01

Analysis Report for 1606067-03
CP-5030 05-10 QC

<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>	
	SE-75	136.00	59.20	-1.06E-02	1.37E-01	1.37E-01
		264.65	59.80	1.85E-03		1.55E-01
		279.53	25.20	1.55E-01		3.67E-01
		400.65	11.40	-3.09E-02		7.57E-01
+	RB-82	776.52	13.00	-1.60E-02	1.30E+00	1.30E+00
+	RB-83	520.41	46.00	1.29E-01	2.56E-01	2.56E-01
		529.64	30.30	1.81E-02		3.66E-01
		552.65	16.40	1.36E-01		6.99E-01
+	KR-85	513.99	0.43	1.70E+00	3.76E+01	3.76E+01
+	SR-85	513.99	99.27	8.60E-03	1.90E-01	1.90E-01
+	Y-88	898.02	93.40	3.38E-03	1.23E-01	1.29E-01
		1836.01	99.38	-3.28E-03		1.23E-01
+	NB-93M	16.57	9.43	-1.20E+02	1.10E+02	1.10E+02
+	NB-94	702.63	100.00	-3.30E-02	1.11E-01	1.14E-01
		871.10	100.00	5.88E-02		1.11E-01
+	NB-95	765.79	99.81	3.82E-02	1.95E-01	1.95E-01
+	NB-95M	235.69	25.00	-7.09E+01	5.55E+00	5.55E+00
+	ZR-95	724.18	43.70	1.10E-02	2.39E-01	3.58E-01
		756.72	55.30	4.85E-02		2.39E-01
+	MO-99	181.06	6.20	2.47E+00	3.42E+01	4.47E+01
		739.58	12.80	1.58E+01		3.42E+01
		778.00	4.50	7.20E-01		8.30E+01
+	RU-103	497.08	89.00	3.09E-02	1.39E-01	1.39E-01
+	RU-106	621.84	9.80	-2.64E-01	9.67E-01	9.67E-01
+	AG-108M	433.93	89.90	-1.59E-02	1.11E-01	1.11E-01
		614.37	90.40	0.00E+00		1.30E-01
		722.95	90.50	-6.16E-04		1.38E-01
+	CD-109	88.03	3.72	4.79E+00	5.91E+00	5.91E+00
+	AG-110M	657.75	93.14	5.13E-02	1.26E-01	1.26E-01
		677.61	10.53	2.84E-01		1.21E+00
		706.67	16.46	-1.10E-01		7.58E-01
		763.93	21.98	1.70E-01		5.99E-01
		884.67	71.63	9.09E-03		1.82E-01
		1384.27	23.94	-3.22E-02		4.45E-01
+	CD-113M	263.70	0.02	1.56E+02	3.77E+02	3.77E+02
+	SN-113	255.12	1.93	-1.48E+00	1.55E-01	4.27E+00
		391.69	64.90	2.92E-02		1.55E-01
+	TE123M	159.00	84.10	-7.27E-03	1.01E-01	1.01E-01
+	SB-124	602.71	97.87	-8.84E-03	1.29E-01	1.29E-01
		645.85	7.26	-4.23E-01		1.65E+00
		722.78	11.10	-5.90E-03		1.32E+00
		1691.02	49.00	-5.44E-02		2.37E-01
+	I-125	35.49	6.49	-1.93E+00	4.39E+00	4.39E+00
+	SB-125	176.33	6.89	-2.19E-01	3.42E-01	1.13E+00
		427.89	29.33	-1.57E-01		3.42E-01
		463.38	10.35	5.72E-01		1.11E+00
		600.56	17.80	-3.00E-01		5.78E-01
		635.90	11.32	-1.15E-01		9.36E-01

Analysis Report for 1606067-03

CP-5030 05-10 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70	83.30	3.86E-02	2.50E-01	2.56E-01
		666.33	99.60	5.34E-02		2.50E-01
		695.00	99.60	1.54E-01		2.76E-01
		720.50	53.80	-1.52E-02		4.92E-01
+	SN-126	87.57 *	37.00	4.71E-01	5.82E-01	5.82E-01
+	SB-127	473.00	25.00	-6.97E-01	4.37E+00	4.78E+00
		685.20	35.70	7.98E-01		4.37E+00
		783.80	14.70	7.31E+00		1.02E+01
+	I-129	29.78	57.00	-3.06E-01	8.13E-01	8.13E-01
		33.60	13.20	8.58E-02		2.24E+00
		39.58	7.52	9.62E-01		2.44E+00
+	I-131	284.30	6.05	4.17E-01	3.41E-01	4.26E+00
		364.48	81.20	1.58E-01		3.41E-01
		636.97	7.26	-1.20E+00		4.89E+00
		722.89	1.80	-1.04E-01		2.32E+01
+	TE-132	49.72	13.10	-3.08E+00	1.85E+00	1.92E+01
		228.16	88.00	-5.63E-01		1.85E+00
+	BA-133	81.00	33.00	-1.37E+00	1.58E-01	3.20E-01
		302.84	17.80	4.16E-01		5.19E-01
		356.01	60.00	-6.53E-01		1.58E-01
+	I-133	529.87	86.30	4.23E+02	8.54E+03	8.54E+03
+	XE-133	81.00	38.00	-7.57E+00	1.77E+00	1.77E+00
+	CS-134	563.23	8.38	9.07E-01	1.18E-01	1.41E+00
		569.32	15.43	6.35E-02		7.43E-01
		604.70	97.60	1.37E-03		1.18E-01
		795.84	85.40	1.03E-01		1.66E-01
		801.93	8.73	4.90E-01		1.30E+00
+	CS-135	268.24	16.00	1.18E-01	5.65E-01	5.65E-01
+	I-135	1131.51	22.50	-1.80E+14	1.08E+15	1.30E+15
		1260.41	28.60	1.65E+14		1.08E+15
		1678.03	9.54	3.06E+14		1.99E+15
+	CS-136	153.22	7.46	5.89E-01	2.21E-01	2.19E+00
		163.89	4.61	1.54E+00		3.56E+00
		176.55	13.56	-2.31E-01		1.19E+00
		273.65	12.66	-1.65E+00		1.32E+00
		340.57	48.50	1.19E+00		5.62E-01
		818.50	99.70	-7.84E-02		2.21E-01
		1048.07	79.60	-4.20E-02		2.83E-01
		1235.34	19.70	2.51E-01		1.97E+00
+	CS-137	661.65	85.12	-8.83E-02	1.21E-01	1.21E-01
+	LA-138	788.74	34.00	2.47E-02	1.68E-01	3.37E-01
		1435.80	66.00	4.16E-02		1.68E-01
+	CE-139	165.85	80.35	1.19E-02	1.04E-01	1.04E-01
+	BA-140	162.64	6.70	6.94E-01	8.74E-01	2.48E+00
		304.84	4.50	-2.59E+00		3.77E+00
		423.70	3.20	-3.76E+00		6.45E+00
		437.55	2.00	-1.93E+00		9.82E+00
		537.32	25.00	1.65E-01		8.74E-01
+	LA-140	328.77	20.50	1.21E-01	2.81E-01	9.63E-01

Analysis Report for 1606067-03

CP-5030 05-10 QC

	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
	LA-140	487.03	45.50	-1.91E-01	2.81E-01	4.40E-01
		815.85	23.50	-1.47E-01		9.12E-01
		1596.49	95.49	1.68E-01		2.81E-01
+	CE-141	145.44	48.40	3.42E-02	2.27E-01	2.27E-01
+	CE-143	57.36	11.80	-5.52E+02	3.37E+02	1.10E+03
		293.26	42.00	4.67E+02		3.37E+02
		664.55	5.20	-3.56E+02		2.47E+03
+	CE-144	133.54	10.80	1.48E-01	6.87E-01	6.87E-01
+	PM-144	476.78	42.00	-5.94E-02	1.00E-01	2.49E-01
		618.01	98.60	-2.96E-02		1.00E-01
		696.49	99.49	7.19E-02		1.31E-01
+	PM-145	36.85	21.70	9.67E-02	5.31E-01	1.01E+00
		37.36	39.70	-1.80E-01		5.31E-01
		42.30	15.10	1.74E-01		1.04E+00
		72.40	2.31	1.33E+00		4.90E+00
+	PM-146	453.90	39.94	4.40E-03	2.50E-01	2.50E-01
		735.90	14.01	2.62E-02		8.31E-01
		747.13	13.10	-1.41E-01		8.78E-01
+	ND-147	91.11	* 28.90	1.18E+00	1.79E+00	1.80E+00
		531.02	13.10	-4.30E-01		1.79E+00
+	PM-149	285.90	3.10	-4.24E+01	1.99E+02	1.99E+02
+	EU-152	121.78	20.50	-1.40E-01	3.53E-01	3.53E-01
		244.69	5.40	-1.59E-01		1.83E+00
		344.27	19.13	5.01E-03		4.25E-01
		778.89	9.20	-7.38E-02		1.17E+00
		964.01	10.40	-2.04E-01		1.59E+00
		1085.78	7.22	4.46E-01		1.87E+00
		1112.02	9.60	5.53E-01		1.50E+00
		1407.95	14.94	8.40E-02		9.03E-01
+	GD-153	97.43	31.30	-3.60E-02	2.65E-01	2.65E-01
		103.18	22.20	-1.87E-01		3.63E-01
+	EU-154	123.07	40.50	-1.05E-01	1.77E-01	1.77E-01
		723.30	19.70	-2.84E-03		6.35E-01
		873.19	11.50	-2.10E-01		8.62E-01
		996.32	10.30	1.26E-01		1.13E+00
		1004.76	17.90	-1.01E-01		7.04E-01
		1274.45	35.50	-1.12E-01		4.03E-01
+	EU-155	86.50	30.90	6.28E-01	3.74E-01	3.78E-01
		105.30	20.70	-1.79E-02		3.74E-01
+	EU-156	811.77	10.40	4.69E-01	2.02E+00	2.02E+00
		1153.47	7.20	8.60E-01		4.04E+00
		1230.71	8.90	1.63E-01		3.44E+00
+	HO-166M	184.41	72.60	2.04E-01	1.49E-01	1.49E-01
		280.45	29.60	-2.50E-03		2.67E-01
		410.94	11.10	3.15E-03		9.72E-01
		711.69	54.10	6.35E-02		2.24E-01
+	TM-171	66.72	0.14	-8.70E+01	8.05E+01	8.05E+01
+	HF-172	81.75	4.52	-7.78E+00	6.95E-01	2.15E+00
		125.81	11.30	1.18E-01		6.95E-01

Analysis Report for 1606067-03

CP-5030 05-10 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53	20.60	2.09E-01	9.37E-01	1.69E+00
		810.06	16.63	2.10E-01		2.77E+00
		912.12	15.25	1.80E+01		7.09E+00
		1093.66	62.50	4.38E-01		9.37E-01
+	LU-173	100.72	5.24	8.05E-01	4.34E-01	1.54E+00
		272.11	21.20	2.41E-01		4.34E-01
+	HF-175	343.40	84.00	-9.35E-02	1.15E-01	1.15E-01
+	LU-176	88.34	13.30	1.80E+00	8.28E-02	8.75E-01
		201.83	86.00	-2.14E-02		9.79E-02
		306.78	94.00	9.79E-03		8.28E-02
+	TA-182	67.75	41.20	-3.29E-01	2.76E-01	2.76E-01
		1121.30	34.90	8.16E-01		6.44E-01
		1189.05	16.23	-1.20E-01		9.62E-01
		1221.41	26.98	-1.51E-02		6.71E-01
		1231.02	11.44	7.29E-02		1.54E+00
+	IR-192	308.46	29.68	2.73E-02	2.22E-01	3.14E-01
		468.07	48.10	-3.10E-01		2.22E-01
+	HG-203	279.19	77.30	8.35E-02	1.39E-01	1.39E-01
+	BI-207	569.67	97.72	3.40E-02	1.16E-01	1.16E-01
		1063.62	74.90	-7.28E-02		1.61E-01
+	TL-208	583.14	* 30.22	1.96E+00	3.47E-01	5.07E-01
		860.37	4.48	1.65E+00		3.44E+00
		2614.66	* 35.85	1.13E+00		3.47E-01
+	BI-210M	262.00	45.00	-2.51E-02	1.89E-01	1.89E-01
		300.00	23.00	-1.18E+00		4.06E-01
+	PB-210	46.50	* 4.25	2.82E+00	3.71E+00	3.71E+00
+	PB-211	404.84	2.90	4.34E-01	2.91E+00	2.91E+00
		831.96	2.90	-1.97E+00		4.23E+00
+	BI-212	727.17	* 11.80	1.52E+00	1.32E+00	1.32E+00
		1620.62	2.75	5.01E-01		3.78E+00
+	PB-212	238.63	* 44.60	2.35E+00	3.72E-01	3.72E-01
		300.09	3.41	-7.98E+00		2.74E+00
+	BI-214	609.31	* 46.30	1.27E+00	3.84E-01	3.84E-01
		1120.29	* 15.10	1.72E+00		1.21E+00
		1764.49	* 15.80	1.61E+00		7.76E-01
		2204.22	* 4.98	1.28E+00		1.97E+00
+	PB-214	295.21	* 19.19	1.54E+00	3.80E-01	7.15E-01
		351.92	* 37.19	1.69E+00		3.80E-01
+	RN-219	401.80	6.50	3.96E-01	1.29E+00	1.29E+00
+	RA-223	323.87	3.88	8.87E-01	2.24E+00	2.24E+00
+	RA-224	240.98	3.95	2.97E+01	5.23E+00	5.23E+00
+	RA-225	40.00	31.00	4.38E-01	1.11E+00	1.11E+00
+	RA-226	186.21	* 3.28	6.18E+00	3.82E+00	3.82E+00
+	TH-227	50.10	8.40	-2.40E-01	8.18E-01	1.50E+00
		236.00	11.50	-1.04E+01		8.18E-01
		256.20	6.30	-4.02E-01		1.20E+00
+	AC-228	338.32	* 11.40	2.58E+00	9.64E-01	1.28E+00
		911.07	* 27.70	2.49E+00		9.64E-01

Analysis Report for 1606067-03

CP-5030 05-10 QC

	<i>Nuclide Name</i>	<i>Energy (keV)</i>		<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
	AC-228	969.11	*	16.60	2.66E+00	9.64E-01	2.11E+00
+	TH-230	48.44		16.90	2.14E-01	8.40E-01	8.40E-01
		62.85		4.60	3.39E+00		2.73E+00
		67.67		0.37	-3.37E+01		2.82E+01
+	PA-231	283.67		1.60	1.39E+00	4.00E+00	4.82E+00
		302.67		2.30	3.21E+00		4.00E+00
+	TH-231	25.64		14.70	-8.30E+01	1.58E+00	7.52E+00
		84.21		6.40	-4.00E+00		1.58E+00
+	PA-233	311.98		38.60	-4.73E-02	3.00E-01	3.00E-01
+	PA-234	131.20		20.40	-3.77E-02	3.81E-01	3.81E-01
		733.99		8.80	-5.68E-01		1.26E+00
		946.00		12.00	-8.51E-02		9.52E-01
+	PA-234M	1001.03	*	0.92	1.19E+01	1.45E+01	1.45E+01
+	TH-234	63.29		3.80	4.44E+00	3.29E+00	3.29E+00
+	U-235	143.76		10.50	-5.77E-02	7.55E-01	7.55E-01
		163.35		4.70	7.19E-01		1.66E+00
		205.31		4.70	3.98E-01		1.80E+00
+	NP-237	86.50		12.60	1.53E+00	9.22E-01	9.22E-01
+	NP-239	106.10		22.70	-1.01E+00	2.10E+01	2.10E+01
		228.18		10.70	-1.46E+01		4.77E+01
		277.60		14.10	3.05E+01		3.88E+01
+	AM-241	59.54		35.90	-7.54E-03	3.08E-01	3.08E-01
+	AM-243	74.67		66.00	-7.29E-01	2.07E-01	2.07E-01
+	CM-243	209.75	*	3.29	3.05E+00	7.25E-01	3.91E+00
		228.14		10.60	-2.37E-01		7.77E-01
		277.60	*	14.00	5.09E-01		7.25E-01

- + = Nuclide identified during the nuclide identification
 * = Energy line found in the spectrum
 > = MDA value not calculated
 @ = Half-life too short to be able to perform the decay correction
 ? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

: 00328

Analysis Report for 1606067-03

CP-5030 05-10 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	1.20E+00	1.20E+00	-2.41E-01	5.64E-01
NA-22	1274.54	99.94	1.44E-01	1.44E-01	-4.01E-02	6.57E-02
NA-24	1368.53	99.99	5.43E+05	2.83E+05	2.68E+04	2.34E+05
	2754.09	99.86	2.83E+05		2.56E+04	8.93E+04
AL-26	1808.65	99.76	8.34E-02	8.34E-02	-5.91E-03	3.37E-02
+ K-40	1460.81	* 10.67	1.92E+00	1.92E+00	2.89E+01	8.97E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	1.10E-01	1.10E-01	-1.32E-01	5.38E-02
	78.34	96.00	1.49E-01		2.16E-01	7.32E-02
SC-46	889.25	99.98	1.19E-01	1.19E-01	2.42E-02	5.42E-02
	1120.51	99.99	2.33E-01		3.06E-01	1.10E-01
V-48	983.52	99.98	2.11E-01	2.11E-01	1.72E-02	9.62E-02
	1312.10	97.50	2.41E-01		-8.63E-02	1.08E-01
CR-51	320.08	9.83	1.12E+00	1.12E+00	-3.23E-01	5.28E-01
MN-54	834.83	99.97	1.37E-01	1.37E-01	1.83E-03	6.40E-02
CO-56	846.75	99.96	1.21E-01	1.21E-01	2.86E-02	5.54E-02
	1037.75	14.03	9.92E-01		1.07E-01	4.53E-01
	1238.25	67.00	3.41E-01		3.31E-01	1.60E-01
	1771.40	15.51	7.08E-01		1.55E-01	2.97E-01
	2598.48	16.90	4.85E-01		6.01E-02	1.82E-01
CO-57	122.06	85.51	8.77E-02	8.77E-02	-3.47E-02	4.23E-02
	136.48	10.60	7.58E-01		5.16E-02	3.66E-01
CO-58	810.76	99.40	1.26E-01	1.26E-01	2.07E-02	5.80E-02
FE-59	1099.22	56.50	2.83E-01	2.83E-01	5.61E-02	1.29E-01
	1291.56	43.20	4.04E-01		3.38E-02	1.83E-01
CO-60	1173.22	100.00	1.39E-01	1.36E-01	2.28E-02	6.38E-02
	1332.49	100.00	1.36E-01		1.81E-02	6.16E-02
ZN-65	1115.52	50.75	2.73E-01	2.73E-01	-3.93E-02	1.25E-01
GA-67	93.31	35.70	6.53E+00	6.53E+00	1.38E+01	3.20E+00
	208.95	2.24	8.80E+01		1.00E+02	4.25E+01
	300.22	16.00	1.15E+01		-3.35E+01	5.49E+00
SE-75	121.11	16.70	4.84E-01	1.37E-01	8.99E-02	2.34E-01
	136.00	59.20	1.37E-01		-1.06E-02	6.63E-02
	264.65	59.80	1.55E-01		1.85E-03	7.38E-02
	279.53	25.20	3.67E-01		1.55E-01	1.75E-01
	400.65	11.40	7.57E-01		-3.09E-02	3.54E-01
RB-82	776.52	13.00	1.30E+00	1.30E+00	-1.60E-02	6.00E-01
RB-83	520.41	46.00	2.56E-01	2.56E-01	1.29E-01	1.20E-01
	529.64	30.30	3.66E-01		1.81E-02	1.72E-01
	552.65	16.40	6.99E-01		1.36E-01	3.27E-01
KR-85	513.99	0.43	3.76E+01	3.76E+01	1.70E+00	1.81E+01
SR-85	513.99	99.27	1.90E-01	1.90E-01	8.60E-03	9.16E-02
Y-88	898.02	93.40	1.29E-01	1.23E-01	3.38E-03	5.87E-02
	1836.01	99.38	1.23E-01		-3.28E-03	5.28E-02
NB-93M	16.57	9.43	1.10E+02	1.10E+02	-1.20E+02	5.04E+01
NB-94	702.63	100.00	1.14E-01	1.11E-01	-3.30E-02	5.33E-02
	871.10	100.00	1.11E-01		5.88E-02	5.07E-02
NB-95	765.79	99.81	1.95E-01	1.95E-01	3.82E-02	9.18E-02
NB-95M	235.69	25.00	5.55E+00	5.55E+00	-7.09E+01	2.67E+00
ZR-95	724.18	43.70	3.58E-01	2.39E-01	1.10E-02	1.68E-01
	756.72	55.30	2.39E-01		4.85E-02	1.11E-01

Analysis Report for 1606067-03

CP-5030 05-10 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
MO-99	181.06	6.20	4.47E+01	3.42E+01	2.47E+00	2.15E+01
	739.58	12.80	3.42E+01		1.58E+01	1.60E+01
	778.00	4.50	8.30E+01		7.20E-01	3.83E+01
RU-103	497.08	89.00	1.39E-01	1.39E-01	3.09E-02	6.54E-02
RU-106	621.84	9.80	9.67E-01	9.67E-01	-2.64E-01	4.46E-01
AG-108M	433.93	89.90	1.11E-01	1.11E-01	-1.59E-02	5.24E-02
	614.37	90.40	1.30E-01		0.00E+00	6.10E-02
	722.95	90.50	1.38E-01		-6.16E-04	6.44E-02
+ CD-109	88.03	* 3.72	5.91E+00	5.91E+00	4.79E+00	2.92E+00
AG-110M	657.75	93.14	1.26E-01	1.26E-01	5.13E-02	5.87E-02
	677.61	10.53	1.21E+00		2.84E-01	5.66E-01
	706.67	16.46	7.58E-01		-1.10E-01	3.54E-01
	763.93	21.98	5.99E-01		1.70E-01	2.80E-01
	884.67	71.63	1.82E-01		9.09E-03	8.42E-02
	1384.27	23.94	4.45E-01		-3.22E-02	1.94E-01
CD-113M	263.70	0.02	3.77E+02	3.77E+02	1.56E+02	1.80E+02
SN-113	255.12	1.93	4.27E+00	1.55E-01	-1.48E+00	2.03E+00
	391.69	64.90	1.55E-01		2.92E-02	7.32E-02
TE123M	159.00	84.10	1.01E-01	1.01E-01	-7.27E-03	4.88E-02
SB-124	602.71	97.87	1.29E-01	1.29E-01	-8.84E-03	6.03E-02
	645.85	7.26	1.65E+00		-4.23E-01	7.67E-01
	722.78	11.10	1.32E+00		-5.90E-03	6.17E-01
	1691.02	49.00	2.37E-01		-5.44E-02	1.00E-01
I-125	35.49	6.49	4.39E+00	4.39E+00	-1.93E+00	2.12E+00
SB-125	176.33	6.89	1.13E+00	3.42E-01	-2.19E-01	5.45E-01
	427.89	29.33	3.42E-01		-1.57E-01	1.62E-01
	463.38	10.35	1.11E+00		5.72E-01	5.27E-01
	600.56	17.80	5.78E-01		-3.00E-01	2.69E-01
	635.90	11.32	9.36E-01		-1.15E-01	4.36E-01
	SB-126	414.70	83.30	2.56E-01	2.50E-01	3.86E-02	1.21E-01
	666.33	99.60	2.50E-01		5.34E-02	1.17E-01
	695.00	99.60	2.76E-01		1.54E-01	1.29E-01
	720.50	53.80	4.92E-01		-1.52E-02	2.30E-01
	+ SN-126	87.57	* 37.00	5.82E-01	5.82E-01	4.71E-01	2.88E-01
SB-127	473.00	25.00	4.78E+00	4.37E+00	-6.97E-01	2.24E+00
	685.20	35.70	4.37E+00		7.98E-01	2.05E+00
	783.80	14.70	1.02E+01		7.31E+00	4.73E+00
I-129	29.78	57.00	8.13E-01	8.13E-01	-3.06E-01	3.93E-01
	33.60	13.20	2.24E+00		8.58E-02	1.08E+00
	39.58	7.52	2.44E+00		9.62E-01	1.18E+00
I-131	284.30	6.05	4.26E+00	3.41E-01	4.17E-01	2.02E+00
	364.48	81.20	3.41E-01		1.58E-01	1.61E-01
	636.97	7.26	4.89E+00		-1.20E+00	2.28E+00
	722.89	1.80	2.32E+01		-1.04E-01	1.08E+01
TE-132	49.72	13.10	1.92E+01	1.85E+00	-3.08E+00	9.31E+00
	228.16	88.00	1.85E+00		-5.63E-01	8.85E-01
BA-133	81.00	33.00	3.20E-01	1.58E-01	-1.37E+00	1.56E-01
	302.84	17.80	5.19E-01		4.16E-01	2.48E-01
	356.01	60.00	1.58E-01		-6.53E-01	7.52E-02
I-133	529.87	86.30	8.54E+03	8.54E+03	4.23E+02	4.00E+03
XE-133	81.00	38.00	1.77E+00	1.77E+00	-7.57E+00	8.64E-01
CS-134	563.23	8.38	1.41E+00	1.18E-01	9.07E-01	6.64E-01
	569.32	15.43	7.43E-01		6.35E-02	3.50E-01

Analysis Report for 1606067-03

CP-5030 05-10 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	604.70	97.60	1.18E-01	1.18E-01	1.37E-03	5.51E-02
	795.84	85.40	1.66E-01		1.03E-01	7.77E-02
	801.93	8.73	1.30E+00		4.90E-01	5.97E-01
CS-135	268.24	16.00	5.65E-01	5.65E-01	1.18E-01	2.71E-01
	I-135	1131.51	22.50		1.30E+15	1.08E+15	-1.80E+14	5.97E+14
CS-136	1260.41	28.60	1.08E+15	2.21E-01	1.65E+14	4.92E+14
	1678.03	9.54	1.99E+15		3.06E+14	8.26E+14
	153.22	7.46	2.19E+00		5.89E-01	1.06E+00
	163.89	4.61	3.56E+00		1.54E+00	1.71E+00
	176.55	13.56	1.19E+00		-2.31E-01	5.74E-01
	273.65	12.66	1.32E+00		-1.65E+00	6.26E-01
	340.57	48.50	5.62E-01		1.19E+00	2.71E-01
	818.50	99.70	2.21E-01		-7.84E-02	1.01E-01
	1048.07	79.60	2.83E-01		-4.20E-02	1.27E-01
	1235.34	19.70	1.97E+00		2.51E-01	9.19E-01
CS-137	661.65	85.12	1.21E-01	1.21E-01	-8.83E-02	5.63E-02
LA-138	788.74	34.00	3.37E-01	1.68E-01	2.47E-02	1.56E-01
	1435.80	66.00	1.68E-01		4.16E-02	7.38E-02
CE-139	165.85	80.35	1.04E-01	1.04E-01	1.19E-02	4.98E-02
BA-140	162.64	6.70	2.48E+00	8.74E-01	6.94E-01	1.19E+00
	304.84	4.50	3.77E+00		-2.59E+00	1.78E+00
	423.70	3.20	6.45E+00		-3.76E+00	3.04E+00
	437.55	2.00	9.82E+00		-1.93E+00	4.62E+00
	537.32	25.00	8.74E-01		1.65E-01	4.10E-01
LA-140	328.77	20.50	9.63E-01	2.81E-01	1.21E-01	4.58E-01
	487.03	45.50	4.40E-01		-1.91E-01	2.06E-01
	815.85	23.50	9.12E-01		-1.47E-01	4.16E-01
	1596.49	95.49	2.81E-01		1.68E-01	1.24E-01
CE-141	145.44	48.40	2.27E-01	2.27E-01	3.42E-02	1.10E-01
CE-143	57.36	11.80	1.10E+03	3.37E+02	-5.52E+02	5.33E+02
	293.26	42.00	3.37E+02		4.67E+02	1.62E+02
	664.55	5.20	2.47E+03		-3.56E+02	1.15E+03
CE-144	133.54	10.80	6.87E-01	6.87E-01	1.48E-01	3.31E-01
PM-144	476.78	42.00	2.49E-01	1.00E-01	-5.94E-02	1.17E-01
	618.01	98.60	1.00E-01		-2.96E-02	4.64E-02
	696.49	99.49	1.31E-01		7.19E-02	6.12E-02
PM-145	36.85	21.70	1.01E+00	5.31E-01	9.67E-02	4.89E-01
	37.36	39.70	5.31E-01		-1.80E-01	2.57E-01
	42.30	15.10	1.04E+00		1.74E-01	5.02E-01
	72.40	2.31	4.90E+00		1.33E+00	2.40E+00
PM-146	453.90	39.94	2.50E-01	2.50E-01	4.40E-03	1.18E-01
	735.90	14.01	8.31E-01		2.62E-02	3.86E-01
	747.13	13.10	8.78E-01		-1.41E-01	4.08E-01
+ ND-147	91.11	* 28.90	1.80E+00	1.79E+00	1.18E+00	8.89E-01
	531.02	13.10	1.79E+00		-4.30E-01	8.37E-01
PM-149	285.90	3.10	1.99E+02	1.99E+02	-4.24E+01	9.43E+01
EU-152	121.78	20.50	3.53E-01	3.53E-01	-1.40E-01	1.71E-01
	244.69	5.40	1.83E+00		-1.59E-01	8.83E-01
	344.27	19.13	4.25E-01		5.01E-03	2.00E-01
	778.89	9.20	1.17E+00		-7.38E-02	5.36E-01
	964.01	10.40	1.59E+00		-2.04E-01	7.45E-01
	1085.78	7.22	1.87E+00		4.46E-01	8.60E-01
	1112.02	9.60	1.50E+00		5.53E-01	6.90E-01

Analysis Report for 1606067-03

CP-5030 05-10 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
EU-152	1407.95	14.94	9.03E-01	3.53E-01	8.40E-02	4.06E-01	
GD-153	97.43	31.30	2.65E-01	2.65E-01	-3.60E-02	1.28E-01	
	103.18	22.20	3.63E-01		-1.87E-01	1.76E-01	
EU-154	123.07	40.50	1.77E-01	1.77E-01	-1.05E-01	8.54E-02	
	723.30	19.70	6.35E-01		-2.84E-03	2.97E-01	
	873.19	11.50	8.62E-01		-2.10E-01	3.90E-01	
	996.32	10.30	1.13E+00		1.26E-01	5.15E-01	
	1004.76	17.90	7.04E-01		-1.01E-01	3.23E-01	
	1274.45	35.50	4.03E-01		-1.12E-01	1.84E-01	
EU-155	86.50	30.90	3.78E-01	3.74E-01	6.28E-01	1.85E-01	
	105.30	20.70	3.74E-01		-1.79E-02	1.81E-01	
EU-156	811.77	10.40	2.02E+00	2.02E+00	4.69E-01	9.28E-01	
	1153.47	7.20	4.04E+00		8.60E-01	1.87E+00	
	1230.71	8.90	3.44E+00		1.63E-01	1.59E+00	
HO-166M	184.41	72.60	1.49E-01	1.49E-01	2.04E-01	7.26E-02	
	280.45	29.60	2.67E-01		-2.50E-03	1.27E-01	
	410.94	11.10	9.72E-01		3.15E-03	4.62E-01	
	711.69	54.10	2.24E-01		6.35E-02	1.05E-01	
TM-171	66.72	0.14	8.05E+01	8.05E+01	-8.70E+01	3.93E+01	
HF-172	81.75	4.52	2.15E+00	6.95E-01	-7.78E+00	1.05E+00	
	125.81	11.30	6.95E-01		1.18E-01	3.36E-01	
LU-172	181.53	20.60	1.69E+00	9.37E-01	2.09E-01	8.14E-01	
	810.06	16.63	2.77E+00		2.10E-01	1.27E+00	
	912.12	15.25	7.09E+00		1.80E+01	3.41E+00	
	1093.66	62.50	9.37E-01		4.38E-01	4.31E-01	
LU-173	100.72	5.24	1.54E+00	4.34E-01	8.05E-01	7.47E-01	
	272.11	21.20	4.34E-01		2.41E-01	2.08E-01	
HF-175	343.40	84.00	1.15E-01	1.15E-01	-9.35E-02	5.44E-02	
LU-176	88.34	13.30	8.75E-01	8.28E-02	1.80E+00	4.29E-01	
	201.83	86.00	9.79E-02		-2.14E-02	4.71E-02	
	306.78	94.00	8.28E-02		9.79E-03	3.91E-02	
TA-182	67.75	41.20	2.76E-01	2.76E-01	-3.29E-01	1.34E-01	
	1121.30	34.90	6.44E-01		8.16E-01	3.04E-01	
	1189.05	16.23	9.62E-01		-1.20E-01	4.41E-01	
	1221.41	26.98	6.71E-01		-1.51E-02	3.11E-01	
	1231.02	11.44	1.54E+00		7.29E-02	7.09E-01	
IR-192	308.46	29.68	3.14E-01	2.22E-01	2.73E-02	1.49E-01	
	468.07	48.10	2.22E-01		-3.10E-01	1.04E-01	
HG-203	279.19	77.30	1.39E-01	1.39E-01	8.35E-02	6.65E-02	
BI-207	569.67	97.72	1.16E-01	1.16E-01	3.40E-02	5.46E-02	
	1063.62	74.90	1.61E-01		-7.28E-02	7.33E-02	
+ TL-208	583.14	*	30.22	5.07E-01	3.47E-01	1.96E+00	2.42E-01
	860.37		4.48	3.44E+00		1.65E+00	1.62E+00
	2614.66	*	35.85	3.47E-01		1.13E+00	1.48E-01
BI-210M	262.00	45.00	1.89E-01	1.89E-01	-2.51E-02	9.01E-02	
	300.00	23.00	4.06E-01		-1.18E+00	1.94E-01	
+ PB-210	46.50	*	4.25	3.71E+00	3.71E+00	2.82E+00	1.81E+00
PB-211	404.84	2.90	2.91E+00	2.91E+00	4.34E-01	1.36E+00	
	831.96	2.90	4.23E+00		-1.97E+00	1.96E+00	
+ BI-212	727.17	*	11.80	1.32E+00	1.32E+00	1.52E+00	6.28E-01
	1620.62		2.75	3.78E+00		5.01E-01	1.62E+00
+ PB-212	238.63	*	44.60	3.72E-01	3.72E-01	2.35E+00	1.82E-01
	300.09		3.41	2.74E+00		-7.98E+00	1.31E+00

Analysis Report for 1606067-03

CP-5030 05-10 QC

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
+	BI-214	609.31	*	46.30	3.84E-01	3.84E-01	1.27E+00	1.84E-01	
		1120.29	*	15.10	1.21E+00		1.72E+00	5.69E-01	
		1764.49	*	15.80	7.76E-01		1.61E+00	3.38E-01	
		2204.22	*	4.98	1.97E+00		1.28E+00	8.10E-01	
+	PB-214	295.21	*	19.19	7.15E-01	3.80E-01	1.54E+00	3.47E-01	
		351.92	*	37.19	3.80E-01		1.69E+00	1.83E-01	
	RN-219	401.80		6.50	1.29E+00	1.29E+00	3.96E-01	6.05E-01	
	RA-223	323.87		3.88	2.24E+00	2.24E+00	8.87E-01	1.06E+00	
	RA-224	240.98		3.95	5.23E+00	5.23E+00	2.97E+01	2.57E+00	
	RA-225	40.00		31.00	1.11E+00	1.11E+00	4.38E-01	5.37E-01	
+	RA-226	186.21	*	3.28	3.82E+00	3.82E+00	6.18E+00	1.86E+00	
		TH-227	50.10		8.40	1.50E+00	8.18E-01	-2.40E-01	7.26E-01
			236.00		11.50	8.18E-01		-1.04E+01	3.93E-01
			256.20		6.30	1.20E+00		-4.02E-01	5.70E-01
+	AC-228	338.32	*	11.40	1.28E+00	9.64E-01	2.58E+00	6.19E-01	
			911.07	*	27.70	9.64E-01		2.49E+00	4.65E-01
			969.11	*	16.60	2.11E+00		2.66E+00	1.02E+00
	TH-230	48.44		16.90	8.40E-01	8.40E-01	2.14E-01	4.09E-01	
			62.85		4.60	2.73E+00		3.39E+00	1.33E+00
			67.67		0.37	2.82E+01		-3.37E+01	1.37E+01
		PA-231	283.67		1.60	4.82E+00	4.00E+00	1.39E+00	2.28E+00
	302.67			2.30	4.00E+00		3.21E+00	1.91E+00	
	TH-231	25.64		14.70	7.52E+00	1.58E+00	-8.30E+01	3.65E+00	
			84.21		6.40	1.58E+00		-4.00E+00	7.71E-01
	PA-233	311.98		38.60	3.00E-01	3.00E-01	-4.73E-02	1.42E-01	
	PA-234	131.20		20.40	3.81E-01	3.81E-01	-3.77E-02	1.84E-01	
			733.99		8.80	1.26E+00		-5.68E-01	5.85E-01
			946.00		12.00	9.52E-01		-8.51E-02	4.34E-01
		+	PA-234M	1001.03	*	0.92	1.45E+01	1.45E+01	1.19E+01	6.70E+00
TH-234	63.29				3.80	3.29E+00	3.29E+00	4.44E+00	1.61E+00
	U-235	143.76		10.50	7.55E-01	7.55E-01	-5.77E-02	3.65E-01	
			163.35		4.70	1.66E+00		7.19E-01	8.02E-01
			205.31		4.70	1.80E+00		3.98E-01	8.66E-01
		NP-237	86.50		12.60	9.22E-01	9.22E-01	1.53E+00	4.51E-01
	NP-239	106.10		22.70	2.10E+01	2.10E+01	-1.01E+00	1.02E+01	
			228.18		10.70	4.77E+01		-1.46E+01	2.29E+01
			277.60		14.10	3.88E+01		3.05E+01	1.85E+01
		AM-241	59.54		35.90	3.08E-01	3.08E-01	-7.54E-03	1.50E-01
	AM-243	74.67		66.00	2.07E-01	2.07E-01	-7.29E-01	1.01E-01	
+	CM-243	209.75	*	3.29	3.91E+00	7.25E-01	3.05E+00	1.91E+00	
			228.14		10.60	7.77E-01		-2.37E-01	3.72E-01
			277.60	*	14.00	7.25E-01		5.09E-01	3.49E-01

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

Analysis Report for 1606067-03
CP-5030 05-10 QC

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

<i>Creation Date</i>	<i>Comment</i>	<i>User</i>
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No Data Review Comments Entered.

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: CP-5030 05-10 QC

Elapsed Live time: 3600

Elapsed Real Time: 3601

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	42	78	67	117	822	155
25:	56	56	54	62	51	56	69	47
33:	69	54	59	67	51	57	62	60
41:	69	61	58	57	65	70	116	122
49:	58	69	74	59	79	91	90	77
57:	82	74	83	102	96	101	99	197
65:	160	99	100	102	96	102	102	114
73:	88	126	204	321	215	470	198	102
81:	101	111	80	97	160	108	108	209
89:	155	111	164	88	199	269	126	94
97:	59	57	57	75	78	66	61	59
105:	61	72	69	52	65	78	45	52
113:	61	78	55	64	50	51	69	58
121:	52	50	44	52	50	59	67	60
129:	58	88	60	51	38	45	58	43
137:	46	62	62	59	56	43	51	68
145:	65	44	55	51	56	56	41	45
153:	36	51	63	53	49	45	66	44
161:	37	47	45	51	49	40	42	42
169:	42	48	43	46	51	39	37	43
177:	41	45	42	48	44	45	43	45
185:	49	89	172	64	55	42	33	48
193:	40	44	32	35	43	48	49	45
201:	56	31	34	45	43	37	45	39
209:	63	84	58	41	37	44	43	35
217:	27	34	45	37	37	28	42	40
225:	36	29	31	36	39	37	46	31
233:	35	35	35	45	37	65	389	386
241:	90	96	101	39	27	34	28	43
249:	26	39	30	17	28	18	30	20
257:	28	27	37	28	31	26	27	40
265:	27	37	20	28	34	33	53	43
273:	17	18	28	19	32	41	39	21
281:	15	24	20	24	23	20	23	17
289:	27	22	20	16	22	24	49	157
297:	74	26	16	36	46	29	27	24
305:	21	13	21	27	19	27	17	19
313:	29	15	22	24	18	18	14	20
321:	17	25	19	25	22	27	16	24
329:	47	23	21	23	27	23	18	20
337:	17	34	128	62	17	29	19	18
345:	15	20	21	23	20	22	23	139
353:	237	45	24	20	9	25	18	14
361:	15	16	15	20	16	17	21	11

369: 13 12 16 23 10 16 24 21

Sample Title: CP-5030 05-10 QC

Channel	1	2	3	4	5	6	7	8
377:	18	19	15	15	15	19	12	14
385:	14	16	13	18	13	29	14	20
393:	19	19	21	19	9	14	16	15
401:	12	12	16	24	9	14	16	11
409:	18	33	25	7	19	17	18	19
417:	11	12	13	15	13	14	16	16
425:	13	14	12	17	25	10	12	18
433:	21	13	9	12	16	12	16	7
441:	12	8	13	16	8	13	9	10
449:	14	16	10	15	14	12	18	14
457:	11	8	16	13	10	11	32	30
465:	16	14	8	11	14	8	8	8
473:	19	12	14	12	10	15	12	16
481:	16	15	14	11	6	10	7	10
489:	13	17	11	13	9	6	14	9
497:	14	12	12	10	6	11	11	14
505:	19	10	12	15	16	22	67	67
513:	41	11	8	13	10	10	10	10
521:	17	7	13	18	7	6	16	9
529:	9	7	11	16	5	12	13	10
537:	15	9	9	7	13	10	11	11
545:	6	12	14	14	10	9	10	9
553:	14	6	14	11	9	5	3	15
561:	13	11	14	13	16	11	12	13
569:	9	16	11	14	11	8	8	7
577:	8	10	12	12	23	20	72	138
585:	49	13	10	11	15	7	8	14
593:	10	3	8	9	12	7	12	9
601:	9	8	9	9	15	11	11	15
609:	48	152	68	25	7	15	12	6
617:	7	10	5	10	3	9	7	6
625:	8	8	8	9	9	5	8	7
633:	8	9	9	4	10	10	11	9
641:	13	12	8	6	12	9	3	8
649:	10	5	9	6	10	5	12	8
657:	14	10	7	8	8	7	7	8
665:	10	17	6	7	12	10	8	12
673:	7	7	10	9	11	7	15	8
681:	16	12	11	8	14	12	9	12
689:	10	7	6	5	11	9	15	11
697:	15	11	11	6	5	10	8	15
705:	9	9	11	9	8	7	11	12
713:	12	8	11	10	6	11	6	9
721:	13	6	12	10	12	9	21	48
729:	15	11	9	7	8	4	6	9
737:	11	11	10	10	7	12	11	8
745:	7	11	7	10	6	7	8	6
753:	6	12	8	8	8	7	8	3
761:	8	6	10	14	7	8	14	19
769:	20	13	11	6	12	13	9	8
777:	9	7	4	3	7	7	2	12
785:	8	10	11	3	7	7	8	5
793:	6	11	17	24	9	8	2	8

801: 7 12 10 4 4 7 4 6

Sample Title: CP-5030 05-10 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	6	9	9	5	4	5	7	4
817:	7	6	3	8	2	10	11	6
825:	3	5	10	7	4	9	8	10
833:	8	10	5	12	11	8	11	8
841:	6	8	1	3	7	6	6	5
849:	7	5	4	5	3	5	10	8
857:	8	6	3	12	24	22	8	6
865:	11	4	5	8	6	4	7	4
873:	8	3	1	4	5	4	5	6
881:	6	9	13	10	8	5	1	5
889:	7	8	5	4	5	6	1	7
897:	7	5	7	4	6	5	10	7
905:	13	6	7	5	6	12	35	100
913:	46	6	9	4	4	4	6	5
921:	7	5	4	7	3	6	3	8
929:	6	2	6	7	8	8	11	6
937:	3	1	3	4	4	5	5	6
945:	6	5	6	5	4	5	8	5
953:	3	5	5	6	10	2	2	8
961:	6	13	15	8	12	21	4	9
969:	41	66	18	10	3	2	4	7
977:	6	5	4	5	6	6	5	5
985:	1	5	7	3	8	2	6	9
993:	8	4	6	6	4	2	5	8
1001:	10	13	12	6	2	2	4	2
1009:	6	6	4	7	3	7	10	8
1017:	10	11	6	5	9	5	4	3
1025:	4	4	3	7	7	5	6	4
1033:	7	7	6	5	3	4	6	8
1041:	5	4	2	4	5	5	1	2
1049:	7	2	5	8	3	4	8	4
1057:	7	6	8	5	4	6	5	5
1065:	1	9	4	8	6	6	8	10
1073:	1	4	12	8	9	6	5	6
1081:	7	9	3	3	5	7	8	9
1089:	7	3	0	8	10	7	5	8
1097:	5	3	3	6	6	6	3	4
1105:	6	4	5	4	3	4	9	11
1113:	5	8	6	5	5	6	4	22
1121:	31	19	13	4	5	6	7	5
1129:	8	4	6	3	10	5	9	4
1137:	3	8	2	6	10	9	4	7
1145:	5	4	6	4	5	9	5	5
1153:	3	8	8	12	6	9	8	8
1161:	5	4	5	9	6	4	6	5
1169:	7	4	6	9	4	8	3	5
1177:	6	2	4	5	7	10	5	5
1185:	9	5	4	10	4	7	5	6
1193:	6	6	2	3	3	12	8	5
1201:	4	7	4	9	9	9	6	8
1209:	6	7	8	8	6	10	4	6
1217:	8	5	8	9	7	11	7	7
1225:	11	6	9	7	10	8	4	6

1233: 7 8 6 11 11 18 17 7

Sample Title: CP-5030 05-10 QC

Channel	1	2	3	4	5	6	7	8	9
1241:	10	4	3	5	4	10	6	3	
1249:	5	4	7	2	6	7	6	9	
1257:	6	7	6	5	6	3	5	3	
1265:	3	8	6	5	4	8	12	6	
1273:	3	7	4	3	1	6	7	1	
1281:	5	9	4	1	4	3	6	7	
1289:	5	4	4	3	5	6	4	5	
1297:	7	3	2	4	3	4	6	9	
1305:	5	4	5	6	3	2	5	5	
1313:	4	3	5	5	5	5	3	1	
1321:	2	5	3	3	2	5	5	4	
1329:	4	1	6	2	7	2	8	4	
1337:	2	1	3	3	3	2	1	3	
1345:	3	1	4	3	1	1	1	2	
1353:	3	2	5	4	1	3	2	1	
1361:	6	0	1	2	1	1	1	1	
1369:	3	3	3	1	3	2	1	2	
1377:	2	12	3	6	4	4	1	2	
1385:	2	0	2	3	1	2	2	0	
1393:	2	5	1	2	2	3	1	2	
1401:	3	6	2	5	2	2	3	8	
1409:	4	4	4	1	6	1	2	1	
1417:	1	4	1	0	3	2	2	2	
1425:	3	2	1	2	4	3	0	2	
1433:	5	4	1	0	2	3	2	3	
1441:	1	2	3	2	4	2	1	3	
1449:	2	1	4	2	0	3	5	3	
1457:	2	1	8	86	223	225	61	17	
1465:	4	4	2	4	1	2	2	1	
1473:	4	0	2	4	2	1	1	1	
1481:	0	1	1	0	0	2	2	1	
1489:	1	2	0	0	2	4	1	2	
1497:	3	2	2	5	0	0	2	4	
1505:	1	2	0	3	2	3	4	0	
1513:	2	3	2	6	3	3	0	1	
1521:	2	0	0	1	1	2	0	0	
1529:	1	2	3	0	0	1	2	5	
1537:	1	2	2	0	0	0	4	1	
1545:	2	5	0	1	3	1	0	1	
1553:	0	0	0	0	2	2	1	0	
1561:	2	1	2	2	1	2	3	2	
1569:	1	3	0	4	2	1	2	2	
1577:	1	1	0	4	4	2	2	0	
1585:	2	2	4	6	8	4	0	3	
1593:	6	4	3	3	1	1	1	0	
1601:	1	0	1	0	1	1	0	0	
1609:	0	2	1	2	1	1	2	2	
1617:	0	1	2	0	5	1	3	0	
1625:	1	1	0	1	0	1	5	5	
1633:	1	0	0	0	3	1	2	2	
1641:	1	3	0	2	4	0	1	3	
1649:	2	0	0	2	1	1	2	2	
1657:	2	3	1	0	1	0	3	2	

1665: 1 0 0 0 2 1 0 3

Sample Title: CP-5030 05-10 QC

Channel	1	2	3	4	5	6	7	8
1673:	1	1	0	2	0	1	0	2
1681:	3	0	1	0	0	3	1	0
1689:	0	1	3	1	2	3	0	4
1697:	1	2	1	0	0	2	2	1
1705:	0	2	1	0	1	0	2	3
1713:	1	2	0	0	2	1	2	1
1721:	1	0	2	0	1	0	3	3
1729:	2	3	3	1	2	1	1	1
1737:	1	1	1	3	0	1	0	0
1745:	0	0	0	1	0	0	0	0
1753:	1	1	2	0	2	1	1	2
1761:	1	1	1	16	14	15	4	2
1769:	0	1	2	2	2	0	0	1
1777:	0	1	3	1	4	0	2	2
1785:	1	1	0	0	0	2	0	0
1793:	0	1	3	1	2	1	1	0
1801:	2	1	0	2	0	1	0	1
1809:	1	1	2	1	1	2	0	2
1817:	1	0	0	0	0	0	0	2
1825:	1	0	0	1	0	2	0	0
1833:	2	1	1	1	3	0	4	0
1841:	0	1	1	1	2	3	0	3
1849:	0	1	2	1	0	0	1	1
1857:	0	0	1	1	0	2	0	1
1865:	0	0	1	1	0	0	0	3
1873:	2	3	1	0	1	0	2	0
1881:	1	2	1	5	2	1	1	1
1889:	1	0	2	0	0	1	0	0
1897:	3	2	3	0	2	1	1	1
1905:	0	0	0	1	0	1	0	1
1913:	0	1	1	1	3	0	0	0
1921:	0	1	0	2	1	0	0	2
1929:	2	2	1	1	0	2	0	1
1937:	0	1	0	2	2	1	1	0
1945:	2	1	0	0	0	1	2	1
1953:	2	2	1	0	0	1	1	1
1961:	1	2	0	1	2	0	4	2
1969:	0	0	1	2	1	2	1	0
1977:	1	0	1	0	2	1	0	0
1985:	1	1	0	0	0	0	0	1
1993:	0	1	0	4	0	1	0	0
2001:	2	1	2	0	0	0	3	0
2009:	0	0	1	0	1	0	2	0
2017:	1	0	2	1	0	2	1	0
2025:	0	0	0	1	0	0	1	1
2033:	0	4	1	2	2	0	1	1
2041:	2	1	0	0	1	0	1	1
2049:	0	1	0	1	2	1	0	1
2057:	0	0	2	0	0	0	1	1
2065:	2	2	0	2	0	0	0	2
2073:	1	2	0	0	1	3	0	1
2081:	0	1	1	1	1	0	0	0
2089:	0	0	0	1	2	0	0	0

2097: 2 0 0 0 0 2 2 3

Sample Title: CP-5030 05-10 QC

Channel	1	2	3	0	3	0	0	1
2105:	1	2	3	0	3	0	0	1
2113:	0	0	0	1	0	0	2	1
2121:	0	0	1	1	1	1	0	0
2129:	1	0	2	0	0	1	0	1
2137:	1	3	1	2	2	1	3	3
2145:	0	0	0	0	3	2	1	0
2153:	0	1	1	1	1	1	1	1
2161:	0	0	0	1	1	0	0	1
2169:	2	0	3	1	0	1	2	0
2177:	1	1	0	1	1	0	2	1
2185:	1	1	0	0	1	0	3	1
2193:	0	0	1	2	2	0	0	1
2201:	0	0	2	3	8	2	0	2
2209:	1	1	0	0	1	1	0	0
2217:	1	1	0	0	0	0	0	3
2225:	4	0	2	1	0	0	0	0
2233:	0	2	0	1	1	0	0	2
2241:	2	0	1	0	0	2	1	0
2249:	1	2	0	1	1	1	0	0
2257:	3	2	0	0	0	0	0	0
2265:	0	1	2	1	1	3	2	3
2273:	4	1	1	1	0	1	1	0
2281:	1	1	1	2	0	0	0	0
2289:	0	2	0	1	0	0	2	0
2297:	2	1	0	1	2	1	0	0
2305:	0	1	0	0	2	2	0	2
2313:	1	1	2	1	2	0	0	0
2321:	1	1	0	1	3	1	0	0
2329:	2	1	0	1	3	3	2	1
2337:	1	0	2	1	2	0	2	2
2345:	1	2	1	0	0	1	0	0
2353:	1	0	0	0	1	1	0	1
2361:	0	1	0	2	0	0	0	0
2369:	2	1	2	2	1	2	0	1
2377:	1	2	1	2	1	2	1	0
2385:	0	0	0	2	0	0	2	1
2393:	1	0	1	3	1	3	1	1
2401:	3	0	1	0	0	0	0	2
2409:	0	0	0	0	0	1	1	0
2417:	1	1	1	1	1	0	0	1
2425:	4	2	0	0	1	3	1	0
2433:	1	0	1	1	0	0	0	0
2441:	1	1	0	1	1	0	0	2
2449:	2	0	1	0	0	0	0	1
2457:	1	1	0	1	1	0	0	1
2465:	1	1	0	0	0	1	0	0
2473:	0	0	0	0	1	1	1	0
2481:	1	0	1	0	0	0	1	0
2489:	1	1	1	0	0	0	0	1
2497:	1	1	0	0	0	0	1	0
2505:	0	0	0	0	1	2	0	1
2513:	0	0	0	0	0	1	1	1
2521:	0	0	0	0	0	1	1	1

2529: 0 0 0 0 1 0 1 0

Sample Title: CP-5030 05-10 QC

Channel	1	2	3	4	5	6	7	8	9
2537:	0	1	0	1	1	2	0	0	
2545:	0	0	0	1	1	0	2	0	
2553:	0	0	0	0	1	0	0	0	
2561:	1	0	0	0	0	0	0	1	
2569:	0	0	0	1	0	0	0	0	
2577:	0	2	1	0	1	0	0	0	
2585:	0	0	0	0	0	0	0	0	
2593:	0	1	0	0	0	0	1	0	
2601:	1	0	1	0	0	1	1	1	
2609:	0	1	1	2	3	17	25	17	
2617:	4	0	1	0	0	0	0	0	
2625:	0	0	0	0	1	0	0	0	
2633:	0	0	0	0	0	1	0	0	
2641:	0	1	0	0	0	1	0	0	
2649:	1	0	0	0	0	0	1	0	
2657:	1	0	0	0	1	0	0	1	
2665:	0	1	0	0	0	1	0	0	
2673:	1	2	0	0	1	0	0	0	
2681:	1	0	0	0	0	1	0	0	
2689:	0	0	0	0	0	0	1	0	
2697:	0	0	0	0	1	0	0	2	
2705:	0	0	0	0	0	0	0	0	
2713:	1	0	0	0	2	0	1	0	
2721:	0	0	0	0	1	0	0	0	
2729:	0	0	0	0	0	0	0	0	
2737:	0	0	0	0	0	0	1	0	
2745:	0	1	0	0	0	1	0	0	
2753:	0	0	0	0	0	0	0	0	
2761:	0	0	1	0	0	0	0	0	
2769:	0	0	1	1	0	0	0	0	
2777:	0	1	0	1	0	0	0	0	
2785:	0	0	1	0	0	0	0	0	
2793:	0	1	0	1	0	1	2	0	
2801:	1	0	0	0	0	0	0	0	
2809:	0	0	0	0	0	0	1	0	
2817:	0	1	0	1	0	1	0	0	
2825:	0	1	1	0	0	0	1	0	
2833:	0	0	0	0	0	0	0	0	
2841:	1	0	2	1	0	0	0	0	
2849:	0	0	0	0	0	1	0	0	
2857:	2	0	0	0	0	0	0	0	
2865:	0	1	0	0	0	0	0	0	
2873:	0	1	1	0	0	0	0	0	
2881:	1	0	0	0	0	0	1	0	
2889:	0	1	0	0	0	0	2	0	
2897:	0	0	1	0	0	1	0	0	
2905:	0	1	0	1	0	0	0	0	
2913:	0	0	1	0	0	0	0	0	
2921:	0	1	0	0	0	0	1	0	
2929:	0	1	0	1	0	0	0	0	
2937:	0	0	1	0	0	1	2	0	
2945:	1	0	0	0	1	0	1	0	
2953:	0	0	0	0	0	0	0	0	

2961: 0 0 1 0 0 1 0 0

Sample Title: CP-5030 05-10 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2969:	0	0	1	0	1	0	1	0
2977:	0	0	0	0	0	0	0	0
2985:	0	0	1	0	0	0	0	0
2993:	0	0	0	0	0	0	1	1
3001:	0	0	0	0	0	0	0	0
3009:	1	1	0	0	0	0	0	0
3017:	0	0	0	0	0	0	0	0
3025:	0	0	0	0	0	0	0	1
3033:	0	0	1	0	0	0	0	0
3041:	1	0	0	0	1	0	1	0
3049:	1	0	0	0	0	2	0	1
3057:	1	0	0	0	0	0	0	0
3065:	0	0	0	1	0	0	0	0
3073:	0	0	0	0	0	0	0	0
3081:	1	2	0	0	0	0	0	0
3089:	1	1	0	1	0	0	0	0
3097:	0	0	1	0	0	0	0	0
3105:	0	1	0	0	0	0	1	0
3113:	0	0	0	0	0	1	0	1
3121:	0	0	0	1	0	2	0	0
3129:	0	0	1	0	0	0	0	0
3137:	0	0	0	0	0	0	1	0
3145:	1	0	0	1	0	0	0	1
3153:	0	0	0	1	0	1	0	0
3161:	1	0	1	0	0	0	0	0
3169:	0	0	0	0	0	0	0	0
3177:	0	0	0	0	0	0	0	0
3185:	0	1	0	0	0	0	0	2
3193:	0	0	0	0	0	1	1	0
3201:	0	0	1	0	0	0	1	0
3209:	1	0	0	0	0	0	0	0
3217:	0	0	0	0	0	0	0	0
3225:	0	0	0	0	1	0	0	0
3233:	0	1	1	0	0	1	0	0
3241:	2	0	1	0	0	0	0	0
3249:	0	1	0	0	0	0	1	1
3257:	0	0	0	0	0	0	0	0
3265:	0	0	0	0	0	0	0	0
3273:	0	0	1	0	0	0	0	1
3281:	0	0	0	0	0	0	0	0
3289:	0	0	0	0	0	0	0	0
3297:	1	0	1	0	1	0	0	0
3305:	0	0	0	0	0	1	0	0
3313:	0	0	0	0	0	0	0	0
3321:	1	1	0	0	0	0	0	0
3329:	0	0	0	0	0	0	1	0
3337:	0	0	1	0	0	0	1	0
3345:	0	0	0	0	0	0	0	1
3353:	0	0	0	0	1	0	0	0
3361:	0	0	0	1	0	0	0	0
3369:	0	0	0	0	0	0	0	0
3377:	0	0	0	0	0	0	0	0
3385:	0	1	0	0	2	0	0	0

3393: 0 0 0 0 0 0 0 1 0

Sample Title: CP-5030 05-10 QC

Channel	1	2	3	4	5	6	7	8	9
3401:	0	1	1	1	0	0	0	0	0
3409:	1	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0	0
3425:	1	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0	0
3441:	0	1	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0	0
3457:	0	0	0	2	1	0	0	0	0
3465:	0	0	0	0	0	0	0	0	0
3473:	0	0	0	1	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0	1
3489:	0	0	1	0	0	0	0	0	0
3497:	0	0	1	0	0	0	0	0	0
3505:	0	0	0	0	0	0	0	0	0
3513:	0	0	0	0	0	0	0	0	0
3521:	0	0	0	0	0	0	0	0	0
3529:	0	0	0	0	0	0	0	0	0
3537:	0	0	0	0	1	0	0	0	0
3545:	0	0	0	0	0	0	0	0	0
3553:	0	0	0	0	0	0	0	0	0
3561:	1	0	0	0	0	0	2	0	0
3569:	0	0	0	0	0	0	0	0	0
3577:	0	0	0	0	0	1	0	0	0
3585:	0	1	0	0	0	0	1	0	0
3593:	0	0	0	0	0	0	0	0	0
3601:	0	0	0	0	0	1	0	0	0
3609:	0	0	0	0	0	1	0	0	0
3617:	0	0	0	0	0	0	0	0	0
3625:	0	0	0	0	0	0	0	0	0
3633:	0	0	0	0	0	0	0	0	0
3641:	1	0	0	0	0	1	0	0	0
3649:	0	0	0	1	0	0	0	0	0
3657:	0	0	0	0	0	0	0	0	0
3665:	0	0	0	0	0	0	1	0	0
3673:	0	0	0	0	0	0	0	0	0
3681:	0	0	0	0	0	0	0	0	0
3689:	1	0	0	0	0	0	0	0	0
3697:	0	0	0	1	0	0	0	0	0
3705:	0	0	0	0	0	0	0	0	0
3713:	0	0	1	0	0	0	0	0	1
3721:	0	0	0	0	1	0	0	0	0
3729:	0	0	0	0	0	0	0	0	0
3737:	0	0	0	0	0	0	0	0	0
3745:	0	0	0	0	0	0	0	0	0
3753:	0	1	0	0	0	0	0	0	0
3761:	0	0	0	0	0	0	0	0	0
3769:	0	0	0	0	0	0	1	0	0
3777:	0	0	0	1	0	2	1	0	0
3785:	0	0	0	1	0	0	1	0	0
3793:	1	0	0	0	0	0	0	0	0
3801:	0	0	0	2	0	1	0	0	0
3809:	0	0	0	0	0	0	0	0	0
3817:	0	0	0	1	0	0	0	0	0

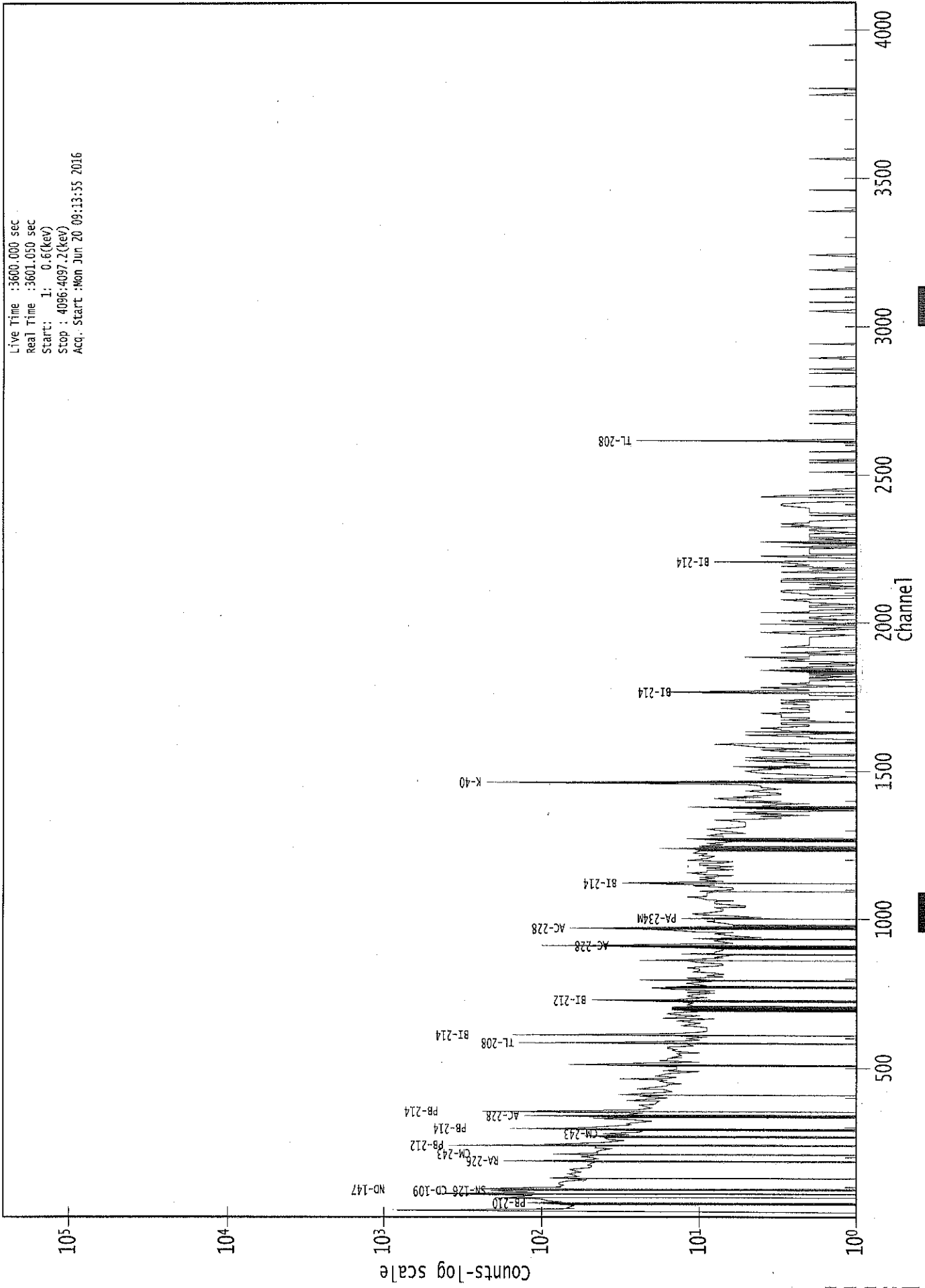
3825: 0 0 0 0 0 1 0 0

Sample Title: CP-5030 05-10 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	1
3849:	0	0	0	0	1	0	0	0
3857:	0	0	0	0	1	0	0	0
3865:	0	0	0	0	1	1	0	0
3873:	0	0	0	0	0	1	0	0
3881:	0	0	0	0	0	1	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	1	0	0
3921:	0	1	0	0	0	0	1	0
3929:	0	0	0	0	0	0	0	0
3937:	0	0	0	0	0	0	0	1
3945:	0	0	0	0	2	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	1	0	1	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	0	1	1	0	0
3993:	0	0	0	0	1	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	1	0	0	0	0	0
4017:	0	0	0	0	0	0	0	0
4025:	0	0	0	0	1	0	0	1
4033:	0	0	0	0	1	0	0	0
4041:	0	0	0	1	0	0	0	0
4049:	0	0	0	1	0	0	0	0
4057:	0	0	1	0	0	0	0	0
4065:	0	0	0	1	0	0	0	0
4073:	0	0	1	0	0	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000039145.CNF

Live Time :3600.000 sec
Real Time :3601.050 sec
Start : 1: 0.6(keV)
Stop : 4096.4097.2(keV)
Acq. Start :Mon Jun 20 09:13:55 2016



KAP
6/20/16Analysis Report for 1606067-04
CP-5030 05-10 QC

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606067-04
Sample Description : CP-5030 05-10 QC
Sample Type : SOIL

Sample Size : 2.938E+02 grams
Facility : Countroom

Sample Taken On : 6/6/2016 9:10:54AM
Acquisition Started : 6/20/2016 10:16:13AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE1
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.1 seconds

Dead Time : 0.03 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 19 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 10/25/2014
Efficiency Calibration Used Done On : 10/25/2014
Efficiency Calibration Description :

Sample Number : 39150

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/20/16

Analysis Report for 1606067-04
CP-5030 05-10 QC

PEAK LOCATE REPORT

Peak Locate Performed on : 6/20/2016 11:16:20AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	47.08	47.43	0.0000	0.00
2	76.76	77.10	0.0000	0.00
3	87.80	88.13	0.0000	0.00
4	90.80	91.14	0.0000	0.00
5	106.32	106.65	0.0000	0.00
6	129.68	130.00	0.0000	0.00
7	164.32	164.63	0.0000	0.00
8	186.79	187.10	0.0000	0.00
9	209.77	210.06	0.0000	0.00
10	239.15	239.44	0.0000	0.00
11	242.23	242.52	0.0000	0.00
12	270.43	270.70	0.0000	0.00
13	295.80	296.07	0.0000	0.00
14	300.79	301.06	0.0000	0.00
15	317.79	318.05	0.0000	0.00
16	338.87	339.12	0.0000	0.00
17	352.35	352.60	0.0000	0.00
18	410.23	410.46	0.0000	0.00
19	463.18	463.39	0.0000	0.00
20	508.17	508.36	0.0000	0.00
21	511.51	511.70	0.0000	0.00
22	583.96	584.13	0.0000	0.00
23	609.97	610.13	0.0000	0.00
24	691.77	691.90	0.0000	0.00
25	727.34	727.45	0.0000	0.00
26	805.10	805.20	0.0000	0.00
27	861.54	861.61	0.0000	0.00
28	911.83	911.89	0.0000	0.00
29	965.16	965.20	0.0000	0.00
30	969.77	969.80	0.0000	0.00
31	1000.53	1000.55	0.0000	0.00
32	1069.20	1069.19	0.0000	0.00
33	1121.29	1121.27	0.0000	0.00
34	1219.76	1219.71	0.0000	0.00
35	1229.29	1229.23	0.0000	0.00
36	1239.10	1239.04	0.0000	0.00
37	1348.23	1348.13	0.0000	0.00
38	1461.58	1461.44	0.0000	0.00
39	1504.08	1503.93	0.0000	0.00
40	1544.95	1544.78	0.0000	0.00
41	1549.71	1549.53	0.0000	0.00
42	1631.24	1631.04	0.0000	0.00

Analysis Report for 1606067-04
CP-5030 05-10 QC

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1698.44	1698.21	0.0000	0.00
44	1765.17	1764.91	0.0000	0.00
45	1804.51	1804.24	0.0000	0.00
46	1813.72	1813.44	0.0000	0.00
47	1878.66	1878.36	0.0000	0.00
48	2016.31	2015.96	0.0000	0.00
49	2104.02	2103.64	0.0000	0.00
50	2139.41	2139.01	0.0000	0.00
51	2142.54	2142.14	0.0000	0.00
52	2204.87	2204.45	0.0000	0.00
53	2435.35	2434.83	0.0000	0.00
54	2446.27	2445.75	0.0000	0.00
55	2615.24	2614.65	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

20347A
6/21/16

Analysis Report for 1606067-04

CP-5030 05-10 QC

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 11:16:20AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	47.08	45 -	50	47.43	1.12E+02	65.83	7.81E+02	1.76
	2	76.76	73 -	81	77.10	9.19E+02	124.20	1.80E+03	2.91
m	3	87.80	83 -	98	88.13	2.20E+02	59.23	6.89E+02	1.48
m	4	90.80	83 -	98	91.14	1.60E+02	57.41	6.41E+02	1.49
	5	106.32	103 -	110	106.65	7.65E+01	75.07	8.89E+02	1.19
	6	129.68	127 -	133	130.00	8.72E+01	65.07	7.12E+02	1.96
	7	164.32	161 -	168	164.63	9.27E+01	61.71	5.67E+02	5.03
	8	186.79	183 -	192	187.10	2.18E+02	80.30	7.88E+02	1.49
	9	209.77	207 -	213	210.06	8.27E+01	55.97	5.07E+02	1.29
M	10	239.15	235 -	247	239.44	8.11E+02	67.31	3.07E+02	1.80
m	11	242.23	235 -	247	242.52	1.42E+02	73.51	3.35E+02	2.04
	12	270.43	266 -	275	270.70	8.98E+01	61.60	4.92E+02	1.92
M	13	295.80	290 -	311	296.07	2.43E+02	42.04	1.84E+02	1.56
m	14	300.79	290 -	311	301.06	6.72E+01	38.09	2.01E+02	2.11
	15	317.79	315 -	321	318.05	3.36E+01	36.38	2.15E+02	2.74
	16	338.87	335 -	343	339.12	1.94E+02	55.09	3.49E+02	1.50
	17	352.35	348 -	357	352.60	3.78E+02	61.25	3.21E+02	1.86
	18	410.23	408 -	413	410.46	2.51E+01	30.82	1.64E+02	1.54
	19	463.18	459 -	467	463.39	6.55E+01	41.23	2.23E+02	1.63
M	20	508.17	506 -	520	508.36	2.74E+01	17.32	5.39E+01	2.10
m	21	511.51	506 -	520	511.70	1.34E+02	33.17	9.62E+01	2.10
	22	583.96	580 -	588	584.13	2.50E+02	48.08	2.00E+02	1.42
	23	609.97	606 -	614	610.13	2.87E+02	45.30	1.37E+02	1.76
	24	691.77	689 -	694	691.90	1.93E+01	23.30	9.34E+01	2.75
	25	727.34	724 -	732	727.45	6.82E+01	33.15	1.30E+02	2.12
	26	805.10	801 -	808	805.20	2.33E+01	25.69	9.14E+01	1.64
	27	861.54	858 -	869	861.61	5.60E+01	34.64	1.28E+02	2.59
	28	911.83	908 -	915	911.89	1.64E+02	34.06	8.42E+01	2.03
M	29	965.16	961 -	974	965.20	3.24E+01	22.64	7.67E+01	2.18
m	30	969.77	961 -	974	969.80	1.20E+02	26.36	4.49E+01	1.82
	31	1000.53	997 -	1005	1000.55	1.67E+01	21.90	6.45E+01	2.38
	32	1069.20	1065 -	1074	1069.19	2.39E+01	26.25	8.43E+01	4.57
	33	1121.29	1117 -	1127	1121.27	4.82E+01	34.44	1.34E+02	2.23
	34	1219.76	1216 -	1225	1219.71	3.32E+01	25.02	7.15E+01	3.60
	35	1229.29	1225 -	1234	1229.23	3.02E+01	26.78	8.55E+01	5.49
	36	1239.10	1235 -	1242	1239.04	4.49E+01	25.22	7.62E+01	1.46
	37	1348.23	1343 -	1353	1348.13	2.56E+01	17.53	2.69E+01	6.53
	38	1461.58	1456 -	1467	1461.44	6.78E+02	55.24	4.45E+01	2.22
	39	1504.08	1493 -	1517	1503.93	4.18E+01	26.70	3.84E+01	22.47
M	40	1544.95	1543 -	1553	1544.78	8.87E+00	4.72	3.16E-01	2.41

Analysis Report for 1606067-04

CP-5030 05-10 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	1549.71	1543 -	1553	1549.53	8.04E+00	9.60	6.47E+00	3.59
	42	1631.24	1628 -	1634	1631.04	1.25E+01	9.41	7.00E+00	1.89
	43	1698.44	1696 -	1700	1698.21	5.93E+00	5.85	2.14E+00	2.53
	44	1765.17	1759 -	1768	1764.91	4.51E+01	14.73	5.77E+00	2.88
	45	1804.51	1801 -	1806	1804.24	6.50E+00	6.40	3.00E+00	1.37
	46	1813.72	1810 -	1816	1813.44	5.36E+00	6.34	3.29E+00	1.89
	47	1878.66	1875 -	1881	1878.36	5.36E+00	6.34	3.29E+00	3.30
	48	2016.31	2012 -	2020	2015.96	1.06E+01	8.50	4.85E+00	3.67
	49	2104.02	2101 -	2106	2103.64	7.67E+00	8.66	8.67E+00	1.78
M	50	2139.41	2137 -	2144	2139.01	5.68E+00	5.34	7.64E+00	3.56
m	51	2142.54	2137 -	2144	2142.14	9.70E+00	6.36	2.91E+00	2.91
	52	2204.87	2200 -	2209	2204.45	1.13E+01	12.29	1.54E+01	3.10
	53	2435.35	2432 -	2437	2434.83	5.00E+00	7.07	6.00E+00	1.13
	54	2446.27	2441 -	2449	2445.75	9.92E+00	8.26	4.17E+00	1.84
	55	2615.24	2611 -	2620	2614.65	9.50E+01	19.49	0.00E+00	3.10

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 11:16:20AM

Peak Analysis From Channel : 1
Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	47.08	45 -	50	1.12E+02	65.83	7.81E+02	5.12E+01
	2	76.76	73 -	81	9.19E+02	124.20	1.80E+03	8.91E+01
m	3	87.80	83 -	98	2.20E+02	59.23	6.89E+02	4.31E+01
m	4	90.80	83 -	98	1.60E+02	57.41	6.41E+02	4.16E+01
	5	106.32	103 -	110	7.65E+01	75.07	8.89E+02	6.00E+01
	6	129.68	127 -	133	8.72E+01	65.07	7.12E+02	5.12E+01
	7	164.32	161 -	168	9.27E+01	61.71	5.67E+02	4.82E+01
	8	186.79	183 -	192	2.18E+02	80.30	7.88E+02	3.31E+01
	9	209.77	207 -	213	8.27E+01	55.97	5.07E+02	4.35E+01
M	10	239.15	235 -	247	8.11E+02	67.31	3.07E+02	2.88E+01
m	11	242.23	235 -	247	1.42E+02	73.51	3.35E+02	3.01E+01
	12	270.43	266 -	275	8.98E+01	61.60	4.92E+02	4.82E+01
M	13	295.80	290 -	311	2.43E+02	42.04	1.84E+02	2.23E+01

: 00219

Analysis Report for 1606067-04

CP-5030 05-10 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	14	300.79	290 -	311	6.72E+01	38.09	2.01E+02	2.33E+01
	15	317.79	315 -	321	3.36E+01	36.38	2.15E+02	2.83E+01
	16	338.87	335 -	343	1.94E+02	55.09	3.49E+02	3.91E+01
	17	352.35	348 -	357	3.78E+02	61.25	3.21E+02	3.89E+01
	18	410.23	408 -	413	2.51E+01	30.82	1.64E+02	2.40E+01
	19	463.18	459 -	467	6.55E+01	41.23	2.23E+02	3.12E+01
M	20	508.17	506 -	520	2.74E+01	17.32	5.39E+01	1.21E+01
m	21	511.51	506 -	520	1.34E+02	33.17	9.62E+01	1.61E+01
	22	583.96	580 -	588	2.50E+02	48.08	2.00E+02	2.98E+01
	23	609.97	606 -	614	2.87E+02	45.30	1.37E+02	2.47E+01
	24	691.77	689 -	694	1.93E+01	23.30	9.34E+01	1.77E+01
	25	727.34	724 -	732	6.82E+01	33.15	1.30E+02	2.36E+01
	26	805.10	801 -	808	2.33E+01	25.69	9.14E+01	1.96E+01
	27	861.54	858 -	869	5.60E+01	34.64	1.28E+02	2.57E+01
	28	911.83	908 -	915	1.64E+02	34.06	8.42E+01	1.85E+01
M	29	965.16	961 -	974	3.24E+01	22.64	7.67E+01	1.44E+01
m	30	969.77	961 -	974	1.20E+02	26.36	4.49E+01	1.10E+01
	31	1000.53	997 -	1005	1.67E+01	21.90	6.45E+01	1.67E+01
	32	1069.20	1065 -	1074	2.39E+01	26.25	8.43E+01	2.00E+01
	33	1121.29	1117 -	1127	4.82E+01	34.44	1.34E+02	2.59E+01
	34	1219.76	1216 -	1225	3.32E+01	25.02	7.15E+01	1.83E+01
	35	1229.29	1225 -	1234	3.02E+01	26.78	8.55E+01	2.01E+01
	36	1239.10	1235 -	1242	4.49E+01	25.22	7.62E+01	1.76E+01
	37	1348.23	1343 -	1353	2.56E+01	17.53	2.69E+01	1.18E+01
	38	1461.58	1456 -	1467	6.78E+02	55.24	4.45E+01	1.52E+01
	39	1504.08	1493 -	1517	4.18E+01	26.70	3.84E+01	1.92E+01
M	40	1544.95	1543 -	1553	8.87E+00	4.72	3.16E-01	9.24E-01
m	41	1549.71	1543 -	1553	8.04E+00	9.60	6.47E+00	4.18E+00
	42	1631.24	1628 -	1634	1.25E+01	9.41	7.00E+00	5.10E+00
	43	1698.44	1696 -	1700	5.93E+00	5.85	2.14E+00	2.67E+00
	44	1765.17	1759 -	1768	4.51E+01	14.73	5.77E+00	4.97E+00
	45	1804.51	1801 -	1806	6.50E+00	6.40	3.00E+00	3.18E+00
	46	1813.72	1810 -	1816	5.36E+00	6.34	3.29E+00	3.57E+00
	47	1878.66	1875 -	1881	5.36E+00	6.34	3.29E+00	3.57E+00
	48	2016.31	2012 -	2020	1.06E+01	8.50	4.85E+00	4.50E+00
	49	2104.02	2101 -	2106	7.67E+00	8.66	8.67E+00	5.47E+00
M	50	2139.41	2137 -	2144	5.68E+00	5.34	7.64E+00	4.54E+00
m	51	2142.54	2137 -	2144	9.70E+00	6.36	2.91E+00	2.80E+00
	52	2204.87	2200 -	2209	1.13E+01	12.29	1.54E+01	8.46E+00
	53	2435.35	2432 -	2437	5.00E+00	7.07	6.00E+00	4.50E+00
	54	2446.27	2441 -	2449	9.92E+00	8.26	4.17E+00	4.39E+00
	55	2615.24	2611 -	2620	9.50E+01	19.49	0.00E+00	0.00E+00

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

Analysis Report for 1606067-04

CP-5030 05-10 QC

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/20/2016 11:16:20AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	47.08	45 - 50	47.43	1.12E+02	65.83	7.81E+02	PB-210
	2	76.76	73 - 81	77.10	9.19E+02	124.20	1.80E+03	.....
m	3	87.80	83 - 98	88.13	2.20E+02	59.23	6.89E+02	SN-126 CD-109 LU-176
m	4	90.80	83 - 98	91.14	1.60E+02	57.41	6.41E+02	ND-147
	5	106.32	103 - 110	106.65	7.65E+01	75.07	8.89E+02	NP-239
	6	129.68	127 - 133	130.00	8.72E+01	65.07	7.12E+02	.....
	7	164.32	161 - 168	164.63	9.27E+01	61.71	5.67E+02	CS-136 U-235
	8	186.79	183 - 192	187.10	2.18E+02	80.30	7.88E+02	RA-226
	9	209.77	207 - 213	210.06	8.27E+01	55.97	5.07E+02	CM-243 GA-67
M	10	239.15	235 - 247	239.44	8.11E+02	67.31	3.07E+02	PB-212
m	11	242.23	235 - 247	242.52	1.42E+02	73.51	3.35E+02	.....
	12	270.43	266 - 275	270.70	8.98E+01	61.60	4.92E+02	.....
M	13	295.80	290 - 311	296.07	2.43E+02	42.04	1.84E+02	PB-214
m	14	300.79	290 - 311	301.06	6.72E+01	38.09	2.01E+02	GA-67 PB-212 BI-210M
	15	317.79	315 - 321	318.05	3.36E+01	36.38	2.15E+02	.....
	16	338.87	335 - 343	339.12	1.94E+02	55.09	3.49E+02	AC-228
	17	352.35	348 - 357	352.60	3.78E+02	61.25	3.21E+02	PB-214
	18	410.23	408 - 413	410.46	2.51E+01	30.82	1.64E+02	HO-166M
	19	463.18	459 - 467	463.39	6.55E+01	41.23	2.23E+02	SB-125
M	20	508.17	506 - 520	508.36	2.74E+01	17.32	5.39E+01	.....
m	21	511.51	506 - 520	511.70	1.34E+02	33.17	9.62E+01	.....
	22	583.96	580 - 588	584.13	2.50E+02	48.08	2.00E+02	TL-208
	23	609.97	606 - 614	610.13	2.87E+02	45.30	1.37E+02	BI-214
	24	691.77	689 - 694	691.90	1.93E+01	23.30	9.34E+01	.....
	25	727.34	724 - 732	727.45	6.82E+01	33.15	1.30E+02	BI-212
	26	805.10	801 - 808	805.20	2.33E+01	25.69	9.14E+01	.....
	27	861.54	858 - 869	861.61	5.60E+01	34.64	1.28E+02	.....
	28	911.83	908 - 915	911.89	1.64E+02	34.06	8.42E+01	LU-172 AC-228
M	29	965.16	961 - 974	965.20	3.24E+01	22.64	7.67E+01	.....
m	30	969.77	961 - 974	969.80	1.20E+02	26.36	4.49E+01	AC-228
	31	1000.53	997 - 1005	1000.55	1.67E+01	21.90	6.45E+01	PA-234M

Analysis Report for 1606067-04

CP-5030 05-10 QC

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
32	1069.20	1065 -	1074	1069.19	2.39E+01	26.25	8.43E+01	.....
33	1121.29	1117 -	1127	1121.27	4.82E+01	34.44	1.34E+02	TA-182 SC-46
34	1219.76	1216 -	1225	1219.71	3.32E+01	25.02	7.15E+01	.....
35	1229.29	1225 -	1234	1229.23	3.02E+01	26.78	8.55E+01	.....
36	1239.10	1235 -	1242	1239.04	4.49E+01	25.22	7.62E+01	CO-56
37	1348.23	1343 -	1353	1348.13	2.56E+01	17.53	2.69E+01	.....
38	1461.58	1456 -	1467	1461.44	6.78E+02	55.24	4.45E+01	K-40
39	1504.08	1493 -	1517	1503.93	4.18E+01	26.70	3.84E+01	.....
M 40	1544.95	1543 -	1553	1544.78	8.87E+00	4.72	3.16E-01	.....
m 41	1549.71	1543 -	1553	1549.53	8.04E+00	9.60	6.47E+00	.....
42	1631.24	1628 -	1634	1631.04	1.25E+01	9.41	7.00E+00	.....
43	1698.44	1696 -	1700	1698.21	5.93E+00	5.85	2.14E+00	.....
44	1765.17	1759 -	1768	1764.91	4.51E+01	14.73	5.77E+00	BI-214
45	1804.51	1801 -	1806	1804.24	6.50E+00	6.40	3.00E+00	.....
46	1813.72	1810 -	1816	1813.44	5.36E+00	6.34	3.29E+00	.....
47	1878.66	1875 -	1881	1878.36	5.36E+00	6.34	3.29E+00	.....
48	2016.31	2012 -	2020	2015.96	1.06E+01	8.50	4.85E+00	.....
49	2104.02	2101 -	2106	2103.64	7.67E+00	8.66	8.67E+00	.....
M 50	2139.41	2137 -	2144	2139.01	5.68E+00	5.34	7.64E+00	.....
m 51	2142.54	2137 -	2144	2142.14	9.70E+00	6.36	2.91E+00	.....
52	2204.87	2200 -	2209	2204.45	1.13E+01	12.29	1.54E+01	BI-214
53	2435.35	2432 -	2437	2434.83	5.00E+00	7.07	6.00E+00	.....
54	2446.27	2441 -	2449	2445.75	9.92E+00	8.26	4.17E+00	.....
55	2615.24	2611 -	2620	2614.65	9.50E+01	19.49	0.00E+00	TL-208

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/20/2016 11:16:20AM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	47.08	1.12E+02	65.83	1.72E-02	1.78E-03
2	76.76	9.19E+02	124.20	2.77E-02	2.36E-03
m 3	87.80	2.20E+02	59.23	2.85E-02	2.73E-03
m 4	90.80	1.60E+02	57.41	2.86E-02	2.69E-03
5	106.32	7.65E+01	75.07	2.82E-02	2.38E-03

: 00352

Analysis Report for 1606067-04

CP-5030 05-10 QC

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	6	129.68	8.72E+01	65.07	2.67E-02	2.09E-03
	7	164.32	9.27E+01	61.71	2.40E-02	2.17E-03
	8	186.79	2.18E+02	80.30	2.23E-02	2.02E-03
	9	209.77	8.27E+01	55.97	2.08E-02	1.85E-03
M	10	239.15	8.11E+02	67.31	1.92E-02	1.63E-03
m	11	242.23	1.42E+02	73.51	1.90E-02	1.61E-03
	12	270.43	8.98E+01	61.60	1.77E-02	1.40E-03
M	13	295.80	2.43E+02	42.04	1.67E-02	1.31E-03
m	14	300.79	6.72E+01	38.09	1.65E-02	1.30E-03
	15	317.79	3.36E+01	36.38	1.59E-02	1.26E-03
	16	338.87	1.94E+02	55.09	1.52E-02	1.22E-03
	17	352.35	3.78E+02	61.25	1.48E-02	1.19E-03
	18	410.23	2.51E+01	30.82	1.32E-02	1.09E-03
	19	463.18	6.55E+01	41.23	1.21E-02	1.04E-03
M	20	508.17	2.74E+01	17.32	1.13E-02	9.93E-04
m	21	511.51	1.34E+02	33.17	1.12E-02	9.90E-04
	22	583.96	2.50E+02	48.08	1.02E-02	9.15E-04
	23	609.97	2.87E+02	45.30	9.82E-03	8.88E-04
	24	691.77	1.93E+01	23.30	8.90E-03	8.07E-04
	25	727.34	6.82E+01	33.15	8.55E-03	7.75E-04
	26	805.10	2.33E+01	25.69	7.89E-03	7.06E-04
	27	861.54	5.60E+01	34.64	7.48E-03	6.55E-04
	28	911.83	1.64E+02	34.06	7.14E-03	6.15E-04
M	29	965.16	3.24E+01	22.64	6.83E-03	5.87E-04
m	30	969.77	1.20E+02	26.36	6.80E-03	5.85E-04
	31	1000.53	1.67E+01	21.90	6.63E-03	5.69E-04
	32	1069.20	2.39E+01	26.25	6.29E-03	5.33E-04
	33	1121.29	4.82E+01	34.44	6.06E-03	5.06E-04
	34	1219.76	3.32E+01	25.02	5.68E-03	4.71E-04
	35	1229.29	3.02E+01	26.78	5.65E-03	4.69E-04
	36	1239.10	4.49E+01	25.22	5.61E-03	4.68E-04
	37	1348.23	2.56E+01	17.53	5.27E-03	4.47E-04
	38	1461.58	6.78E+02	55.24	4.97E-03	4.19E-04
	39	1504.08	4.18E+01	26.70	4.87E-03	4.08E-04
M	40	1544.95	8.87E+00	4.72	4.78E-03	3.98E-04
m	41	1549.71	8.04E+00	9.60	4.77E-03	3.97E-04
	42	1631.24	1.25E+01	9.41	4.61E-03	3.77E-04
	43	1698.44	5.93E+00	5.85	4.50E-03	3.60E-04
	44	1765.17	4.51E+01	14.73	4.39E-03	3.43E-04
	45	1804.51	6.50E+00	6.40	4.34E-03	3.34E-04
	46	1813.72	5.36E+00	6.34	4.33E-03	3.31E-04
	47	1878.66	5.36E+00	6.34	4.24E-03	3.26E-04
	48	2016.31	1.06E+01	8.50	4.10E-03	3.26E-04
	49	2104.02	7.67E+00	8.66	4.02E-03	3.26E-04
M	50	2139.41	5.68E+00	5.34	3.99E-03	3.26E-04
m	51	2142.54	9.70E+00	6.36	3.99E-03	3.26E-04
	52	2204.87	1.13E+01	12.29	3.95E-03	3.26E-04
	53	2435.35	5.00E+00	7.07	3.84E-03	3.26E-04
	54	2446.27	9.92E+00	8.26	3.83E-03	3.26E-04
	55	2615.24	9.50E+01	19.49	3.79E-03	3.26E-04

Analysis Report for 1606067-04

CP-5030 05-10 QC

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000 sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/20/2016 11:16:20AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038676.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	47.08	1.12E+02	65.83	4.33E+01	8.35E+00	6.91E+01	6.64E+01
	2	76.76	9.19E+02	124.20			9.19E+02	1.24E+02
m	3	87.80	2.20E+02	59.23			2.20E+02	5.92E+01
m	4	90.80	1.60E+02	57.41			1.60E+02	5.74E+01
	5	106.32	7.65E+01	75.07			7.65E+01	7.51E+01
	6	129.68	8.72E+01	65.07			8.72E+01	6.51E+01
	7	164.32	9.27E+01	61.71	2.54E+00	7.33E+00	9.01E+01	6.21E+01
	8	186.79	2.18E+02	80.30	5.81E+01	8.50E+00	1.60E+02	8.07E+01
	9	209.77	8.27E+01	55.97			8.27E+01	5.60E+01
M	10	239.15	8.11E+02	67.31	1.81E+01	5.76E+00	7.93E+02	6.76E+01
m	11	242.23	1.42E+02	73.51			1.42E+02	7.35E+01
	12	270.43	8.98E+01	61.60			8.98E+01	6.16E+01
M	13	295.80	2.43E+02	42.04	1.02E+00	5.38E+00	2.42E+02	4.24E+01
m	14	300.79	6.72E+01	38.09			6.72E+01	3.81E+01
	15	317.79	3.36E+01	36.38			3.36E+01	3.64E+01
	16	338.87	1.94E+02	55.09	3.86E+00	4.98E+00	1.91E+02	5.53E+01
	17	352.35	3.78E+02	61.25	7.25E+00	4.86E+00	3.70E+02	6.14E+01
	18	410.23	2.51E+01	30.82			2.51E+01	3.08E+01
	19	463.18	6.55E+01	41.23			6.55E+01	4.12E+01
M	20	508.17	2.74E+01	17.32			2.74E+01	1.73E+01
m	21	511.51	1.34E+02	33.17	7.58E+01	5.38E+00	5.84E+01	3.36E+01
	22	583.96	2.50E+02	48.08	6.11E+00	3.78E+00	2.44E+02	4.82E+01
	23	609.97	2.87E+02	45.30	6.74E+00	3.64E+00	2.81E+02	4.54E+01
	24	691.77	1.93E+01	23.30			1.93E+01	2.33E+01
	25	727.34	6.82E+01	33.15			6.82E+01	3.32E+01
	26	805.10	2.33E+01	25.69			2.33E+01	2.57E+01
	27	861.54	5.60E+01	34.64			5.60E+01	3.46E+01
	28	911.83	1.64E+02	34.06	4.21E+00	2.98E+00	1.60E+02	3.42E+01
M	29	965.16	3.24E+01	22.64			3.24E+01	2.26E+01
m	30	969.77	1.20E+02	26.36			1.20E+02	2.64E+01
	31	1000.53	1.67E+01	21.90			1.67E+01	2.19E+01
	32	1069.20	2.39E+01	26.25			2.39E+01	2.62E+01
	33	1121.29	4.82E+01	34.44			4.82E+01	3.44E+01
	34	1219.76	3.32E+01	25.02			3.32E+01	2.50E+01
	35	1229.29	3.02E+01	26.78			3.02E+01	2.68E+01

: 00354

Analysis Report for 1606067-04

CP-5030 05-10 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
36	1239.10	4.49E+01	25.22			4.49E+01	2.52E+01
37	1348.23	2.56E+01	17.53			2.56E+01	1.75E+01
38	1461.58	6.78E+02	55.24	6.83E+00	2.10E+00	6.71E+02	5.53E+01
39	1504.08	4.18E+01	26.70			4.18E+01	2.67E+01
M 40	1544.95	8.87E+00	4.72			8.87E+00	4.72E+00
m 41	1549.71	8.04E+00	9.60			8.04E+00	9.60E+00
42	1631.24	1.25E+01	9.41			1.25E+01	9.41E+00
43	1698.44	5.93E+00	5.85			5.93E+00	5.85E+00
44	1765.17	4.51E+01	14.73	1.66E+00	1.65E+00	4.35E+01	1.48E+01
45	1804.51	6.50E+00	6.40			6.50E+00	6.40E+00
46	1813.72	5.36E+00	6.34			5.36E+00	6.34E+00
47	1878.66	5.36E+00	6.34			5.36E+00	6.34E+00
48	2016.31	1.06E+01	8.50			1.06E+01	8.50E+00
49	2104.02	7.67E+00	8.66			7.67E+00	8.66E+00
M 50	2139.41	5.68E+00	5.34			5.68E+00	5.34E+00
m 51	2142.54	9.70E+00	6.36			9.70E+00	6.36E+00
52	2204.87	1.13E+01	12.29			1.13E+01	1.23E+01
53	2435.35	5.00E+00	7.07			5.00E+00	7.07E+00
54	2446.27	9.92E+00	8.26			9.92E+00	8.26E+00
55	2615.24	9.50E+01	19.49	4.95E+00	1.35E+00	9.00E+01	1.95E+01

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/20/2016 11:16:20AM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038676.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	47.08	1.12E+02	65.83	4.33E+01	8.35E+00	6.91E+01	6.64E+01
2	76.76	9.19E+02	124.20			9.19E+02	1.24E+02
m 3	87.80	2.20E+02	59.23			2.20E+02	5.92E+01
m 4	90.80	1.60E+02	57.41			1.60E+02	5.74E+01
5	106.32	7.65E+01	75.07			7.65E+01	7.51E+01
6	129.68	8.72E+01	65.07			8.72E+01	6.51E+01
7	164.32	9.27E+01	61.71	2.54E+00	7.33E+00	9.01E+01	6.21E+01
8	186.79	2.18E+02	80.30	5.81E+01	8.50E+00	1.60E+02	8.07E+01

Analysis Report for 1606067-04

CP-5030 05-10 QC

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	9	209.77	8.27E+01	55.97			8.27E+01	5.60E+01
M	10	239.15	8.11E+02	67.31	1.81E+01	5.76E+00	7.93E+02	6.76E+01
m	11	242.23	1.42E+02	73.51			1.42E+02	7.35E+01
	12	270.43	8.98E+01	61.60			8.98E+01	6.16E+01
M	13	295.80	2.43E+02	42.04	1.02E+00	5.38E+00	2.42E+02	4.24E+01
m	14	300.79	6.72E+01	38.09			6.72E+01	3.81E+01
	15	317.79	3.36E+01	36.38			3.36E+01	3.64E+01
	16	338.87	1.94E+02	55.09	3.86E+00	4.98E+00	1.91E+02	5.53E+01
	17	352.35	3.78E+02	61.25	7.25E+00	4.86E+00	3.70E+02	6.14E+01
	18	410.23	2.51E+01	30.82			2.51E+01	3.08E+01
	19	463.18	6.55E+01	41.23			6.55E+01	4.12E+01
M	20	508.17	2.74E+01	17.32			2.74E+01	1.73E+01
m	21	511.51	1.34E+02	33.17	7.58E+01	5.38E+00	5.84E+01	3.36E+01
	22	583.96	2.50E+02	48.08	6.11E+00	3.78E+00	2.44E+02	4.82E+01
	23	609.97	2.87E+02	45.30	6.74E+00	3.64E+00	2.81E+02	4.54E+01
	24	691.77	1.93E+01	23.30			1.93E+01	2.33E+01
	25	727.34	6.82E+01	33.15			6.82E+01	3.32E+01
	26	805.10	2.33E+01	25.69			2.33E+01	2.57E+01
	27	861.54	5.60E+01	34.64			5.60E+01	3.46E+01
	28	911.83	1.64E+02	34.06	4.21E+00	2.98E+00	1.60E+02	3.42E+01
M	29	965.16	3.24E+01	22.64			3.24E+01	2.26E+01
m	30	969.77	1.20E+02	26.36			1.20E+02	2.64E+01
	31	1000.53	1.67E+01	21.90			1.67E+01	2.19E+01
	32	1069.20	2.39E+01	26.25			2.39E+01	2.62E+01
	33	1121.29	4.82E+01	34.44			4.82E+01	3.44E+01
	34	1219.76	3.32E+01	25.02			3.32E+01	2.50E+01
	35	1229.29	3.02E+01	26.78			3.02E+01	2.68E+01
	36	1239.10	4.49E+01	25.22			4.49E+01	2.52E+01
	37	1348.23	2.56E+01	17.53			2.56E+01	1.75E+01
	38	1461.58	6.78E+02	55.24	6.83E+00	2.10E+00	6.71E+02	5.53E+01
	39	1504.08	4.18E+01	26.70			4.18E+01	2.67E+01
M	40	1544.95	8.87E+00	4.72			8.87E+00	4.72E+00
m	41	1549.71	8.04E+00	9.60			8.04E+00	9.60E+00
	42	1631.24	1.25E+01	9.41			1.25E+01	9.41E+00
	43	1698.44	5.93E+00	5.85			5.93E+00	5.85E+00
	44	1765.17	4.51E+01	14.73	1.66E+00	1.65E+00	4.35E+01	1.48E+01
	45	1804.51	6.50E+00	6.40			6.50E+00	6.40E+00
	46	1813.72	5.36E+00	6.34			5.36E+00	6.34E+00
	47	1878.66	5.36E+00	6.34			5.36E+00	6.34E+00
	48	2016.31	1.06E+01	8.50			1.06E+01	8.50E+00
	49	2104.02	7.67E+00	8.66			7.67E+00	8.66E+00
M	50	2139.41	5.68E+00	5.34			5.68E+00	5.34E+00
m	51	2142.54	9.70E+00	6.36			9.70E+00	6.36E+00
	52	2204.87	1.13E+01	12.29			1.13E+01	1.23E+01
	53	2435.35	5.00E+00	7.07			5.00E+00	7.07E+00
	54	2446.27	9.92E+00	8.26			9.92E+00	8.26E+00
	55	2615.24	9.50E+01	19.49	4.95E+00	1.35E+00	9.00E+01	1.95E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

Analysis Report for 1606067-04

CP-5030 05-10 QC

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.909	1460.81 *	10.67	3.23E+01	3.87E+00
CD-109	0.991	88.03 *	3.72	5.41E+00	1.58E+00
SN-126	0.992	87.57 *	37.00	5.32E-01	1.52E-01
ND-147	0.634	91.11 *	28.90	1.20E+00	4.47E-01
		531.02	13.10		
TL-208	0.820	583.14 *	30.22	2.03E+00	4.41E-01
		860.37	4.48		
		2614.66 *	35.85	1.69E+00	3.95E-01
PB-210	0.948	46.50 *	4.25	2.42E+00	2.34E+00
BI-212	0.762	727.17 *	11.80	1.73E+00	8.54E-01
		1620.62	2.75		
PB-212	0.955	238.63 *	44.60	2.37E+00	2.85E-01
		300.09 *	3.41	3.06E+00	1.75E+00
BI-214	0.681	609.31 *	46.30	1.58E+00	2.93E-01
		1120.29	15.10		
		1764.49 *	15.80	1.60E+00	5.60E-01
		2204.22 *	4.98	1.47E+00	1.60E+00
PB-214	0.963	295.21 *	19.19	1.93E+00	3.71E-01
		351.92 *	37.19	1.73E+00	3.18E-01
RA-226	0.947	186.21 *	3.28	5.57E+00	1.06E+01
AC-228	0.927	338.32 *	11.40	2.82E+00	8.49E-01
		911.07 *	27.70	2.06E+00	4.76E-01
		969.11 *	16.60	2.71E+00	6.40E-01
PA-234M	0.961	1001.03 *	0.92	7.01E+00	9.19E+00

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

Analysis Report for 1606067-04

CP-5030 05-10 QC

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 11:16:20AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
2	76.76	2.55259E-01	6.76		
5	106.32	2.12593E-02	49.05	Tol.	NP-239
6	129.68	2.42313E-02	37.30		
7	164.32	2.50383E-02	34.47	Tol.	CS-136 U-235
9	209.77	2.29597E-02	33.86	Tol.	GA-67 CM-243
m 11	242.23	3.93252E-02	25.96		
12	270.43	2.49454E-02	34.29		
15	317.79	9.32920E-03	54.16		
18	410.23	6.96781E-03	61.44	Tol.	HO-166M
19	463.18	1.81921E-02	31.48	Tol.	SB-125
M 20	508.17	7.60314E-03	31.64		
m 21	511.51	1.62268E-02	28.76		
24	691.77	5.36616E-03	60.31	Sum	
26	805.10	6.47746E-03	55.09		
27	861.54	1.55671E-02	30.91		
M 29	965.16	9.00494E-03	34.93		
32	1069.20	6.62668E-03	55.01		
33	1121.29	1.33925E-02	35.71	Tol.	TA-182
34	1219.76	9.23108E-03	37.64	Sum	
35	1229.29	8.39992E-03	44.27		
36	1239.10	1.24766E-02	28.07	Sum	
37	1348.23	7.10114E-03	34.28		
39	1504.08	1.16075E-02	31.94		
M 40	1544.95	2.46486E-03	26.58		
m 41	1549.71	2.23323E-03	59.73	Sum	
42	1631.24	3.47222E-03	37.63		
43	1698.44	1.64683E-03	49.36		
45	1804.51	1.80556E-03	49.25		
46	1813.72	1.48810E-03	59.21	Sum	
47	1878.66	1.48810E-03	59.21		
48	2016.31	2.93803E-03	40.18		
49	2104.02	2.12963E-03	56.48	S-Esc	
M 50	2139.41	1.57700E-03	47.02		
m 51	2142.54	2.69307E-03	32.82		
53	2435.35	1.38889E-03	70.71		
54	2446.27	2.75463E-03	41.65		

Analysis Report for 1606067-04

CP-5030 05-10 QC

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.90	1460.81 *	10.67	3.23E+01	3.87E+00
CD-109	0.99	88.03 *	3.72	5.41E+00	1.58E+00
SN-126	0.99	87.57 *	37.00	5.32E-01	1.52E-01
ND-147	0.63	91.11 *	28.90	1.20E+00	4.47E-01
		531.02	13.10		
TL-208	0.82	583.14 *	30.22	2.03E+00	4.41E-01
		860.37	4.48		
		2614.66 *	35.85	1.69E+00	3.95E-01
PB-210	0.94	46.50 *	4.25	2.42E+00	2.34E+00
BI-212	0.76	727.17 *	11.80	1.73E+00	8.54E-01
		1620.62	2.75		
PB-212	0.95	238.63 *	44.60	2.37E+00	2.85E-01
		300.09 *	3.41	3.06E+00	1.75E+00
BI-214	0.68	609.31 *	46.30	1.58E+00	2.93E-01
		1120.29	15.10		
		1764.49 *	15.80	1.60E+00	5.60E-01
		2204.22 *	4.98	1.47E+00	1.60E+00
PB-214	0.96	295.21 *	19.19	1.93E+00	3.71E-01
		351.92 *	37.19	1.73E+00	3.18E-01
RA-226	0.94	186.21 *	3.28	5.57E+00	1.06E+01
AC-228	0.92	338.32 *	11.40	2.82E+00	8.49E-01
		911.07 *	27.70	2.06E+00	4.76E-01
		969.11 *	16.60	2.71E+00	6.40E-01
PA-234M	0.96	1001.03 *	0.92	7.01E+00	9.19E+00

Analysis Report for 1606067-04

CP-5030 05-10 QC

* = Energy line found in the spectrum.
 - = Manually added nuclide.
 ? = Manually edited nuclide.
 @ = Energy line not used for Weighted Mean Activity
 Energy Tolerance : 1.000 keV
 Nuclide confidence index threshold = 0.30
 Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.909	3.23E+01	3.87E+00	
? CD-109	0.991	5.41E+00	1.58E+00	
? SN-126	0.992	5.32E-01	1.52E-01	
ND-147	0.634	1.20E+00	4.47E-01	
TL-208	0.820	1.84E+00	2.94E-01	
PB-210	0.948	2.42E+00	2.34E+00	
BI-212	0.762	1.73E+00	8.54E-01	
PB-212	0.955	2.39E+00	2.81E-01	
BI-214	0.681	1.58E+00	2.56E-01	
PB-214	0.963	1.81E+00	2.42E-01	
RA-226	0.947	5.57E+00	1.06E+01	
AC-228	0.927	2.38E+00	3.48E-01	
PA-234M	0.961	7.01E+00	9.19E+00	

? = nuclide is part of an undetermined solution
 X = nuclide rejected by the interference analysis
 @ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1606067-04

CP-5030 05-10 QC

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 11:16:20AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
2	76.76	2.55259E-01	6.76		
5	106.32	2.12593E-02	49.05	Tol.	NP-239
6	129.68	2.42313E-02	37.30		
7	164.32	2.50383E-02	34.47	Tol.	CS-136 U-235
9	209.77	2.29597E-02	33.86	Tol.	GA-67 CM-243
m 11	242.23	3.93252E-02	25.96		
12	270.43	2.49454E-02	34.29		
15	317.79	9.32920E-03	54.16		
18	410.23	6.96781E-03	61.44	Tol.	HO-166M
19	463.18	1.81921E-02	31.48	Tol.	SB-125
M 20	508.17	7.60314E-03	31.64		
m 21	511.51	1.62268E-02	28.76		
24	691.77	5.36616E-03	60.31	Sum	
26	805.10	6.47746E-03	55.09		
27	861.54	1.55671E-02	30.91		
M 29	965.16	9.00494E-03	34.93		
32	1069.20	6.62668E-03	55.01		
33	1121.29	1.33925E-02	35.71	Tol.	TA-182
34	1219.76	9.23108E-03	37.64	Sum	
35	1229.29	8.39992E-03	44.27		
36	1239.10	1.24766E-02	28.07	Sum	
37	1348.23	7.10114E-03	34.28		
39	1504.08	1.16075E-02	31.94		
M 40	1544.95	2.46486E-03	26.58		
m 41	1549.71	2.23323E-03	59.73	Sum	
42	1631.24	3.47222E-03	37.63		
43	1698.44	1.64683E-03	49.36		
45	1804.51	1.80556E-03	49.25		
46	1813.72	1.48810E-03	59.21	Sum	
47	1878.66	1.48810E-03	59.21		
48	2016.31	2.93803E-03	40.18		
49	2104.02	2.12963E-03	56.48	S-Esc	

Analysis Report for 1606067-04
CP-5030 05-10 QC

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	50	2139.41	1.57700E-03	47.02	
m	51	2142.54	2.69307E-03	32.82	
	53	2435.35	1.38889E-03	70.71	
	54	2446.27	2.75463E-03	41.65	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-2.86E-01	1.16E+00	1.16E+00
+	NA-22	1274.54	99.94	-3.62E-03	1.24E-01	1.24E-01
+	NA-24	1368.53	99.99	1.85E+05	2.96E+05	7.17E+05
		2754.09	99.86	-4.03E+04		2.96E+05
+	AL-26	1808.65	99.76	-2.07E-02	8.34E-02	8.34E-02
+	K-40	1460.81	* 10.67	3.23E+01	1.66E+00	1.66E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-5.35E-02	1.13E-01	1.13E-01
		78.34	96.00	1.73E-01		1.48E-01
+	SC-46	889.25	99.98	-6.56E-02	1.14E-01	1.14E-01
		1120.51	99.99	2.33E-01		2.23E-01
+	V-48	983.52	99.98	-4.55E-02	2.03E-01	2.03E-01
		1312.10	97.50	4.49E-02		2.37E-01
+	CR-51	320.08	9.83	-4.49E-01	1.13E+00	1.13E+00
+	MN-54	834.83	99.97	2.15E-02	1.27E-01	1.27E-01
+	CO-56	846.75	99.96	-2.27E-02	1.29E-01	1.29E-01
		1037.75	14.03	6.44E-02		1.07E+00
		1238.25	67.00	3.17E-01		3.37E-01
		1771.40	15.51	-2.69E-01		4.58E-01
		2598.48	16.90	-3.51E-02		4.85E-01
+	CO-57	122.06	85.51	-8.77E-02	8.94E-02	8.94E-02
		136.48	10.60	-1.55E-01		7.38E-01
+	CO-58	810.76	99.40	-2.88E-03	1.15E-01	1.15E-01
+	FE-59	1099.22	56.50	-1.68E-01	2.54E-01	2.54E-01
		1291.56	43.20	-6.14E-02		3.64E-01

Analysis Report for 1606067-04

CP-5030 05-10 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CO-60	1173.22	100.00	-3.87E-02	1.21E-01	1.31E-01
		1332.49	100.00	3.00E-02		1.21E-01
+	ZN-65	1115.52	50.75	-1.01E-02	2.73E-01	2.73E-01
+	GA-67	93.31	35.70	9.44E+00	6.37E+00	6.37E+00
		208.95	2.24	4.40E+01		8.45E+01
		300.22	16.00	-3.20E+01		1.22E+01
+	SE-75	121.11	16.70	-9.06E-02	1.40E-01	4.86E-01
		136.00	59.20	3.41E-05		1.40E-01
		264.65	59.80	2.43E-02		1.49E-01
		279.53	25.20	7.28E-03		3.59E-01
		400.65	11.40	6.10E-02		7.77E-01
+	RB-82	776.52	13.00	6.83E-02	1.31E+00	1.31E+00
+	RB-83	520.41	46.00	7.19E-02	2.43E-01	2.43E-01
		529.64	30.30	1.87E-01		3.91E-01
		552.65	16.40	-8.35E-02		7.08E-01
+	KR-85	513.99	0.43	5.22E+01	3.53E+01	3.53E+01
+	SR-85	513.99	99.27	2.64E-01	1.79E-01	1.79E-01
+	Y-88	898.02	93.40	-3.86E-02	9.85E-02	1.33E-01
		1836.01	99.38	-5.15E-03		9.85E-02
+	NB-93M	16.57	9.43	-1.24E+02	9.97E+01	9.97E+01
+	NB-94	702.63	100.00	-2.85E-03	1.16E-01	1.25E-01
		871.10	100.00	-4.80E-02		1.16E-01
+	NB-95	765.79	99.81	-1.52E-03	1.66E-01	1.66E-01
+	NB-95M	235.69	25.00	-7.42E+01	5.32E+00	5.32E+00
+	ZR-95	724.18	43.70	-2.17E-02	2.44E-01	3.50E-01
		756.72	55.30	-1.76E-02		2.44E-01
+	MO-99	181.06	6.20	2.26E+01	2.97E+01	4.49E+01
		739.58	12.80	-2.02E+01		2.97E+01
		778.00	4.50	-4.61E+01		8.71E+01
+	RU-103	497.08	89.00	1.01E-01	1.44E-01	1.44E-01
+	RU-106	621.84	9.80	-2.03E-01	1.13E+00	1.13E+00
+	AG-108M	433.93	89.90	1.68E-03	1.08E-01	1.08E-01
		614.37	90.40	-4.59E-04		1.24E-01
		722.95	90.50	-2.74E-04		1.32E-01
+	CD-109	88.03	*	3.72	5.41E+00	6.08E+00
+	AG-110M	657.75	93.14	-4.02E-02	1.21E-01	1.21E-01
		677.61	10.53	-5.43E-02		1.06E+00
		706.67	16.46	-3.01E-01		7.63E-01
		763.93	21.98	-1.62E-01		5.51E-01
		884.67	71.63	4.79E-02		1.59E-01
		1384.27	23.94	-3.17E-02		5.16E-01
+	CD-113M	263.70	0.02	1.71E+01	3.51E+02	3.51E+02
+	SN-113	255.12	1.93	-7.40E-01	1.44E-01	4.32E+00
		391.69	64.90	-2.64E-02		1.44E-01
+	TE123M	159.00	84.10	2.61E-02	9.89E-02	9.89E-02
+	SB-124	602.71	97.87	-9.30E-03	1.32E-01	1.32E-01
		645.85	7.26	8.36E-01		1.77E+00
		722.78	11.10	-2.62E-03		1.27E+00

Analysis Report for 1606067-04
CP-5030 05-10 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	1691.02	49.00	1.36E-02	1.32E-01	2.27E-01
+	I-125	35.49	6.49	3.33E+00	4.52E+00	4.52E+00
+	SB-125	176.33	6.89	-3.41E-01	3.36E-01	1.14E+00
		427.89	29.33	-3.35E-02		3.36E-01
		463.38	10.35	7.19E-01		1.23E+00
		600.56	17.80	3.85E-02		6.39E-01
		635.90	11.32	-9.93E-02		9.00E-01
+	SB-126	414.70	83.30	7.69E-02	2.45E-01	2.45E-01
		666.33	99.60	6.60E-02		2.56E-01
		695.00	99.60	-6.51E-02		2.71E-01
		720.50	53.80	-1.30E-02		4.62E-01
+	SN-126	87.57	* 37.00	5.32E-01	5.99E-01	5.99E-01
+	SB-127	473.00	25.00	-2.28E+00	3.89E+00	4.93E+00
		685.20	35.70	1.05E+00		3.89E+00
		783.80	14.70	2.53E+00		1.14E+01
+	I-129	29.78	57.00	7.00E-02	7.88E-01	7.88E-01
		33.60	13.20	9.00E-01		2.19E+00
		39.58	7.52	4.75E-01		2.45E+00
+	I-131	284.30	6.05	1.72E+00	3.14E-01	4.58E+00
		364.48	81.20	-9.81E-02		3.14E-01
		636.97	7.26	2.76E-01		4.60E+00
		722.89	1.80	-4.63E-02		2.23E+01
+	TE-132	49.72	13.10	1.49E+00	1.90E+00	1.97E+01
		228.16	88.00	7.21E-01		1.90E+00
+	BA-133	81.00	33.00	-1.50E+00	1.55E-01	3.10E-01
		302.84	17.80	4.10E-01		5.44E-01
		356.01	60.00	-5.53E-01		1.55E-01
+	I-133	529.87	86.30	4.50E+03	9.44E+03	9.44E+03
+	XE-133	81.00	38.00	-8.32E+00	1.73E+00	1.73E+00
+	CS-134	563.23	8.38	1.70E-01	1.18E-01	1.32E+00
		569.32	15.43	-1.09E-01		6.75E-01
		604.70	97.60	-3.35E-03		1.18E-01
		795.84	85.40	3.66E-02		1.52E-01
		801.93	8.73	-1.22E-01		1.39E+00
+	CS-135	268.24	16.00	4.09E-01	6.01E-01	6.01E-01
+	I-135	1131.51	22.50	-2.92E+14	9.74E+14	1.40E+15
		1260.41	28.60	-2.91E+14		9.74E+14
		1678.03	9.54	-6.80E+14		2.10E+15
+	CS-136	153.22	7.46	-7.24E-01	2.53E-01	2.17E+00
		163.89	4.61	1.41E-01		3.68E+00
		176.55	13.56	-3.60E-01		1.20E+00
		273.65	12.66	-1.30E+00		1.43E+00
		340.57	48.50	1.10E+00		5.72E-01
		818.50	99.70	1.36E-01		2.53E-01
		1048.07	79.60	1.43E-02		3.18E-01
		1235.34	19.70	-2.02E+00		1.71E+00
+	CS-137	661.65	85.12	-4.28E-02	1.30E-01	1.30E-01
+	LA-138	788.74	34.00	5.67E-02	1.60E-01	3.52E-01
		1435.80	66.00	2.08E-02		1.60E-01

Analysis Report for 1606067-04

CP-5030 05-10 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-139	165.85	80.35	3.63E-02	1.06E-01	1.06E-01
+	BA-140	162.64	6.70	1.15E+00	8.43E-01	2.56E+00
		304.84	4.50	-1.49E+00		3.97E+00
		423.70	3.20	4.38E+00		6.71E+00
		437.55	2.00	-4.30E+00		1.05E+01
		537.32	25.00	8.88E-02		8.43E-01
+	LA-140	328.77	20.50	4.74E-01	2.61E-01	9.72E-01
		487.03	45.50	4.18E-03		4.81E-01
		815.85	23.50	-4.14E-01		9.92E-01
		1596.49	95.49	-7.66E-04		2.61E-01
+	CE-141	145.44	48.40	8.11E-02	2.32E-01	2.32E-01
+	CE-143	57.36	11.80	3.70E+02	3.57E+02	1.14E+03
		293.26	42.00	6.04E+02		3.57E+02
		664.55	5.20	6.43E+02		2.73E+03
+	CE-144	133.54	10.80	-7.46E-02	7.26E-01	7.26E-01
+	PM-144	476.78	42.00	-4.47E-02	1.16E-01	2.47E-01
		618.01	98.60	3.48E-02		1.16E-01
		696.49	99.49	7.96E-03		1.25E-01
+	PM-145	36.85	21.70	-1.25E-01	5.55E-01	1.02E+00
		37.36	39.70	2.80E-01		5.55E-01
		42.30	15.10	1.67E-01		1.02E+00
		72.40	2.31	1.20E+00		4.90E+00
+	PM-146	453.90	39.94	4.42E-02	2.28E-01	2.28E-01
		735.90	14.01	2.99E-01		8.82E-01
		747.13	13.10	-2.97E-02		9.41E-01
+	ND-147	91.11	28.90	1.20E+00	1.86E+00	1.86E+00
		531.02	13.10	1.18E+00		2.01E+00
+	PM-149	285.90	3.10	5.52E+00	2.11E+02	2.11E+02
+	EU-152	121.78	20.50	-3.53E-01	3.60E-01	3.60E-01
		244.69	5.40	-4.21E-01		1.77E+00
		344.27	19.13	-1.48E-01		4.27E-01
		778.89	9.20	-5.98E-01		1.26E+00
		964.01	10.40	-1.61E+00		1.47E+00
		1085.78	7.22	-3.31E-01		1.81E+00
		1112.02	9.60	1.52E-01		1.48E+00
		1407.95	14.94	-8.40E-02		7.16E-01
+	GD-153	97.43	31.30	4.32E-02	2.72E-01	2.72E-01
		103.18	22.20	2.21E-02		3.65E-01
+	EU-154	123.07	40.50	1.54E-01	1.92E-01	1.92E-01
		723.30	19.70	-1.26E-03		6.09E-01
		873.19	11.50	-1.05E-01		1.00E+00
		996.32	10.30	-2.51E-01		8.60E-01
		1004.76	17.90	-3.58E-02		6.46E-01
		1274.45	35.50	-1.01E-02		3.47E-01
+	EU-155	86.50	30.90	5.58E-01	3.62E-01	3.62E-01
		105.30	20.70	1.54E-01		3.89E-01
+	EU-156	811.77	10.40	-2.93E-01	1.91E+00	1.91E+00
		1153.47	7.20	-1.14E+00		3.86E+00
		1230.71	8.90	8.81E-01		3.57E+00

Analysis Report for 1606067-04

CP-5030 05-10 QC

	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
+	HO-166M	184.41	72.60	1.59E-01	1.48E-01	1.48E-01
		280.45	29.60	-1.06E-01		2.68E-01
		410.94	11.10	8.27E-03		9.24E-01
		711.69	54.10	-4.70E-02		2.17E-01
+	TM-171	66.72	0.14	-7.92E+01	8.25E+01	8.25E+01
+	HF-172	81.75	4.52	-6.22E+00	6.77E-01	2.07E+00
		125.81	11.30	3.19E-01		6.77E-01
+	LU-172	181.53	20.60	7.91E-01	9.61E-01	1.69E+00
		810.06	16.63	2.66E-01		2.84E+00
		912.12	15.25	1.62E+01		6.89E+00
		1093.66	62.50	1.75E-01		9.61E-01
+	LU-173	100.72	5.24	4.62E-01	4.81E-01	1.49E+00
		272.11	21.20	4.92E-01		4.81E-01
+	HF-175	343.40	84.00	-1.52E-03	1.17E-01	1.17E-01
+	LU-176	88.34	13.30	1.55E+00	8.43E-02	8.64E-01
		201.83	86.00	-4.46E-02		9.72E-02
		306.78	94.00	1.37E-02		8.43E-02
+	TA-182	67.75	41.20	-1.34E-01	2.83E-01	2.83E-01
		1121.30	34.90	7.41E-01		6.26E-01
		1189.05	16.23	1.27E-01		1.06E+00
		1221.41	26.98	4.19E-01		6.77E-01
		1231.02	11.44	3.93E-01		1.59E+00
+	IR-192	308.46	29.68	-8.41E-02	2.51E-01	2.77E-01
		468.07	48.10	7.12E-02		2.51E-01
+	HG-203	279.19	77.30	-1.49E-02	1.31E-01	1.31E-01
+	BI-207	569.67	97.72	3.24E-02	1.09E-01	1.09E-01
		1063.62	74.90	1.42E-02		1.78E-01
+	TL-208	583.14	* 30.22	2.03E+00	1.95E-01	5.26E-01
		860.37	4.48	2.59E+00		3.38E+00
		2614.66	* 35.85	1.69E+00		1.95E-01
+	BI-210M	262.00	45.00	6.87E-02	1.87E-01	1.87E-01
		300.00	23.00	-1.12E+00		4.27E-01
+	PB-210	46.50	* 4.25	2.42E+00	3.80E+00	3.80E+00
+	PB-211	404.84	2.90	-3.66E-02	2.82E+00	2.82E+00
		831.96	2.90	4.59E-01		4.19E+00
+	BI-212	727.17	* 11.80	1.73E+00	1.27E+00	1.27E+00
		1620.62	2.75	1.83E+00		4.72E+00
+	PB-212	238.63	* 44.60	2.37E+00	3.82E-01	3.82E-01
		300.09	* 3.41	3.06E+00		7.22E+00
+	BI-214	609.31	* 46.30	1.58E+00	2.99E-01	2.99E-01
		1120.29	15.10	1.37E+00		1.31E+00
		1764.49	* 15.80	1.60E+00		5.10E-01
		2204.22	* 4.98	1.47E+00		2.55E+00
+	PB-214	295.21	* 19.19	1.93E+00	3.80E-01	1.27E+00
		351.92	* 37.19	1.73E+00		3.80E-01
+	RN-219	401.80	6.50	-2.03E-01	1.21E+00	1.21E+00
+	RA-223	323.87	3.88	1.88E-01	2.09E+00	2.09E+00
+	RA-224	240.98	3.95	2.82E+01	5.16E+00	5.16E+00

Analysis Report for 1606067-04

CP-5030 05-10 QC

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-225	40.00		31.00	2.17E-01	1.12E+00	1.12E+00
+	RA-226	186.21	*	3.28	5.57E+00	4.50E+00	4.50E+00
+	TH-227	50.10		8.40	1.15E-01	7.77E-01	1.52E+00
		236.00		11.50	-1.08E+01		7.77E-01
		256.20		6.30	-3.07E-01		1.21E+00
+	AC-228	338.32	*	11.40	2.82E+00	5.24E-01	1.21E+00
		911.07	*	27.70	2.06E+00		5.24E-01
		969.11	*	16.60	2.71E+00		1.25E+00
+	TH-230	48.44		16.90	1.07E+00	8.66E-01	8.66E-01
		62.85		4.60	2.23E+00		2.73E+00
		67.67		0.37	-1.37E+01		2.89E+01
+	PA-231	283.67		1.60	1.36E+00	4.19E+00	5.18E+00
		302.67		2.30	3.16E+00		4.19E+00
+	TH-231	25.64		14.70	-6.95E+01	1.46E+00	7.76E+00
		84.21		6.40	-6.47E+00		1.46E+00
+	PA-233	311.98		38.60	1.98E-02	2.61E-01	2.61E-01
+	PA-234	131.20		20.40	4.31E-01	4.19E-01	4.19E-01
		733.99		8.80	5.30E-01		1.39E+00
		946.00		12.00	3.76E-01		1.05E+00
+	PA-234M	1001.03	*	0.92	7.01E+00	1.51E+01	1.51E+01
+	TH-234	63.29		3.80	4.97E+00	3.35E+00	3.35E+00
+	U-235	143.76		10.50	6.92E-01	8.03E-01	8.03E-01
		163.35		4.70	6.60E-02		1.72E+00
		205.31		4.70	3.72E-01		1.81E+00
+	NP-237	86.50		12.60	1.36E+00	8.84E-01	8.84E-01
+	NP-239	106.10		22.70	8.80E+00	2.22E+01	2.22E+01
		228.18		10.70	1.87E+01		4.93E+01
		277.60		14.10	2.96E+00		3.69E+01
+	AM-241	59.54		35.90	3.58E-02	3.08E-01	3.08E-01
+	AM-243	74.67		66.00	-8.61E-01	2.06E-01	2.06E-01
+	CM-243	209.75		3.29	4.25E+00	5.92E-01	2.96E+00
		228.14		10.60	3.00E-01		7.92E-01
		277.60		14.00	4.76E-02		5.92E-01

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

Analysis Report for 1606067-04

CP-5030 05-10 QC

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	1.16E+00	1.16E+00	-2.86E-01	5.46E-01
NA-22	1274.54	99.94	1.24E-01	1.24E-01	-3.62E-03	5.58E-02
NA-24	1368.53	99.99	7.17E+05	2.96E+05	1.85E+05	3.19E+05
	2754.09	99.86	2.96E+05		-4.03E+04	9.37E+04
AL-26	1808.65	99.76	8.34E-02	8.34E-02	-2.07E-02	3.37E-02
+ K-40	1460.81	*	1.66E+00	1.66E+00	3.23E+01	7.65E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	1.13E-01	1.13E-01	-5.35E-02	5.52E-02
	78.34	96.00	1.48E-01		1.73E-01	7.26E-02
SC-46	889.25	99.98	1.14E-01	1.14E-01	-6.56E-02	5.18E-02
	1120.51	99.99	2.23E-01		2.33E-01	1.05E-01
V-48	983.52	99.98	2.03E-01	2.03E-01	-4.55E-02	9.21E-02
	1312.10	97.50	2.37E-01		4.49E-02	1.07E-01
CR-51	320.08	9.83	1.13E+00	1.13E+00	-4.49E-01	5.34E-01
MN-54	834.83	99.97	1.27E-01	1.27E-01	2.15E-02	5.88E-02
CO-56	846.75	99.96	1.29E-01	1.29E-01	-2.27E-02	5.96E-02
	1037.75	14.03	1.07E+00		6.44E-02	4.94E-01
	1238.25	67.00	3.37E-01		3.17E-01	1.58E-01
	1771.40	15.51	4.58E-01		-2.69E-01	1.71E-01
	2598.48	16.90	4.85E-01		-3.51E-02	1.82E-01
CO-57	122.06	85.51	8.94E-02	8.94E-02	-8.77E-02	4.32E-02
	136.48	10.60	7.38E-01		-1.55E-01	3.56E-01
CO-58	810.76	99.40	1.15E-01	1.15E-01	-2.88E-03	5.25E-02
FE-59	1099.22	56.50	2.54E-01	2.54E-01	-1.68E-01	1.15E-01
	1291.56	43.20	3.64E-01		-6.14E-02	1.64E-01
CO-60	1173.22	100.00	1.31E-01	1.21E-01	-3.87E-02	5.95E-02
	1332.49	100.00	1.21E-01		3.00E-02	5.39E-02
ZN-65	1115.52	50.75	2.73E-01	2.73E-01	-1.01E-02	1.25E-01
GA-67	93.31	35.70	6.37E+00	6.37E+00	9.44E+00	3.12E+00
	208.95	2.24	8.45E+01		4.40E+01	4.08E+01
	300.22	16.00	1.22E+01		-3.20E+01	5.84E+00
SE-75	121.11	16.70	4.86E-01	1.40E-01	-9.06E-02	2.35E-01
	136.00	59.20	1.40E-01		3.41E-05	6.74E-02
	264.65	59.80	1.49E-01		2.43E-02	7.08E-02
	279.53	25.20	3.59E-01		7.28E-03	1.71E-01
	400.65	11.40	7.77E-01		6.10E-02	3.64E-01
RB-82	776.52	13.00	1.31E+00	1.31E+00	6.83E-02	6.06E-01
RB-83	520.41	46.00	2.43E-01	2.43E-01	7.19E-02	1.14E-01
	529.64	30.30	3.91E-01		1.87E-01	1.84E-01
	552.65	16.40	7.08E-01		-8.35E-02	3.32E-01
KR-85	513.99	0.43	3.53E+01	3.53E+01	5.22E+01	1.69E+01
SR-85	513.99	99.27	1.79E-01	1.79E-01	2.64E-01	8.57E-02
Y-88	898.02	93.40	1.33E-01	9.85E-02	-3.86E-02	6.10E-02
	1836.01	99.38	9.85E-02		-5.15E-03	4.04E-02
NB-93M	16.57	9.43	9.97E+01	9.97E+01	-1.24E+02	4.53E+01

Analysis Report for 1606067-04

CP-5030 05-10 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NB-94	702.63	100.00	1.25E-01	1.16E-01	-2.85E-03	5.86E-02
	871.10	100.00	1.16E-01		-4.80E-02	5.32E-02
NB-95	765.79	99.81	1.66E-01	1.66E-01	-1.52E-03	7.72E-02
NB-95M	235.69	25.00	5.32E+00	5.32E+00	-7.42E+01	2.55E+00
ZR-95	724.18	43.70	3.50E-01	2.44E-01	-2.17E-02	1.64E-01
	756.72	55.30	2.44E-01		-1.76E-02	1.13E-01
MO-99	181.06	6.20	4.49E+01	2.97E+01	2.26E+01	2.16E+01
	739.58	12.80	2.97E+01		-2.02E+01	1.37E+01
	778.00	4.50	8.71E+01		-4.61E+01	4.03E+01
RU-103	497.08	89.00	1.44E-01	1.44E-01	1.01E-01	6.75E-02
RU-106	621.84	9.80	1.13E+00	1.13E+00	-2.03E-01	5.27E-01
AG-108M	433.93	89.90	1.08E-01	1.08E-01	1.68E-03	5.11E-02
	614.37	90.40	1.24E-01		-4.59E-04	5.80E-02
	722.95	90.50	1.32E-01		-2.74E-04	6.16E-02
	88.03	3.72	6.08E+00	6.08E+00	5.41E+00	3.01E+00
+ CD-109	657.75	93.14	1.21E-01	1.21E-01	-4.02E-02	5.64E-02
	677.61	10.53	1.06E+00		-5.43E-02	4.90E-01
	706.67	16.46	7.63E-01		-3.01E-01	3.57E-01
	763.93	21.98	5.51E-01		-1.62E-01	2.56E-01
	884.67	71.63	1.59E-01		4.79E-02	7.27E-02
	1384.27	23.94	5.16E-01		-3.17E-02	2.29E-01
CD-113M	263.70	0.02	3.51E+02	3.51E+02	1.71E+01	1.67E+02
SN-113	255.12	1.93	4.32E+00	1.44E-01	-7.40E-01	2.05E+00
	391.69	64.90	1.44E-01		-2.64E-02	6.76E-02
TE123M	159.00	84.10	9.89E-02	9.89E-02	2.61E-02	4.76E-02
SB-124	602.71	97.87	1.32E-01	1.32E-01	-9.30E-03	6.20E-02
	645.85	7.26	1.77E+00		8.36E-01	8.27E-01
	722.78	11.10	1.27E+00		-2.62E-03	5.91E-01
	1691.02	49.00	2.27E-01		1.36E-02	9.49E-02
	35.49	6.49	4.52E+00	4.52E+00	3.33E+00	2.19E+00
SB-125	176.33	6.89	1.14E+00	3.36E-01	-3.41E-01	5.46E-01
	427.89	29.33	3.36E-01		-3.35E-02	1.59E-01
	463.38	10.35	1.23E+00		7.19E-01	5.87E-01
	600.56	17.80	6.39E-01		3.85E-02	3.00E-01
	635.90	11.32	9.00E-01		-9.93E-02	4.17E-01
	414.70	83.30	2.45E-01	2.45E-01	7.69E-02	1.16E-01
SB-126	666.33	99.60	2.56E-01		6.60E-02	1.20E-01
	695.00	99.60	2.71E-01		-6.51E-02	1.27E-01
	720.50	53.80	4.62E-01		-1.30E-02	2.14E-01
	87.57	37.00	5.99E-01	5.99E-01	5.32E-01	2.96E-01
+ SN-126	473.00	25.00	4.93E+00	3.89E+00	-2.28E+00	2.32E+00
	685.20	35.70	3.89E+00		1.05E+00	1.81E+00
	783.80	14.70	1.14E+01		2.53E+00	5.36E+00
I-129	29.78	57.00	7.88E-01	7.88E-01	7.00E-02	3.80E-01
	33.60	13.20	2.19E+00		9.00E-01	1.06E+00
	39.58	7.52	2.45E+00		4.75E-01	1.18E+00
I-131	284.30	6.05	4.58E+00	3.14E-01	1.72E+00	2.18E+00
	364.48	81.20	3.14E-01		-9.81E-02	1.47E-01
	636.97	7.26	4.60E+00		2.76E-01	2.13E+00
	722.89	1.80	2.23E+01		-4.63E-02	1.04E+01
TE-132	49.72	13.10	1.97E+01	1.90E+00	1.49E+00	9.58E+00
	228.16	88.00	1.90E+00		7.21E-01	9.11E-01
BA-133	81.00	33.00	3.10E-01	1.55E-01	-1.50E+00	1.52E-01

Analysis Report for 1606067-04

CP-5030 05-10 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BA-133	302.84	17.80	5.44E-01	1.55E-01	4.10E-01	2.60E-01
	356.01	60.00	1.55E-01		-5.53E-01	7.34E-02
I-133	529.87	86.30	9.44E+03	9.44E+03	4.50E+03	4.44E+03
XE-133	81.00	38.00	1.73E+00	1.73E+00	-8.32E+00	8.43E-01
CS-134	563.23	8.38	1.32E+00	1.18E-01	1.70E-01	6.20E-01
	569.32	15.43	6.75E-01		-1.09E-01	3.15E-01
	604.70	97.60	1.18E-01		-3.35E-03	5.51E-02
	795.84	85.40	1.52E-01		3.66E-02	7.08E-02
	801.93	8.73	1.39E+00		-1.22E-01	6.46E-01
CS-135	268.24	16.00	6.01E-01	6.01E-01	4.09E-01	2.88E-01
I-135	1131.51	22.50	1.40E+15	9.74E+14	-2.92E+14	6.40E+14
	1260.41	28.60	9.74E+14		-2.91E+14	4.35E+14
	1678.03	9.54	2.10E+15		-6.80E+14	8.61E+14
CS-136	153.22	7.46	2.17E+00	2.53E-01	-7.24E-01	1.04E+00
	163.89	4.61	3.68E+00		1.41E-01	1.78E+00
	176.55	13.56	1.20E+00		-3.60E-01	5.77E-01
	273.65	12.66	1.43E+00		-1.30E+00	6.80E-01
	340.57	48.50	5.72E-01		1.10E+00	2.76E-01
	818.50	99.70	2.53E-01		1.36E-01	1.17E-01
	1048.07	79.60	3.18E-01		1.43E-02	1.45E-01
1235.34	19.70	1.71E+00		-2.02E+00	7.88E-01	
CS-137	661.65	85.12	1.30E-01	1.30E-01	-4.28E-02	6.07E-02
LA-138	788.74	34.00	3.52E-01	1.60E-01	5.67E-02	1.63E-01
	1435.80	66.00	1.60E-01		2.08E-02	6.93E-02
CE-139	165.85	80.35	1.06E-01	1.06E-01	3.63E-02	5.08E-02
BA-140	162.64	6.70	2.56E+00	8.43E-01	1.15E+00	1.24E+00
	304.84	4.50	3.97E+00		-1.49E+00	1.88E+00
	423.70	3.20	6.71E+00		4.38E+00	3.17E+00
	437.55	2.00	1.05E+01		-4.30E+00	4.97E+00
	537.32	25.00	8.43E-01		8.88E-02	3.94E-01
LA-140	328.77	20.50	9.72E-01	2.61E-01	4.74E-01	4.63E-01
	487.03	45.50	4.81E-01		4.18E-03	2.27E-01
	815.85	23.50	9.92E-01		-4.14E-01	4.55E-01
1596.49	95.49	2.61E-01		-7.66E-04	1.14E-01	
CE-141	145.44	48.40	2.32E-01	2.32E-01	8.11E-02	1.12E-01
CE-143	57.36	11.80	1.14E+03	3.57E+02	3.70E+02	5.55E+02
	293.26	42.00	3.57E+02		6.04E+02	1.72E+02
	664.55	5.20	2.73E+03		6.43E+02	1.28E+03
CE-144	133.54	10.80	7.26E-01	7.26E-01	-7.46E-02	3.50E-01
PM-144	476.78	42.00	2.47E-01	1.16E-01	-4.47E-02	1.17E-01
	618.01	98.60	1.16E-01		3.48E-02	5.45E-02
	696.49	99.49	1.25E-01		7.96E-03	5.84E-02
PM-145	36.85	21.70	1.02E+00	5.55E-01	-1.25E-01	4.95E-01
	37.36	39.70	5.55E-01		2.80E-01	2.69E-01
	42.30	15.10	1.02E+00		1.67E-01	4.94E-01
	72.40	2.31	4.90E+00		1.20E+00	2.40E+00
PM-146	453.90	39.94	2.28E-01	2.28E-01	4.42E-02	1.07E-01
	735.90	14.01	8.82E-01		2.99E-01	4.12E-01
	747.13	13.10	9.41E-01		-2.97E-02	4.39E-01
+ ND-147	91.11	* 28.90	1.86E+00	1.86E+00	1.20E+00	9.17E-01
	531.02	13.10	2.01E+00		1.18E+00	9.48E-01
PM-149	285.90	3.10	2.11E+02	2.11E+02	5.52E+00	1.00E+02
EU-152	121.78	20.50	3.60E-01	3.60E-01	-3.53E-01	1.74E-01

Analysis Report for 1606067-04

CP-5030 05-10 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	244.69	5.40	1.77E+00	3.60E-01	-4.21E-01	8.51E-01
	344.27	19.13	4.27E-01		-1.48E-01	2.01E-01
	778.89	9.20	1.26E+00		-5.98E-01	5.82E-01
	964.01	10.40	1.47E+00		-1.61E+00	6.86E-01
	1085.78	7.22	1.81E+00		-3.31E-01	8.29E-01
	1112.02	9.60	1.48E+00		1.52E-01	6.82E-01
	1407.95	14.94	7.16E-01		-8.40E-02	3.13E-01
GD-153	97.43	31.30	2.72E-01	2.72E-01	4.32E-02	1.32E-01
	103.18	22.20	3.65E-01		2.21E-02	1.77E-01
EU-154	123.07	40.50	1.92E-01	1.92E-01	1.54E-01	9.26E-02
	723.30	19.70	6.09E-01		-1.26E-03	2.84E-01
	873.19	11.50	1.00E+00		-1.05E-01	4.60E-01
	996.32	10.30	8.60E-01		-2.51E-01	3.79E-01
	1004.76	17.90	6.46E-01		-3.58E-02	2.94E-01
	1274.45	35.50	3.47E-01		-1.01E-02	1.56E-01
EU-155	86.50	30.90	3.62E-01	3.62E-01	5.58E-01	1.77E-01
	105.30	20.70	3.89E-01		1.54E-01	1.88E-01
EU-156	811.77	10.40	1.91E+00	1.91E+00	-2.93E-01	8.76E-01
	1153.47	7.20	3.86E+00		-1.14E+00	1.77E+00
	1230.71	8.90	3.57E+00		8.81E-01	1.65E+00
HO-166M	184.41	72.60	1.48E-01	1.48E-01	1.59E-01	7.19E-02
	280.45	29.60	2.68E-01		-1.06E-01	1.27E-01
	410.94	11.10	9.24E-01		8.27E-03	4.39E-01
	711.69	54.10	2.17E-01		-4.70E-02	1.01E-01
TM-171	66.72	0.14	8.25E+01	8.25E+01	-7.92E+01	4.03E+01
HF-172	81.75	4.52	2.07E+00	6.77E-01	-6.22E+00	1.01E+00
	125.81	11.30	6.77E-01		3.19E-01	3.27E-01
LU-172	181.53	20.60	1.69E+00	9.61E-01	7.91E-01	8.12E-01
	810.06	16.63	2.84E+00		2.66E-01	1.31E+00
	912.12	15.25	6.89E+00		1.62E+01	3.31E+00
	1093.66	62.50	9.61E-01		1.75E-01	4.42E-01
LU-173	100.72	5.24	1.49E+00	4.81E-01	4.62E-01	7.21E-01
	272.11	21.20	4.81E-01		4.92E-01	2.31E-01
HF-175	343.40	84.00	1.17E-01	1.17E-01	-1.52E-03	5.55E-02
LU-176	88.34	13.30	8.64E-01	8.43E-02	1.55E+00	4.23E-01
	201.83	86.00	9.72E-02		-4.46E-02	4.67E-02
	306.78	94.00	8.43E-02		1.37E-02	3.99E-02
TA-182	67.75	41.20	2.83E-01	2.83E-01	-1.34E-01	1.38E-01
	1121.30	34.90	6.26E-01		7.41E-01	2.95E-01
	1189.05	16.23	1.06E+00		1.27E-01	4.92E-01
	1221.41	26.98	6.77E-01		4.19E-01	3.14E-01
	1231.02	11.44	1.59E+00		3.93E-01	7.37E-01
IR-192	308.46	29.68	2.77E-01	2.51E-01	-8.41E-02	1.30E-01
	468.07	48.10	2.51E-01		7.12E-02	1.19E-01
HG-203	279.19	77.30	1.31E-01	1.31E-01	-1.49E-02	6.24E-02
BI-207	569.67	97.72	1.09E-01	1.09E-01	3.24E-02	5.10E-02
	1063.62	74.90	1.78E-01		1.42E-02	8.15E-02
	583.14	30.22	5.26E-01		1.95E-01	2.03E+00	2.52E-01
+ TL-208	860.37	4.48	3.38E+00	1.95E-01	2.59E+00	1.59E+00
	2614.66	35.85	1.95E-01		1.69E+00	7.19E-02
	262.00	45.00	1.87E-01		1.87E-01	6.87E-02	8.95E-02
BI-210M	300.00	23.00	4.27E-01	1.87E-01	-1.12E+00	2.04E-01
+ PB-210	46.50	4.25	3.80E+00	3.80E+00	2.42E+00	1.85E+00

Analysis Report for 1606067-04

CP-5030 05-10 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PB-211	404.84	2.90	2.82E+00	2.82E+00	-3.66E-02	1.32E+00
	831.96	2.90	4.19E+00		4.59E-01	1.94E+00
+ BI-212	727.17 *	11.80	1.27E+00	1.27E+00	1.73E+00	5.99E-01
	1620.62	2.75	4.72E+00		1.83E+00	2.09E+00
+ PB-212	238.63 *	44.60	3.82E-01	3.82E-01	2.37E+00	1.87E-01
	300.09 *	3.41	7.22E+00		3.06E+00	3.55E+00
+ BI-214	609.31 *	46.30	2.99E-01	2.99E-01	1.58E+00	1.42E-01
	1120.29	15.10	1.31E+00		1.37E+00	6.19E-01
	1764.49 *	15.80	5.10E-01		1.60E+00	2.05E-01
	2204.22 *	4.98	2.55E+00		1.47E+00	1.10E+00
+ PB-214	295.21 *	19.19	1.27E+00	3.80E-01	1.93E+00	6.23E-01
	351.92 *	37.19	3.80E-01		1.73E+00	1.84E-01
RN-219	401.80	6.50	1.21E+00	1.21E+00	-2.03E-01	5.66E-01
RA-223	323.87	3.88	2.09E+00	2.09E+00	1.88E-01	9.89E-01
RA-224	240.98	3.95	5.16E+00	5.16E+00	2.82E+01	2.53E+00
RA-225	40.00	31.00	1.12E+00	1.12E+00	2.17E-01	5.40E-01
+ RA-226	186.21 *	3.28	4.50E+00	4.50E+00	5.57E+00	2.20E+00
TH-227	50.10	8.40	1.52E+00	7.77E-01	1.15E-01	7.40E-01
	236.00	11.50	7.77E-01		-1.08E+01	3.73E-01
	256.20	6.30	1.21E+00		-3.07E-01	5.73E-01
+ AC-228	338.32 *	11.40	1.21E+00	5.24E-01	2.82E+00	5.83E-01
	911.07 *	27.70	5.24E-01		2.06E+00	2.45E-01
	969.11 *	16.60	1.25E+00		2.71E+00	5.95E-01
TH-230	48.44	16.90	8.66E-01	8.66E-01	1.07E+00	4.21E-01
	62.85	4.60	2.73E+00		2.23E+00	1.34E+00
	67.67	0.37	2.89E+01		-1.37E+01	1.41E+01
PA-231	283.67	1.60	5.18E+00	4.19E+00	1.36E+00	2.46E+00
	302.67	2.30	4.19E+00		3.16E+00	2.01E+00
TH-231	25.64	14.70	7.76E+00	1.46E+00	-6.95E+01	3.77E+00
	84.21	6.40	1.46E+00		-6.47E+00	7.13E-01
PA-233	311.98	38.60	2.61E-01	2.61E-01	1.98E-02	1.22E-01
PA-234	131.20	20.40	4.19E-01	4.19E-01	4.31E-01	2.03E-01
	733.99	8.80	1.39E+00		5.30E-01	6.46E-01
	946.00	12.00	1.05E+00		3.76E-01	4.84E-01
+ PA-234M	1001.03 *	0.92	1.51E+01	1.51E+01	7.01E+00	7.00E+00
TH-234	63.29	3.80	3.35E+00	3.35E+00	4.97E+00	1.64E+00
U-235	143.76	10.50	8.03E-01	8.03E-01	6.92E-01	3.89E-01
	163.35	4.70	1.72E+00		6.60E-02	8.29E-01
	205.31	4.70	1.81E+00		3.72E-01	8.70E-01
NP-237	86.50	12.60	8.84E-01	8.84E-01	1.36E+00	4.32E-01
NP-239	106.10	22.70	2.22E+01	2.22E+01	8.80E+00	1.08E+01
	228.18	10.70	4.93E+01		1.87E+01	2.36E+01
	277.60	14.10	3.69E+01		2.96E+00	1.76E+01
AM-241	59.54	35.90	3.08E-01	3.08E-01	3.58E-02	1.50E-01
AM-243	74.67	66.00	2.06E-01	2.06E-01	-8.61E-01	1.01E-01
CM-243	209.75	3.29	2.96E+00	5.92E-01	4.25E+00	1.43E+00
	228.14	10.60	7.92E-01		3.00E-01	3.80E-01
	277.60	14.00	5.92E-01		4.76E-02	2.82E-01

Analysis Report for 1606067-04

CP-5030 05-10 QC

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- + = Nuclide identified during the nuclide identification
 - * = Energy line found in the spectrum
 - > = MDA value not calculated
 - @ = Half-life too short to be able to perform the decay correction
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No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

<i>Creation Date</i>	<i>Comment</i>	<i>User</i>
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No Data Review Comments Entered.

***** S P E C T R A L D A T A R E P O R T *****

Sample Title: CP-5030 05-10 QC

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	34	71	68	128	804	186
25:	56	55	52	60	47	59	45	56
33:	52	47	52	77	54	75	46	73
41:	59	58	62	71	50	63	140	121
49:	69	60	77	70	73	89	66	84
57:	83	82	81	105	91	97	93	224
65:	151	117	106	112	100	91	94	116
73:	90	109	225	330	197	502	193	97
81:	78	118	71	87	125	104	86	236
89:	128	106	171	96	185	226	126	89
97:	67	64	70	71	63	55	55	64
105:	58	91	64	63	65	61	51	66
113:	65	77	52	74	63	50	72	40
121:	58	45	60	63	66	49	41	54
129:	64	96	82	53	53	58	43	56
137:	56	49	52	52	50	62	45	69
145:	77	55	45	50	58	58	53	44
153:	49	54	54	39	53	57	39	37
161:	43	42	58	54	48	46	53	32
169:	32	52	46	49	51	46	39	36
177:	54	40	40	46	46	52	35	43
185:	49	95	168	65	47	53	34	23
193:	50	32	42	34	42	38	48	41
201:	41	46	44	36	48	43	34	50
209:	42	84	51	45	30	39	34	38
217:	33	37	35	36	31	32	34	43
225:	32	36	37	33	39	34	24	29
233:	32	37	31	33	36	58	397	379
241:	75	95	87	48	28	31	19	33
249:	32	30	30	17	31	25	24	27
257:	20	28	31	29	32	24	37	28
265:	23	23	28	30	25	41	67	49
273:	21	25	27	25	25	41	17	25
281:	22	29	27	28	21	24	27	18
289:	19	22	20	24	24	16	58	167
297:	68	22	31	39	51	27	33	24
305:	27	20	14	19	25	16	11	19
313:	16	17	16	19	23	27	25	15
321:	16	13	26	22	16	25	22	23
329:	45	18	25	14	29	17	18	24
337:	22	42	128	66	19	25	25	17
345:	23	15	14	17	22	14	30	146
353:	210	51	18	15	15	18	14	17
361:	19	26	12	18	15	13	16	14

369: 14 16 19 20 21 11 14 18

Sample Title: CP-5030 05-10 QC

Channel	1	2	3	4	5	6	7	8
377:	13	13	15	18	18	14	19	12
385:	15	12	25	22	21	22	20	17
393:	13	14	22	13	19	14	17	14
401:	15	18	11	11	15	15	22	15
409:	12	33	24	12	11	10	17	14
417:	20	10	6	16	14	17	15	11
425:	21	17	11	13	7	18	12	11
433:	21	15	5	10	22	18	11	15
441:	16	21	10	11	12	16	7	25
449:	10	9	14	7	12	16	8	8
457:	12	9	11	16	7	19	30	51
465:	24	11	8	21	16	9	13	12
473:	12	15	13	11	16	9	17	9
481:	14	17	13	15	10	17	13	10
489:	9	15	11	11	7	14	16	8
497:	12	6	18	8	5	7	13	14
505:	9	4	11	17	11	26	51	72
513:	34	9	7	9	8	13	10	9
521:	10	8	10	16	7	6	8	13
529:	10	14	9	18	12	12	10	10
537:	12	9	11	9	9	6	9	12
545:	15	8	14	17	7	11	11	10
553:	9	12	8	14	12	10	15	7
561:	12	16	17	14	5	10	13	6
569:	12	9	13	7	15	9	11	11
577:	8	10	15	10	9	13	53	163
585:	59	22	11	10	10	12	8	7
593:	13	11	10	11	15	14	8	12
601:	9	8	12	15	7	11	11	14
609:	57	151	79	13	15	5	8	10
617:	10	13	12	9	11	7	8	10
625:	10	11	9	9	10	10	12	10
633:	9	12	9	5	5	5	11	7
641:	7	5	9	9	9	13	8	7
649:	10	8	6	8	8	7	11	11
657:	5	8	9	9	9	13	13	6
665:	5	14	14	8	10	8	5	10
673:	10	5	11	8	9	7	9	7
681:	6	10	8	6	11	10	7	8
689:	7	8	15	15	14	7	9	9
697:	12	8	17	9	6	14	15	9
705:	10	12	10	9	10	9	8	13
713:	8	7	9	8	14	6	14	10
721:	11	6	9	2	15	12	24	36
729:	20	10	7	7	10	11	10	10
737:	11	7	8	8	8	5	5	13
745:	10	6	9	9	9	9	13	12
753:	7	8	7	8	6	14	1	12
761:	6	9	9	7	9	7	9	10
769:	14	13	9	6	10	10	5	6
777:	9	5	12	7	7	7	13	11
785:	15	10	9	12	5	5	8	7
793:	5	2	15	17	9	8	8	8

801: 8 12 4 10 5 16 12 2

Sample Title: CP-5030 05-10 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	6	4	9	4	8	3	6	4
817:	8	5	9	10	9	8	5	5
825:	2	12	3	11	7	5	6	16
833:	6	6	7	11	3	5	6	9
841:	10	7	7	3	10	5	8	6
849:	6	7	7	8	4	6	6	8
857:	4	1	7	13	22	23	10	6
865:	6	7	8	9	8	7	5	6
873:	3	6	5	11	4	6	5	2
881:	3	6	6	3	12	7	2	2
889:	5	5	6	5	4	9	4	6
897:	6	5	5	9	5	6	9	7
905:	6	5	4	6	4	11	48	84
913:	42	7	4	7	5	7	11	5
921:	5	5	7	3	6	5	4	5
929:	8	7	4	5	8	13	17	8
937:	7	2	6	10	4	5	7	11
945:	9	5	4	6	4	8	2	7
953:	4	3	8	3	7	7	6	6
961:	6	7	6	8	21	11	8	9
969:	42	63	22	4	4	2	5	7
977:	4	3	9	2	2	9	6	3
985:	2	5	5	6	5	9	3	6
993:	2	3	4	1	4	4	1	11
1001:	8	8	5	3	5	4	2	7
1009:	5	6	6	10	11	3	5	5
1017:	2	9	2	5	11	4	5	7
1025:	5	6	6	4	5	5	7	3
1033:	6	9	7	5	10	5	8	3
1041:	6	4	6	3	5	10	4	2
1049:	6	1	7	7	3	8	11	3
1057:	6	6	5	7	7	6	6	5
1065:	4	6	8	8	11	6	11	4
1073:	3	5	3	4	4	8	5	4
1081:	6	5	6	9	3	8	3	2
1089:	8	7	7	8	10	7	6	5
1097:	2	3	6	4	5	4	8	6
1105:	5	10	6	7	5	6	7	9
1113:	7	5	6	5	6	4	6	18
1121:	27	17	13	8	5	5	6	7
1129:	2	9	3	6	6	5	7	7
1137:	6	5	8	9	4	4	7	5
1145:	5	8	4	11	7	9	4	6
1153:	4	8	9	5	8	6	11	5
1161:	3	6	5	6	5	2	6	5
1169:	6	5	6	6	6	5	1	5
1177:	4	9	3	3	8	6	4	8
1185:	3	7	9	7	9	5	6	8
1193:	8	7	6	3	3	5	5	7
1201:	12	3	8	6	3	4	6	6
1209:	4	5	3	2	8	7	4	2
1217:	9	5	13	13	5	8	6	5
1225:	3	5	11	9	13	6	6	9

1233: 7 4 5 6 10 8 24 13

Sample Title: CP-5030 05-10 QC

Channel	1	2	3	4	5	6	7	8	9	10
1241:	12	5	5	9	8	4	8	12		
1249:	5	4	9	8	4	6	4	2		
1257:	3	7	3	3	0	4	4	5		
1265:	6	4	3	1	7	4	7	4		
1273:	5	2	3	2	3	5	1	5		
1281:	2	4	7	3	6	9	3	2		
1289:	6	6	4	3	2	4	4	3		
1297:	2	3	3	5	4	5	2	4		
1305:	7	2	2	4	7	1	5	6		
1313:	1	2	4	4	2	4	5	3		
1321:	7	1	0	5	3	2	4	4		
1329:	4	5	3	4	2	3	2	2		
1337:	1	4	5	5	1	2	1	2		
1345:	6	5	4	4	2	8	6	1		
1353:	0	2	3	2	5	0	5	3		
1361:	5	2	3	2	2	2	1	6		
1369:	5	4	2	3	1	3	4	4		
1377:	1	3	4	3	3	4	3	2		
1385:	2	4	3	3	3	3	1	3		
1393:	3	1	2	2	2	1	0	2		
1401:	3	3	6	1	1	1	3	5		
1409:	4	2	0	2	2	1	3	1		
1417:	4	3	0	4	2	1	2	4		
1425:	0	3	2	2	2	1	2	2		
1433:	1	2	1	3	2	3	3	2		
1441:	1	1	4	1	3	1	5	2		
1449:	0	2	0	0	3	2	1	0		
1457:	4	5	11	72	273	237	77	9		
1465:	4	4	4	2	1	3	0	6		
1473:	1	1	1	1	0	0	2	2		
1481:	1	2	1	1	1	3	0	2		
1489:	2	2	2	1	0	4	1	5		
1497:	4	4	2	2	1	4	2	2		
1505:	3	2	1	1	2	4	4	3		
1513:	2	3	1	4	0	2	0	2		
1521:	1	2	1	0	0	1	1	2		
1529:	1	1	4	2	3	1	3	2		
1537:	1	3	3	1	2	0	0	1		
1545:	4	1	5	1	4	1	1	1		
1553:	0	1	2	3	1	3	4	2		
1561:	3	2	0	0	1	3	1	2		
1569:	2	1	2	2	4	0	1	0		
1577:	2	1	1	0	2	5	1	1		
1585:	1	2	1	4	6	6	1	5		
1593:	5	3	2	1	3	1	1	1		
1601:	3	2	1	1	1	3	3	0		
1609:	0	1	2	2	0	2	1	1		
1617:	2	6	0	0	7	2	3	0		
1625:	4	1	0	1	0	3	7	4		
1633:	1	0	1	0	0	1	2	1		
1641:	2	1	3	2	0	2	1	0		
1649:	1	2	1	1	1	1	1	0		
1657:	2	0	0	1	2	1	2	3		

1665: 1 0 0 2 0 0 2 0

Sample Title: CP-5030 05-10 QC

Channel	1	2	3	4	5	6	7	8
1673:	1	1	0	2	3	1	1	0
1681:	0	2	2	2	3	2	2	1
1689:	1	2	2	0	2	1	1	0
1697:	2	2	3	0	0	1	0	1
1705:	1	2	3	0	2	3	0	2
1713:	1	1	1	2	2	3	0	2
1721:	0	0	2	1	3	0	0	2
1729:	1	8	1	1	2	1	1	0
1737:	2	1	0	3	1	2	2	1
1745:	0	1	0	1	1	1	1	0
1753:	1	0	0	2	1	1	0	1
1761:	1	2	3	10	15	12	4	0
1769:	0	0	0	2	1	0	1	1
1777:	1	0	0	1	1	0	2	2
1785:	0	0	0	2	0	0	0	1
1793:	1	0	0	3	1	0	2	0
1801:	1	0	1	2	4	0	0	0
1809:	1	0	1	0	3	2	1	0
1817:	0	1	0	2	1	1	1	0
1825:	2	1	0	2	0	1	1	0
1833:	2	1	1	0	0	2	1	2
1841:	1	2	2	1	1	1	0	0
1849:	3	0	1	0	1	1	0	0
1857:	1	0	1	2	1	1	0	0
1865:	0	0	0	0	1	0	1	0
1873:	0	1	0	0	2	2	2	1
1881:	0	0	0	1	3	0	1	0
1889:	1	2	2	1	3	2	1	2
1897:	0	0	1	1	2	0	1	1
1905:	0	2	1	0	1	0	0	0
1913:	0	0	2	0	1	1	1	1
1921:	1	1	0	1	0	3	0	0
1929:	0	2	1	1	0	0	2	0
1937:	0	0	2	2	1	1	2	0
1945:	0	1	1	0	2	0	2	1
1953:	0	0	0	2	2	1	2	1
1961:	0	1	3	1	2	3	3	2
1969:	0	1	0	0	3	2	1	0
1977:	1	2	1	2	1	0	2	0
1985:	2	1	0	2	1	1	1	0
1993:	2	2	0	3	3	1	1	2
2001:	2	1	1	0	0	1	1	2
2009:	1	1	0	0	0	2	4	1
2017:	3	2	1	0	1	1	2	0
2025:	3	3	0	0	2	0	1	1
2033:	1	1	2	0	1	0	2	0
2041:	0	0	0	2	0	0	0	0
2049:	1	1	1	0	2	1	1	2
2057:	0	0	0	1	0	0	1	0
2065:	2	1	1	1	1	0	1	0
2073:	0	1	0	0	0	0	0	1
2081:	1	0	0	1	0	1	0	0
2089:	0	1	1	3	1	0	4	1

2097: 0 0 1 2 0 0 5 6

Sample Title: CP-5030 05-10 QC

Channel	1	0	1	2	0	0	5	6
2105:	1	0	1	3	1	0	2	1
2113:	0	1	0	0	1	0	1	0
2121:	0	0	1	1	2	1	1	1
2129:	0	1	1	2	1	0	1	2
2137:	0	1	3	0	0	5	2	0
2145:	0	0	1	0	0	1	0	0
2153:	0	1	3	0	1	0	2	0
2161:	0	0	0	2	0	0	0	2
2169:	1	2	0	1	1	0	1	2
2177:	0	1	0	2	0	0	0	2
2185:	0	0	0	0	1	2	1	0
2193:	1	0	1	1	2	1	0	1
2201:	1	0	3	3	5	3	2	1
2209:	0	2	1	1	1	1	2	2
2217:	0	1	0	1	2	0	0	0
2225:	0	1	0	1	0	0	0	2
2233:	0	1	3	0	0	0	1	1
2241:	0	1	2	0	1	0	0	1
2249:	1	2	0	1	1	0	3	1
2257:	0	1	0	1	0	1	2	1
2265:	2	0	1	0	1	1	0	1
2273:	2	2	1	1	2	2	0	0
2281:	0	1	0	0	0	2	0	1
2289:	0	0	0	2	3	1	1	1
2297:	1	0	1	2	1	1	0	0
2305:	1	1	1	1	1	3	0	1
2313:	3	1	0	0	1	1	1	0
2321:	2	1	0	1	0	4	1	1
2329:	1	0	2	1	0	1	0	0
2337:	0	0	1	0	1	0	1	1
2345:	0	2	0	0	1	4	1	0
2353:	0	2	1	0	0	0	0	1
2361:	1	0	0	2	1	0	1	1
2369:	1	1	0	0	0	2	2	1
2377:	2	0	0	1	0	0	1	1
2385:	0	0	0	0	0	1	1	0
2393:	1	2	0	1	1	1	1	0
2401:	1	1	2	2	0	0	1	0
2409:	0	1	0	1	1	0	0	1
2417:	1	0	0	0	0	1	1	2
2425:	1	1	0	3	0	1	1	0
2433:	1	1	5	1	0	1	0	0
2441:	0	1	1	1	1	2	4	2
2449:	0	1	1	1	0	0	1	2
2457:	0	0	1	2	0	0	1	1
2465:	1	0	1	1	2	0	2	1
2473:	1	0	1	0	0	0	0	2
2481:	0	1	0	0	0	0	0	0
2489:	1	1	0	1	0	0	0	0
2497:	1	0	0	0	0	0	2	1
2505:	0	1	0	0	0	0	1	1
2513:	1	1	0	2	0	0	0	0
2521:	1	1	0	0	0	0	0	0

2529: 0 0 0 0 1 0 0 1

Sample Title: CP-5030 05-10 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2537:	0	0	1	0	0	0	0	0
2545:	0	0	0	0	0	0	0	1
2553:	2	0	1	1	0	0	0	0
2561:	2	0	3	0	1	0	0	0
2569:	0	0	1	0	1	0	0	1
2577:	0	0	0	0	2	1	1	0
2585:	1	0	0	1	1	0	0	0
2593:	0	0	0	1	0	2	0	0
2601:	0	0	2	0	0	0	0	0
2609:	0	0	0	4	14	32	18	19
2617:	5	2	1	0	0	0	0	0
2625:	0	0	0	0	0	0	0	1
2633:	0	1	1	0	0	0	0	0
2641:	0	0	2	0	0	0	0	0
2649:	0	1	0	0	0	0	0	0
2657:	0	0	1	0	1	0	0	0
2665:	0	0	0	0	0	0	1	0
2673:	0	0	1	0	0	0	0	0
2681:	0	0	0	1	1	0	1	1
2689:	0	0	1	0	0	0	0	0
2697:	0	0	0	2	0	2	0	0
2705:	1	0	0	0	0	0	2	0
2713:	0	0	0	1	0	0	0	0
2721:	0	0	0	0	1	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	2	1	1	0	0
2745:	1	0	0	0	0	0	0	0
2753:	0	0	0	1	0	0	2	1
2761:	2	0	0	0	2	1	0	1
2769:	0	0	1	0	0	0	1	0
2777:	0	0	1	1	0	0	0	0
2785:	0	2	0	1	1	0	1	0
2793:	1	0	0	0	0	0	1	1
2801:	0	1	0	0	0	1	1	0
2809:	1	0	0	0	0	2	0	0
2817:	1	0	0	1	0	2	0	0
2825:	2	0	0	1	0	0	0	0
2833:	0	0	1	0	1	1	1	0
2841:	0	0	0	0	0	0	0	0
2849:	1	0	0	0	0	0	0	0
2857:	0	0	0	0	1	0	0	0
2865:	0	0	0	1	0	0	0	0
2873:	0	0	0	1	1	0	0	1
2881:	0	1	0	0	1	0	0	0
2889:	1	0	0	1	0	0	1	0
2897:	0	1	0	0	0	0	0	0
2905:	0	0	0	1	1	0	1	0
2913:	1	0	1	1	0	0	0	0
2921:	0	1	0	0	0	0	0	0
2929:	1	0	1	0	0	1	1	0
2937:	0	1	1	0	0	0	0	0
2945:	0	0	1	0	0	3	0	1
2953:	0	0	0	0	0	1	0	0

2961: 0 0 0 0 1 0 0 0

Sample Title: CP-5030 05-10 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2969:	0	0	0	1	0	0	0	1
2977:	0	0	0	0	0	1	0	0
2985:	0	1	0	0	0	1	0	0
2993:	0	0	0	1	0	0	0	0
3001:	0	0	0	0	0	0	0	0
3009:	0	0	0	1	1	0	0	0
3017:	0	0	0	0	0	2	0	0
3025:	1	0	0	0	1	0	0	0
3033:	0	1	0	0	1	0	0	0
3041:	0	0	0	0	0	0	0	1
3049:	1	0	0	1	0	0	0	0
3057:	0	1	0	0	1	0	0	0
3065:	0	0	0	0	0	0	0	0
3073:	0	1	0	0	0	0	0	0
3081:	0	1	0	0	0	0	0	0
3089:	0	0	0	0	0	1	0	0
3097:	0	0	0	0	0	0	0	0
3105:	0	0	1	0	1	0	0	0
3113:	0	0	1	0	0	0	0	0
3121:	2	0	0	0	1	0	0	0
3129:	0	0	0	0	0	1	0	0
3137:	0	0	0	1	0	1	0	0
3145:	0	1	1	0	0	0	0	1
3153:	2	0	2	0	0	0	0	0
3161:	1	0	0	0	0	0	0	0
3169:	0	0	0	0	0	0	1	0
3177:	0	0	0	0	0	0	0	0
3185:	0	0	1	0	0	1	0	0
3193:	0	0	0	1	0	0	0	0
3201:	0	0	0	0	0	0	0	0
3209:	1	0	0	0	0	0	0	0
3217:	0	1	0	2	0	1	0	0
3225:	0	0	0	0	1	0	0	0
3233:	0	0	0	0	0	0	0	0
3241:	0	0	0	0	0	0	0	1
3249:	0	0	0	0	0	0	0	0
3257:	1	1	0	1	0	0	0	1
3265:	0	1	0	0	0	0	0	0
3273:	0	1	1	0	0	1	0	0
3281:	0	0	0	0	0	0	0	0
3289:	0	0	0	0	0	1	0	0
3297:	1	0	1	0	0	0	1	0
3305:	0	1	0	0	0	0	0	0
3313:	0	0	0	0	1	0	1	2
3321:	0	0	0	1	0	0	0	0
3329:	0	0	0	1	0	0	0	1
3337:	0	0	0	0	0	0	0	0
3345:	0	0	0	0	0	1	0	1
3353:	0	0	0	0	1	0	0	0
3361:	0	1	0	0	0	0	0	1
3369:	0	1	1	0	0	0	0	0
3377:	0	0	0	0	0	0	0	0
3385:	0	0	0	0	0	0	0	1

3393: 0 1 0 0 0 0 0 0

Sample Title: CP-5030 05-10 QC

Channel	1	2	3	4	5	6	7	8
3401:	0	0	0	0	0	0	1	0
3409:	0	1	1	0	0	0	0	0
3417:	0	0	0	0	0	1	0	0
3425:	0	1	0	1	0	1	0	1
3433:	0	0	1	0	0	0	0	0
3441:	0	2	0	0	0	0	0	0
3449:	0	0	0	1	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	1	0	0	2	1	0	0	0
3473:	0	0	0	1	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	1	0	0
3505:	1	1	2	1	0	0	0	0
3513:	2	0	0	0	1	0	0	0
3521:	0	0	0	0	0	0	1	0
3529:	0	0	0	0	1	0	1	0
3537:	0	0	0	0	1	0	0	1
3545:	1	0	1	0	0	0	0	0
3553:	0	1	1	0	0	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	0	0	0	0	0	0
3577:	0	0	1	0	0	0	1	0
3585:	0	0	0	0	0	0	0	0
3593:	0	0	0	0	0	0	0	1
3601:	0	0	0	0	0	0	1	0
3609:	0	0	0	0	0	0	0	0
3617:	0	0	0	0	0	0	1	0
3625:	0	0	0	0	0	0	0	0
3633:	0	0	0	0	0	0	0	0
3641:	0	0	0	0	2	0	0	0
3649:	0	0	1	0	1	0	1	0
3657:	0	0	0	0	0	0	0	0
3665:	0	0	0	0	0	0	0	0
3673:	0	0	1	0	0	0	0	0
3681:	0	0	0	1	0	0	0	0
3689:	0	0	0	0	0	0	0	0
3697:	0	0	0	0	0	0	0	0
3705:	0	0	0	0	0	0	0	1
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	0	1	1	0	2	1	0	0
3737:	1	1	0	0	1	0	0	0
3745:	0	1	0	0	0	0	0	1
3753:	0	0	0	0	0	0	0	0
3761:	0	0	0	0	0	2	0	0
3769:	0	0	1	0	0	0	0	0
3777:	0	0	0	0	0	0	0	0
3785:	0	0	1	0	0	2	0	0
3793:	1	1	0	0	1	0	0	0
3801:	0	2	0	0	0	0	0	0
3809:	0	0	1	0	1	0	0	0
3817:	0	0	1	0	0	0	0	0

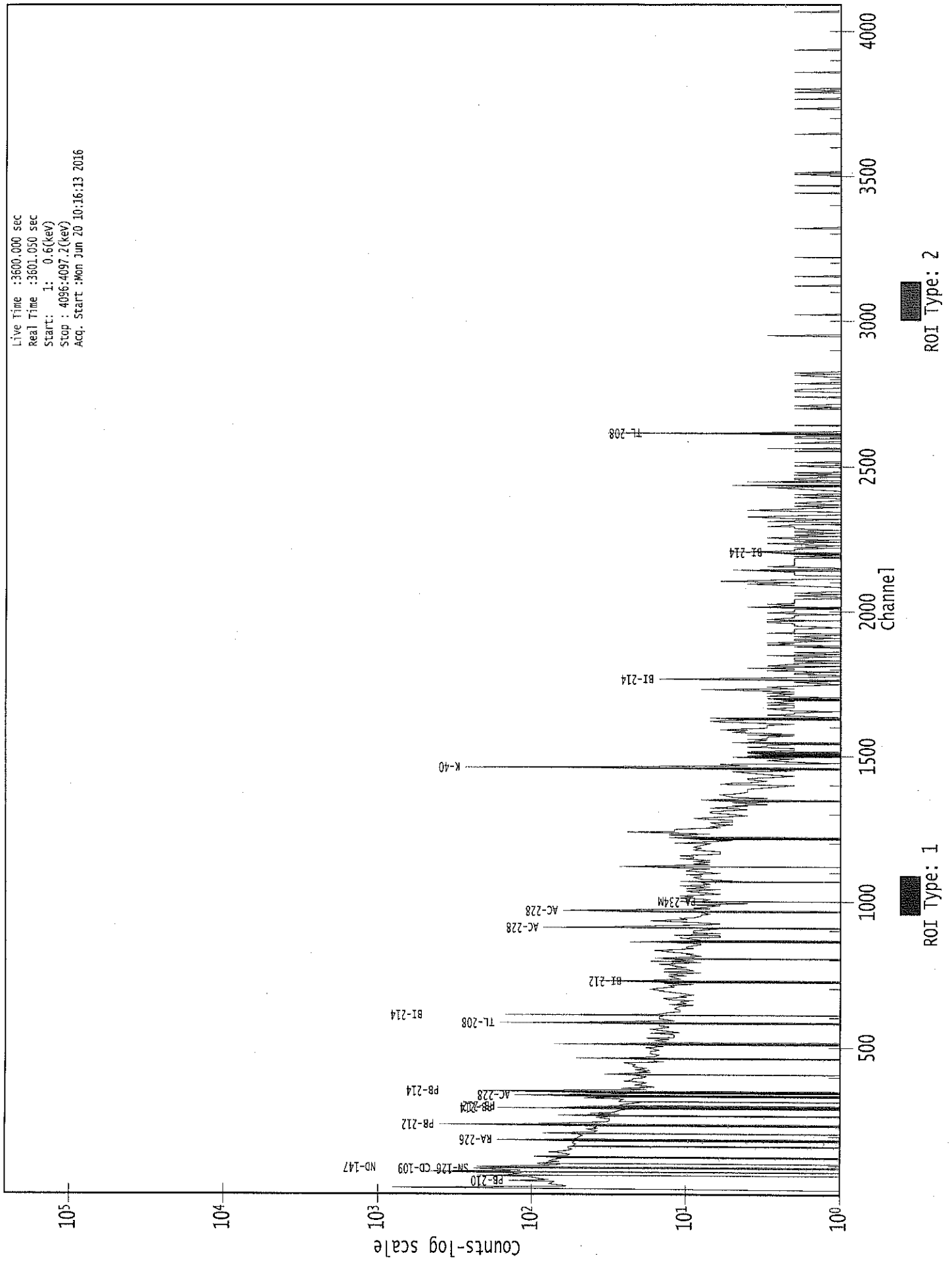
3825: 0 0 0 0 0 0 0 0

Sample Title: CP-5030 05-10 QC

Channel	1	2	3	4	5	6	7	8
3833:	0	0	0	1	0	1	0	1
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	2	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	1	0	0	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	0	0	1
3905:	1	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	0	0	0	0
3929:	0	0	0	0	0	0	0	2
3937:	0	0	1	0	0	0	1	0
3945:	0	0	1	1	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	1	0	1	0	0	0	0
3969:	0	1	0	0	1	0	1	0
3977:	0	1	0	0	0	0	0	0
3985:	0	0	0	0	0	0	1	0
3993:	0	0	0	0	0	0	1	0
4001:	0	0	1	1	0	0	0	1
4009:	0	0	0	0	0	0	0	1
4017:	0	0	0	0	0	1	0	0
4025:	1	0	0	0	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	1	0	0
4057:	0	0	1	0	0	0	0	0
4065:	0	1	2	0	0	0	1	0
4073:	0	1	0	0	1	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000039150.CNF

Live Time :3600.000 sec
Real Time :3601.050 sec
Start: 1: 0.6(keV)
Stop : 4096.4097.2(keV)
Acq. Start :Mon Jun 20 10:16:13 2016



VB
6/20/16Analysis Report for 1606067-05
CP-5031 00-02 QC

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606067-05
Sample Description : CP-5031 00-02 QC
Sample Type : SOIL

Sample Size : 7.399E+02 grams
Facility : Countroom

Sample Taken On : 6/2/2016 9:11:21AM
Acquisition Started : 6/20/2016 9:14:09AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE4
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.1 seconds

Dead Time : 0.03 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 15 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 10/25/2014
Efficiency Calibration Used Done On : 11/8/2014
Efficiency Calibration Description :

Sample Number : 39146

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/20/16

Analysis Report for 1606067-05
CP-5031 00-02 QC

PEAK LOCATE REPORT

Peak Locate Performed on : 6/20/2016 10:14:18AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	62.92	62.18	0.0000	0.00
2	76.55	75.81	0.0000	0.00
3	116.44	115.72	0.0000	0.00
4	186.85	186.16	0.0000	0.00
5	240.47	239.80	0.0000	0.00
6	296.31	295.67	0.0000	0.00
7	338.25	337.63	0.0000	0.00
8	352.31	351.69	0.0000	0.00
9	511.40	510.86	0.0000	0.00
10	609.74	609.25	0.0000	0.00
11	664.25	663.78	0.0000	0.00
12	706.24	705.79	0.0000	0.00
13	933.67	933.34	0.0000	0.00
14	962.96	962.65	0.0000	0.00
15	1121.44	1121.22	0.0000	0.00
16	1238.42	1238.26	0.0000	0.00
17	1265.50	1265.36	0.0000	0.00
18	1377.56	1377.48	0.0000	0.00
19	1398.32	1398.26	0.0000	0.00
20	1448.47	1448.44	0.0000	0.00
21	1461.28	1461.25	0.0000	0.00
22	1582.32	1582.36	0.0000	0.00
23	1592.57	1592.63	0.0000	0.00
24	1651.31	1651.40	0.0000	0.00
25	1704.75	1704.88	0.0000	0.00
26	1731.04	1731.19	0.0000	0.00
27	1765.89	1766.06	0.0000	0.00
28	1847.69	1847.91	0.0000	0.00
29	2205.26	2205.73	0.0000	0.00
30	2346.60	2347.17	0.0000	0.00
31	2615.61	2616.38	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606067-05

CP-5031 00-02 QC

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 10:14:18AM

Peak Analysis From Channel : 1
 Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
1	62.92	55 -	68	62.18	1.93E+02	112.29	1.31E+03	2.20
2	76.55	70 -	81	75.81	4.51E+02	108.50	1.24E+03	2.68
3	116.44	112 -	119	115.72	5.59E+01	59.19	5.44E+02	4.53
4	186.85	180 -	192	186.16	1.60E+02	84.55	7.62E+02	2.84
5	240.47	233 -	245	239.80	1.99E+02	73.71	5.45E+02	5.65
6	296.31	291 -	302	295.67	2.02E+02	59.06	3.32E+02	2.37
7	338.25	335 -	342	337.63	4.66E+01	36.66	1.95E+02	3.52
8	352.31	346 -	355	351.69	3.11E+02	50.77	1.92E+02	2.60
9	511.40	503 -	518	510.86	8.52E+01	43.13	1.52E+02	3.20
10	609.74	604 -	613	609.25	2.08E+02	36.36	7.00E+01	2.44
11	664.25	659 -	669	663.78	3.05E+01	24.88	6.71E+01	5.79
12	706.24	699 -	713	705.79	3.56E+01	32.67	9.69E+01	1.61
13	933.67	929 -	938	933.34	2.07E+01	17.15	3.06E+01	2.69
14	962.96	960 -	965	962.65	1.17E+01	11.75	1.87E+01	3.48
15	1121.44	1116 -	1128	1121.22	5.35E+01	23.36	3.90E+01	2.83
16	1238.42	1236 -	1242	1238.26	1.86E+01	15.95	3.48E+01	2.43
17	1265.50	1260 -	1270	1265.36	1.33E+01	13.07	1.35E+01	1.17
18	1377.56	1374 -	1382	1377.48	1.09E+01	11.52	1.43E+01	1.34
19	1398.32	1392 -	1403	1398.26	1.70E+01	12.81	1.20E+01	5.16
20	1448.47	1444 -	1451	1448.44	7.00E+00	8.72	8.00E+00	1.75
21	1461.28	1455 -	1466	1461.25	8.30E+01	22.89	2.40E+01	2.94
22	1582.32	1578 -	1586	1582.36	1.10E+01	6.63	0.00E+00	1.25
23	1592.57	1588 -	1597	1592.63	1.60E+01	8.00	0.00E+00	7.30
24	1651.31	1647 -	1653	1651.40	5.00E+00	4.47	0.00E+00	1.24
25	1704.75	1702 -	1707	1704.88	8.00E+00	5.66	0.00E+00	2.92
26	1731.04	1726 -	1735	1731.19	1.20E+01	10.86	1.00E+01	4.61
27	1765.89	1761 -	1771	1766.06	3.50E+01	11.83	0.00E+00	5.22
28	1847.69	1842 -	1851	1847.91	1.10E+01	6.63	0.00E+00	3.83
29	2205.26	2201 -	2208	2205.73	1.10E+01	6.63	0.00E+00	2.96
30	2346.60	2342 -	2350	2347.17	6.00E+00	4.90	0.00E+00	2.98
31	2615.61	2613 -	2619	2616.38	9.23E+00	7.50	3.55E+00	2.68

Analysis Report for 1606067-05

CP-5031 00-02 QC

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 10:14:18AM

Peak Analysis From Channel : 1
 Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	62.92	55 -	68	1.93E+02	112.29	1.31E+03	8.94E+01
2	76.55	70 -	81	4.51E+02	108.50	1.24E+03	8.21E+01
3	116.44	112 -	119	5.59E+01	59.19	5.44E+02	4.71E+01
4	186.85	180 -	192	1.60E+02	84.55	7.62E+02	6.63E+01
5	240.47	233 -	245	1.99E+02	73.71	5.45E+02	5.60E+01
6	296.31	291 -	302	2.02E+02	59.06	3.32E+02	4.26E+01
7	338.25	335 -	342	4.66E+01	36.66	1.95E+02	2.80E+01
8	352.31	346 -	355	3.11E+02	50.77	1.92E+02	3.00E+01
9	511.40	503 -	518	8.52E+01	43.13	1.52E+02	3.20E+01
10	609.74	604 -	613	2.08E+02	36.36	7.00E+01	1.82E+01
11	664.25	659 -	669	3.05E+01	24.88	6.71E+01	1.83E+01
12	706.24	699 -	713	3.56E+01	32.67	9.69E+01	2.50E+01
13	933.67	929 -	938	2.07E+01	17.15	3.06E+01	1.19E+01
14	962.96	960 -	965	1.17E+01	11.75	1.87E+01	7.86E+00
15	1121.44	1116 -	1128	5.35E+01	23.36	3.90E+01	1.50E+01
16	1238.42	1236 -	1242	1.86E+01	15.95	3.48E+01	1.10E+01
17	1265.50	1260 -	1270	1.33E+01	13.07	1.35E+01	8.92E+00
18	1377.56	1374 -	1382	1.09E+01	11.52	1.43E+01	7.77E+00
19	1398.32	1392 -	1403	1.70E+01	12.81	1.20E+01	8.05E+00
20	1448.47	1444 -	1451	7.00E+00	8.72	8.00E+00	5.70E+00
21	1461.28	1455 -	1466	8.30E+01	22.89	2.40E+01	1.14E+01
22	1582.32	1578 -	1586	1.10E+01	6.63	0.00E+00	0.00E+00
23	1592.57	1588 -	1597	1.60E+01	8.00	0.00E+00	0.00E+00
24	1651.31	1647 -	1653	5.00E+00	4.47	0.00E+00	0.00E+00
25	1704.75	1702 -	1707	8.00E+00	5.66	0.00E+00	0.00E+00
26	1731.04	1726 -	1735	1.20E+01	10.86	1.00E+01	6.88E+00
27	1765.89	1761 -	1771	3.50E+01	11.83	0.00E+00	0.00E+00
28	1847.69	1842 -	1851	1.10E+01	6.63	0.00E+00	0.00E+00
29	2205.26	2201 -	2208	1.10E+01	6.63	0.00E+00	0.00E+00
30	2346.60	2342 -	2350	6.00E+00	4.90	0.00E+00	0.00E+00
31	2615.61	2613 -	2619	9.23E+00	7.50	3.55E+00	3.62E+00

Analysis Report for 1606067-05

CP-5031 00-02 QC

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/20/2016 10:14:18AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	62.92	55 -	68	62.18	1.93E+02	112.29	1.31E+03	TH-230 TH-234
2	76.55	70 -	81	75.81	4.51E+02	108.50	1.24E+03	.....
3	116.44	112 -	119	115.72	5.59E+01	59.19	5.44E+02	.....
4	186.85	180 -	192	186.16	1.60E+02	84.55	7.62E+02	RA-226
5	240.47	233 -	245	239.80	1.99E+02	73.71	5.45E+02	RA-224
6	296.31	291 -	302	295.67	2.02E+02	59.06	3.32E+02	.....
7	338.25	335 -	342	337.63	4.66E+01	36.66	1.95E+02	AC-228
8	352.31	346 -	355	351.69	3.11E+02	50.77	1.92E+02	PB-214
9	511.40	503 -	518	510.86	8.52E+01	43.13	1.52E+02	.....
10	609.74	604 -	613	609.25	2.08E+02	36.36	7.00E+01	BI-214
11	664.25	659 -	669	663.78	3.05E+01	24.88	6.71E+01	CE-143
12	706.24	699 -	713	705.79	3.56E+01	32.67	9.69E+01	AG-110M
13	933.67	929 -	938	933.34	2.07E+01	17.15	3.06E+01	.....
14	962.96	960 -	965	962.65	1.17E+01	11.75	1.87E+01	.....
15	1121.44	1116 -	1128	1121.22	5.35E+01	23.36	3.90E+01	TA-182 SC-46
16	1238.42	1236 -	1242	1238.26	1.86E+01	15.95	3.48E+01	CO-56
17	1265.50	1260 -	1270	1265.36	1.33E+01	13.07	1.35E+01	.....
18	1377.56	1374 -	1382	1377.48	1.09E+01	11.52	1.43E+01	.....
19	1398.32	1392 -	1403	1398.26	1.70E+01	12.81	1.20E+01	.....
20	1448.47	1444 -	1451	1448.44	7.00E+00	8.72	8.00E+00	.....
21	1461.28	1455 -	1466	1461.25	8.30E+01	22.89	2.40E+01	K-40
22	1582.32	1578 -	1586	1582.36	1.10E+01	6.63	0.00E+00	.....
23	1592.57	1588 -	1597	1592.63	1.60E+01	8.00	0.00E+00	.....
24	1651.31	1647 -	1653	1651.40	5.00E+00	4.47	0.00E+00	.....
25	1704.75	1702 -	1707	1704.88	8.00E+00	5.66	0.00E+00	.....
26	1731.04	1726 -	1735	1731.19	1.20E+01	10.86	1.00E+01	.....
27	1765.89	1761 -	1771	1766.06	3.50E+01	11.83	0.00E+00	.....
28	1847.69	1842 -	1851	1847.91	1.10E+01	6.63	0.00E+00	.....

: 00389

Analysis Report for 1606067-05

CP-5031 00-02 QC

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
29	2205.26	2201 -	2208	2205.73	1.10E+01	6.63	0.00E+00	.....
30	2346.60	2342 -	2350	2347.17	6.00E+00	4.90	0.00E+00	.....
31	2615.61	2613 -	2619	2616.38	9.23E+00	7.50	3.55E+00	TL-208

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/20/2016 10:14:18AM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	62.92	1.93E+02	112.29	2.33E-02	1.76E-03
2	76.55	4.51E+02	108.50	2.12E-02	1.69E-03
3	116.44	5.59E+01	59.19	1.65E-02	1.54E-03
4	186.85	1.60E+02	84.55	1.16E-02	1.15E-03
5	240.47	1.99E+02	73.71	9.35E-03	9.81E-04
6	296.31	2.02E+02	59.06	7.76E-03	8.42E-04
7	338.25	4.66E+01	36.66	6.86E-03	7.95E-04
8	352.31	3.11E+02	50.77	6.60E-03	7.80E-04
9	511.40	8.52E+01	43.13	4.61E-03	5.61E-04
10	609.74	2.08E+02	36.36	3.87E-03	4.16E-04
11	664.25	3.05E+01	24.88	3.56E-03	3.39E-04
12	706.24	3.56E+01	32.67	3.35E-03	3.15E-04
13	933.67	2.07E+01	17.15	2.55E-03	2.03E-04
14	962.96	1.17E+01	11.75	2.48E-03	2.00E-04
15	1121.44	5.35E+01	23.36	2.14E-03	1.79E-04
16	1238.42	1.86E+01	15.95	1.95E-03	1.90E-04
17	1265.50	1.33E+01	13.07	1.92E-03	1.98E-04
18	1377.56	1.09E+01	11.52	1.77E-03	2.06E-04
19	1398.32	1.70E+01	12.81	1.75E-03	2.02E-04
20	1448.47	7.00E+00	8.72	1.70E-03	1.92E-04
21	1461.28	8.30E+01	22.89	1.68E-03	1.89E-04
22	1582.32	1.10E+01	6.63	1.57E-03	1.64E-04
23	1592.57	1.60E+01	8.00	1.56E-03	1.62E-04
24	1651.31	5.00E+00	4.47	1.52E-03	1.49E-04
25	1704.75	8.00E+00	5.66	1.48E-03	1.38E-04
26	1731.04	1.20E+01	10.86	1.46E-03	1.33E-04
27	1765.89	3.50E+01	11.83	1.43E-03	1.26E-04

Analysis Report for 1606067-05

CP-5031 00-02 QC

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
28	1847.69	1.10E+01	6.63	1.38E-03	1.11E-04
29	2205.26	1.10E+01	6.63	1.21E-03	1.11E-04
30	2346.60	6.00E+00	4.90	1.15E-03	1.11E-04
31	2615.61	9.23E+00	7.50	1.07E-03	1.11E-04

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000 sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/20/2016 10:14:18AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039130.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	62.92	1.93E+02	112.29	3.79E+01	3.61E+00	1.55E+02	1.12E+02
2	76.55	4.51E+02	108.50			4.51E+02	1.08E+02
3	116.44	5.59E+01	59.19			5.59E+01	5.92E+01
4	186.85	1.60E+02	84.55	1.76E+01	7.31E+00	1.42E+02	8.49E+01
5	240.47	1.99E+02	73.71			1.99E+02	7.37E+01
6	296.31	2.02E+02	59.06			2.02E+02	5.91E+01
7	338.25	4.66E+01	36.66			4.66E+01	3.67E+01
8	352.31	3.11E+02	50.77	1.57E+00	5.07E+00	3.09E+02	5.10E+01
9	511.40	8.52E+01	43.13	4.08E+01	4.96E+00	4.44E+01	4.34E+01
10	609.74	2.08E+02	36.36			2.08E+02	3.64E+01
11	664.25	3.05E+01	24.88			3.05E+01	2.49E+01
12	706.24	3.56E+01	32.67			3.56E+01	3.27E+01
13	933.67	2.07E+01	17.15			2.07E+01	1.71E+01
14	962.96	1.17E+01	11.75	4.75E-01	1.55E+00	1.12E+01	1.18E+01
15	1121.44	5.35E+01	23.36			5.35E+01	2.34E+01
16	1238.42	1.86E+01	15.95			1.86E+01	1.59E+01
17	1265.50	1.33E+01	13.07			1.33E+01	1.31E+01
18	1377.56	1.09E+01	11.52			1.09E+01	1.15E+01
19	1398.32	1.70E+01	12.81			1.70E+01	1.28E+01
20	1448.47	7.00E+00	8.72			7.00E+00	8.72E+00
21	1461.28	8.30E+01	22.89			8.30E+01	2.29E+01
22	1582.32	1.10E+01	6.63			1.10E+01	6.63E+00
23	1592.57	1.60E+01	8.00			1.60E+01	8.00E+00
24	1651.31	5.00E+00	4.47			5.00E+00	4.47E+00
25	1704.75	8.00E+00	5.66			8.00E+00	5.66E+00
26	1731.04	1.20E+01	10.86			1.20E+01	1.09E+01

: 00391

Analysis Report for 1606067-05

CP-5031 00-02 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
27	1765.89	3.50E+01	11.83			3.50E+01	1.18E+01
28	1847.69	1.10E+01	6.63			1.10E+01	6.63E+00
29	2205.26	1.10E+01	6.63			1.10E+01	6.63E+00
30	2346.60	6.00E+00	4.90			6.00E+00	4.90E+00
31	2615.61	9.23E+00	7.50	8.28E-01	9.85E-01	8.40E+00	7.56E+00

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/20/2016 10:14:18AM

Ref. Peak Energy : 0.00

Reference Date :

Peak Ratio : 0.00

Uncertainty : 0.00

Background File

: \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039130.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	62.92	1.93E+02	112.29	3.79E+01	3.61E+00	1.55E+02	1.12E+02
2	76.55	4.51E+02	108.50			4.51E+02	1.08E+02
3	116.44	5.59E+01	59.19			5.59E+01	5.92E+01
4	186.85	1.60E+02	84.55	1.76E+01	7.31E+00	1.42E+02	8.49E+01
5	240.47	1.99E+02	73.71			1.99E+02	7.37E+01
6	296.31	2.02E+02	59.06			2.02E+02	5.91E+01
7	338.25	4.66E+01	36.66			4.66E+01	3.67E+01
8	352.31	3.11E+02	50.77	1.57E+00	5.07E+00	3.09E+02	5.10E+01
9	511.40	8.52E+01	43.13	4.08E+01	4.96E+00	4.44E+01	4.34E+01
10	609.74	2.08E+02	36.36			2.08E+02	3.64E+01
11	664.25	3.05E+01	24.88			3.05E+01	2.49E+01
12	706.24	3.56E+01	32.67			3.56E+01	3.27E+01
13	933.67	2.07E+01	17.15			2.07E+01	1.71E+01
14	962.96	1.17E+01	11.75	4.75E-01	1.55E+00	1.12E+01	1.18E+01
15	1121.44	5.35E+01	23.36			5.35E+01	2.34E+01
16	1238.42	1.86E+01	15.95			1.86E+01	1.59E+01
17	1265.50	1.33E+01	13.07			1.33E+01	1.31E+01
18	1377.56	1.09E+01	11.52			1.09E+01	1.15E+01
19	1398.32	1.70E+01	12.81			1.70E+01	1.28E+01
20	1448.47	7.00E+00	8.72			7.00E+00	8.72E+00
21	1461.28	8.30E+01	22.89			8.30E+01	2.29E+01
22	1582.32	1.10E+01	6.63			1.10E+01	6.63E+00
23	1592.57	1.60E+01	8.00			1.60E+01	8.00E+00

: 00392

Analysis Report for 1606067-05

CP-5031 00-02 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
24	1651.31	5.00E+00	4.47			5.00E+00	4.47E+00
25	1704.75	8.00E+00	5.66			8.00E+00	5.66E+00
26	1731.04	1.20E+01	10.86			1.20E+01	1.09E+01
27	1765.89	3.50E+01	11.83			3.50E+01	1.18E+01
28	1847.69	1.10E+01	6.63			1.10E+01	6.63E+00
29	2205.26	1.10E+01	6.63			1.10E+01	6.63E+00
30	2346.60	6.00E+00	4.90			6.00E+00	4.90E+00
31	2615.61	9.23E+00	7.50	8.28E-01	9.85E-01	8.40E+00	7.56E+00

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.966	1460.81 *	10.67	4.69E+00	1.40E+00
BI-214	0.443	609.31 *	46.30	1.18E+00	2.42E-01
		1120.29	15.10		
		1764.49	15.80		
		2204.22	4.98		
PB-214	0.410	295.21	19.19		
		351.92 *	37.19	1.28E+00	2.59E-01
RA-224	0.958	240.98 *	3.95	5.46E+00	2.10E+00
RA-226	0.937	186.21 *	3.28	3.80E+00	7.32E+00
TH-234	0.978	63.29 *	3.80	1.77E+00	1.29E+00

* = Energy line found in the spectrum.
- = Manually added nuclide.
? = Manually edited nuclide.
Energy Tolerance : 1.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000sigma

Analysis Report for 1606067-05

CP-5031 00-02 QC

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 10:14:18AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
2	76.55	1.25190E-01	12.04		
3	116.44	1.55306E-02	52.94		
6	296.31	5.60809E-02	14.63		
7	338.25	1.29398E-02	39.35	Tol.	AC-228
9	511.40	1.23251E-02	48.92		
11	664.25	8.46354E-03	40.83	Tol.	CE-143
12	706.24	9.87599E-03	45.94	Tol.	AG-110M
13	933.67	5.74846E-03	41.43		
14	962.96	3.10890E-03	52.93	Sum	
15	1121.44	1.48611E-02	21.83	Tol.	TA-182
16	1238.42	5.16589E-03	42.87	Tol.	CO-56
17	1265.50	3.68056E-03	49.31		
18	1377.56	3.01698E-03	53.04		
19	1398.32	4.72222E-03	37.67		
20	1448.47	1.94444E-03	62.27		
22	1582.32	3.05556E-03	30.15		
23	1592.57	4.44444E-03	25.00		
24	1651.31	1.38889E-03	44.72		
25	1704.75	2.22222E-03	35.36		
26	1731.04	3.33333E-03	45.26		
27	1765.89	9.72222E-03	16.90		
28	1847.69	3.05556E-03	30.15		
29	2205.26	3.05556E-03	30.15		
30	2346.60	1.66667E-03	40.82		
31	2615.61	2.33305E-03	45.03	Tol.	TL-208

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Analysis Report for 1606067-05

CP-5031 00-02 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.96	1460.81 *	10.67	4.69E+00	1.40E+00
BI-214	0.44	609.31 *	46.30	1.18E+00	2.42E-01
		1120.29	15.10		
		1764.49	15.80		
		2204.22	4.98		
PB-214	0.41	295.21	19.19		
		351.92 *	37.19	1.28E+00	2.59E-01
RA-224	0.95	240.98 *	3.95	5.46E+00	2.10E+00
RA-226	0.93	186.21 *	3.28	3.80E+00	7.32E+00
TH-234	0.97	63.29 *	3.80	1.77E+00	1.29E+00

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.966	4.69E+00	1.40E+00	
BI-214	0.443	1.18E+00	2.42E-01	
PB-214	0.410	1.28E+00	2.59E-01	
RA-224	0.958	5.46E+00	2.10E+00	
RA-226	0.937	3.80E+00	7.32E+00	
TH-234	0.978	1.77E+00	1.29E+00	

? = nuclide is part of an undetermined solution

X = nuclide rejected by the interference analysis

@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1606067-05

CP-5031 00-02 QC

 UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 10:14:18AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
2	76.55	1.25190E-01	12.04		
3	116.44	1.55306E-02	52.94		
6	296.31	5.60809E-02	14.63		
7	338.25	1.29398E-02	39.35	Tol.	AC-228
9	511.40	1.23251E-02	48.92		
11	664.25	8.46354E-03	40.83	Tol.	CE-143
12	706.24	9.87599E-03	45.94	Tol.	AG-110M
13	933.67	5.74846E-03	41.43		
14	962.96	3.10890E-03	52.93	Sum	
15	1121.44	1.48611E-02	21.83	Tol.	TA-182
16	1238.42	5.16589E-03	42.87	Tol.	CO-56
17	1265.50	3.68056E-03	49.31		
18	1377.56	3.01698E-03	53.04		
19	1398.32	4.72222E-03	37.67		
20	1448.47	1.94444E-03	62.27		
22	1582.32	3.05556E-03	30.15		
23	1592.57	4.44444E-03	25.00		
24	1651.31	1.38889E-03	44.72		
25	1704.75	2.22222E-03	35.36		
26	1731.04	3.33333E-03	45.26		
27	1765.89	9.72222E-03	16.90		
28	1847.69	3.05556E-03	30.15		
29	2205.26	3.05556E-03	30.15		
30	2346.60	1.66667E-03	40.82		
31	2615.61	2.33305E-03	45.03	Tol.	TL-208

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

Analysis Report for 1606067-05
CP-5031 00-02 QC

NUCLIDE MDA REPORT

Nuclide Library Used : \\\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-4.75E-02	1.05E+00	1.05E+00
+	NA-22	1274.54	99.94	2.79E-02	1.05E-01	1.05E-01
+	NA-24	1368.53	99.99	1.54E+07	3.46E+07	5.31E+07
		2754.09	99.86	4.70E+06		3.46E+07
+	AL-26	1808.65	99.76	-7.24E-03	1.26E-01	1.26E-01
+	K-40	1460.81	* 10.67	4.69E+00	1.44E+00	1.44E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-7.46E-02	5.46E-02	5.46E-02
		78.34	96.00	1.03E-01		6.95E-02
+	SC-46	889.25	99.98	-1.32E-02	1.24E-01	1.24E-01
		1120.51	99.99	2.18E-01		2.16E-01
+	V-48	983.52	99.98	9.11E-02	2.39E-01	2.46E-01
		1312.10	97.50	-6.71E-02		2.39E-01
+	CR-51	320.08	9.83	2.63E-01	1.28E+00	1.28E+00
+	MN-54	834.83	99.97	2.64E-03	1.06E-01	1.06E-01
+	CO-56	846.75	99.96	3.61E-02	1.27E-01	1.27E-01
		1037.75	14.03	1.08E-01		9.55E-01
		1238.25	67.00	-5.22E-02		2.92E-01
		1771.40	15.51	3.57E-02		1.20E+00
		2598.48	16.90	-3.63E-02		7.04E-01
+	CO-57	122.06	85.51	-1.92E-02	7.04E-02	7.04E-02
		136.48	10.60	-2.44E-01		5.91E-01
+	CO-58	810.76	99.40	-5.46E-02	1.29E-01	1.29E-01
+	FE-59	1099.22	56.50	-1.26E-01	2.50E-01	2.50E-01
		1291.56	43.20	9.23E-02		3.52E-01
+	CO-60	1173.22	100.00	-1.16E-02	1.12E-01	1.12E-01
		1332.49	100.00	-2.79E-02		1.25E-01
+	ZN-65	1115.52	50.75	3.78E-02	2.63E-01	2.63E-01
+	GA-67	93.31	35.70	7.54E+00	8.05E+00	8.05E+00
		208.95	2.24	3.73E+01		1.51E+02
		300.22	16.00	-4.79E+00		2.63E+01
+	SE-75	121.11	16.70	-4.15E-02	1.11E-01	3.79E-01
		136.00	59.20	-8.85E-02		1.11E-01
		264.65	59.80	-4.59E-02		1.33E-01
		279.53	25.20	4.85E-02		3.27E-01
		400.65	11.40	1.13E-02		8.37E-01
+	RB-82	776.52	13.00	-3.50E-01	1.34E+00	1.34E+00
+	RB-83	520.41	46.00	4.74E-03	2.11E-01	2.11E-01
		529.64	30.30	1.16E-01		3.26E-01
		552.65	16.40	-1.81E-01		5.57E-01
+	KR-85	513.99	0.43	3.22E+01	2.68E+01	2.68E+01
+	SR-85	513.99	99.27	1.70E-01	1.42E-01	1.42E-01

Analysis Report for 1606067-05

CP-5031 00-02 QC

	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
+	Y-88	898.02	93.40	-3.69E-02	1.24E-01	1.38E-01
		1836.01	99.38	2.76E-02		1.24E-01
+	NB-93M	16.57	9.43	6.24E-01	3.13E-01	3.13E-01
+	NB-94	702.63	100.00	2.58E-02	9.66E-02	1.11E-01
		871.10	100.00	-1.12E-02		9.66E-02
+	NB-95	765.79	99.81	4.15E-02	1.62E-01	1.62E-01
+	NB-95M	235.69	25.00	-8.95E-02	1.14E+01	1.14E+01
+	ZR-95	724.18	43.70	2.11E-01	1.85E-01	2.90E-01
		756.72	55.30	-9.41E-02		1.85E-01
+	MO-99	181.06	6.20	3.27E+01	5.70E+01	1.13E+02
		739.58	12.80	-1.78E+01		5.70E+01
		778.00	4.50	6.92E+01		2.23E+02
+	RU-103	497.08	89.00	4.78E-02	1.29E-01	1.29E-01
+	RU-106	621.84	9.80	-6.41E-04	9.47E-01	9.47E-01
+	AG-108M	433.93	89.90	1.29E-02	8.69E-02	8.69E-02
		614.37	90.40	-7.02E-02		1.57E-01
		722.95	90.50	3.36E-02		1.08E-01
+	CD-109	88.03	3.72	1.86E-01	1.71E+00	1.71E+00
+	AG-110M	657.75	93.14	-2.59E-02	9.51E-02	9.51E-02
		677.61	10.53	1.16E-01		9.33E-01
		706.67	16.46	4.37E-01		7.50E-01
		763.93	21.98	-1.16E-01		4.97E-01
		884.67	71.63	1.53E-02		1.51E-01
		1384.27	23.94	1.94E-01		5.23E-01
+	CD-113M	263.70	0.02	-2.08E+02	3.07E+02	3.07E+02
+	SN-113	255.12	1.93	1.68E+00	1.46E-01	4.54E+00
		391.69	64.90	3.25E-02		1.46E-01
+	TE123M	159.00	84.10	5.78E-02	9.49E-02	9.49E-02
+	SB-124	602.71	97.87	3.26E-03	1.12E-01	1.12E-01
		645.85	7.26	-4.25E-01		1.38E+00
		722.78	11.10	4.04E-03		1.03E+00
		1691.02	49.00	-4.66E-02		2.58E-01
+	I-125	35.49	6.49	-1.56E-01	5.90E-01	5.90E-01
+	SB-125	176.33	6.89	3.98E-01	2.61E-01	1.03E+00
		427.89	29.33	0.00E+00		2.61E-01
		463.38	10.35	-5.09E-01		7.64E-01
		600.56	17.80	7.55E-02		5.13E-01
		635.90	11.32	2.94E-01		8.03E-01
+	SB-126	414.70	83.30	-2.30E-02	2.63E-01	2.63E-01
		666.33	99.60	1.49E-01		2.95E-01
		695.00	99.60	1.18E-01		2.75E-01
		720.50	53.80	-1.31E-01		4.37E-01
+	SN-126	87.57	37.00	1.82E-02	1.67E-01	1.67E-01
+	SB-127	473.00	25.00	6.32E-01	5.68E+00	9.34E+00
		685.20	35.70	-4.55E+00		5.68E+00
		783.80	14.70	-2.38E+00		1.72E+01
+	I-129	29.78	57.00	-2.37E-02	5.58E-02	5.58E-02
		33.60	13.20	8.00E-02		2.40E-01

Analysis Report for 1606067-05

CP-5031 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	I-129	39.58	7.52	-4.79E-01	5.58E-02	4.30E-01
+	I-131	284.30	6.05	4.89E-01	4.53E-01	5.76E+00
		364.48	81.20	-1.69E-01		4.53E-01
		636.97	7.26	1.02E+00		5.66E+00
		722.89	1.80	9.58E-02		2.43E+01
+	TE-132	49.72	13.10	1.10E+01	4.11E+00	1.40E+01
		228.16	88.00	1.20E+00		4.11E+00
+	BA-133	81.00	33.00	-1.90E-02	1.97E-01	1.97E-01
		302.84	17.80	7.09E-03		4.56E-01
		356.01	60.00	-4.93E-02		2.45E-01
+	I-133	529.87	86.30	6.39E+04	1.81E+05	1.81E+05
+	XE-133	81.00	38.00	-1.78E-01	1.84E+00	1.84E+00
+	CS-134	563.23	8.38	2.20E-01	1.16E-01	1.13E+00
		569.32	15.43	-6.63E-02		5.74E-01
		604.70	97.60	-9.42E-03		1.19E-01
		795.84	85.40	2.90E-02		1.16E-01
		801.93	8.73	-4.18E-01		1.16E+00
+	CS-135	268.24	16.00	1.05E-01	4.65E-01	4.65E-01
+	I-135	1131.51	22.50	9.43E+16	2.02E+19	2.44E+19
		1260.41	28.60	3.07E+18		2.02E+19
		1678.03	9.54	-2.42E+19		5.34E+19
+	CS-136	153.22	7.46	1.02E-01	2.92E-01	2.39E+00
		163.89	4.61	5.77E-01		3.80E+00
		176.55	13.56	5.17E-01		1.34E+00
		273.65	12.66	4.83E-01		1.59E+00
		340.57	48.50	4.61E-02		4.94E-01
		818.50	99.70	9.07E-02		2.92E-01
		1048.07	79.60	-7.21E-02		3.54E-01
		1235.34	19.70	-2.21E-01		2.21E+00
+	CS-137	661.65	85.12	-1.22E-02	1.17E-01	1.17E-01
+	LA-138	788.74	34.00	-6.70E-02	1.69E-01	2.92E-01
		1435.80	66.00	3.40E-02		1.69E-01
+	CE-139	165.85	80.35	9.46E-03	9.06E-02	9.06E-02
+	BA-140	162.64	6.70	7.72E-01	8.42E-01	2.73E+00
		304.84	4.50	-5.25E-01		4.53E+00
		423.70	3.20	1.71E+00		6.71E+00
		437.55	2.00	2.25E-01		1.03E+01
		537.32	25.00	-1.87E-01		8.42E-01
+	LA-140	328.77	20.50	3.27E-01	3.41E-01	1.08E+00
		487.03	45.50	-7.30E-02		4.68E-01
		815.85	23.50	2.05E-01		1.27E+00
		1596.49	95.49	-4.07E-02		3.41E-01
+	CE-141	145.44	48.40	5.85E-02	2.02E-01	2.02E-01
+	CE-143	57.36	11.80	-3.47E+00	2.28E+03	3.09E+03
		293.26	42.00	-6.30E+01		2.28E+03
		664.55	5.20	1.48E+04		1.88E+04
+	CE-144	133.54	10.80	-2.37E-01	5.75E-01	5.75E-01
+	PM-144	476.78	42.00	8.38E-02	9.55E-02	2.23E-01
		618.01	98.60	-7.94E-02		9.55E-02

Analysis Report for 1606067-05

CP-5031 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-144	696.49	99.49	2.87E-02	9.55E-02	1.01E-01
+	PM-145	36.85	21.70	-7.51E-02	7.96E-02	1.43E-01
		37.36	39.70	-2.77E-02		7.96E-02
		42.30	15.10	-2.91E-03		2.35E-01
		72.40	2.31	2.22E-01		2.64E+00
+	PM-146	453.90	39.94	-3.46E-02	1.90E-01	1.90E-01
		735.90	14.01	1.26E-01		6.48E-01
		747.13	13.10	2.74E-01		7.24E-01
+	ND-147	91.11	28.90	8.60E-01	7.01E-01	7.01E-01
		531.02	13.10	4.11E-01		1.97E+00
+	PM-149	285.90	3.10	1.59E+02	6.67E+02	6.67E+02
+	EU-152	121.78	20.50	-7.66E-02	2.81E-01	2.81E-01
		244.69	5.40	4.55E-02		1.68E+00
		344.27	19.13	3.94E-02		4.16E-01
		778.89	9.20	3.62E-01		1.17E+00
		964.01	10.40	-1.48E-01		1.12E+00
		1085.78	7.22	3.00E-01		1.93E+00
		1112.02	9.60	3.76E-01		1.32E+00
		1407.95	14.94	-9.23E-02		7.87E-01
+	GD-153	97.43	31.30	-7.92E-02	1.90E-01	1.90E-01
		103.18	22.20	2.21E-02		2.56E-01
+	EU-154	123.07	40.50	-4.35E-02	1.43E-01	1.43E-01
		723.30	19.70	1.55E-01		4.96E-01
		873.19	11.50	-2.96E-01		7.99E-01
		996.32	10.30	-1.08E-01		1.09E+00
		1004.76	17.90	1.76E-02		6.65E-01
		1274.45	35.50	7.77E-02		2.94E-01
+	EU-155	86.50	30.90	-1.14E-01	1.95E-01	1.95E-01
		105.30	20.70	-1.82E-02		2.60E-01
+	EU-156	811.77	10.40	-1.04E+00	2.39E+00	2.39E+00
		1153.47	7.20	-4.61E-01		3.45E+00
		1230.71	8.90	-6.08E-01		3.17E+00
+	HO-166M	184.41	72.60	9.16E-02	1.15E-01	1.15E-01
		280.45	29.60	1.68E-02		2.48E-01
		410.94	11.10	-2.93E-01		6.94E-01
		711.69	54.10	-1.36E-02		1.75E-01
+	TM-171	66.72	0.14	7.24E+00	3.84E+01	3.84E+01
+	HF-172	81.75	4.52	-1.18E-01	5.54E-01	1.39E+00
		125.81	11.30	4.06E-01		5.54E-01
+	LU-172	181.53	20.60	5.91E-02	1.41E+00	2.42E+00
		810.06	16.63	-1.76E+00		4.17E+00
		912.12	15.25	3.90E+00		6.07E+00
		1093.66	62.50	6.72E-01		1.41E+00
+	LU-173	100.72	5.24	-6.53E-01	3.74E-01	1.04E+00
		272.11	21.20	1.28E-01		3.74E-01
+	HF-175	343.40	84.00	1.07E-02	1.18E-01	1.18E-01
+	LU-176	88.34	13.30	4.77E-01	7.89E-02	4.78E-01
		201.83	86.00	4.77E-02		8.84E-02
		306.78	94.00	-1.27E-02		7.89E-02

Analysis Report for 1606067-05

CP-5031 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TA-182	67.75	41.20	-1.90E-01	1.39E-01	1.39E-01
		1121.30	34.90	6.86E-01		6.09E-01
		1189.05	16.23	5.22E-02		7.72E-01
		1221.41	26.98	1.18E-01		4.64E-01
		1231.02	11.44	-2.32E-01		1.21E+00
+	IR-192	308.46	29.68	-9.49E-02	2.22E-01	2.92E-01
		468.07	48.10	6.70E-02		2.22E-01
+	HG-203	279.19	77.30	1.86E-02	1.25E-01	1.25E-01
+	BI-207	569.67	97.72	-1.03E-02	8.94E-02	8.94E-02
		1063.62	74.90	-2.21E-02		1.42E-01
+	TL-208	583.14	30.22	1.83E-01	3.74E-01	3.74E-01
		860.37	4.48	4.63E-02		2.17E+00
		2614.66	35.85	2.17E-01		5.14E-01
+	BI-210M	262.00	45.00	-7.50E-02	1.57E-01	1.57E-01
		300.00	23.00	5.49E-01		4.59E-01
+	PB-210	46.50	4.25	9.00E-01	9.10E-01	9.10E-01
+	PB-211	404.84	2.90	-3.88E-01	2.85E+00	2.85E+00
		831.96	2.90	1.68E+00		3.76E+00
+	BI-212	727.17	11.80	-6.10E-02	8.29E-01	8.29E-01
		1620.62	2.75	1.68E+00		4.67E+00
+	PB-212	238.63	44.60	3.83E-01	2.24E-01	2.24E-01
		300.09	3.41	3.71E+00		3.09E+00
+	BI-214	609.31	* 46.30	1.18E+00	2.21E-01	2.21E-01
		1120.29	15.10	1.24E+00		1.23E+00
		1764.49	15.80	1.22E+00		1.35E+00
		2204.22	4.98	1.24E+00		3.06E+00
+	PB-214	295.21	19.19	1.06E+00	2.62E-01	5.78E-01
		351.92	* 37.19	1.28E+00		2.62E-01
+	RN-219	401.80	6.50	-5.36E-03	1.29E+00	1.29E+00
+	RA-223	323.87	3.88	-6.96E-01	2.06E+00	2.06E+00
+	RA-224	240.98	* 3.95	5.46E+00	3.15E+00	3.15E+00
+	RA-225	40.00	31.00	-2.71E-01	2.43E-01	2.43E-01
+	RA-226	186.21	* 3.28	3.80E+00	3.65E+00	3.65E+00
+	TH-227	50.10	8.40	3.71E-01	4.72E-01	4.72E-01
		236.00	11.50	-6.12E-03		7.77E-01
		256.20	6.30	1.43E-01		1.20E+00
+	AC-228	338.32	11.40	3.38E-01	5.00E-01	7.89E-01
		911.07	27.70	1.78E-01		5.00E-01
		969.11	16.60	5.30E-02		7.00E-01
+	TH-230	48.44	16.90	1.85E-01	2.31E-01	2.31E-01
		62.85	4.60	1.25E+00		1.10E+00
		67.67	0.37	-1.90E+01		1.39E+01
+	PA-231	283.67	1.60	-1.98E+00	3.52E+00	4.48E+00
		302.67	2.30	5.47E-02		3.52E+00
+	TH-231	25.64	14.70	-3.09E-02	2.24E-01	2.24E-01
		84.21	6.40	2.13E-01		9.05E-01
+	PA-233	311.98	38.60	-1.08E-01	3.03E-01	3.03E-01
+	PA-234	131.20	20.40	1.54E-02	2.98E-01	2.98E-01

Analysis Report for 1606067-05

CP-5031 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
PA-234	733.99	8.80	-2.78E-02	2.98E-01	1.01E+00
	946.00	12.00	-2.98E-01		8.40E-01
+ PA-234M	1001.03	0.92	-1.25E+00	1.22E+01	1.22E+01
+ TH-234	63.29 *	3.80	1.77E+00	2.09E+00	2.09E+00
+ U-235	143.76	10.50	3.24E-01	6.30E-01	6.30E-01
	163.35	4.70	2.18E-01		1.44E+00
	205.31	4.70	1.40E-03		1.56E+00
+ NP-237	86.50	12.60	-2.78E-01	4.74E-01	4.74E-01
+ NP-239	106.10	22.70	-3.33E+00	4.77E+01	4.77E+01
	228.18	10.70	2.14E+01		1.45E+02
	277.60	14.10	3.16E-01		1.06E+02
+ AM-241	59.54	35.90	8.79E-02	1.30E-01	1.30E-01
+ AM-243	74.67	66.00	2.54E-01	1.02E-01	1.02E-01
+ CM-243	209.75	3.29	8.36E-01	5.29E-01	2.23E+00
	228.14	10.60	2.15E-01		7.38E-01
	277.60	14.00	1.59E-03		5.29E-01

- + = Nuclide identified during the nuclide identification
- * = Energy line found in the spectrum
- > = MDA value not calculated
- @ = Half-life too short to be able to perform the decay correction
- ? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	1.05E+00	1.05E+00	-4.75E-02	4.93E-01
NA-22	1274.54	99.94	1.05E-01	1.05E-01	2.79E-02	4.54E-02
NA-24	1368.53	99.99	5.31E+07	3.46E+07	1.54E+07	2.29E+07
	2754.09	99.86	3.46E+07		4.70E+06	1.09E+07
AL-26	1808.65	99.76	1.26E-01	1.26E-01	-7.24E-03	5.32E-02
+ K-40	1460.81 *	10.67	1.44E+00	1.44E+00	4.69E+00	6.44E-01

Analysis Report for 1606067-05

CP-5031 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	5.46E-02	5.46E-02	-7.46E-02	2.67E-02
	78.34	96.00	6.95E-02		1.03E-01	3.41E-02
SC-46	889.25	99.98	1.24E-01	1.24E-01	-1.32E-02	5.62E-02
	1120.51	99.99	2.16E-01		2.18E-01	1.01E-01
V-48	983.52	99.98	2.46E-01	2.39E-01	9.11E-02	1.11E-01
	1312.10	97.50	2.39E-01		-6.71E-02	1.03E-01
CR-51	320.08	9.83	1.28E+00	1.28E+00	2.63E-01	6.09E-01
MN-54	834.83	99.97	1.06E-01	1.06E-01	2.64E-03	4.81E-02
CO-56	846.75	99.96	1.27E-01	1.27E-01	3.61E-02	5.76E-02
	1037.75	14.03	9.55E-01		1.08E-01	4.28E-01
	1238.25	67.00	2.92E-01		-5.22E-02	1.34E-01
	1771.40	15.51	1.20E+00		3.57E-02	5.29E-01
	2598.48	16.90	7.04E-01		-3.63E-02	2.63E-01
CO-57	122.06	85.51	7.04E-02	7.04E-02	-1.92E-02	3.42E-02
	136.48	10.60	5.91E-01		-2.44E-01	2.86E-01
CO-58	810.76	99.40	1.29E-01	1.29E-01	-5.46E-02	5.89E-02
FE-59	1099.22	56.50	2.50E-01	2.50E-01	-1.26E-01	1.10E-01
	1291.56	43.20	3.52E-01		9.23E-02	1.54E-01
CO-60	1173.22	100.00	1.12E-01	1.12E-01	-1.16E-02	4.91E-02
	1332.49	100.00	1.25E-01		-2.79E-02	5.52E-02
ZN-65	1115.52	50.75	2.63E-01	2.63E-01	3.78E-02	1.18E-01
GA-67	93.31	35.70	8.05E+00	8.05E+00	7.54E+00	3.93E+00
	208.95	2.24	1.51E+02		3.73E+01	7.28E+01
	300.22	16.00	2.63E+01		-4.79E+00	1.26E+01
SE-75	121.11	16.70	3.79E-01	1.11E-01	-4.15E-02	1.84E-01
	136.00	59.20	1.11E-01		-8.85E-02	5.37E-02
	264.65	59.80	1.33E-01		-4.59E-02	6.35E-02
	279.53	25.20	3.27E-01		4.85E-02	1.56E-01
	400.65	11.40	8.37E-01		1.13E-02	3.95E-01
RB-82	776.52	13.00	1.34E+00	1.34E+00	-3.50E-01	6.14E-01
RB-83	520.41	46.00	2.11E-01	2.11E-01	4.74E-03	9.80E-02
	529.64	30.30	3.26E-01		1.16E-01	1.51E-01
	552.65	16.40	5.57E-01		-1.81E-01	2.56E-01
KR-85	513.99	0.43	2.68E+01	2.68E+01	3.22E+01	1.27E+01
SR-85	513.99	99.27	1.42E-01	1.42E-01	1.70E-01	6.72E-02
Y-88	898.02	93.40	1.38E-01	1.24E-01	-3.69E-02	6.26E-02
	1836.01	99.38	1.24E-01		2.76E-02	5.09E-02
NB-93M	16.57	9.43	3.13E-01	3.13E-01	6.24E-01	1.52E-01
NB-94	702.63	100.00	1.11E-01	9.66E-02	2.58E-02	5.15E-02
	871.10	100.00	9.66E-02		-1.12E-02	4.33E-02
NB-95	765.79	99.81	1.62E-01	1.62E-01	4.15E-02	7.49E-02
NB-95M	235.69	25.00	1.14E+01	1.14E+01	-8.95E-02	5.50E+00
ZR-95	724.18	43.70	2.90E-01	1.85E-01	2.11E-01	1.33E-01
	756.72	55.30	1.85E-01		-9.41E-02	8.29E-02
MO-99	181.06	6.20	1.13E+02	5.70E+01	3.27E+01	5.49E+01
	739.58	12.80	5.70E+01		-1.78E+01	2.54E+01
	778.00	4.50	2.23E+02		6.92E+01	1.02E+02
RU-103	497.08	89.00	1.29E-01	1.29E-01	4.78E-02	6.01E-02
RU-106	621.84	9.80	9.47E-01	9.47E-01	-6.41E-04	4.35E-01
AG-108M	433.93	89.90	8.69E-02	8.69E-02	1.29E-02	4.06E-02
	614.37	90.40	1.57E-01		-7.02E-02	7.44E-02
	722.95	90.50	1.08E-01		3.36E-02	4.91E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CD-109	88.03	3.72	1.71E+00	1.71E+00	1.86E-01	8.35E-01
AG-110M	657.75	93.14	9.51E-02	9.51E-02	-2.59E-02	4.32E-02
	677.61	10.53	9.33E-01		1.16E-01	4.27E-01
	706.67	16.46	7.50E-01		4.37E-01	3.49E-01
	763.93	21.98	4.97E-01		-1.16E-01	2.27E-01
	884.67	71.63	1.51E-01		1.53E-02	6.82E-02
	1384.27	23.94	5.23E-01		1.94E-01	2.27E-01
CD-113M	263.70	0.02	3.07E+02	3.07E+02	-2.08E+02	1.47E+02
SN-113	255.12	1.93	4.54E+00	1.46E-01	1.68E+00	2.18E+00
	391.69	64.90	1.46E-01		3.25E-02	6.93E-02
TE123M	159.00	84.10	9.49E-02	9.49E-02	5.78E-02	4.61E-02
SB-124	602.71	97.87	1.12E-01	1.12E-01	3.26E-03	5.14E-02
	645.85	7.26	1.38E+00		-4.25E-01	6.28E-01
	722.78	11.10	1.03E+00		4.04E-03	4.66E-01
	1691.02	49.00	2.58E-01		-4.66E-02	1.06E-01
I-125	35.49	6.49	5.90E-01	5.90E-01	-1.56E-01	2.86E-01
SB-125	176.33	6.89	1.03E+00	2.61E-01	3.98E-01	4.99E-01
	427.89	29.33	2.61E-01		0.00E+00	1.22E-01
	463.38	10.35	7.64E-01		-5.09E-01	3.56E-01
	600.56	17.80	5.13E-01		7.55E-02	2.37E-01
	635.90	11.32	8.03E-01		2.94E-01	3.68E-01
SB-126	414.70	83.30	2.63E-01	2.63E-01	-2.30E-02	1.24E-01
	666.33	99.60	2.95E-01		1.49E-01	1.37E-01
	695.00	99.60	2.75E-01		1.18E-01	1.27E-01
	720.50	53.80	4.37E-01		-1.31E-01	1.97E-01
SN-126	87.57	37.00	1.67E-01	1.67E-01	1.82E-02	8.15E-02
SB-127	473.00	25.00	9.34E+00	5.68E+00	6.32E-01	4.39E+00
	685.20	35.70	5.68E+00		-4.55E+00	2.55E+00
	783.80	14.70	1.72E+01		-2.38E+00	7.83E+00
I-129	29.78	57.00	5.58E-02	5.58E-02	-2.37E-02	2.71E-02
	33.60	13.20	2.40E-01		8.00E-02	1.17E-01
	39.58	7.52	4.30E-01		-4.79E-01	2.08E-01
I-131	284.30	6.05	5.76E+00	4.53E-01	4.89E-01	2.75E+00
	364.48	81.20	4.53E-01		-1.69E-01	2.14E-01
	636.97	7.26	5.66E+00		1.02E+00	2.59E+00
	722.89	1.80	2.43E+01		9.58E-02	1.10E+01
TE-132	49.72	13.10	1.40E+01	4.11E+00	1.10E+01	6.79E+00
	228.16	88.00	4.11E+00		1.20E+00	1.98E+00
BA-133	81.00	33.00	1.97E-01	1.97E-01	-1.90E-02	9.63E-02
	302.84	17.80	4.56E-01		7.09E-03	2.18E-01
	356.01	60.00	2.45E-01		-4.93E-02	1.19E-01
I-133	529.87	86.30	1.81E+05	1.81E+05	6.39E+04	8.38E+04
XE-133	81.00	38.00	1.84E+00	1.84E+00	-1.78E-01	9.03E-01
CS-134	563.23	8.38	1.13E+00	1.16E-01	2.20E-01	5.25E-01
	569.32	15.43	5.74E-01		-6.63E-02	2.65E-01
	604.70	97.60	1.19E-01		-9.42E-03	5.60E-02
	795.84	85.40	1.16E-01		2.90E-02	5.25E-02
	801.93	8.73	1.16E+00		-4.18E-01	5.26E-01
CS-135	268.24	16.00	4.65E-01	4.65E-01	1.05E-01	2.23E-01
I-135	1131.51	22.50	2.44E+19	2.02E+19	9.43E+16	1.08E+19
	1260.41	28.60	2.02E+19		3.07E+18	8.85E+18
	1678.03	9.54	5.34E+19		-2.42E+19	2.19E+19
CS-136	153.22	7.46	2.39E+00	2.92E-01	1.02E-01	1.16E+00

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-136	163.89	4.61	3.80E+00	2.92E-01	5.77E-01	1.84E+00
	176.55	13.56	1.34E+00		5.17E-01	6.48E-01
	273.65	12.66	1.59E+00		4.83E-01	7.60E-01
	340.57	48.50	4.94E-01		4.61E-02	2.36E-01
	818.50	99.70	2.92E-01		9.07E-02	1.34E-01
	1048.07	79.60	3.54E-01		-7.21E-02	1.57E-01
	1235.34	19.70	2.21E+00		-2.21E-01	1.01E+00
	CS-137	661.65	85.12		1.17E-01	1.17E-01	-1.22E-02	5.38E-02
LA-138	788.74	34.00	2.92E-01	1.69E-01	-6.70E-02	1.33E-01
	1435.80	66.00	1.69E-01		3.40E-02	7.25E-02
CE-139	165.85	80.35	9.06E-02	9.06E-02	9.46E-03	4.38E-02
BA-140	162.64	6.70	2.73E+00	8.42E-01	7.72E-01	1.33E+00
	304.84	4.50	4.53E+00		-5.25E-01	2.16E+00
	423.70	3.20	6.71E+00		1.71E+00	3.15E+00
	437.55	2.00	1.03E+01		2.25E-01	4.82E+00
	537.32	25.00	8.42E-01		-1.87E-01	3.88E-01
LA-140	328.77	20.50	1.08E+00	3.41E-01	3.27E-01	5.14E-01
	487.03	45.50	4.68E-01		-7.30E-02	2.17E-01
	815.85	23.50	1.27E+00		2.05E-01	5.80E-01
	1596.49	95.49	3.41E-01		-4.07E-02	1.46E-01
CE-141	145.44	48.40	2.02E-01	2.02E-01	5.85E-02	9.78E-02
CE-143	57.36	11.80	3.09E+03	2.28E+03	-3.47E+00	1.50E+03
	293.26	42.00	2.28E+03		-6.30E+01	1.10E+03
	664.55	5.20	1.88E+04		1.48E+04	8.72E+03
CE-144	133.54	10.80	5.75E-01	5.75E-01	-2.37E-01	2.79E-01
PM-144	476.78	42.00	2.23E-01	9.55E-02	8.38E-02	1.05E-01
	618.01	98.60	9.55E-02		-7.94E-02	4.40E-02
	696.49	99.49	1.01E-01		2.87E-02	4.63E-02
PM-145	36.85	21.70	1.43E-01	7.96E-02	-7.51E-02	6.93E-02
	37.36	39.70	7.96E-02		-2.77E-02	3.86E-02
	42.30	15.10	2.35E-01		-2.91E-03	1.14E-01
	72.40	2.31	2.64E+00		2.22E-01	1.29E+00
PM-146	453.90	39.94	1.90E-01	1.90E-01	-3.46E-02	8.83E-02
	735.90	14.01	6.48E-01		1.26E-01	2.93E-01
	747.13	13.10	7.24E-01		2.74E-01	3.29E-01
ND-147	91.11	28.90	7.01E-01	7.01E-01	8.60E-01	3.43E-01
	531.02	13.10	1.97E+00		4.11E-01	9.13E-01
PM-149	285.90	3.10	6.67E+02	6.67E+02	1.59E+02	3.18E+02
EU-152	121.78	20.50	2.81E-01	2.81E-01	-7.66E-02	1.36E-01
	244.69	5.40	1.68E+00		4.55E-02	8.10E-01
	344.27	19.13	4.16E-01		3.94E-02	1.97E-01
	778.89	9.20	1.17E+00		3.62E-01	5.35E-01
	964.01	10.40	1.12E+00		-1.48E-01	5.04E-01
	1085.78	7.22	1.93E+00		3.00E-01	8.78E-01
	1112.02	9.60	1.32E+00		3.76E-01	5.93E-01
	1407.95	14.94	7.87E-01		-9.23E-02	3.41E-01
GD-153	97.43	31.30	1.90E-01	1.90E-01	-7.92E-02	9.25E-02
	103.18	22.20	2.56E-01		2.21E-02	1.24E-01
EU-154	123.07	40.50	1.43E-01	1.43E-01	-4.35E-02	6.94E-02
	723.30	19.70	4.96E-01		1.55E-01	2.27E-01
	873.19	11.50	7.99E-01		-2.96E-01	3.55E-01
	996.32	10.30	1.09E+00		-1.08E-01	4.90E-01
	1004.76	17.90	6.65E-01		1.76E-02	3.00E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-154	1274.45	35.50	2.94E-01	1.43E-01	7.77E-02	1.26E-01
EU-155	86.50	30.90	1.95E-01	1.95E-01	-1.14E-01	9.51E-02
	105.30	20.70	2.60E-01		-1.82E-02	1.26E-01
EU-156	811.77	10.40	2.39E+00	2.39E+00	-1.04E+00	1.09E+00
	1153.47	7.20	3.45E+00		-4.61E-01	1.52E+00
	1230.71	8.90	3.17E+00		-6.08E-01	1.41E+00
HO-166M	184.41	72.60	1.15E-01	1.15E-01	9.16E-02	5.59E-02
	280.45	29.60	2.48E-01		1.68E-02	1.19E-01
	410.94	11.10	6.94E-01		-2.93E-01	3.25E-01
	711.69	54.10	1.75E-01		-1.36E-02	7.98E-02
TM-171	66.72	0.14	3.84E+01	3.84E+01	7.24E+00	1.88E+01
HF-172	81.75	4.52	1.39E+00	5.54E-01	-1.18E-01	6.78E-01
	125.81	11.30	5.54E-01		4.06E-01	2.69E-01
LU-172	181.53	20.60	2.42E+00	1.41E+00	5.91E-02	1.18E+00
	810.06	16.63	4.17E+00		-1.76E+00	1.90E+00
	912.12	15.25	6.07E+00		3.90E+00	2.81E+00
	1093.66	62.50	1.41E+00		6.72E-01	6.39E-01
LU-173	100.72	5.24	1.04E+00	3.74E-01	-6.53E-01	5.07E-01
	272.11	21.20	3.74E-01		1.28E-01	1.79E-01
HF-175	343.40	84.00	1.18E-01	1.18E-01	1.07E-02	5.62E-02
LU-176	88.34	13.30	4.78E-01	7.89E-02	4.77E-01	2.34E-01
	201.83	86.00	8.84E-02		4.77E-02	4.27E-02
	306.78	94.00	7.89E-02		-1.27E-02	3.75E-02
TA-182	67.75	41.20	1.39E-01	1.39E-01	-1.90E-01	6.80E-02
	1121.30	34.90	6.09E-01		6.86E-01	2.84E-01
	1189.05	16.23	7.72E-01		5.22E-02	3.39E-01
	1221.41	26.98	4.64E-01		1.18E-01	2.03E-01
	1231.02	11.44	1.21E+00		-2.32E-01	5.37E-01
IR-192	308.46	29.68	2.92E-01	2.22E-01	-9.49E-02	1.39E-01
	468.07	48.10	2.22E-01		6.70E-02	1.04E-01
HG-203	279.19	77.30	1.25E-01	1.25E-01	1.86E-02	5.99E-02
BI-207	569.67	97.72	8.94E-02	8.94E-02	-1.03E-02	4.13E-02
	1063.62	74.90	1.42E-01		-2.21E-02	6.27E-02
TL-208	583.14	30.22	3.74E-01	3.74E-01	1.83E-01	1.76E-01
	860.37	4.48	2.17E+00		4.63E-02	9.73E-01
	2614.66	35.85	5.14E-01		2.17E-01	2.22E-01
BI-210M	262.00	45.00	1.57E-01	1.57E-01	-7.50E-02	7.48E-02
	300.00	23.00	4.59E-01		5.49E-01	2.21E-01
PB-210	46.50	4.25	9.10E-01	9.10E-01	9.00E-01	4.43E-01
PB-211	404.84	2.90	2.85E+00	2.85E+00	-3.88E-01	1.34E+00
	831.96	2.90	3.76E+00		1.68E+00	1.71E+00
BI-212	727.17	11.80	8.29E-01	8.29E-01	-6.10E-02	3.79E-01
	1620.62	2.75	4.67E+00		1.68E+00	2.01E+00
PB-212	238.63	44.60	2.24E-01	2.24E-01	3.83E-01	1.09E-01
	300.09	3.41	3.09E+00		3.71E+00	1.49E+00
+ BI-214	609.31	*	46.30	2.21E-01	2.21E-01	1.18E+00
	1120.29		15.10	1.23E+00		1.24E+00
	1764.49		15.80	1.35E+00		1.22E+00
	2204.22		4.98	3.06E+00		1.24E+00
+ PB-214	295.21		19.19	5.78E-01	2.62E-01	1.06E+00
	351.92	*	37.19	2.62E-01		1.28E+00
RN-219	401.80		6.50	1.29E+00	1.29E+00	-5.36E-03
RA-223	323.87		3.88	2.06E+00	2.06E+00	-6.96E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	RA-224	240.98	*	3.95	3.15E+00	3.15E+00	5.46E+00	1.54E+00
	RA-225	40.00		31.00	2.43E-01	2.43E-01	-2.71E-01	1.18E-01
+	RA-226	186.21	*	3.28	3.65E+00	3.65E+00	3.80E+00	1.79E+00
	TH-227	50.10		8.40	4.72E-01	4.72E-01	3.71E-01	2.30E-01
		236.00		11.50	7.77E-01		-6.12E-03	3.76E-01
		256.20		6.30	1.20E+00		1.43E-01	5.75E-01
	AC-228	338.32		11.40	7.89E-01	5.00E-01	3.38E-01	3.77E-01
		911.07		27.70	5.00E-01		1.78E-01	2.31E-01
		969.11		16.60	7.00E-01		5.30E-02	3.17E-01
	TH-230	48.44		16.90	2.31E-01	2.31E-01	1.85E-01	1.12E-01
		62.85		4.60	1.10E+00		1.25E+00	5.37E-01
		67.67		0.37	1.39E+01		-1.90E+01	6.79E+00
	PA-231	283.67		1.60	4.48E+00	3.52E+00	-1.98E+00	2.13E+00
		302.67		2.30	3.52E+00		5.47E-02	1.68E+00
	TH-231	25.64		14.70	2.24E-01	2.24E-01	-3.09E-02	1.09E-01
		84.21		6.40	9.05E-01		2.13E-01	4.42E-01
	PA-233	311.98		38.60	3.03E-01	3.03E-01	-1.08E-01	1.44E-01
	PA-234	131.20		20.40	2.98E-01	2.98E-01	1.54E-02	1.45E-01
		733.99		8.80	1.01E+00		-2.78E-02	4.56E-01
		946.00		12.00	8.40E-01		-2.98E-01	3.75E-01
	PA-234M	1001.03		0.92	1.22E+01	1.22E+01	-1.25E+00	5.49E+00
+	TH-234	63.29	*	3.80	2.09E+00	2.09E+00	1.77E+00	1.03E+00
	U-235	143.76		10.50	6.30E-01	6.30E-01	3.24E-01	3.06E-01
		163.35		4.70	1.44E+00		2.18E-01	6.97E-01
		205.31		4.70	1.56E+00		1.40E-03	7.55E-01
	NP-237	86.50		12.60	4.74E-01	4.74E-01	-2.78E-01	2.32E-01
	NP-239	106.10		22.70	4.77E+01	4.77E+01	-3.33E+00	2.32E+01
		228.18		10.70	1.45E+02		2.14E+01	6.97E+01
		277.60		14.10	1.06E+02		3.16E-01	5.05E+01
	AM-241	59.54		35.90	1.30E-01	1.30E-01	8.79E-02	6.32E-02
	AM-243	74.67		66.00	1.02E-01	1.02E-01	2.54E-01	4.98E-02
	CM-243	209.75		3.29	2.23E+00	5.29E-01	8.36E-01	1.07E+00
		228.14		10.60	7.38E-01		2.15E-01	3.56E-01
		277.60		14.00	5.29E-01		1.59E-03	2.53E-01

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

No Action Level results available for reporting purposes.

Analysis Report for 1606067-05
CP-5031 00-02 QC

DATA REVIEW COMMENTS REPORT

<i>Creation Date</i>	<i>Comment</i>	<i>User</i>
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No Data Review Comments Entered.

369: 7 12 9 14 13 5 8 11

Sample Title: CP-5031 00-02 QC

Channel	1	2	3	4	5	6	7	8
377:	9	14	11	14	14	11	8	7
385:	10	9	13	13	12	9	7	7
393:	17	17	9	16	9	10	8	14
401:	5	17	14	8	10	10	6	7
409:	10	15	11	4	9	4	13	9
417:	9	7	12	9	11	9	8	6
425:	10	9	5	4	8	9	8	7
433:	4	6	9	12	7	11	3	10
441:	6	4	6	11	7	8	9	5
449:	7	8	8	7	3	5	4	9
457:	8	12	8	2	5	12	6	8
465:	3	9	8	9	10	10	11	13
473:	8	9	5	6	10	10	10	8
481:	6	5	2	10	8	6	8	6
489:	8	5	4	6	9	3	5	5
497:	7	7	7	9	9	5	5	6
505:	12	8	4	7	10	24	20	20
513:	10	10	7	3	10	5	4	7
521:	8	7	8	4	6	8	5	8
529:	9	7	4	5	4	2	5	4
537:	4	4	10	4	9	9	5	6
545:	6	4	5	4	7	5	6	4
553:	7	2	2	6	9	4	7	11
561:	5	10	5	7	2	6	6	5
569:	4	7	6	5	9	2	7	5
577:	12	5	8	8	6	10	18	13
585:	10	4	6	7	6	6	4	9
593:	3	5	4	5	6	5	8	5
601:	7	5	1	6	5	4	9	37
609:	82	62	30	5	3	4	3	6
617:	4	3	6	4	9	7	3	5
625:	3	9	1	6	7	0	7	7
633:	3	2	6	6	4	3	4	4
641:	4	0	5	4	1	6	2	8
649:	3	6	5	6	3	4	5	4
657:	2	3	2	4	7	6	8	10
665:	6	11	5	3	2	5	5	2
673:	5	4	5	5	5	4	7	4
681:	1	4	5	3	4	3	5	1
689:	1	7	5	5	10	4	4	8
697:	1	3	4	2	4	1	8	17
705:	9	6	8	5	5	1	4	5
713:	5	1	3	3	2	2	1	3
721:	7	4	3	4	1	9	6	7
729:	2	3	3	6	2	5	4	2
737:	3	2	4	2	1	3	1	5
745:	1	2	2	5	2	8	7	0
753:	7	2	3	1	1	4	4	3
761:	4	3	2	6	2	4	5	10
769:	11	7	5	3	5	6	5	4
777:	6	4	4	3	4	4	3	2
785:	3	9	1	6	2	3	2	5
793:	3	6	6	2	4	2	1	3

801: 1 2 7 6 5 5 8 6

Sample Title: CP-5031 00-02 QC

Channel	1	2	7	6	5	5	8	6
809:	3	4	2	2	6	1	6	5
817:	5	8	5	6	2	2	6	3
825:	1	4	3	4	6	2	2	6
833:	3	7	5	1	5	0	2	2
841:	4	3	4	4	3	2	0	7
849:	5	6	2	6	1	3	2	3
857:	3	1	2	1	4	5	3	4
865:	2	5	4	3	1	4	1	3
873:	4	0	5	3	1	4	1	4
881:	3	2	4	5	4	2	3	1
889:	2	4	4	8	2	7	1	3
897:	2	4	5	5	0	7	4	7
905:	3	4	2	4	6	4	8	12
913:	4	7	3	6	2	3	6	3
921:	6	3	1	2	4	2	1	2
929:	0	3	3	2	7	9	7	2
937:	2	1	3	3	1	3	1	4
945:	3	2	6	3	0	1	2	5
953:	6	4	6	2	2	3	2	0
961:	4	5	6	6	0	4	3	2
969:	2	3	8	5	3	3	6	0
977:	2	2	3	3	5	2	3	2
985:	0	6	3	3	1	3	5	4
993:	1	4	4	1	3	1	3	5
1001:	4	3	3	2	2	5	4	1
1009:	4	5	2	1	5	1	4	1
1017:	5	1	3	1	3	3	3	2
1025:	6	4	1	6	4	1	7	2
1033:	1	3	5	3	1	3	2	3
1041:	4	3	2	0	0	4	3	4
1049:	5	3	1	2	2	2	5	4
1057:	1	4	3	0	3	2	3	2
1065:	5	0	2	1	2	4	2	1
1073:	0	2	0	5	4	4	2	3
1081:	4	8	3	0	3	5	2	4
1089:	4	6	1	2	8	4	3	1
1097:	4	1	2	0	1	4	3	1
1105:	4	2	4	3	4	4	6	4
1113:	0	3	2	1	2	2	7	16
1121:	18	11	4	1	4	3	3	1
1129:	2	5	2	1	0	1	4	2
1137:	0	4	7	4	3	2	2	1
1145:	4	2	2	3	2	1	2	2
1153:	2	2	2	2	3	3	1	3
1161:	1	7	1	2	2	1	2	2
1169:	2	3	1	3	4	0	1	2
1177:	2	4	1	3	2	1	1	3
1185:	1	2	0	3	3	2	3	1
1193:	3	3	1	2	3	1	2	4
1201:	1	2	3	2	4	1	1	1
1209:	2	2	1	1	3	2	0	3
1217:	1	3	3	1	2	2	3	2
1225:	0	0	2	1	0	2	4	6

1233: 2 3 1 0 5 10 10 4

Sample Title: CP-5031 00-02 QC

Channel	1	2	3	4	5	6	7	8	9
1241:	4	3	5	2	1	4	1	1	1
1249:	1	0	4	3	2	0	3	4	4
1257:	4	0	2	1	3	1	1	1	1
1265:	7	2	2	1	1	0	0	2	2
1273:	2	0	1	4	3	1	2	0	0
1281:	2	1	2	2	1	3	3	0	0
1289:	2	3	4	2	0	2	0	2	2
1297:	0	0	3	2	3	2	1	0	0
1305:	1	4	3	1	1	1	1	1	1
1313:	2	2	1	3	1	2	1	0	0
1321:	0	5	3	3	0	3	1	4	4
1329:	2	0	1	4	2	3	2	0	0
1337:	5	4	1	3	1	3	1	1	1
1345:	2	1	1	2	1	0	0	1	1
1353:	2	0	0	1	0	2	2	2	2
1361:	2	1	0	0	3	1	2	0	0
1369:	4	1	1	1	0	1	1	0	0
1377:	4	9	1	1	1	0	2	4	4
1385:	2	1	4	0	3	0	0	1	1
1393:	1	2	2	1	4	1	1	3	3
1401:	5	2	0	1	1	1	3	1	1
1409:	1	3	2	1	1	0	3	0	0
1417:	0	0	1	1	0	0	3	3	3
1425:	2	1	1	3	0	2	2	1	1
1433:	1	3	1	3	1	1	1	0	0
1441:	0	1	1	0	1	1	1	2	2
1449:	4	2	0	1	0	1	1	1	1
1457:	1	2	6	17	24	29	12	1	1
1465:	1	0	2	2	1	1	4	1	1
1473:	2	3	0	0	1	2	1	2	2
1481:	1	0	1	0	1	0	2	0	0
1489:	2	2	2	1	1	1	1	2	2
1497:	3	0	1	2	1	2	1	0	0
1505:	3	0	2	3	2	3	2	0	0
1513:	0	3	2	1	2	1	2	3	3
1521:	1	0	1	0	2	0	3	1	1
1529:	1	1	1	3	0	1	2	0	0
1537:	1	1	2	1	1	2	2	1	1
1545:	6	0	1	2	2	1	0	0	0
1553:	0	1	0	3	0	0	0	0	0
1561:	3	1	2	0	1	2	0	1	1
1569:	0	3	0	0	1	1	1	0	0
1577:	0	0	1	1	1	1	5	1	1
1585:	1	0	0	0	2	4	0	2	2
1593:	1	1	3	3	0	0	1	1	1
1601:	2	3	0	0	2	1	1	1	1
1609:	0	0	0	1	1	1	0	1	1
1617:	0	2	0	1	2	4	1	2	2
1625:	1	0	1	1	1	3	1	1	1
1633:	0	0	1	0	1	2	0	0	0
1641:	0	1	0	0	0	0	0	0	0
1649:	0	1	1	3	0	0	0	2	2
1657:	1	1	0	0	2	1	2	2	2

1665: 0 0 0 1 1 0 0 2

Sample Title: CP-5031 00-02 QC

Channel	1	2	3	4	5	6	7	8	9
1673:	3	1	0	0	0	1	1	1	
1681:	1	2	0	1	3	0	2	2	
1689:	0	1	1	0	1	0	0	0	
1697:	2	1	1	1	0	0	1	2	
1705:	2	3	0	0	1	2	0	0	
1713:	1	1	2	1	0	0	0	1	
1721:	0	0	0	1	1	0	2	0	
1729:	1	3	4	2	2	3	0	1	
1737:	0	0	1	0	0	0	1	0	
1745:	0	1	0	0	1	0	0	1	
1753:	0	1	1	0	2	1	0	0	
1761:	0	1	2	6	4	7	6	6	
1769:	2	1	0	0	1	0	2	0	
1777:	0	0	0	0	1	0	0	2	
1785:	0	0	0	0	0	2	0	0	
1793:	0	1	0	0	1	0	0	0	
1801:	0	3	0	1	0	3	0	2	
1809:	0	1	0	0	1	2	0	2	
1817:	1	2	0	0	0	0	0	0	
1825:	0	0	0	0	1	0	1	0	
1833:	2	1	1	0	0	1	0	1	
1841:	0	0	1	0	0	0	4	1	
1849:	2	3	0	0	0	1	0	0	
1857:	0	0	0	1	0	0	0	0	
1865:	0	0	0	0	0	0	2	0	
1873:	1	1	1	0	1	0	0	0	
1881:	1	1	0	0	0	0	1	2	
1889:	0	0	1	2	2	1	1	0	
1897:	0	0	1	0	2	1	1	0	
1905:	0	1	0	0	0	0	0	0	
1913:	0	0	0	1	2	0	0	0	
1921:	1	1	1	0	0	0	0	1	
1929:	0	0	0	0	0	0	1	2	
1937:	0	2	0	1	0	2	1	1	
1945:	0	0	0	0	0	2	1	0	
1953:	0	0	0	0	1	0	0	1	
1961:	0	0	0	0	0	0	0	1	
1969:	1	3	0	3	0	1	0	0	
1977:	0	0	2	0	0	1	0	0	
1985:	0	1	0	0	1	0	0	0	
1993:	1	0	1	0	0	0	1	0	
2001:	1	0	0	0	0	1	0	0	
2009:	0	0	1	0	1	0	0	1	
2017:	0	0	0	0	0	0	1	1	
2025:	1	0	0	1	0	1	0	0	
2033:	0	1	1	0	1	0	0	1	
2041:	1	0	0	0	1	1	1	0	
2049:	0	0	1	0	2	0	0	0	
2057:	1	1	0	1	0	0	0	0	
2065:	1	0	0	0	0	0	0	1	
2073:	0	0	0	0	1	1	1	0	
2081:	1	0	1	2	0	0	0	0	
2089:	0	1	0	1	0	0	0	0	

2097: 0 1 1 1 0 0 0 1

Sample Title: CP-5031 00-02 QC

Channel	1	2	3	4	5	6	7	8
2105:	0	3	0	1	0	0	0	0
2113:	0	1	0	0	1	1	1	1
2121:	0	0	0	0	0	1	0	1
2129:	0	0	0	0	0	0	0	0
2137:	0	0	0	0	0	0	0	0
2145:	0	0	1	2	0	0	0	0
2153:	1	2	0	0	0	0	0	0
2161:	1	0	0	1	1	1	0	0
2169:	0	2	0	0	1	0	0	0
2177:	0	0	0	0	0	0	0	0
2185:	0	0	0	0	0	1	1	0
2193:	3	1	0	1	0	0	1	0
2201:	0	0	0	1	4	3	3	0
2209:	0	0	0	0	1	0	0	2
2217:	0	0	1	0	0	0	0	3
2225:	0	0	0	1	0	0	1	0
2233:	0	0	0	0	1	2	0	0
2241:	1	0	0	0	0	0	0	0
2249:	0	0	0	0	1	0	0	0
2257:	0	0	0	0	0	0	1	0
2265:	0	0	1	0	0	0	0	1
2273:	0	1	0	0	0	0	1	0
2281:	0	0	1	2	0	1	0	0
2289:	0	0	0	0	0	2	0	0
2297:	1	0	0	0	0	0	0	0
2305:	0	1	0	0	1	0	0	0
2313:	0	0	0	0	0	0	0	0
2321:	2	0	0	0	0	1	0	0
2329:	1	1	0	0	0	0	1	0
2337:	1	1	0	0	0	0	1	0
2345:	0	0	2	1	2	0	0	0
2353:	0	1	0	1	0	0	0	0
2361:	0	0	0	0	1	0	1	0
2369:	0	0	0	0	0	0	0	0
2377:	1	0	0	0	0	0	1	0
2385:	0	1	0	1	0	0	0	0
2393:	0	0	0	0	0	0	0	0
2401:	0	1	0	2	0	0	0	1
2409:	1	0	1	0	0	1	0	1
2417:	1	0	0	0	0	0	0	0
2425:	0	0	0	0	1	0	0	1
2433:	0	0	0	0	1	0	0	1
2441:	0	1	0	0	0	1	1	0
2449:	1	0	0	0	0	0	0	0
2457:	0	1	1	0	0	0	0	0
2465:	0	0	0	0	0	0	0	0
2473:	0	0	0	1	0	0	1	0
2481:	0	0	0	1	0	0	0	0
2489:	0	0	0	0	0	0	2	1
2497:	0	0	2	0	0	0	0	0
2505:	0	0	0	0	0	0	0	0
2513:	0	0	0	0	0	0	0	0
2521:	0	0	0	0	0	0	1	0

2529: 0 1 0 0 1 0 0 0

Sample Title: CP-5031 00-02 QC

Channel	1	2	3	4	5	6	7	8
2537:	0	0	0	0	0	0	0	0
2545:	0	0	1	0	0	0	0	0
2553:	0	0	1	0	0	0	0	1
2561:	1	0	0	0	0	0	0	0
2569:	0	0	0	0	0	0	0	0
2577:	0	0	0	0	0	0	1	0
2585:	1	0	0	0	1	0	0	0
2593:	0	0	0	0	0	1	0	1
2601:	1	0	0	0	1	1	0	0
2609:	0	1	0	0	0	0	2	4
2617:	3	2	0	1	0	1	2	1
2625:	0	0	0	0	0	0	0	2
2633:	0	0	0	0	1	0	0	0
2641:	0	0	0	0	0	0	0	0
2649:	0	1	0	0	1	0	0	0
2657:	1	0	0	0	0	0	0	1
2665:	0	1	0	0	0	0	0	0
2673:	0	0	0	0	1	0	0	0
2681:	0	0	0	0	1	0	0	0
2689:	1	0	0	0	1	0	0	1
2697:	1	0	0	0	0	0	1	0
2705:	0	0	0	0	0	0	0	0
2713:	0	0	0	0	0	1	0	0
2721:	0	0	1	0	0	0	0	0
2729:	2	0	0	1	0	0	0	0
2737:	0	0	0	1	0	0	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	0	0	1	0	0
2761:	0	0	0	0	0	0	0	0
2769:	0	1	0	0	0	0	0	0
2777:	0	1	0	0	0	0	0	1
2785:	0	1	1	1	0	0	1	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	1	0
2809:	0	0	0	0	0	0	0	1
2817:	0	0	1	0	0	0	0	0
2825:	0	0	0	1	0	0	0	0
2833:	0	0	0	1	0	1	0	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	1	0	0	0	0	1	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	0	0	1	0	0
2881:	0	0	0	0	0	0	0	1
2889:	1	0	0	0	0	0	0	0
2897:	0	0	0	0	0	1	0	0
2905:	0	0	1	0	0	0	0	1
2913:	1	1	0	0	0	0	1	1
2921:	0	0	0	0	0	0	0	0
2929:	0	1	0	0	0	1	0	0
2937:	0	0	0	0	0	0	0	0
2945:	1	0	0	1	1	0	0	0
2953:	0	0	1	0	0	0	1	0

2961: 0 0 0 0 0 0 0 0

Sample Title: CP-5031 00-02 QC

Channel	1	2	3	4	5	6	7	8
2969:	0	0	1	0	1	0	0	0
2977:	0	0	0	0	0	0	0	0
2985:	0	0	0	0	0	0	0	0
2993:	0	0	0	0	0	0	0	0
3001:	1	0	0	0	1	0	0	0
3009:	0	0	0	0	0	0	0	0
3017:	0	0	0	0	0	0	1	1
3025:	0	0	0	0	0	0	0	0
3033:	0	1	0	0	0	1	0	0
3041:	0	0	0	0	1	0	0	1
3049:	0	0	0	0	0	0	0	0
3057:	1	0	0	0	0	0	2	0
3065:	0	1	0	0	0	0	0	0
3073:	0	0	0	0	2	0	0	0
3081:	0	0	0	0	0	0	0	1
3089:	0	0	1	0	0	0	0	0
3097:	0	2	0	0	0	0	1	0
3105:	1	0	0	0	0	0	0	0
3113:	0	0	0	2	0	0	0	0
3121:	0	0	0	0	1	0	0	0
3129:	0	0	0	0	0	0	0	0
3137:	0	0	0	0	2	0	0	0
3145:	0	0	0	0	0	0	1	0
3153:	0	0	0	0	0	0	0	0
3161:	0	1	0	0	0	0	0	0
3169:	1	1	1	1	0	0	0	0
3177:	0	0	0	0	0	0	0	0
3185:	0	0	0	0	0	0	0	1
3193:	0	0	0	0	0	0	0	0
3201:	1	0	0	0	0	0	0	0
3209:	1	0	0	1	0	0	0	1
3217:	0	0	0	0	0	0	1	1
3225:	0	0	0	0	1	1	0	2
3233:	0	0	0	0	0	0	0	0
3241:	1	0	0	0	0	0	0	0
3249:	0	0	0	0	0	1	0	0
3257:	1	0	0	1	0	0	0	0
3265:	0	0	1	0	0	0	0	0
3273:	0	1	0	0	0	0	0	0
3281:	0	0	1	1	0	0	0	0
3289:	0	0	0	0	0	0	0	0
3297:	0	0	0	0	0	0	1	0
3305:	0	2	1	0	0	0	0	0
3313:	0	0	0	0	0	0	0	0
3321:	0	0	0	0	0	0	0	0
3329:	0	0	0	0	0	0	0	0
3337:	0	0	2	0	0	1	0	0
3345:	0	0	0	1	0	0	0	0
3353:	0	0	0	0	0	0	0	0
3361:	0	0	0	0	0	1	0	0
3369:	1	0	0	0	0	0	0	0
3377:	0	1	0	0	0	0	1	0
3385:	0	0	0	0	0	0	0	0

3393: 0 0 0 0 0 0 0 0 1

Sample Title: CP-5031 00-02 QC

Channel	1	2	3	4	5	6	7	8
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	1	0	0	0	0	0	1	0
3425:	0	1	0	0	0	0	0	0
3433:	1	0	0	0	0	0	0	0
3441:	0	0	0	1	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	2	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	1	1	0	1	0	0	0
3489:	0	0	0	1	0	0	0	0
3497:	0	0	1	1	0	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	0	1	0	1	0
3521:	0	0	0	0	0	0	0	0
3529:	1	0	0	0	0	0	1	0
3537:	0	0	0	0	0	0	0	0
3545:	0	0	0	0	0	0	1	0
3553:	0	0	1	0	0	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	0	0	0	0	0	0
3577:	0	0	0	0	1	0	1	0
3585:	0	0	0	0	0	0	0	1
3593:	0	1	0	0	0	0	0	0
3601:	0	0	0	0	0	0	0	0
3609:	0	0	0	0	0	0	0	0
3617:	0	0	0	0	2	0	1	0
3625:	0	0	1	0	0	0	0	0
3633:	0	0	0	0	1	0	0	0
3641:	0	0	0	0	0	0	0	0
3649:	0	2	0	0	0	0	0	0
3657:	0	0	0	0	0	0	0	0
3665:	0	0	1	1	0	0	0	0
3673:	0	1	0	0	0	0	0	0
3681:	0	0	1	0	0	0	0	0
3689:	0	0	0	0	0	0	0	0
3697:	0	0	0	0	0	0	0	0
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	0	0	1	0	0
3729:	0	0	0	0	0	1	0	0
3737:	0	0	1	0	0	0	0	0
3745:	0	0	0	0	0	0	0	1
3753:	0	0	1	0	0	0	0	0
3761:	0	0	0	0	1	1	0	0
3769:	0	0	0	0	0	0	0	0
3777:	0	0	0	0	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	0	0	0	0	0	0	0	0
3801:	0	0	0	0	0	0	0	0
3809:	0	0	0	1	0	0	0	0
3817:	0	0	0	0	0	0	0	0

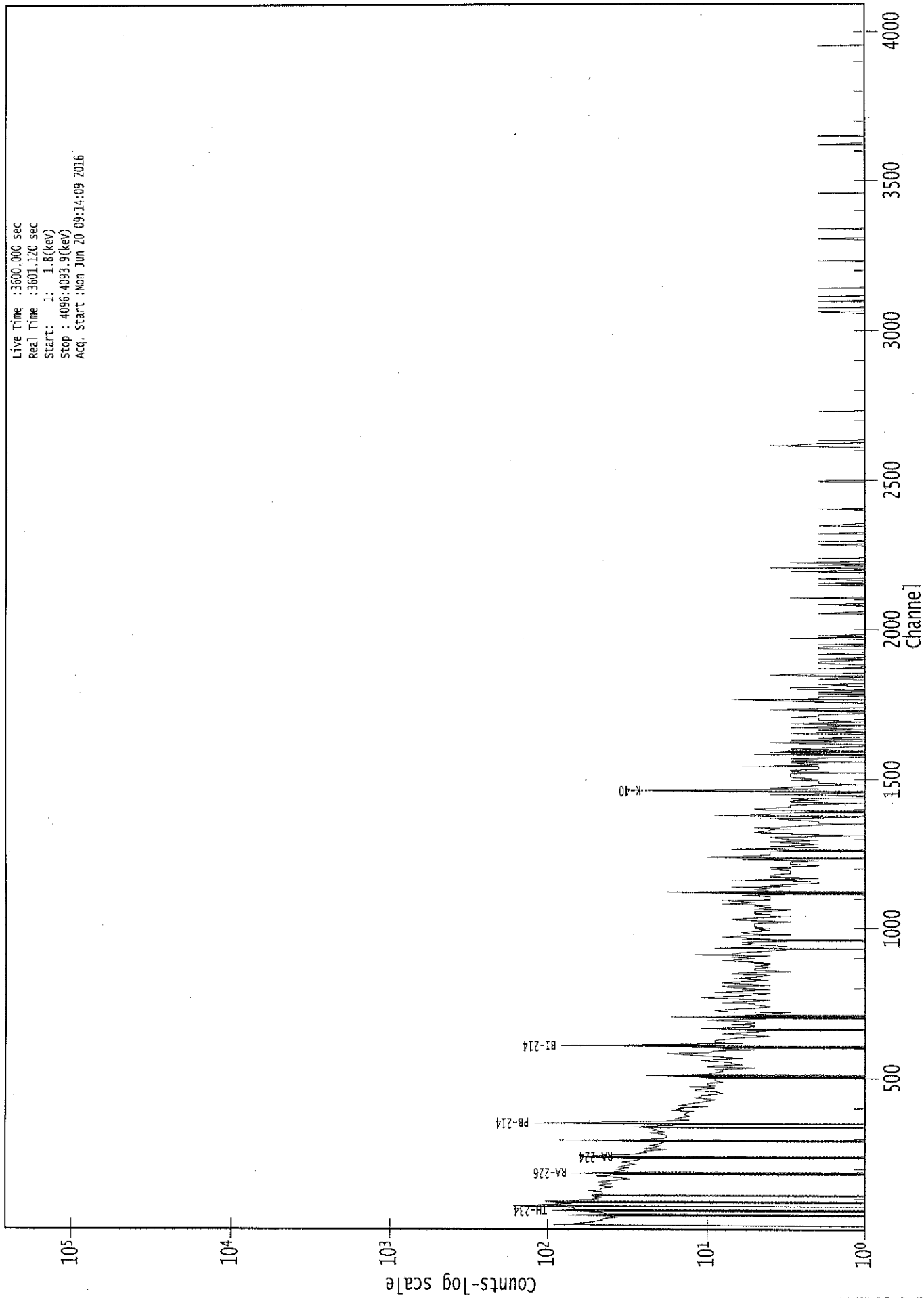
3825: 0 0 0 0 0 0 0 0

Sample Title: CP-5031 00-02 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	1	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	1	0	1	0	1	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	1	1	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	0	0	0	0
3929:	0	0	0	0	0	0	0	0
3937:	0	0	0	0	0	0	0	0
3945:	0	0	0	0	0	0	0	0
3953:	2	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	1	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	0	0	0	0	0
3993:	0	0	0	0	0	1	0	0
4001:	0	0	0	0	0	1	0	0
4009:	0	0	0	0	0	0	0	1
4017:	0	0	0	0	1	0	0	0
4025:	0	0	0	0	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	1
4065:	1	0	0	0	0	0	0	1
4073:	0	0	0	0	0	0	0	1
4081:	0	0	0	1	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000039146.CNF

Live Time :3600.000 sec
Real Time :3601.120 sec
Start: 1: 1.8(keV)
Stop : 4096.4093.9(keV)
Acq. Start :Mon Jun 20 09:14:09 2016



ROI Type: 1

KB
6/20/16Analysis Report for 1606067-06
CP-5023 02-05 QC

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606067-06
Sample Description : CP-5023 02-05 QC
Sample Type : SOIL

Sample Size : 4.941E+02 grams
Facility : Countroom

Sample Taken On : 6/2/2016 9:11:49AM
Acquisition Started : 6/20/2016 9:14:19AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE2
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.4 seconds

Dead Time : 0.04 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 7 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 11/2/2014
Efficiency Calibration Used Done On : 4/6/2016
Efficiency Calibration Description :

Sample Number : 39147

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/20/16

Analysis Report for 1606067-06

CP-5023 02-05 QC

PEAK LOCATE REPORT

Peak Locate Performed on : 6/20/2016 10:14:34AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
1	12.88	13.00	0.0000	0.00
2	47.14	47.24	0.0000	0.00
3	63.38	63.48	0.0000	0.00
4	76.20	76.28	0.0000	0.00
5	92.73	92.81	0.0000	0.00
6	99.27	99.34	0.0000	0.00
7	144.62	144.67	0.0000	0.00
8	186.07	186.09	0.0000	0.00
9	209.16	209.18	0.0000	0.00
10	239.17	239.17	0.0000	0.00
11	270.83	270.81	0.0000	0.00
12	295.17	295.14	0.0000	0.00
13	300.00	299.96	0.0000	0.00
14	338.37	338.32	0.0000	0.00
15	351.96	351.90	0.0000	0.00
16	409.57	409.48	0.0000	0.00
17	463.05	462.93	0.0000	0.00
18	510.60	510.45	0.0000	0.00
19	535.08	534.92	0.0000	0.00
20	563.44	563.27	0.0000	0.00
21	583.32	583.14	0.0000	0.00
22	609.27	609.07	0.0000	0.00
23	702.55	702.31	0.0000	0.00
24	726.88	726.63	0.0000	0.00
25	755.68	755.42	0.0000	0.00
26	768.08	767.82	0.0000	0.00
27	772.45	772.18	0.0000	0.00
28	777.32	777.05	0.0000	0.00
29	860.90	860.59	0.0000	0.00
30	911.40	911.07	0.0000	0.00
31	935.94	935.61	0.0000	0.00
32	969.28	968.93	0.0000	0.00
33	976.43	976.07	0.0000	0.00
34	1007.81	1007.44	0.0000	0.00
35	1120.52	1120.11	0.0000	0.00
36	1203.83	1203.40	0.0000	0.00
37	1299.18	1298.71	0.0000	0.00
38	1378.04	1377.55	0.0000	0.00
39	1388.98	1388.48	0.0000	0.00
40	1408.78	1408.27	0.0000	0.00
41	1461.04	1460.51	0.0000	0.00
42	1497.84	1497.30	0.0000	0.00

Analysis Report for 1606067-06
CP-5023 02-05 QC

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1508.92	1508.39	0.0000	0.00
44	1588.35	1587.79	0.0000	0.00
45	1593.05	1592.49	0.0000	0.00
46	1660.62	1660.04	0.0000	0.00
47	1729.51	1728.91	0.0000	0.00
48	1755.41	1754.80	0.0000	0.00
49	1764.80	1764.20	0.0000	0.00
50	1847.17	1846.55	0.0000	0.00
51	1855.06	1854.43	0.0000	0.00
52	1927.23	1926.59	0.0000	0.00
53	1992.60	1991.94	0.0000	0.00
54	2177.96	2177.28	0.0000	0.00
55	2203.39	2202.69	0.0000	0.00
56	2280.58	2279.88	0.0000	0.00
57	2614.46	2613.72	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606067-06

CP-5023 02-05 QC

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 10:14:34AM

 Peak Analysis From Channel : 1
 Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
1	12.88	12 -	15	13.00	1.90E+03	116.77	1.34E+03	1.00
2	47.14	44 -	50	47.24	1.30E+02	71.81	8.47E+02	1.10
3	63.38	60 -	65	63.48	1.09E+02	80.68	1.21E+03	1.67
4	76.20	72 -	80	76.28	8.68E+02	121.92	1.75E+03	3.20
5	92.73	89 -	96	92.81	3.21E+02	99.36	1.37E+03	1.41
6	99.27	98 -	101	99.34	4.32E+01	47.41	5.18E+02	1.21
7	144.62	143 -	147	144.67	4.29E+01	50.57	5.24E+02	1.05
8	186.07	183 -	189	186.09	1.45E+02	63.22	6.24E+02	1.18
9	209.16	206 -	212	209.18	6.92E+01	60.60	6.08E+02	1.22
10	239.17	234 -	243	239.17	9.13E+02	93.78	7.34E+02	1.55
11	270.83	266 -	275	270.81	7.03E+01	64.55	5.55E+02	1.82
M 12	295.17	292 -	304	295.14	2.04E+02	38.52	1.57E+02	1.50
m 13	300.00	292 -	304	299.96	5.67E+01	33.83	2.17E+02	1.50
14	338.37	335 -	342	338.32	1.18E+02	51.15	3.60E+02	1.57
15	351.96	348 -	355	351.90	3.91E+02	55.03	2.43E+02	1.17
16	409.57	407 -	412	409.48	2.52E+01	31.35	1.76E+02	2.32
17	463.05	459 -	466	462.93	3.60E+01	36.66	2.00E+02	1.14
18	510.60	505 -	516	510.45	1.31E+02	51.85	2.73E+02	2.31
19	535.08	532 -	537	534.92	2.47E+01	23.45	9.07E+01	1.60
20	563.44	560 -	566	563.27	2.42E+01	27.43	1.20E+02	3.36
21	583.32	579 -	585	583.14	2.05E+02	38.74	1.25E+02	1.44
22	609.27	605 -	613	609.07	2.70E+02	47.22	1.80E+02	1.66
23	702.55	698 -	706	702.31	2.90E+01	30.97	1.28E+02	3.97
24	726.88	723 -	730	726.63	2.93E+01	32.86	1.61E+02	1.11
25	755.68	751 -	759	755.42	2.74E+01	28.46	1.07E+02	3.75
M 26	768.08	764 -	779	767.82	3.17E+01	20.52	5.71E+01	2.02
m 27	772.45	764 -	779	772.18	2.15E+01	19.42	4.77E+01	2.03
m 28	777.32	764 -	779	777.05	1.71E+01	17.58	3.92E+01	2.03
29	860.90	857 -	863	860.59	3.26E+01	21.27	5.68E+01	1.69
30	911.40	906 -	915	911.07	1.63E+02	37.71	1.10E+02	1.53
31	935.94	931 -	939	935.61	2.86E+01	23.49	6.68E+01	4.91
32	969.28	965 -	972	968.93	6.22E+01	33.17	1.38E+02	1.31
33	976.43	973 -	979	976.07	1.75E+01	18.10	4.29E+01	3.68
34	1007.81	1004 -	1010	1007.44	1.70E+01	18.75	5.00E+01	3.40
35	1120.52	1115 -	1125	1120.11	6.25E+01	33.96	1.19E+02	1.96
36	1203.83	1200 -	1206	1203.40	1.86E+01	21.47	7.08E+01	3.09
37	1299.18	1294 -	1302	1298.71	1.56E+01	15.41	2.68E+01	3.19
38	1378.04	1374 -	1381	1377.55	2.08E+01	14.28	2.04E+01	2.51
39	1388.98	1386 -	1392	1388.48	1.00E+01	11.73	1.20E+01	2.36
40	1408.78	1406 -	1411	1408.27	9.00E+00	9.80	1.20E+01	1.81

: 00423

Analysis Report for 1606067-06

CP-5023 02-05 QC

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1461.04	1455 - 1466		1460.51	5.62E+02	52.69	6.55E+01	2.17
42	1497.84	1491 - 1504		1497.30	2.70E+01	15.30	1.40E+01	3.05
43	1508.92	1505 - 1511		1508.39	1.45E+01	9.82	7.00E+00	4.36
M 44	1588.35	1584 - 1598		1587.79	1.38E+01	9.17	5.76E+00	3.18
m 45	1593.05	1584 - 1598		1592.49	1.34E+01	9.39	2.12E+00	2.49
46	1660.62	1656 - 1663		1660.04	1.10E+01	9.59	8.00E+00	2.63
47	1729.51	1724 - 1731		1728.91	1.00E+01	9.38	8.00E+00	1.59
48	1755.41	1751 - 1758		1754.80	1.02E+01	8.00	3.67E+00	2.46
49	1764.80	1760 - 1769		1764.20	4.38E+01	16.82	1.64E+01	1.86
50	1847.17	1844 - 1849		1846.55	1.00E+01	8.37	6.00E+00	3.67
51	1855.06	1852 - 1857		1854.43	7.00E+00	5.29	0.00E+00	1.16
52	1927.23	1923 - 1929		1926.59	5.78E+00	7.78	6.44E+00	1.01
53	1992.60	1989 - 1994		1991.94	5.50E+00	6.08	3.00E+00	2.37
54	2177.96	2174 - 2180		2177.28	8.40E+00	7.23	3.20E+00	4.83
55	2203.39	2199 - 2206		2202.69	1.96E+01	11.14	6.87E+00	2.16
56	2280.58	2277 - 2283		2279.88	8.00E+00	5.66	0.00E+00	2.22
57	2614.46	2609 - 2618		2613.72	7.20E+01	16.97	0.00E+00	2.96

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 10:14:34AM

Peak Analysis From Channel : 1
Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	12.88	12 -	15	1.90E+03	116.77	1.34E+03	7.41E+01
2	47.14	44 -	50	1.30E+02	71.81	8.47E+02	5.60E+01
3	63.38	60 -	65	1.09E+02	80.68	1.21E+03	6.41E+01
4	76.20	72 -	80	8.68E+02	121.92	1.75E+03	8.77E+01
5	92.73	89 -	96	3.21E+02	99.36	1.37E+03	7.62E+01
6	99.27	98 -	101	4.32E+01	47.41	5.18E+02	3.74E+01
7	144.62	143 -	147	4.29E+01	50.57	5.24E+02	4.02E+01
8	186.07	183 -	189	1.45E+02	63.22	6.24E+02	4.80E+01
9	209.16	206 -	212	6.92E+01	60.60	6.08E+02	4.79E+01
10	239.17	234 -	243	9.13E+02	93.78	7.34E+02	5.90E+01
11	270.83	266 -	275	7.03E+01	64.55	5.55E+02	5.12E+01

Analysis Report for 1606067-06

CP-5023 02-05 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	12	295.17	292 -	304	2.04E+02	38.52	1.57E+02	2.06E+01
m	13	300.00	292 -	304	5.67E+01	33.83	2.17E+02	2.42E+01
	14	338.37	335 -	342	1.18E+02	51.15	3.60E+02	3.81E+01
	15	351.96	348 -	355	3.91E+02	55.03	2.43E+02	3.14E+01
	16	409.57	407 -	412	2.52E+01	31.35	1.76E+02	2.44E+01
	17	463.05	459 -	466	3.60E+01	36.66	2.00E+02	2.85E+01
	18	510.60	505 -	516	1.31E+02	51.85	2.73E+02	3.82E+01
	19	535.08	532 -	537	2.47E+01	23.45	9.07E+01	1.75E+01
	20	563.44	560 -	566	2.42E+01	27.43	1.20E+02	2.10E+01
	21	583.32	579 -	585	2.05E+02	38.74	1.25E+02	2.14E+01
	22	609.27	605 -	613	2.70E+02	47.22	1.80E+02	2.79E+01
	23	702.55	698 -	706	2.90E+01	30.97	1.28E+02	2.39E+01
	24	726.88	723 -	730	2.93E+01	32.86	1.61E+02	2.55E+01
	25	755.68	751 -	759	2.74E+01	28.46	1.07E+02	2.18E+01
M	26	768.08	764 -	779	3.17E+01	20.52	5.71E+01	1.24E+01
m	27	772.45	764 -	779	2.15E+01	19.42	4.77E+01	1.14E+01
m	28	777.32	764 -	779	1.71E+01	17.58	3.92E+01	1.03E+01
	29	860.90	857 -	863	3.26E+01	21.27	5.68E+01	1.47E+01
	30	911.40	906 -	915	1.63E+02	37.71	1.10E+02	2.28E+01
	31	935.94	931 -	939	2.86E+01	23.49	6.68E+01	1.72E+01
	32	969.28	965 -	972	6.22E+01	33.17	1.38E+02	2.40E+01
	33	976.43	973 -	979	1.75E+01	18.10	4.29E+01	1.32E+01
	34	1007.81	1004 -	1010	1.70E+01	18.75	5.00E+01	1.38E+01
	35	1120.52	1115 -	1125	6.25E+01	33.96	1.19E+02	2.47E+01
	36	1203.83	1200 -	1206	1.86E+01	21.47	7.08E+01	1.62E+01
	37	1299.18	1294 -	1302	1.56E+01	15.41	2.68E+01	1.09E+01
	38	1378.04	1374 -	1381	2.08E+01	14.28	2.04E+01	9.04E+00
	39	1388.98	1386 -	1392	1.00E+01	11.73	1.20E+01	8.12E+00
	40	1408.78	1406 -	1411	9.00E+00	9.80	1.20E+01	6.37E+00
	41	1461.04	1455 -	1466	5.62E+02	52.69	6.55E+01	1.89E+01
	42	1497.84	1491 -	1504	2.70E+01	15.30	1.40E+01	9.23E+00
	43	1508.92	1505 -	1511	1.45E+01	9.82	7.00E+00	5.10E+00
M	44	1588.35	1584 -	1598	1.38E+01	9.17	5.76E+00	3.94E+00
m	45	1593.05	1584 -	1598	1.34E+01	9.39	2.12E+00	2.39E+00
	46	1660.62	1656 -	1663	1.10E+01	9.59	8.00E+00	5.70E+00
	47	1729.51	1724 -	1731	1.00E+01	9.38	8.00E+00	5.70E+00
	48	1755.41	1751 -	1758	1.02E+01	8.00	3.67E+00	3.97E+00
	49	1764.80	1760 -	1769	4.38E+01	16.82	1.64E+01	8.53E+00
	50	1847.17	1844 -	1849	1.00E+01	8.37	6.00E+00	4.50E+00
	51	1855.06	1852 -	1857	7.00E+00	5.29	0.00E+00	0.00E+00
	52	1927.23	1923 -	1929	5.78E+00	7.78	6.44E+00	5.03E+00
	53	1992.60	1989 -	1994	5.50E+00	6.08	3.00E+00	3.18E+00
	54	2177.96	2174 -	2180	8.40E+00	7.23	3.20E+00	3.55E+00
	55	2203.39	2199 -	2206	1.96E+01	11.14	6.87E+00	5.56E+00
	56	2280.58	2277 -	2283	8.00E+00	5.66	0.00E+00	0.00E+00
	57	2614.46	2609 -	2618	7.20E+01	16.97	0.00E+00	0.00E+00

Analysis Report for 1606067-06

CP-5023 02-05 QC

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/20/2016 10:14:34AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	12.88	12 -	15	13.00	1.90E+03	116.77	1.34E+03	.....
2	47.14	44 -	50	47.24	1.30E+02	71.81	8.47E+02	PB-210
3	63.38	60 -	65	63.48	1.09E+02	80.68	1.21E+03	TH-234 TH-230
4	76.20	72 -	80	76.28	8.68E+02	121.92	1.75E+03	.....
5	92.73	89 -	96	92.81	3.21E+02	99.36	1.37E+03	GA-67
6	99.27	98 -	101	99.34	4.32E+01	47.41	5.18E+02	.....
7	144.62	143 -	147	144.67	4.29E+01	50.57	5.24E+02	CE-141 U-235
8	186.07	183 -	189	186.09	1.45E+02	63.22	6.24E+02	RA-226
9	209.16	206 -	212	209.18	6.92E+01	60.60	6.08E+02	GA-67 CM-243
10	239.17	234 -	243	239.17	9.13E+02	93.78	7.34E+02	PB-212
11	270.83	266 -	275	270.81	7.03E+01	64.55	5.55E+02	.....
M 12	295.17	292 -	304	295.14	2.04E+02	38.52	1.57E+02	PB-214
m 13	300.00	292 -	304	299.96	5.67E+01	33.83	2.17E+02	BI-210M PB-212 GA-67
14	338.37	335 -	342	338.32	1.18E+02	51.15	3.60E+02	AC-228
15	351.96	348 -	355	351.90	3.91E+02	55.03	2.43E+02	PB-214
16	409.57	407 -	412	409.48	2.52E+01	31.35	1.76E+02	.....
17	463.05	459 -	466	462.93	3.60E+01	36.66	2.00E+02	SB-125
18	510.60	505 -	516	510.45	1.31E+02	51.85	2.73E+02	.....
19	535.08	532 -	537	534.92	2.47E+01	23.45	9.07E+01	.....
20	563.44	560 -	566	563.27	2.42E+01	27.43	1.20E+02	CS-134
21	583.32	579 -	585	583.14	2.05E+02	38.74	1.25E+02	TL-208
22	609.27	605 -	613	609.07	2.70E+02	47.22	1.80E+02	BI-214
23	702.55	698 -	706	702.31	2.90E+01	30.97	1.28E+02	NB-94
24	726.88	723 -	730	726.63	2.93E+01	32.86	1.61E+02	BI-212
25	755.68	751 -	759	755.42	2.74E+01	28.46	1.07E+02	.....

Analysis Report for 1606067-06

CP-5023 02-05 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	26	768.08	764 -	779	767.82	3.17E+01	20.52	5.71E+01	.....
m	27	772.45	764 -	779	772.18	2.15E+01	19.42	4.77E+01	.....
m	28	777.32	764 -	779	777.05	1.71E+01	17.58	3.92E+01	MO-99 RB-82
	29	860.90	857 -	863	860.59	3.26E+01	21.27	5.68E+01	TL-208
	30	911.40	906 -	915	911.07	1.63E+02	37.71	1.10E+02	AC-228 LU-172
	31	935.94	931 -	939	935.61	2.86E+01	23.49	6.68E+01	.....
	32	969.28	965 -	972	968.93	6.22E+01	33.17	1.38E+02	AC-228
	33	976.43	973 -	979	976.07	1.75E+01	18.10	4.29E+01	.....
	34	1007.81	1004 -	1010	1007.44	1.70E+01	18.75	5.00E+01	.....
	35	1120.52	1115 -	1125	1120.11	6.25E+01	33.96	1.19E+02	SC-46 BI-214 TA-182
	36	1203.83	1200 -	1206	1203.40	1.86E+01	21.47	7.08E+01	.....
	37	1299.18	1294 -	1302	1298.71	1.56E+01	15.41	2.68E+01	.....
	38	1378.04	1374 -	1381	1377.55	2.08E+01	14.28	2.04E+01	.....
	39	1388.98	1386 -	1392	1388.48	1.00E+01	11.73	1.20E+01	.....
	40	1408.78	1406 -	1411	1408.27	9.00E+00	9.80	1.20E+01	EU-152
	41	1461.04	1455 -	1466	1460.51	5.62E+02	52.69	6.55E+01	K-40
	42	1497.84	1491 -	1504	1497.30	2.70E+01	15.30	1.40E+01	.....
	43	1508.92	1505 -	1511	1508.39	1.45E+01	9.82	7.00E+00	.....
M	44	1588.35	1584 -	1598	1587.79	1.38E+01	9.17	5.76E+00	.....
m	45	1593.05	1584 -	1598	1592.49	1.34E+01	9.39	2.12E+00	.....
	46	1660.62	1656 -	1663	1660.04	1.10E+01	9.59	8.00E+00	.....
	47	1729.51	1724 -	1731	1728.91	1.00E+01	9.38	8.00E+00	.....
	48	1755.41	1751 -	1758	1754.80	1.02E+01	8.00	3.67E+00	.....
	49	1764.80	1760 -	1769	1764.20	4.38E+01	16.82	1.64E+01	BI-214
	50	1847.17	1844 -	1849	1846.55	1.00E+01	8.37	6.00E+00	.....
	51	1855.06	1852 -	1857	1854.43	7.00E+00	5.29	0.00E+00	.....
	52	1927.23	1923 -	1929	1926.59	5.78E+00	7.78	6.44E+00	.....
	53	1992.60	1989 -	1994	1991.94	5.50E+00	6.08	3.00E+00	.....
	54	2177.96	2174 -	2180	2177.28	8.40E+00	7.23	3.20E+00	.....
	55	2203.39	2199 -	2206	2202.69	1.96E+01	11.14	6.87E+00	BI-214
	56	2280.58	2277 -	2283	2279.88	8.00E+00	5.66	0.00E+00	.....
	57	2614.46	2609 -	2618	2613.72	7.20E+01	16.97	0.00E+00	TL-208

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/20/2016 10:14:34AM

: 00427

Analysis Report for 1606067-06

CP-5023 02-05 QC

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	12.88	1.90E+03	116.77	1.12E-05	1.66E-03
	2	47.14	1.30E+02	71.81	1.74E-02	1.66E-03
	3	63.38	1.09E+02	80.68	2.37E-02	1.74E-03
	4	76.20	8.68E+02	121.92	2.56E-02	2.02E-03
	5	92.73	3.21E+02	99.36	2.60E-02	2.27E-03
	6	99.27	4.32E+01	47.41	2.58E-02	2.27E-03
	7	144.62	4.29E+01	50.57	2.28E-02	2.35E-03
	8	186.07	1.45E+02	63.22	1.99E-02	2.40E-03
	9	209.16	6.92E+01	60.60	1.85E-02	2.36E-03
	10	239.17	9.13E+02	93.78	1.70E-02	2.31E-03
	11	270.83	7.03E+01	64.55	1.56E-02	2.26E-03
M	12	295.17	2.04E+02	38.52	1.47E-02	2.21E-03
m	13	300.00	5.67E+01	33.83	1.46E-02	2.21E-03
	14	338.37	1.18E+02	51.15	1.33E-02	2.14E-03
	15	351.96	3.91E+02	55.03	1.30E-02	2.12E-03
	16	409.57	2.52E+01	31.35	1.16E-02	1.96E-03
	17	463.05	3.60E+01	36.66	1.05E-02	1.68E-03
	18	510.60	1.31E+02	51.85	9.77E-03	1.43E-03
	19	535.08	2.47E+01	23.45	9.42E-03	1.31E-03
	20	563.44	2.42E+01	27.43	9.04E-03	1.16E-03
	21	583.32	2.05E+02	38.74	8.79E-03	1.06E-03
	22	609.27	2.70E+02	47.22	8.48E-03	9.23E-04
	23	702.55	2.90E+01	30.97	7.55E-03	7.04E-04
	24	726.88	2.93E+01	32.86	7.34E-03	7.36E-04
	25	755.68	2.74E+01	28.46	7.11E-03	7.73E-04
M	26	768.08	3.17E+01	20.52	7.02E-03	7.88E-04
m	27	772.45	2.15E+01	19.42	6.99E-03	7.94E-04
m	28	777.32	1.71E+01	17.58	6.95E-03	8.00E-04
	29	860.90	3.26E+01	21.27	6.39E-03	9.08E-04
	30	911.40	1.63E+02	37.71	6.09E-03	9.28E-04
	31	935.94	2.86E+01	23.49	5.96E-03	8.79E-04
	32	969.28	6.22E+01	33.17	5.79E-03	8.11E-04
	33	976.43	1.75E+01	18.10	5.76E-03	7.97E-04
	34	1007.81	1.70E+01	18.75	5.61E-03	7.33E-04
	35	1120.52	6.25E+01	33.96	5.15E-03	5.05E-04
	36	1203.83	1.86E+01	21.47	4.87E-03	3.92E-04
	37	1299.18	1.56E+01	15.41	4.60E-03	3.70E-04
	38	1378.04	2.08E+01	14.28	4.41E-03	3.66E-04
	39	1388.98	1.00E+01	11.73	4.38E-03	3.67E-04
	40	1408.78	9.00E+00	9.80	4.34E-03	3.68E-04
	41	1461.04	5.62E+02	52.69	4.23E-03	3.72E-04
	42	1497.84	2.70E+01	15.30	4.16E-03	3.75E-04
	43	1508.92	1.45E+01	9.82	4.14E-03	3.76E-04
M	44	1588.35	1.38E+01	9.17	4.01E-03	3.82E-04
m	45	1593.05	1.34E+01	9.39	4.00E-03	3.82E-04
	46	1660.62	1.10E+01	9.59	3.90E-03	3.88E-04
	47	1729.51	1.00E+01	9.38	3.81E-03	3.93E-04
	48	1755.41	1.02E+01	8.00	3.78E-03	3.95E-04
	49	1764.80	4.38E+01	16.82	3.77E-03	3.96E-04
	50	1847.17	1.00E+01	8.37	3.69E-03	4.01E-04

Analysis Report for 1606067-06

CP-5023 02-05 QC

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
51	1855.06	7.00E+00	5.29	3.68E-03	4.01E-04
52	1927.23	5.78E+00	7.78	3.62E-03	4.01E-04
53	1992.60	5.50E+00	6.08	3.57E-03	4.01E-04
54	2177.96	8.40E+00	7.23	3.46E-03	4.01E-04
55	2203.39	1.96E+01	11.14	3.45E-03	4.01E-04
56	2280.58	8.00E+00	5.66	3.43E-03	4.01E-04
57	2614.46	7.20E+01	16.97	3.40E-03	4.01E-04

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000 sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/20/2016 10:14:34AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039128.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	12.88	1.90E+03	116.77			1.90E+03	1.17E+02
2	47.14	1.30E+02	71.81	2.38E+01	5.54E+00	1.07E+02	7.20E+01
3	63.38	1.09E+02	80.68	2.21E+01	9.43E+00	8.65E+01	8.12E+01
4	76.20	8.68E+02	121.92			8.68E+02	1.22E+02
5	92.73	3.21E+02	99.36	5.53E+01	7.92E+00	2.66E+02	9.97E+01
6	99.27	4.32E+01	47.41			4.32E+01	4.74E+01
7	144.62	4.29E+01	50.57			4.29E+01	5.06E+01
8	186.07	1.45E+02	63.22	3.09E+01	6.97E+00	1.14E+02	6.36E+01
9	209.16	6.92E+01	60.60			6.92E+01	6.06E+01
10	239.17	9.13E+02	93.78	5.00E+00	6.32E+00	9.08E+02	9.40E+01
11	270.83	7.03E+01	64.55			7.03E+01	6.46E+01
M	295.17	2.04E+02	38.52	5.52E+00	5.27E+00	1.98E+02	3.89E+01
m	300.00	5.67E+01	33.83			5.67E+01	3.38E+01
14	338.37	1.18E+02	51.15			1.18E+02	5.11E+01
15	351.96	3.91E+02	55.03	4.46E+00	4.93E+00	3.87E+02	5.52E+01
16	409.57	2.52E+01	31.35			2.52E+01	3.14E+01
17	463.05	3.60E+01	36.66			3.60E+01	3.67E+01
18	510.60	1.31E+02	51.85	6.55E+01	5.04E+00	6.52E+01	5.21E+01
19	535.08	2.47E+01	23.45			2.47E+01	2.35E+01
20	563.44	2.42E+01	27.43			2.42E+01	2.74E+01
21	583.32	2.05E+02	38.74	3.26E+00	3.64E+00	2.02E+02	3.89E+01
22	609.27	2.70E+02	47.22	7.35E+00	3.67E+00	2.63E+02	4.74E+01
23	702.55	2.90E+01	30.97			2.90E+01	3.10E+01

: 00429

Analysis Report for 1606067-06

CP-5023 02-05 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.	
	24	726.88	2.93E+01			2.93E+01	3.29E+01	
	25	755.68	2.74E+01			2.74E+01	2.85E+01	
M	26	768.08	3.17E+01			3.17E+01	2.05E+01	
m	27	772.45	2.15E+01			2.15E+01	1.94E+01	
m	28	777.32	1.71E+01			1.71E+01	1.76E+01	
	29	860.90	3.26E+01			3.26E+01	2.13E+01	
	30	911.40	1.63E+02	37.71	1.08E+00	2.95E+00	1.62E+02	3.78E+01
	31	935.94	2.86E+01	23.49			2.86E+01	2.35E+01
	32	969.28	6.22E+01	33.17	8.92E-03	2.31E+00	6.22E+01	3.32E+01
	33	976.43	1.75E+01	18.10			1.75E+01	1.81E+01
	34	1007.81	1.70E+01	18.75			1.70E+01	1.88E+01
	35	1120.52	6.25E+01	33.96			6.25E+01	3.40E+01
	36	1203.83	1.86E+01	21.47	0.00E+00	0.00E+00	1.86E+01	2.15E+01
	37	1299.18	1.56E+01	15.41			1.56E+01	1.54E+01
	38	1378.04	2.08E+01	14.28			2.08E+01	1.43E+01
	39	1388.98	1.00E+01	11.73			1.00E+01	1.17E+01
	40	1408.78	9.00E+00	9.80			9.00E+00	9.80E+00
	41	1461.04	5.62E+02	52.69	3.11E+00	2.41E+00	5.59E+02	5.27E+01
	42	1497.84	2.70E+01	15.30			2.70E+01	1.53E+01
	43	1508.92	1.45E+01	9.82	0.00E+00	0.00E+00	1.45E+01	9.82E+00
M	44	1588.35	1.38E+01	9.17			1.38E+01	9.17E+00
m	45	1593.05	1.34E+01	9.39	0.00E+00	0.00E+00	1.34E+01	9.39E+00
	46	1660.62	1.10E+01	9.59			1.10E+01	9.59E+00
	47	1729.51	1.00E+01	9.38			1.00E+01	9.38E+00
	48	1755.41	1.02E+01	8.00			1.02E+01	8.00E+00
	49	1764.80	4.38E+01	16.82	6.26E-01	1.97E+00	4.32E+01	1.69E+01
	50	1847.17	1.00E+01	8.37			1.00E+01	8.37E+00
	51	1855.06	7.00E+00	5.29			7.00E+00	5.29E+00
	52	1927.23	5.78E+00	7.78			5.78E+00	7.78E+00
	53	1992.60	5.50E+00	6.08			5.50E+00	6.08E+00
	54	2177.96	8.40E+00	7.23			8.40E+00	7.23E+00
	55	2203.39	1.96E+01	11.14			1.96E+01	1.11E+01
	56	2280.58	8.00E+00	5.66			8.00E+00	5.66E+00
	57	2614.46	7.20E+01	16.97	5.31E+00	1.43E+00	6.67E+01	1.70E+01

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

Analysis Report for 1606067-06

CP-5023 02-05 QC

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/20/2016 10:14:34AM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039128.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	12.88	1.90E+03	116.77			1.90E+03	1.17E+02
2	47.14	1.30E+02	71.81	2.38E+01	5.54E+00	1.07E+02	7.20E+01
3	63.38	1.09E+02	80.68	2.21E+01	9.43E+00	8.65E+01	8.12E+01
4	76.20	8.68E+02	121.92			8.68E+02	1.22E+02
5	92.73	3.21E+02	99.36	5.53E+01	7.92E+00	2.66E+02	9.97E+01
6	99.27	4.32E+01	47.41			4.32E+01	4.74E+01
7	144.62	4.29E+01	50.57			4.29E+01	5.06E+01
8	186.07	1.45E+02	63.22	3.09E+01	6.97E+00	1.14E+02	6.36E+01
9	209.16	6.92E+01	60.60			6.92E+01	6.06E+01
10	239.17	9.13E+02	93.78	5.00E+00	6.32E+00	9.08E+02	9.40E+01
11	270.83	7.03E+01	64.55			7.03E+01	6.46E+01
M 12	295.17	2.04E+02	38.52	5.52E+00	5.27E+00	1.98E+02	3.89E+01
m 13	300.00	5.67E+01	33.83			5.67E+01	3.38E+01
14	338.37	1.18E+02	51.15			1.18E+02	5.11E+01
15	351.96	3.91E+02	55.03	4.46E+00	4.93E+00	3.87E+02	5.52E+01
16	409.57	2.52E+01	31.35			2.52E+01	3.14E+01
17	463.05	3.60E+01	36.66			3.60E+01	3.67E+01
18	510.60	1.31E+02	51.85	6.55E+01	5.04E+00	6.52E+01	5.21E+01
19	535.08	2.47E+01	23.45			2.47E+01	2.35E+01
20	563.44	2.42E+01	27.43			2.42E+01	2.74E+01
21	583.32	2.05E+02	38.74	3.26E+00	3.64E+00	2.02E+02	3.89E+01
22	609.27	2.70E+02	47.22	7.35E+00	3.67E+00	2.63E+02	4.74E+01
23	702.55	2.90E+01	30.97			2.90E+01	3.10E+01
24	726.88	2.93E+01	32.86			2.93E+01	3.29E+01
25	755.68	2.74E+01	28.46			2.74E+01	2.85E+01
M 26	768.08	3.17E+01	20.52			3.17E+01	2.05E+01
m 27	772.45	2.15E+01	19.42			2.15E+01	1.94E+01
m 28	777.32	1.71E+01	17.58			1.71E+01	1.76E+01
29	860.90	3.26E+01	21.27			3.26E+01	2.13E+01
30	911.40	1.63E+02	37.71	1.08E+00	2.95E+00	1.62E+02	3.78E+01
31	935.94	2.86E+01	23.49			2.86E+01	2.35E+01
32	969.28	6.22E+01	33.17	8.92E-03	2.31E+00	6.22E+01	3.32E+01
33	976.43	1.75E+01	18.10			1.75E+01	1.81E+01
34	1007.81	1.70E+01	18.75			1.70E+01	1.88E+01
35	1120.52	6.25E+01	33.96			6.25E+01	3.40E+01
36	1203.83	1.86E+01	21.47	0.00E+00	0.00E+00	1.86E+01	2.15E+01
37	1299.18	1.56E+01	15.41			1.56E+01	1.54E+01
38	1378.04	2.08E+01	14.28			2.08E+01	1.43E+01
39	1388.98	1.00E+01	11.73			1.00E+01	1.17E+01
40	1408.78	9.00E+00	9.80			9.00E+00	9.80E+00
41	1461.04	5.62E+02	52.69	3.11E+00	2.41E+00	5.59E+02	5.27E+01

Analysis Report for 1606067-06

CP-5023 02-05 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	42 1497.84	2.70E+01	15.30			2.70E+01	1.53E+01
	43 1508.92	1.45E+01	9.82	0.00E+00	0.00E+00	1.45E+01	9.82E+00
M	44 1588.35	1.38E+01	9.17			1.38E+01	9.17E+00
m	45 1593.05	1.34E+01	9.39	0.00E+00	0.00E+00	1.34E+01	9.39E+00
	46 1660.62	1.10E+01	9.59			1.10E+01	9.59E+00
	47 1729.51	1.00E+01	9.38			1.00E+01	9.38E+00
	48 1755.41	1.02E+01	8.00			1.02E+01	8.00E+00
	49 1764.80	4.38E+01	16.82	6.26E-01	1.97E+00	4.32E+01	1.69E+01
	50 1847.17	1.00E+01	8.37			1.00E+01	8.37E+00
	51 1855.06	7.00E+00	5.29			7.00E+00	5.29E+00
	52 1927.23	5.78E+00	7.78			5.78E+00	7.78E+00
	53 1992.60	5.50E+00	6.08			5.50E+00	6.08E+00
	54 2177.96	8.40E+00	7.23			8.40E+00	7.23E+00
	55 2203.39	1.96E+01	11.14			1.96E+01	1.11E+01
	56 2280.58	8.00E+00	5.66			8.00E+00	5.66E+00
	57 2614.46	7.20E+01	16.97	5.31E+00	1.43E+00	6.67E+01	1.70E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.992	1460.81 *	10.67	1.88E+01	2.46E+00
GA-67	0.826	93.31 *	35.70	2.01E+01	5.28E+01
		208.95 *	2.24	1.17E+02	2.93E+02
		300.22 *	16.00	1.70E+01	4.56E+01
RB-82	0.901	776.52 *	13.00	4.69E-01	4.85E-01
CE-141	0.896	145.44 *	48.40	8.68E-02	1.04E-01
TL-208	0.992	583.14 *	30.22	1.16E+00	2.62E-01
		860.37 *	4.48	1.73E+00	1.16E+00
		2614.66 *	35.85	8.32E-01	2.34E-01
PB-210	0.937	46.50 *	4.25	2.19E+00	1.50E+00
BI-212	0.755	727.17 *	11.80	5.14E-01	5.78E-01
		1620.62	2.75		
PB-212	0.957	238.63 *	44.60	1.82E+00	3.11E-01
		300.09 *	3.41	1.73E+00	1.07E+00
BI-214	0.989	609.31 *	46.30	1.02E+00	2.14E-01

: 00432

Analysis Report for 1606067-06
 CP-5023 02-05 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.989	1120.29 *	15.10	1.22E+00	6.74E-01
		1764.49 *	15.80	1.10E+00	4.47E-01
		2204.22 *	4.98	1.73E+00	1.00E+00
PB-214	1.000	295.21 *	19.19	1.07E+00	2.64E-01
		351.92 *	37.19	1.22E+00	2.64E-01
		RA-226	0.997	186.21 *	3.28	2.66E+00	5.09E+00
AC-228	0.990	338.32 *	11.40	1.18E+00	5.44E-01
		911.07 *	27.70	1.46E+00	4.07E-01
		969.11 *	16.60	9.83E-01	5.43E-01
TH-234	0.999	63.29 *	3.80	1.46E+00	1.37E+00

* = Energy line found in the spectrum.
 - = Manually added nuclide.
 ? = Manually edited nuclide.
 Energy Tolerance : 1.000 keV
 Nuclide confidence index threshold = 0.30
 Errors quoted at 2.000sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 10:14:34AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	12.88	5.28816E-01	3.07		
4	76.20	2.41029E-01	7.03		
6	99.27	1.20015E-02	54.87	D-Esc	
11	270.83	1.95267E-02	45.91		
16	409.57	7.01205E-03	62.10		
17	463.05	1.00000E-02	50.92		
18	510.60	1.81186E-02	39.93		
19	535.08	6.85317E-03	47.53	Sum	CS-134
20	563.44	6.72619E-03	56.64	Tol.	
23	702.55	8.04809E-03	53.45	Sum	
25	755.68	7.61831E-03	51.89		
26	768.08	8.81238E-03	32.34		
M m 27	772.45	5.97093E-03	45.16		
31	935.94	7.94803E-03	41.05	Sum	
33	976.43	4.86823E-03	51.63		
34	1007.81	4.72222E-03	55.16		
36	1203.83	5.16975E-03	57.68		
37	1299.18	4.32950E-03	49.44		
38	1378.04	5.77509E-03	34.35		

Analysis Report for 1606067-06

CP-5023 02-05 QC

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
39	1388.98	2.77778E-03	58.63		
40	1408.78	2.50000E-03	54.43	Tol.	EU-152
42	1497.84	7.50000E-03	28.33		
43	1508.92	4.02778E-03	33.87	Sum	
M 44	1588.35	3.84062E-03	33.14	Sum	
m 45	1593.05	3.71548E-03	35.12	D-Esc	
46	1660.62	3.05556E-03	43.60		
47	1729.51	2.77778E-03	46.90	Sum	
48	1755.41	2.82407E-03	39.34	Sum	
50	1847.17	2.77778E-03	41.83	Sum	
51	1855.06	1.94444E-03	37.80		
52	1927.23	1.60494E-03	67.31		
53	1992.60	1.52778E-03	55.30		
54	2177.96	2.33333E-03	43.03		
56	2280.58	2.22222E-03	35.36		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81 *	10.67	1.88E+01	2.46E+00
GA-67	0.82	93.31 *	35.70	2.01E+01	5.28E+01
		208.95 *	2.24	1.17E+02	2.93E+02
		300.22 *	16.00	1.70E+01	4.56E+01
RB-82	0.90	776.52 *	13.00	4.69E-01	4.85E-01
CE-141	0.89	145.44 *	48.40	8.68E-02	1.04E-01
TL-208	0.99	583.14 *	30.22	1.16E+00	2.62E-01
		860.37 *	4.48	1.73E+00	1.16E+00
		2614.66 *	35.85	8.32E-01	2.34E-01
PB-210	0.93	46.50 *	4.25	2.19E+00	1.50E+00
BI-212	0.75	727.17 *	11.80	5.14E-01	5.78E-01
		1620.62 *	2.75		
PB-212	0.95	238.63 *	44.60	1.82E+00	3.11E-01

: 00434

Analysis Report for 1606067-06

CP-5023 02-05 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-212	0.95	300.09 *	3.41	1.73E+00	1.07E+00
BI-214	0.98	609.31 *	46.30	1.02E+00	2.14E-01
		1120.29 *	15.10	1.22E+00	6.74E-01
		1764.49 *	15.80	1.10E+00	4.47E-01
		2204.22 *	4.98	1.73E+00	1.00E+00
PB-214	1.00	295.21 *	19.19	1.07E+00	2.64E-01
		351.92 *	37.19	1.22E+00	2.64E-01
RA-226	0.99	186.21 *	3.28	2.66E+00	5.09E+00
AC-228	0.99	338.32 *	11.40	1.18E+00	5.44E-01
		911.07 *	27.70	1.46E+00	4.07E-01
		969.11 *	16.60	9.83E-01	5.43E-01
TH-234	0.99	63.29 *	3.80	1.46E+00	1.37E+00

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.992	1.88E+01	2.46E+00	
GA-67	0.826	1.35E+01	3.23E+01	
RB-82	0.901	4.69E-01	4.85E-01	
CE-141	0.896	8.68E-02	1.04E-01	
TL-208	0.992	9.92E-01	1.73E-01	
PB-210	0.937	2.19E+00	1.50E+00	
BI-212	0.755	5.14E-01	5.78E-01	
PB-212	0.957	1.71E+00	3.03E-01	
BI-214	0.989	1.07E+00	1.82E-01	
PB-214	1.000	1.14E+00	1.87E-01	
RA-226	0.997	2.66E+00	5.09E+00	
AC-228	0.990	1.26E+00	2.79E-01	
TH-234	0.999	1.46E+00	1.37E+00	

Analysis Report for 1606067-06

CP-5023 02-05 QC

- ? = nuclide is part of an undetermined solution
- X = nuclide rejected by the interference analysis
- @ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1606067-06

CP-5023 02-05 QC

 UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 10:14:34AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	12.88	5.28816E-01	3.07		
4	76.20	2.41029E-01	7.03		
6	99.27	1.20015E-02	54.87	D-Esc	
11	270.83	1.95267E-02	45.91		
16	409.57	7.01205E-03	62.10		
17	463.05	1.00000E-02	50.92		
18	510.60	1.81186E-02	39.93		
19	535.08	6.85317E-03	47.53	Sum	
20	563.44	6.72619E-03	56.64	Tol.	CS-134
23	702.55	8.04809E-03	53.45	Sum	
25	755.68	7.61831E-03	51.89		
M	26	768.08	8.81238E-03	32.34	
m	27	772.45	5.97093E-03	45.16	
31	935.94	7.94803E-03	41.05	Sum	
33	976.43	4.86823E-03	51.63		
34	1007.81	4.72222E-03	55.16		
36	1203.83	5.16975E-03	57.68		
37	1299.18	4.32950E-03	49.44		
38	1378.04	5.77509E-03	34.35		
39	1388.98	2.77778E-03	58.63		
40	1408.78	2.50000E-03	54.43	Tol.	EU-152
42	1497.84	7.50000E-03	28.33		
43	1508.92	4.02778E-03	33.87	Sum	
M	44	1588.35	3.84062E-03	33.14	Sum
m	45	1593.05	3.71548E-03	35.12	D-Esc
46	1660.62	3.05556E-03	43.60		
47	1729.51	2.77778E-03	46.90	Sum	
48	1755.41	2.82407E-03	39.34	Sum	
50	1847.17	2.77778E-03	41.83	Sum	
51	1855.06	1.94444E-03	37.80		
52	1927.23	1.60494E-03	67.31		
53	1992.60	1.52778E-03	55.30		
54	2177.96	2.33333E-03	43.03		
56	2280.58	2.22222E-03	35.36		

Analysis Report for 1606067-06

CP-5023 02-05 QC

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
+	BE-7	477.59	10.42	-2.43E-01	6.98E-01	6.98E-01
+	NA-22	1274.54	99.94	-2.36E-03	7.93E-02	7.93E-02
+	NA-24	1368.53	99.99	-4.75E+06	1.57E+07	2.74E+07
		2754.09	99.86	-4.26E+06		1.57E+07
+	AL-26	1808.65	99.76	0.00E+00	5.77E-02	5.77E-02
+	K-40	1460.81	* 10.67	1.88E+01	1.38E+00	1.38E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-3.24E-03	5.61E-02	5.61E-02
		78.34	96.00	3.11E-01		8.19E-02
+	SC-46	889.25	99.98	3.16E-02	9.72E-02	9.72E-02
		1120.51	99.99	2.13E-01		1.68E-01
+	V-48	983.52	99.98	4.21E-03	1.66E-01	1.66E-01
		1312.10	97.50	1.49E-02		2.10E-01
+	CR-51	320.08	9.83	6.63E-02	8.18E-01	8.18E-01
+	MN-54	834.83	99.97	-4.17E-02	9.21E-02	9.21E-02
+	CO-56	846.75	99.96	3.84E-02	1.02E-01	1.02E-01
		1037.75	14.03	7.66E-02		7.36E-01
		1238.25	67.00	1.57E-01		2.30E-01
		1771.40	15.51	1.30E-01		5.94E-01
		2598.48	16.90	-2.48E-01		2.28E-01
+	CO-57	122.06	85.51	1.31E-02	6.21E-02	6.21E-02
		136.48	10.60	2.56E-01		5.42E-01
+	CO-58	810.76	99.40	1.36E-02	9.40E-02	9.40E-02
+	FE-59	1099.22	56.50	-2.03E-02	2.13E-01	2.13E-01
		1291.56	43.20	1.64E-01		2.71E-01
+	CO-60	1173.22	100.00	2.66E-02	9.55E-02	1.04E-01
		1332.49	100.00	1.42E-02		9.55E-02
+	ZN-65	1115.52	50.75	7.54E-03	1.98E-01	1.98E-01
+	GA-67	93.31	* 35.70	2.01E+01	1.19E+01	1.19E+01
		208.95	* 2.24	1.17E+02		1.66E+02
		300.22	* 16.00	1.70E+01		3.17E+01
+	SE-75	121.11	16.70	-2.87E-02	1.00E-01	3.30E-01

Analysis Report for 1606067-06

CP-5023 02-05 QC

	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
	SE-75	136.00	59.20	-5.26E-03	1.00E-01	1.00E-01
		264.65	59.80	1.73E-02		1.03E-01
		279.53	25.20	-1.19E-01		2.46E-01
		400.65	11.40	-1.55E-01		5.63E-01
+	RB-82	776.52	* 13.00	4.69E-01	1.61E+00	1.61E+00
+	RB-83	520.41	46.00	-5.95E-02	1.48E-01	1.48E-01
		529.64	30.30	9.08E-02		2.25E-01
		552.65	16.40	-1.53E-01		4.08E-01
+	KR-85	513.99	0.43	-1.93E+01	1.67E+01	1.67E+01
+	SR-85	513.99	99.27	-1.02E-01	8.85E-02	8.85E-02
+	Y-88	898.02	93.40	2.59E-02	8.10E-02	1.04E-01
		1836.01	99.38	-1.86E-02		8.10E-02
+	NB-93M	16.57	9.43	6.05E+01	9.68E+01	9.68E+01
+	NB-94	702.63	100.00	6.73E-02	8.39E-02	9.07E-02
		871.10	100.00	1.00E-02		8.39E-02
+	NB-95	765.79	99.81	5.37E-02	1.30E-01	1.30E-01
+	NB-95M	235.69	25.00	-7.01E+01	1.16E+01	1.16E+01
+	ZR-95	724.18	43.70	-1.99E-02	1.93E-01	2.69E-01
		756.72	55.30	1.16E-01		1.93E-01
+	MO-99	181.06	6.20	1.01E+01	5.42E+01	8.23E+01
		739.58	12.80	-3.77E+01		5.42E+01
		778.00	4.50	-5.25E+01		1.45E+02
+	RU-103	497.08	89.00	1.20E-02	9.45E-02	9.45E-02
+	RU-106	621.84	9.80	4.80E-02	7.56E-01	7.56E-01
+	AG-108M	433.93	89.90	2.40E-03	6.68E-02	6.68E-02
		614.37	90.40	9.81E-03		9.05E-02
		722.95	90.50	-1.96E-02		8.54E-02
+	CD-109	88.03	3.72	1.93E+00	1.97E+00	1.97E+00
+	AG-110M	657.75	93.14	8.90E-03	8.20E-02	8.20E-02
		677.61	10.53	2.71E-02		7.49E-01
		706.67	16.46	5.07E-02		5.30E-01
		763.93	21.98	1.08E-01		3.96E-01
		884.67	71.63	-6.85E-02		1.04E-01
		1384.27	23.94	1.06E-02		3.32E-01
+	CD-113M	263.70	0.02	-6.47E+01	2.39E+02	2.39E+02
+	SN-113	255.12	1.93	-1.57E+00	9.54E-02	3.35E+00
		391.69	64.90	3.24E-02		9.54E-02
+	TE123M	159.00	84.10	-1.59E-02	6.86E-02	6.86E-02
+	SB-124	602.71	97.87	-9.76E-03	9.66E-02	9.66E-02
		645.85	7.26	-2.25E-01		1.14E+00
		722.78	11.10	-1.96E-01		8.57E-01
		1691.02	49.00	7.41E-02		1.86E-01
+	I-125	35.49	6.49	1.93E-01	1.89E+00	1.89E+00
+	SB-125	176.33	6.89	6.11E-01	2.00E-01	8.23E-01
		427.89	29.33	-5.98E-02		2.00E-01
		463.38	10.35	5.00E-01		6.87E-01
		600.56	17.80	2.48E-01		4.67E-01
		635.90	11.32	2.27E-01		7.13E-01

Analysis Report for 1606067-06

CP-5023 02-05 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70	83.30	-3.96E-03	1.97E-01	1.97E-01
		666.33	99.60	-9.66E-02		2.08E-01
		695.00	99.60	8.27E-03		2.19E-01
		720.50	53.80	5.29E-02		4.02E-01
+	SN-126	87.57	37.00	1.89E-01	1.93E-01	1.93E-01
+	SB-127	473.00	25.00	6.03E-01	5.49E+00	6.13E+00
		685.20	35.70	7.08E-02		5.49E+00
		783.80	14.70	1.17E+01		1.62E+01
+	I-129	29.78	57.00	-5.52E-02	3.20E-01	3.20E-01
		33.60	13.20	-6.28E-03		9.05E-01
		39.58	7.52	4.24E-01		1.08E+00
+	I-131	284.30	6.05	-1.57E+00	3.43E-01	4.38E+00
		364.48	81.20	5.49E-02		3.43E-01
		636.97	7.26	1.84E+00		5.03E+00
		722.89	1.80	-4.66E+00		2.03E+01
+	TE-132	49.72	13.10	-5.33E+00	2.80E+00	1.96E+01
		228.16	88.00	-7.61E-01		2.80E+00
+	BA-133	81.00	33.00	4.46E-02	9.06E-02	1.44E-01
		302.84	17.80	-2.53E-01		3.25E-01
		356.01	60.00	2.45E-02		9.06E-02
+	I-133	529.87	86.30	1.15E+04	1.14E+05	1.14E+05
+	XE-133	81.00	38.00	4.19E-01	1.35E+00	1.35E+00
+	CS-134	563.23	8.38	5.33E-01	9.26E-02	8.43E-01
		569.32	15.43	-1.67E-01		3.83E-01
		604.70	97.60	4.63E-03		9.26E-02
		795.84	85.40	8.59E-02		1.07E-01
		801.93	8.73	3.79E-01		9.56E-01
+	CS-135	268.24	16.00	-2.49E-01	3.88E-01	3.88E-01
+	I-135	1131.51	22.50	1.12E+19	1.57E+19	2.35E+19
		1260.41	28.60	-6.39E+18		1.57E+19
		1678.03	9.54	8.20E+17		3.57E+19
+	CS-136	153.22	7.46	-8.51E-01	2.24E-01	1.88E+00
		163.89	4.61	1.59E+00		3.16E+00
		176.55	13.56	4.64E-01		1.07E+00
		273.65	12.66	-2.01E+00		1.13E+00
		340.57	48.50	-4.06E-01		3.83E-01
		818.50	99.70	1.66E-01		2.24E-01
		1048.07	79.60	9.61E-02		3.08E-01
		1235.34	19.70	1.18E-01		1.65E+00
+	CS-137	661.65	85.12	-3.63E-02	8.17E-02	8.17E-02
+	LA-138	788.74	34.00	1.50E-01	1.05E-01	2.62E-01
		1435.80	66.00	-3.45E-02		1.05E-01
+	CE-139	165.85	80.35	4.21E-02	7.58E-02	7.58E-02
+	BA-140	162.64	6.70	7.24E-01	6.71E-01	2.19E+00
		304.84	4.50	9.75E-01		3.35E+00
		423.70	3.20	-1.60E-01		4.89E+00
		437.55	2.00	-2.69E-01		8.16E+00
		537.32	25.00	-4.25E-02		6.71E-01
+	LA-140	328.77	20.50	-3.13E-02	2.32E-01	8.25E-01

Analysis Report for 1606067-06

CP-5023 02-05 QC

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
LA-140	487.03	45.50	6.27E-02	2.32E-01	3.25E-01
	815.85	23.50	2.14E-01		9.73E-01
	1596.49	95.49	-5.29E-03		2.32E-01
+ CE-141	145.44 *	48.40	8.68E-02	1.68E-01	1.68E-01
+ CE-143	57.36	11.80	-9.37E+02	1.60E+03	3.94E+03
	293.26	42.00	-1.76E+02		1.60E+03
	664.55	5.20	7.14E+03		1.33E+04
+ CE-144	133.54	10.80	1.28E-02	5.06E-01	5.06E-01
+ PM-144	476.78	42.00	-4.93E-02	7.76E-02	1.42E-01
	618.01	98.60	-1.55E-02		7.76E-02
	696.49	99.49	7.06E-03		8.42E-02
+ PM-145	36.85	21.70	-2.13E-01	2.13E-01	4.04E-01
	37.36	39.70	-1.13E-01		2.13E-01
	42.30	15.10	1.19E-01		4.61E-01
	72.40	2.31	-1.55E+00		2.20E+00
+ PM-146	453.90	39.94	5.26E-02	1.58E-01	1.58E-01
	735.90	14.01	-1.17E-02		5.54E-01
	747.13	13.10	1.43E-03		5.84E-01
+ ND-147	91.11	28.90	-1.34E-02	8.05E-01	8.05E-01
	531.02	13.10	1.10E-01		1.28E+00
+ PM-149	285.90	3.10	2.00E+02	5.32E+02	5.32E+02
+ EU-152	121.78	20.50	5.21E-02	2.48E-01	2.48E-01
	244.69	5.40	-7.32E-01		1.02E+00
	344.27	19.13	-4.28E-03		3.07E-01
	778.89	9.20	-7.40E-02		8.26E-01
	964.01	10.40	1.95E-01		9.68E-01
	1085.78	7.22	-9.17E-01		1.19E+00
	1112.02	9.60	1.16E-01		9.72E-01
	1407.95	14.94	9.73E-02		5.76E-01
+ GD-153	97.43	31.30	5.92E-02	1.82E-01	1.82E-01
	103.18	22.20	6.50E-02		2.44E-01
+ EU-154	123.07	40.50	2.04E-02	1.27E-01	1.27E-01
	723.30	19.70	-9.03E-02		3.94E-01
	873.19	11.50	-1.79E-01		7.05E-01
	996.32	10.30	-3.59E-01		7.59E-01
	1004.76	17.90	1.15E-01		5.24E-01
	1274.45	35.50	-6.58E-03		2.21E-01
+ EU-155	86.50	30.90	1.84E-01	2.23E-01	2.23E-01
	105.30	20.70	-6.05E-02		2.51E-01
+ EU-156	811.77	10.40	-2.85E-01	1.66E+00	1.66E+00
	1153.47	7.20	1.25E+00		3.36E+00
	1230.71	8.90	-1.22E-01		2.75E+00
+ HO-166M	184.41	72.60	4.86E-02	9.43E-02	9.43E-02
	280.45	29.60	-9.14E-02		1.89E-01
	410.94	11.10	-6.82E-03		5.61E-01
	711.69	54.10	1.28E-01		1.63E-01
+ TM-171	66.72	0.14	2.22E+01	3.96E+01	3.96E+01
+ HF-172	81.75	4.52	-6.34E-01	4.62E-01	1.06E+00
	125.81	11.30	-2.42E-01		4.62E-01

Analysis Report for 1606067-06

CP-5023 02-05 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53	20.60	3.30E-01	1.08E+00	1.71E+00
		810.06	16.63	4.39E-01		3.04E+00
		912.12	15.25	1.74E+01		7.30E+00
		1093.66	62.50	6.56E-01		1.08E+00
+	LU-173	100.72	5.24	6.71E-02	3.25E-01	1.05E+00
		272.11	21.20	1.60E-01		3.25E-01
+	HF-175	343.40	84.00	2.38E-02	8.43E-02	8.43E-02
+	LU-176	88.34	13.30	5.26E-01	6.13E-02	5.38E-01
		201.83	86.00	-2.21E-02		6.60E-02
		306.78	94.00	4.42E-02		6.13E-02
+	TA-182	67.75	41.20	-8.28E-03	1.43E-01	1.43E-01
		1121.30	34.90	5.33E-01		4.58E-01
		1189.05	16.23	1.87E-01		6.90E-01
		1221.41	26.98	2.05E-02		4.60E-01
		1231.02	11.44	1.23E-01		1.04E+00
+	IR-192	308.46	29.68	-1.16E-01	1.33E-01	2.20E-01
		468.07	48.10	-2.57E-02		1.33E-01
+	HG-203	279.19	77.30	3.84E-02	9.83E-02	9.83E-02
+	BI-207	569.67	97.72	-2.60E-02	5.95E-02	5.95E-02
		1063.62	74.90	-1.17E-02		1.24E-01
+	TL-208	583.14	* 30.22	1.16E+00	1.33E-01	2.65E-01
		860.37	* 4.48	1.73E+00		1.71E+00
		2614.66	* 35.85	8.32E-01		1.33E-01
+	BI-210M	262.00	45.00	1.20E-02	1.24E-01	1.24E-01
		300.00	23.00	-2.73E-02		2.78E-01
+	PB-210	46.50	* 4.25	2.19E+00	2.39E+00	2.39E+00
+	PB-211	404.84	2.90	5.43E-01	2.09E+00	2.09E+00
		831.96	2.90	-2.95E-01		2.87E+00
+	BI-212	727.17	* 11.80	5.14E-01	9.42E-01	9.42E-01
		1620.62	2.75	9.77E-01		3.21E+00
+	PB-212	238.63	* 44.60	1.82E+00	2.43E-01	2.43E-01
		300.09	* 3.41	1.73E+00		3.23E+00
+	BI-214	609.31	* 46.30	1.02E+00	2.30E-01	2.30E-01
		1120.29	* 15.10	1.22E+00		1.02E+00
		1764.49	* 15.80	1.10E+00		5.17E-01
		2204.22	* 4.98	1.73E+00		1.22E+00
+	PB-214	295.21	* 19.19	1.07E+00	2.10E-01	5.62E-01
		351.92	* 37.19	1.22E+00		2.10E-01
+	RN-219	401.80	6.50	1.41E-01	9.27E-01	9.27E-01
+	RA-223	323.87	3.88	5.00E-01	1.44E+00	1.44E+00
+	RA-224	240.98	3.95	1.02E+01	3.09E+00	3.09E+00
+	RA-225	40.00	31.00	2.34E-01	5.97E-01	5.97E-01
+	RA-226	186.21	* 3.28	2.66E+00	2.36E+00	2.36E+00
+	TH-227	50.10	8.40	-1.78E-01	6.55E-01	6.55E-01
		236.00	11.50	-4.79E+00		7.92E-01
		256.20	6.30	5.37E-01		9.57E-01
+	AC-228	338.32	* 11.40	1.18E+00	4.39E-01	7.88E-01
		911.07	* 27.70	1.46E+00		4.39E-01

Analysis Report for 1606067-06

CP-5023 02-05 QC

	<i>Nuclide Name</i>	<i>Energy (keV)</i>		<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
	AC-228	969.11	*	16.60	9.83E-01	4.39E-01	8.03E-01
+	TH-230	48.44		16.90	-2.99E-01	3.50E-01	3.50E-01
		62.85		4.60	1.86E+00		1.37E+00
		67.67		0.37	-8.27E-01		1.43E+01
+	PA-231	283.67		1.60	-1.25E+00	2.51E+00	3.50E+00
		302.67		2.30	-1.95E+00		2.51E+00
+	TH-231	25.64		14.70	-1.68E-01	7.68E-01	2.34E+00
		84.21		6.40	5.29E-01		7.68E-01
+	PA-233	311.98		38.60	-1.18E-01	2.13E-01	2.13E-01
+	PA-234	131.20		20.40	9.05E-02	2.58E-01	2.58E-01
		733.99		8.80	-8.67E-02		8.96E-01
		946.00		12.00	-1.26E-01		7.19E-01
+	PA-234M	1001.03		0.92	3.34E+00	9.72E+00	9.72E+00
+	TH-234	63.29	*	3.80	1.46E+00	2.24E+00	2.24E+00
+	U-235	143.76		10.50	5.38E-01	5.46E-01	5.46E-01
		163.35		4.70	3.90E-01		1.18E+00
		205.31		4.70	1.26E-02		1.28E+00
+	NP-237	86.50		12.60	4.48E-01	5.42E-01	5.42E-01
+	NP-239	106.10		22.70	-1.72E+01	4.61E+01	4.61E+01
		228.18		10.70	-2.72E+01		1.00E+02
		277.60		14.10	-3.42E+01		8.01E+01
+	AM-241	59.54		35.90	-5.61E-03	1.56E-01	1.56E-01
+	AM-243	74.67		66.00	-3.42E-01	1.11E-01	1.11E-01
+	CM-243	209.75		3.29	2.28E+00	4.01E-01	2.01E+00
		228.14		10.60	-1.37E-01		5.04E-01
		277.60		14.00	-1.71E-01		4.01E-01

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Analysis Report for 1606067-06

CP-5023 02-05 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	6.98E-01	6.98E-01	-2.43E-01	3.25E-01
NA-22	1274.54	99.94	7.93E-02	7.93E-02	-2.36E-03	3.52E-02
NA-24	1368.53	99.99	2.74E+07	1.57E+07	-4.75E+06	1.15E+07
	2754.09	99.86	1.57E+07		-4.26E+06	4.96E+06
AL-26	1808.65	99.76	5.77E-02	5.77E-02	0.00E+00	2.33E-02
+ K-40	1460.81	*	1.38E+00	1.38E+00	1.88E+01	6.46E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	5.61E-02	5.61E-02	-3.24E-03	2.72E-02
	78.34	96.00	8.19E-02		3.11E-01	4.01E-02
SC-46	889.25	99.98	9.72E-02	9.72E-02	3.16E-02	4.48E-02
	1120.51	99.99	1.68E-01		2.13E-01	7.96E-02
V-48	983.52	99.98	1.66E-01	1.66E-01	4.21E-03	7.52E-02
	1312.10	97.50	2.10E-01		1.49E-02	9.51E-02
CR-51	320.08	9.83	8.18E-01	8.18E-01	6.63E-02	3.85E-01
MN-54	834.83	99.97	9.21E-02	9.21E-02	-4.17E-02	4.28E-02
CO-56	846.75	99.96	1.02E-01	1.02E-01	3.84E-02	4.70E-02
	1037.75	14.03	7.36E-01		7.66E-02	3.36E-01
	1238.25	67.00	2.30E-01		1.57E-01	1.08E-01
	1771.40	15.51	5.94E-01		1.30E-01	2.56E-01
	2598.48	16.90	2.28E-01		-2.48E-01	7.22E-02
CO-57	122.06	85.51	6.21E-02	6.21E-02	1.31E-02	3.00E-02
	136.48	10.60	5.42E-01		2.56E-01	2.62E-01
CO-58	810.76	99.40	9.40E-02	9.40E-02	1.36E-02	4.33E-02
FE-59	1099.22	56.50	2.13E-01	2.13E-01	-2.03E-02	9.75E-02
	1291.56	43.20	2.71E-01		1.64E-01	1.22E-01
CO-60	1173.22	100.00	1.04E-01	9.55E-02	2.66E-02	4.80E-02
	1332.49	100.00	9.55E-02		1.42E-02	4.32E-02
ZN-65	1115.52	50.75	1.98E-01	1.98E-01	7.54E-03	9.08E-02
+ GA-67	93.31	*	1.19E+01	1.19E+01	2.01E+01	5.84E+00
	208.95	*	1.66E+02		1.17E+02	8.09E+01
	300.22	*	3.17E+01		1.70E+01	1.54E+01
SE-75	121.11	16.70	3.30E-01	1.00E-01	-2.87E-02	1.59E-01
	136.00	59.20	1.00E-01		-5.26E-03	4.84E-02
	264.65	59.80	1.03E-01		1.73E-02	4.89E-02
	279.53	25.20	2.46E-01		-1.19E-01	1.17E-01
	400.65	11.40	5.63E-01		-1.55E-01	2.65E-01
+ RB-82	776.52	*	1.61E+00	1.61E+00	4.69E-01	7.70E-01
RB-83	520.41	46.00	1.48E-01	1.48E-01	-5.95E-02	6.84E-02
	529.64	30.30	2.25E-01		9.08E-02	1.04E-01
	552.65	16.40	4.08E-01		-1.53E-01	1.88E-01
KR-85	513.99	0.43	1.67E+01	1.67E+01	-1.93E+01	7.88E+00
SR-85	513.99	99.27	8.85E-02	8.85E-02	-1.02E-01	4.17E-02
Y-88	898.02	93.40	1.04E-01	8.10E-02	2.59E-02	4.78E-02
	1836.01	99.38	8.10E-02		-1.86E-02	3.42E-02
NB-93M	16.57	9.43	9.68E+01	9.68E+01	6.05E+01	4.70E+01
NB-94	702.63	100.00	9.07E-02	8.39E-02	6.73E-02	4.26E-02
	871.10	100.00	8.39E-02		1.00E-02	3.87E-02
NB-95	765.79	99.81	1.30E-01	1.30E-01	5.37E-02	6.10E-02
NB-95M	235.69	25.00	1.16E+01	1.16E+01	-7.01E+01	5.64E+00
ZR-95	724.18	43.70	2.69E-01	1.93E-01	-1.99E-02	1.27E-01
	756.72	55.30	1.93E-01		1.16E-01	9.02E-02

Analysis Report for 1606067-06

CP-5023 02-05 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
MO-99	181.06	6.20	8.23E+01	5.42E+01	1.01E+01	3.96E+01
	739.58	12.80	5.42E+01		-3.77E+01	2.50E+01
	778.00	4.50	1.45E+02		-5.25E+01	6.63E+01
RU-103	497.08	89.00	9.45E-02	9.45E-02	1.20E-02	4.41E-02
RU-106	621.84	9.80	7.56E-01	7.56E-01	4.80E-02	3.52E-01
AG-108M	433.93	89.90	6.68E-02	6.68E-02	2.40E-03	3.13E-02
	614.37	90.40	9.05E-02		9.81E-03	4.25E-02
	722.95	90.50	8.54E-02		-1.96E-02	3.96E-02
CD-109	88.03	3.72	1.97E+00	1.97E+00	1.93E+00	9.65E-01
AG-110M	657.75	93.14	8.20E-02	8.20E-02	8.90E-03	3.81E-02
	677.61	10.53	7.49E-01		2.71E-02	3.48E-01
	706.67	16.46	5.30E-01		5.07E-02	2.48E-01
	763.93	21.98	3.96E-01		1.08E-01	1.84E-01
	884.67	71.63	1.04E-01		-6.85E-02	4.70E-02
	1384.27	23.94	3.32E-01		1.06E-02	1.46E-01
	263.70	0.02	2.39E+02	2.39E+02	-6.47E+01	1.14E+02
SN-113	255.12	1.93	3.35E+00	9.54E-02	-1.57E+00	1.60E+00
	391.69	64.90	9.54E-02		3.24E-02	4.47E-02
TE123M	159.00	84.10	6.86E-02	6.86E-02	-1.59E-02	3.31E-02
SB-124	602.71	97.87	9.66E-02	9.66E-02	-9.76E-03	4.53E-02
	645.85	7.26	1.14E+00		-2.25E-01	5.29E-01
	722.78	11.10	8.57E-01		-1.96E-01	3.97E-01
	1691.02	49.00	1.86E-01		7.41E-02	7.96E-02
I-125	35.49	6.49	1.89E+00	1.89E+00	1.93E-01	9.04E-01
SB-125	176.33	6.89	8.23E-01	2.00E-01	6.11E-01	3.97E-01
	427.89	29.33	2.00E-01		-5.98E-02	9.36E-02
	463.38	10.35	6.87E-01		5.00E-01	3.25E-01
	600.56	17.80	4.67E-01		2.48E-01	2.20E-01
	635.90	11.32	7.13E-01		2.27E-01	3.34E-01
SB-126	414.70	83.30	1.97E-01	1.97E-01	-3.96E-03	9.28E-02
	666.33	99.60	2.08E-01		-9.66E-02	9.70E-02
	695.00	99.60	2.19E-01		8.27E-03	1.02E-01
	720.50	53.80	4.02E-01		5.29E-02	1.87E-01
SN-126	87.57	37.00	1.93E-01	1.93E-01	1.89E-01	9.45E-02
SB-127	473.00	25.00	6.13E+00	5.49E+00	6.03E-01	2.86E+00
	685.20	35.70	5.49E+00		7.08E-02	2.55E+00
	783.80	14.70	1.62E+01		1.17E+01	7.58E+00
I-129	29.78	57.00	3.20E-01	3.20E-01	-5.52E-02	1.53E-01
	33.60	13.20	9.05E-01		-6.28E-03	4.33E-01
	39.58	7.52	1.08E+00		4.24E-01	5.19E-01
I-131	284.30	6.05	4.38E+00	3.43E-01	-1.57E+00	2.08E+00
	364.48	81.20	3.43E-01		5.49E-02	1.62E-01
	636.97	7.26	5.03E+00		1.84E+00	2.35E+00
	722.89	1.80	2.03E+01		-4.66E+00	9.42E+00
TE-132	49.72	13.10	1.96E+01	2.80E+00	-5.33E+00	9.42E+00
	228.16	88.00	2.80E+00		-7.61E-01	1.34E+00
BA-133	81.00	33.00	1.44E-01	9.06E-02	4.46E-02	6.94E-02
	302.84	17.80	3.25E-01		-2.53E-01	1.55E-01
	356.01	60.00	9.06E-02		2.45E-02	4.26E-02
I-133	529.87	86.30	1.14E+05	1.14E+05	1.15E+04	5.27E+04
XE-133	81.00	38.00	1.35E+00	1.35E+00	4.19E-01	6.51E-01
CS-134	563.23	8.38	8.43E-01	9.26E-02	5.33E-01	3.94E-01
	569.32	15.43	3.83E-01		-1.67E-01	1.76E-01

Analysis Report for 1606067-06

CP-5023 02-05 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	604.70	97.60	9.26E-02	9.26E-02	4.63E-03	4.38E-02
	795.84	85.40	1.07E-01		8.59E-02	4.98E-02
	801.93	8.73	9.56E-01		3.79E-01	4.43E-01
CS-135	268.24	16.00	3.88E-01	3.88E-01	-2.49E-01	1.86E-01
	1131.51	22.50	2.35E+19		1.12E+19	1.08E+19
	1260.41	28.60	1.57E+19		-6.39E+18	7.06E+18
I-135	1678.03	9.54	3.57E+19	1.57E+19	8.20E+17	1.51E+19
	153.22	7.46	1.88E+00		-8.51E-01	9.09E-01
	163.89	4.61	3.16E+00		1.59E+00	1.53E+00
CS-136	176.55	13.56	1.07E+00	2.24E-01	4.64E-01	5.18E-01
	273.65	12.66	1.13E+00		-2.01E+00	5.38E-01
	340.57	48.50	3.83E-01		-4.06E-01	1.83E-01
	818.50	99.70	2.24E-01		1.66E-01	1.04E-01
	1048.07	79.60	3.08E-01		9.61E-02	1.42E-01
	1235.34	19.70	1.65E+00		1.18E-01	7.70E-01
	661.65	85.12	8.17E-02		8.17E-02	-3.63E-02	3.78E-02
LA-138	788.74	34.00	2.62E-01	1.05E-01	1.50E-01	1.22E-01
	1435.80	66.00	1.05E-01		-3.45E-02	4.51E-02
CE-139	165.85	80.35	7.58E-02	7.58E-02	4.21E-02	3.66E-02
BA-140	162.64	6.70	2.19E+00	6.71E-01	7.24E-01	1.06E+00
	304.84	4.50	3.35E+00		9.75E-01	1.59E+00
	423.70	3.20	4.89E+00		-1.60E-01	2.29E+00
	437.55	2.00	8.16E+00		-2.69E-01	3.83E+00
	537.32	25.00	6.71E-01		-4.25E-02	3.12E-01
LA-140	328.77	20.50	8.25E-01	2.32E-01	-3.13E-02	3.93E-01
	487.03	45.50	3.25E-01		6.27E-02	1.51E-01
	815.85	23.50	9.73E-01		2.14E-01	4.52E-01
	1596.49	95.49	2.32E-01		-5.29E-03	1.01E-01
+ CE-141	145.44	* 48.40	1.68E-01	1.68E-01	8.68E-02	8.13E-02
CE-143	57.36	11.80	3.94E+03	1.60E+03	-9.37E+02	1.90E+03
	293.26	42.00	1.60E+03		-1.76E+02	7.73E+02
	664.55	5.20	1.33E+04		7.14E+03	6.21E+03
CE-144	133.54	10.80	5.06E-01	5.06E-01	1.28E-02	2.45E-01
PM-144	476.78	42.00	1.42E-01	7.76E-02	-4.93E-02	6.60E-02
	618.01	98.60	7.76E-02		-1.55E-02	3.62E-02
	696.49	99.49	8.42E-02		7.06E-03	3.93E-02
PM-145	36.85	21.70	4.04E-01	2.13E-01	-2.13E-01	1.93E-01
	37.36	39.70	2.13E-01		-1.13E-01	1.02E-01
	42.30	15.10	4.61E-01		1.19E-01	2.21E-01
	72.40	2.31	2.20E+00		-1.55E+00	1.07E+00
PM-146	453.90	39.94	1.58E-01	1.58E-01	5.26E-02	7.44E-02
	735.90	14.01	5.54E-01		-1.17E-02	2.57E-01
	747.13	13.10	5.84E-01		1.43E-03	2.70E-01
ND-147	91.11	28.90	8.05E-01	8.05E-01	-1.34E-02	3.94E-01
	531.02	13.10	1.28E+00		1.10E-01	5.89E-01
PM-149	285.90	3.10	5.32E+02	5.32E+02	2.00E+02	2.53E+02
EU-152	121.78	20.50	2.48E-01	2.48E-01	5.21E-02	1.20E-01
	244.69	5.40	1.02E+00		-7.32E-01	4.88E-01
	344.27	19.13	3.07E-01		-4.28E-03	1.45E-01
	778.89	9.20	8.26E-01		-7.40E-02	3.81E-01
	964.01	10.40	9.68E-01		1.95E-01	4.50E-01
	1085.78	7.22	1.19E+00		-9.17E-01	5.42E-01
	1112.02	9.60	9.72E-01		1.16E-01	4.45E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	1407.95	14.94	5.76E-01	2.48E-01	9.73E-02	2.56E-01
GD-153	97.43	31.30	1.82E-01	1.82E-01	5.92E-02	8.82E-02
	103.18	22.20	2.44E-01		6.50E-02	1.18E-01
EU-154	123.07	40.50	1.27E-01	1.27E-01	2.04E-02	6.13E-02
	723.30	19.70	3.94E-01		-9.03E-02	1.83E-01
	873.19	11.50	7.05E-01		-1.79E-01	3.24E-01
	996.32	10.30	7.59E-01		-3.59E-01	3.44E-01
	1004.76	17.90	5.24E-01		1.15E-01	2.42E-01
	1274.45	35.50	2.21E-01		-6.58E-03	9.82E-02
EU-155	86.50	30.90	2.23E-01	2.23E-01	1.84E-01	1.09E-01
	105.30	20.70	2.51E-01		-6.05E-02	1.21E-01
EU-156	811.77	10.40	1.66E+00	1.66E+00	-2.85E-01	7.65E-01
	1153.47	7.20	3.36E+00		1.25E+00	1.55E+00
	1230.71	8.90	2.75E+00		-1.22E-01	1.27E+00
HO-166M	184.41	72.60	9.43E-02	9.43E-02	4.86E-02	4.57E-02
	280.45	29.60	1.89E-01		-9.14E-02	8.99E-02
	410.94	11.10	5.61E-01		-6.82E-03	2.64E-01
	711.69	54.10	1.63E-01		1.28E-01	7.62E-02
TM-171	66.72	0.14	3.96E+01	3.96E+01	2.22E+01	1.92E+01
HF-172	81.75	4.52	1.06E+00	4.62E-01	-6.34E-01	5.12E-01
	125.81	11.30	4.62E-01		-2.42E-01	2.23E-01
LU-172	181.53	20.60	1.71E+00	1.08E+00	3.30E-01	8.21E-01
	810.06	16.63	3.04E+00		4.39E-01	1.40E+00
	912.12	15.25	7.30E+00		1.74E+01	3.51E+00
	1093.66	62.50	1.08E+00		6.56E-01	5.01E-01
LU-173	100.72	5.24	1.05E+00	3.25E-01	6.71E-02	5.10E-01
	272.11	21.20	3.25E-01		1.60E-01	1.56E-01
HF-175	343.40	84.00	8.43E-02	8.43E-02	2.38E-02	3.99E-02
LU-176	88.34	13.30	5.38E-01	6.13E-02	5.26E-01	2.63E-01
	201.83	86.00	6.60E-02		-2.21E-02	3.17E-02
	306.78	94.00	6.13E-02		4.42E-02	2.91E-02
TA-182	67.75	41.20	1.43E-01	1.43E-01	-8.28E-03	6.94E-02
	1121.30	34.90	4.58E-01		5.33E-01	2.16E-01
	1189.05	16.23	6.90E-01		1.87E-01	3.16E-01
	1221.41	26.98	4.60E-01		2.05E-02	2.12E-01
	1231.02	11.44	1.04E+00		1.23E-01	4.77E-01
IR-192	308.46	29.68	2.20E-01	1.33E-01	-1.16E-01	1.04E-01
	468.07	48.10	1.33E-01		-2.57E-02	6.17E-02
HG-203	279.19	77.30	9.83E-02	9.83E-02	3.84E-02	4.69E-02
BI-207	569.67	97.72	5.95E-02	5.95E-02	-2.60E-02	2.74E-02
	1063.62	74.90	1.24E-01		-1.17E-02	5.70E-02
+ TL-208	583.14	*	30.22	1.33E-01	1.16E+00	1.25E-01
	860.37	*	4.48		1.73E+00	7.84E-01
	2614.66	*	35.85		8.32E-01	4.95E-02
BI-210M	262.00		1.24E-01	1.24E-01	1.20E-02	5.90E-02
	300.00		2.78E-01		-2.73E-02	1.33E-01
+ PB-210	46.50	*	4.25	2.39E+00	2.19E+00	1.17E+00
PB-211	404.84		2.90	2.09E+00	5.43E-01	9.84E-01
	831.96		2.90	2.87E+00	-2.95E-01	1.32E+00
+ BI-212	727.17	*	11.80	9.42E-01	5.14E-01	4.47E-01
	1620.62		2.75	3.21E+00	9.77E-01	1.42E+00
+ PB-212	238.63	*	44.60	2.43E-01	1.82E+00	1.19E-01
	300.09	*	3.41	3.23E+00	1.73E+00	1.57E+00

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CP-5023 02-05 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
+ BI-214	609.31 *	46.30	2.30E-01	2.30E-01	1.02E+00	1.10E-01	
	1120.29 *	15.10	1.02E+00		1.22E+00	4.83E-01	
	1764.49 *	15.80	5.17E-01		1.10E+00	2.24E-01	
	2204.22 *	4.98	1.22E+00		1.73E+00	4.91E-01	
+ PB-214	295.21 *	19.19	5.62E-01	2.10E-01	1.07E+00	2.74E-01	
	351.92 *	37.19	2.10E-01		1.22E+00	1.00E-01	
RN-219	401.80	6.50	9.27E-01	9.27E-01	1.41E-01	4.36E-01	
RA-223	323.87	3.88	1.44E+00	1.44E+00	5.00E-01	6.81E-01	
RA-224	240.98	3.95	3.09E+00	3.09E+00	1.02E+01	1.51E+00	
RA-225	40.00	31.00	5.97E-01	5.97E-01	2.34E-01	2.86E-01	
+ RA-226	186.21 *	3.28	2.36E+00	2.36E+00	2.66E+00	1.15E+00	
	TH-227	50.10	8.40	6.55E-01	6.55E-01	-1.78E-01	3.15E-01
		236.00	11.50	7.92E-01		-4.79E+00	3.85E-01
+ AC-228	256.20	6.30	9.57E-01		5.37E-01	4.59E-01	
	338.32 *	11.40	7.88E-01	4.39E-01	1.18E+00	3.80E-01	
	911.07 *	27.70	4.39E-01		1.46E+00	2.07E-01	
TH-230	969.11 *	16.60	8.03E-01		9.83E-01	3.80E-01	
	48.44	16.90	3.50E-01	3.50E-01	-2.99E-01	1.68E-01	
	62.85	4.60	1.37E+00		1.86E+00	6.67E-01	
PA-231	67.67	0.37	1.43E+01		-8.27E-01	6.93E+00	
	283.67	1.60	3.50E+00	2.51E+00	-1.25E+00	1.66E+00	
	302.67	2.30	2.51E+00		-1.95E+00	1.19E+00	
TH-231	25.64	14.70	2.34E+00	7.68E-01	-1.68E-01	1.12E+00	
	84.21	6.40	7.68E-01		5.29E-01	3.71E-01	
PA-233	311.98	38.60	2.13E-01	2.13E-01	-1.18E-01	1.01E-01	
PA-234	131.20	20.40	2.58E-01	2.58E-01	9.05E-02	1.25E-01	
	733.99	8.80	8.96E-01		-8.67E-02	4.16E-01	
	946.00	12.00	7.19E-01		-1.26E-01	3.31E-01	
PA-234M	1001.03	0.92	9.72E+00	9.72E+00	3.34E+00	4.47E+00	
+ TH-234	63.29 *	3.80	2.24E+00	2.24E+00	1.46E+00	1.10E+00	
	U-235	143.76	10.50	5.46E-01	5.46E-01	5.38E-01	2.65E-01
		163.35	4.70	1.18E+00		3.90E-01	5.70E-01
NP-237	205.31	4.70	1.28E+00		1.26E-02	6.18E-01	
	86.50	12.60	5.42E-01	5.42E-01	4.48E-01	2.65E-01	
	NP-239	106.10	22.70	4.61E+01	4.61E+01	-1.72E+01	2.23E+01
AM-241	228.18	10.70	1.00E+02		-2.72E+01	4.80E+01	
	277.60	14.10	8.01E+01		-3.42E+01	3.82E+01	
	59.54	35.90	1.56E-01	1.56E-01	-5.61E-03	7.55E-02	
AM-243	74.67	66.00	1.11E-01	1.11E-01	-3.42E-01	5.44E-02	
CM-243	209.75	3.29	2.01E+00	4.01E-01	2.28E+00	9.73E-01	
	228.14	10.60	5.04E-01		-1.37E-01	2.41E-01	
	277.60	14.00	4.01E-01		-1.71E-01	1.91E-01	

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

Analysis Report for 1606067-06
CP-5023 02-05 QC

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

<i>Creation Date</i>	<i>Comment</i>	<i>User</i>
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No Data Review Comments Entered.

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: CP-5023 02-05 QC

Elapsed Live time: 3600

Elapsed Real Time: 3601

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	50	690
9:	1012	687	320	284	2051	137	104	125
17:	142	107	106	108	61	74	71	69
25:	57	69	52	57	61	62	57	67
33:	53	63	59	54	54	49	65	56
41:	72	59	54	56	58	71	157	67
49:	71	74	56	76	60	93	75	61
57:	85	103	98	105	99	101	149	169
65:	93	109	103	120	95	107	108	95
73:	105	130	410	129	471	225	91	86
81:	101	93	84	119	103	77	176	156
89:	92	163	93	123	252	135	88	62
97:	55	77	79	95	51	77	59	69
105:	70	70	57	64	81	72	64	56
113:	67	52	58	61	56	63	41	58
121:	66	58	53	52	62	54	56	63
129:	75	51	56	58	54	47	65	61
137:	57	62	63	58	48	64	52	84
145:	58	64	47	51	56	72	54	53
153:	52	64	47	54	59	45	47	44
161:	42	49	60	56	56	50	49	49
169:	33	32	50	44	28	42	50	53
177:	51	50	45	44	51	44	40	45
185:	52	172	74	36	38	55	45	46
193:	37	39	57	49	45	49	44	44
201:	37	39	53	41	50	52	41	47
209:	99	58	36	40	36	42	36	44
217:	34	33	28	33	38	37	32	32
225:	31	34	34	34	30	28	38	32
233:	40	40	43	42	53	284	500	52
241:	103	120	43	24	23	35	30	36
249:	24	31	41	39	25	36	31	38
257:	33	38	30	25	35	21	29	34
265:	26	29	22	28	31	65	60	20
273:	32	26	35	21	38	34	25	17
281:	30	26	28	24	24	28	30	33
289:	20	25	23	14	24	26	150	89
297:	31	18	33	60	26	21	34	15
305:	30	16	25	20	32	18	26	12
313:	29	11	20	26	19	16	18	18
321:	20	18	16	31	19	22	16	54
329:	32	17	18	31	17	17	23	11
337:	17	108	73	25	20	21	28	22
345:	19	17	22	10	19	20	72	319
353:	44	16	13	16	17	24	16	17
361:	20	22	18	17	17	25	17	24

369: 13 15 22 16 14 16 13 16

Sample Title: CP-5023 02-05 QC

Channel	1	2	3	4	5	6	7	8
377:	20	13	17	23	10	26	16	18
385:	12	21	17	18	12	22	12	18
393:	6	20	13	13	16	21	10	14
401:	17	21	20	17	21	18	13	20
409:	24	25	15	16	12	23	16	16
417:	17	18	18	18	18	12	10	14
425:	22	20	14	14	15	11	19	15
433:	10	20	14	19	17	14	17	22
441:	13	17	16	12	12	18	18	16
449:	13	16	12	18	14	21	16	11
457:	12	13	12	13	9	18	45	15
465:	11	13	12	6	10	14	12	13
473:	18	10	14	7	19	10	11	16
481:	15	11	13	10	7	8	16	13
489:	11	8	8	7	12	17	11	8
497:	18	13	15	11	9	10	13	10
505:	7	12	13	12	22	56	57	28
513:	20	12	15	13	15	15	8	12
521:	11	9	12	16	11	6	16	9
529:	15	7	7	7	8	13	22	13
537:	7	9	10	12	10	7	8	10
545:	7	9	14	13	12	10	5	12
553:	10	11	11	13	13	11	10	6
561:	10	14	15	17	13	9	9	6
569:	13	11	7	14	12	6	14	10
577:	9	13	10	12	14	28	139	62
585:	3	9	11	7	10	10	8	7
593:	12	7	11	15	11	19	9	10
601:	11	11	17	6	6	15	12	36
609:	162	93	9	15	12	15	13	12
617:	8	9	10	4	11	14	4	9
625:	10	9	8	10	13	8	10	4
633:	16	10	5	13	10	8	13	11
641:	9	3	4	3	8	11	9	9
649:	7	11	10	9	6	10	14	9
657:	9	4	3	7	12	8	7	11
665:	10	11	8	6	9	16	9	10
673:	7	3	12	8	7	12	9	8
681:	9	7	7	6	5	9	15	11
689:	7	10	13	9	6	11	12	9
697:	12	5	11	8	17	11	14	13
705:	9	5	7	15	5	6	10	13
713:	7	20	7	5	15	11	8	6
721:	3	10	6	12	5	14	40	12
729:	10	11	13	5	6	13	8	5
737:	7	6	9	8	6	8	9	12
745:	5	7	7	9	4	7	6	7
753:	7	12	14	11	12	6	6	5
761:	7	11	8	3	7	11	12	21
769:	10	6	7	15	10	8	4	6
777:	12	7	2	4	4	12	11	10
785:	13	12	10	8	9	8	5	2
793:	5	13	14	11	5	6	11	5

801: 6 9 9 6 7 5 6 4

Sample Title: CP-5023 02-05 QC

Channel	1	2	3	4	5	6	7	8
809:	4	8	5	10	10	3	9	8
817:	8	9	10	6	7	2	3	5
825:	6	6	9	3	5	7	8	8
833:	5	3	15	13	6	8	8	19
841:	6	6	7	6	10	8	6	11
849:	6	6	5	4	7	6	8	8
857:	4	6	7	15	22	5	2	3
865:	6	7	8	7	8	8	9	7
873:	5	4	6	5	9	6	5	8
881:	2	4	7	5	6	2	6	8
889:	8	8	7	7	4	5	7	6
897:	8	3	8	9	7	4	9	4
905:	8	2	7	5	4	40	101	37
913:	8	3	11	1	10	4	5	7
921:	6	6	5	11	3	11	10	5
929:	5	5	4	2	6	12	10	9
937:	7	9	3	3	5	12	6	6
945:	6	8	3	5	10	5	7	8
953:	6	7	5	2	6	7	2	7
961:	9	7	5	14	11	6	7	27
969:	57	11	4	8	3	7	9	6
977:	8	4	2	1	7	5	4	3
985:	5	6	5	6	8	3	1	4
993:	7	3	3	3	7	5	4	8
1001:	11	5	5	5	3	8	10	6
1009:	7	3	2	6	3	2	7	5
1017:	7	2	6	10	2	4	1	6
1025:	6	2	4	4	7	7	4	3
1033:	5	5	4	5	9	4	6	6
1041:	3	9	5	6	8	6	6	7
1049:	5	6	7	7	2	6	4	5
1057:	4	3	3	4	6	13	6	7
1065:	4	2	11	6	4	2	9	5
1073:	7	4	7	7	5	12	4	10
1081:	5	5	6	6	7	4	5	1
1089:	7	10	8	4	6	10	6	8
1097:	5	4	6	6	6	3	3	6
1105:	4	6	4	3	6	8	2	6
1113:	4	9	4	9	7	2	16	37
1121:	25	7	6	4	5	4	6	8
1129:	9	3	8	7	5	10	5	4
1137:	6	5	5	5	5	9	7	9
1145:	5	7	8	4	4	8	4	11
1153:	4	4	13	5	6	6	9	9
1161:	7	4	2	6	5	7	5	9
1169:	4	8	9	10	4	6	4	4
1177:	4	5	4	8	5	7	7	4
1185:	3	6	4	6	7	6	4	8
1193:	3	8	10	10	1	5	3	4
1201:	4	8	13	8	11	6	7	10
1209:	4	7	7	9	7	3	3	4
1217:	7	5	6	5	8	7	8	10
1225:	10	6	6	5	6	8	6	5

1233: 9 5 6 5 15 18 14 7

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Channel	1	2	3	4	5	6	7	8
1241:	4	2	8	7	8	6	2	5
1249:	4	5	8	4	6	5	10	6
1257:	4	2	2	2	8	8	3	7
1265:	0	8	7	4	0	8	3	1
1273:	6	3	4	3	1	4	1	4
1281:	4	2	5	5	7	3	3	5
1289:	5	4	6	3	4	0	2	2
1297:	5	8	3	5	2	2	0	5
1305:	7	3	2	6	1	4	7	4
1313:	7	2	5	3	5	4	2	6
1321:	3	2	4	6	3	2	5	6
1329:	7	3	4	6	2	2	6	2
1337:	3	2	3	5	4	2	3	3
1345:	1	1	3	7	1	3	3	3
1353:	4	1	1	2	8	4	3	2
1361:	2	6	1	1	2	2	2	1
1369:	1	0	1	4	0	2	2	3
1377:	6	9	6	2	1	2	2	2
1385:	4	2	4	5	3	1	1	0
1393:	0	0	2	3	2	4	3	2
1401:	2	4	4	5	2	0	2	7
1409:	5	1	0	2	0	3	1	1
1417:	3	1	1	0	2	2	4	3
1425:	0	2	2	1	2	1	4	4
1433:	0	0	3	1	2	3	3	3
1441:	4	1	4	1	2	1	3	5
1449:	1	4	1	1	2	5	1	6
1457:	2	7	58	210	240	62	3	1
1465:	1	4	1	0	2	1	1	3
1473:	3	2	1	0	2	0	3	0
1481:	2	1	1	1	3	2	1	1
1489:	2	1	0	2	0	4	6	5
1497:	3	1	2	3	3	1	3	1
1505:	0	3	1	5	5	4	0	1
1513:	3	2	1	3	3	0	2	1
1521:	3	0	2	2	2	1	3	2
1529:	0	2	0	0	1	2	0	1
1537:	3	2	3	0	2	1	5	1
1545:	2	2	0	2	0	1	3	1
1553:	2	1	2	2	1	3	2	1
1561:	2	0	5	1	1	0	2	1
1569:	0	1	2	1	0	1	3	4
1577:	2	0	2	2	2	4	1	0
1585:	2	1	6	3	3	1	1	6
1593:	6	1	1	1	1	0	0	1
1601:	2	0	2	1	1	0	2	2
1609:	1	0	2	2	0	0	1	1
1617:	1	4	1	4	4	1	2	1
1625:	3	1	2	2	3	3	3	0
1633:	1	0	4	1	1	3	1	0
1641:	1	2	0	2	0	2	0	0
1649:	2	2	0	3	2	1	1	0
1657:	1	2	2	4	4	2	0	1

1665: 2 1 0 0 0 1 1 0

Sample Title: CP-5023 02-05 QC

Channel	1	2	3	4	5	6	7	8	9
1673:	2	0	2	1	1	1	0	1	
1681:	2	1	2	1	2	3	1	1	
1689:	1	2	3	0	1	0	0	0	
1697:	0	0	1	0	1	0	2	1	
1705:	2	2	0	1	2	3	0	2	
1713:	1	0	0	2	0	1	0	1	
1721:	0	2	1	0	1	1	2	0	
1729:	4	6	0	1	1	0	1	1	
1737:	1	0	0	1	1	1	1	1	
1745:	0	1	0	1	1	1	0	2	
1753:	2	0	4	2	2	0	0	0	
1761:	0	3	5	22	15	2	2	1	
1769:	2	1	1	2	1	3	0	0	
1777:	0	0	0	1	0	0	1	1	
1785:	1	2	1	2	0	0	0	1	
1793:	1	2	2	0	0	0	1	0	
1801:	1	0	0	0	0	0	2	2	
1809:	0	1	1	0	1	1	1	1	
1817:	0	1	1	1	2	1	0	1	
1825:	0	0	1	1	1	0	0	3	
1833:	1	0	0	1	4	0	1	3	
1841:	2	2	1	0	3	4	2	4	
1849:	0	1	0	0	1	4	0	2	
1857:	0	0	0	2	1	1	2	1	
1865:	1	0	3	1	1	1	2	2	
1873:	1	1	1	1	0	1	0	5	
1881:	0	2	0	0	0	1	2	2	
1889:	1	1	0	1	1	0	0	3	
1897:	0	1	0	1	0	1	3	0	
1905:	0	2	0	1	1	2	0	1	
1913:	0	0	0	0	0	2	1	0	
1921:	0	1	1	0	0	5	1	2	
1929:	0	0	1	3	0	2	0	0	
1937:	1	0	2	2	0	0	1	2	
1945:	1	0	1	0	0	2	1	3	
1953:	3	0	2	1	0	0	1	1	
1961:	1	0	2	3	1	1	1	0	
1969:	1	1	2	0	0	1	0	0	
1977:	0	0	0	0	0	0	1	0	
1985:	1	0	2	0	0	0	2	3	
1993:	2	0	1	0	0	1	0	1	
2001:	1	0	0	0	1	0	0	0	
2009:	0	0	0	1	1	0	3	1	
2017:	0	2	0	0	0	0	2	2	
2025:	1	1	0	1	1	1	1	1	
2033:	0	0	0	2	1	2	0	0	
2041:	1	1	1	1	0	0	0	2	
2049:	0	1	0	0	1	0	2	1	
2057:	0	1	0	1	0	1	3	1	
2065:	1	0	1	0	0	2	1	3	
2073:	1	1	1	2	1	0	1	0	
2081:	2	1	2	1	1	1	0	4	
2089:	1	0	0	0	0	0	0	0	

2097: 1 1 1 1 2 2 5 6

Sample Title: CP-5023 02-05 QC

Channel	1	2	3	4	5	6	7	8
2105:	2	0	3	1	1	0	2	0
2113:	0	0	0	1	1	3	1	0
2121:	0	0	0	0	1	0	1	0
2129:	1	1	1	1	0	0	1	1
2137:	0	1	3	1	1	2	1	1
2145:	2	2	1	2	0	0	0	2
2153:	1	0	0	0	2	1	2	1
2161:	0	0	2	1	1	2	1	2
2169:	0	0	0	2	1	0	3	0
2177:	2	2	3	0	0	0	0	1
2185:	2	2	0	0	2	3	2	0
2193:	1	1	2	0	2	1	1	4
2201:	0	4	8	5	1	0	0	0
2209:	1	0	0	2	1	2	1	2
2217:	1	1	2	2	2	1	1	1
2225:	1	1	0	0	2	1	0	0
2233:	1	0	0	0	1	1	0	0
2241:	2	1	0	2	0	1	1	2
2249:	0	3	1	0	2	1	0	1
2257:	1	0	0	1	1	1	1	0
2265:	1	0	1	1	1	1	1	1
2273:	4	0	0	0	0	1	2	3
2281:	1	1	0	0	0	0	1	1
2289:	1	2	1	0	0	1	0	1
2297:	2	1	0	2	0	1	1	1
2305:	0	1	0	2	0	0	0	0
2313:	0	2	1	0	1	1	1	1
2321:	0	1	0	0	1	1	0	2
2329:	2	2	1	1	1	0	0	1
2337:	0	3	0	0	1	0	1	0
2345:	2	0	2	1	0	0	0	1
2353:	2	3	2	1	1	0	1	0
2361:	1	1	2	1	0	0	1	1
2369:	1	0	1	2	0	0	0	1
2377:	0	3	3	0	1	2	2	3
2385:	1	1	0	0	2	2	2	2
2393:	1	0	2	0	0	1	2	2
2401:	1	0	3	1	1	0	0	1
2409:	1	1	1	0	0	2	0	1
2417:	1	1	0	1	2	1	1	0
2425:	0	2	1	0	0	0	0	0
2433:	3	0	1	0	1	0	0	1
2441:	0	1	1	0	1	1	1	1
2449:	0	0	1	1	0	0	0	1
2457:	2	0	1	0	0	0	0	0
2465:	2	1	0	0	1	1	1	0
2473:	0	1	2	2	1	1	0	0
2481:	0	0	0	2	1	1	0	2
2489:	0	1	0	0	0	0	0	0
2497:	1	0	0	1	0	0	0	0
2505:	1	0	0	1	1	0	0	0
2513:	0	0	2	0	1	0	1	0
2521:	1	1	3	0	0	1	0	0

2529: 1 0 0 0 3 0 1 0

Sample Title: CP-5023 02-05 QC

Channel	1	2	3	4	5	6	7	8	9
2537:	0	0	0	0	0	0	0	0	0
2545:	0	0	0	0	0	0	0	0	0
2553:	0	1	1	0	0	1	0	0	0
2561:	1	0	0	1	0	0	0	0	0
2569:	0	0	2	1	1	0	1	0	0
2577:	0	0	0	0	0	0	0	0	0
2585:	2	1	1	1	2	0	0	1	0
2593:	1	1	0	0	0	0	0	0	0
2601:	0	0	2	0	1	0	1	0	0
2609:	0	0	3	7	20	23	16	2	0
2617:	1	0	0	0	0	0	1	0	0
2625:	1	0	0	0	0	0	0	0	0
2633:	0	2	0	1	0	0	0	0	0
2641:	1	0	0	0	0	0	0	0	0
2649:	0	0	1	0	0	0	0	0	0
2657:	1	0	0	1	0	0	0	0	0
2665:	0	1	0	0	1	1	0	0	0
2673:	0	0	0	0	1	0	1	0	0
2681:	0	0	0	0	0	0	0	0	0
2689:	0	0	0	0	0	0	0	0	0
2697:	0	1	0	0	0	1	0	1	0
2705:	0	1	0	0	0	0	0	0	0
2713:	1	0	0	0	0	0	0	0	0
2721:	0	0	0	1	0	0	0	0	0
2729:	0	0	1	0	0	0	0	0	0
2737:	0	0	0	1	0	0	0	0	0
2745:	1	0	0	1	0	0	1	0	0
2753:	0	0	0	0	0	0	0	1	0
2761:	1	0	0	0	0	0	0	0	0
2769:	0	0	0	0	0	0	0	1	0
2777:	2	0	0	0	1	0	0	0	0
2785:	0	1	0	0	0	1	0	0	0
2793:	0	0	0	0	0	0	0	0	0
2801:	0	0	0	0	1	0	0	1	0
2809:	0	0	0	0	0	0	0	1	0
2817:	0	1	1	1	0	1	0	1	0
2825:	0	0	0	0	0	0	1	0	0
2833:	0	0	0	0	0	0	1	0	0
2841:	1	1	1	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0	0
2865:	0	0	1	0	0	0	0	0	0
2873:	0	1	0	0	0	1	0	1	0
2881:	0	0	0	1	1	0	0	1	0
2889:	0	0	0	1	0	0	1	0	0
2897:	0	0	0	0	0	0	0	0	0
2905:	1	1	0	0	0	0	0	0	0
2913:	0	1	0	0	1	0	0	0	0
2921:	0	0	0	0	1	0	0	0	0
2929:	0	0	0	0	1	0	0	0	0
2937:	0	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0	0
2953:	1	0	1	0	0	0	0	0	0

2961: 0 1 0 0 1 0 0 1

Sample Title: CP-5023 02-05 QC

Channel	1	2	3	4	5	6	7	8
2969:	0	0	0	0	0	0	0	1
2977:	0	0	0	0	0	0	0	0
2985:	0	0	0	0	0	0	0	0
2993:	0	0	0	0	0	0	0	0
3001:	1	0	0	1	2	0	0	1
3009:	0	0	0	0	1	0	0	0
3017:	0	0	0	0	0	0	0	0
3025:	1	0	0	0	1	0	0	0
3033:	0	0	1	0	0	0	0	0
3041:	0	0	0	0	0	1	0	0
3049:	0	0	0	0	0	0	0	0
3057:	0	0	0	0	0	1	1	0
3065:	0	0	1	0	0	0	0	0
3073:	0	0	0	0	1	0	0	0
3081:	1	0	0	0	0	1	0	0
3089:	0	0	0	1	1	0	0	1
3097:	0	0	0	0	0	0	0	0
3105:	0	0	0	0	0	0	0	1
3113:	0	0	0	0	0	1	0	0
3121:	0	0	0	1	0	0	1	0
3129:	0	0	0	0	0	0	0	0
3137:	0	0	0	0	0	0	0	1
3145:	0	0	0	0	0	0	0	0
3153:	0	0	0	0	0	0	0	0
3161:	0	0	0	0	2	0	0	1
3169:	0	2	0	0	1	0	0	0
3177:	0	0	0	0	1	0	0	0
3185:	0	0	0	0	0	1	1	0
3193:	0	0	1	1	0	0	1	0
3201:	1	0	0	0	0	0	0	0
3209:	0	0	0	0	1	0	0	0
3217:	0	0	0	0	0	0	0	0
3225:	0	0	0	0	1	0	0	0
3233:	0	0	0	0	0	0	0	0
3241:	0	0	0	1	0	1	0	0
3249:	0	0	0	1	0	0	0	1
3257:	0	0	0	0	0	0	0	0
3265:	0	0	0	1	0	0	0	0
3273:	0	0	0	0	0	0	1	1
3281:	0	0	0	0	0	0	0	0
3289:	0	1	0	0	0	0	0	0
3297:	0	1	0	0	0	0	0	0
3305:	0	0	1	0	0	0	0	0
3313:	0	0	0	0	1	0	1	0
3321:	1	0	0	0	0	0	1	0
3329:	1	1	0	0	0	0	1	0
3337:	0	1	0	1	0	1	0	0
3345:	0	0	0	0	0	0	0	0
3353:	0	0	0	0	1	0	0	0
3361:	0	0	0	0	0	0	0	0
3369:	0	0	0	1	0	1	0	1
3377:	0	0	0	0	1	0	0	0
3385:	0	0	0	0	0	0	0	1

3393: 0 0 0 0 0 1 0 0

Sample Title: CP-5023 02-05 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3401:	0	1	1	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	1	0	0	0	0	0	1	1
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	1	1	0	0	0	0
3449:	0	0	0	0	0	1	0	0
3457:	1	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	1	0	0	0	0
3481:	0	0	0	0	0	1	0	0
3489:	0	0	0	1	0	0	0	0
3497:	0	0	0	1	0	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	0	1	0	0	0	1	0
3521:	0	0	0	1	0	0	1	0
3529:	0	0	0	0	0	1	0	0
3537:	1	0	0	0	0	0	0	0
3545:	0	0	1	0	0	0	0	0
3553:	0	0	0	0	0	0	0	0
3561:	1	0	0	0	0	0	0	0
3569:	0	0	0	0	0	1	0	0
3577:	0	2	0	0	0	1	1	0
3585:	0	0	0	0	0	0	0	0
3593:	0	0	0	0	0	0	0	0
3601:	0	0	0	0	0	0	0	0
3609:	0	0	0	0	0	1	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	0	0	0	0	0	1
3633:	0	0	0	0	0	0	0	0
3641:	0	1	0	1	1	0	1	0
3649:	0	0	0	0	0	0	0	0
3657:	0	0	0	0	0	0	0	0
3665:	0	0	1	0	0	0	0	0
3673:	0	0	0	0	1	1	0	0
3681:	0	0	0	0	0	0	0	0
3689:	1	1	1	0	0	0	0	0
3697:	0	1	0	1	0	0	0	0
3705:	0	0	0	0	1	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	0	1	0	0	0
3729:	0	1	0	0	0	0	1	0
3737:	0	0	1	0	1	0	0	0
3745:	0	0	0	0	0	0	0	1
3753:	0	0	0	0	0	1	1	0
3761:	0	0	0	0	0	0	0	1
3769:	0	0	0	0	0	0	0	0
3777:	0	0	0	1	1	0	0	0
3785:	0	0	0	0	1	0	0	0
3793:	1	0	0	0	1	0	0	0
3801:	0	1	0	0	0	0	0	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0

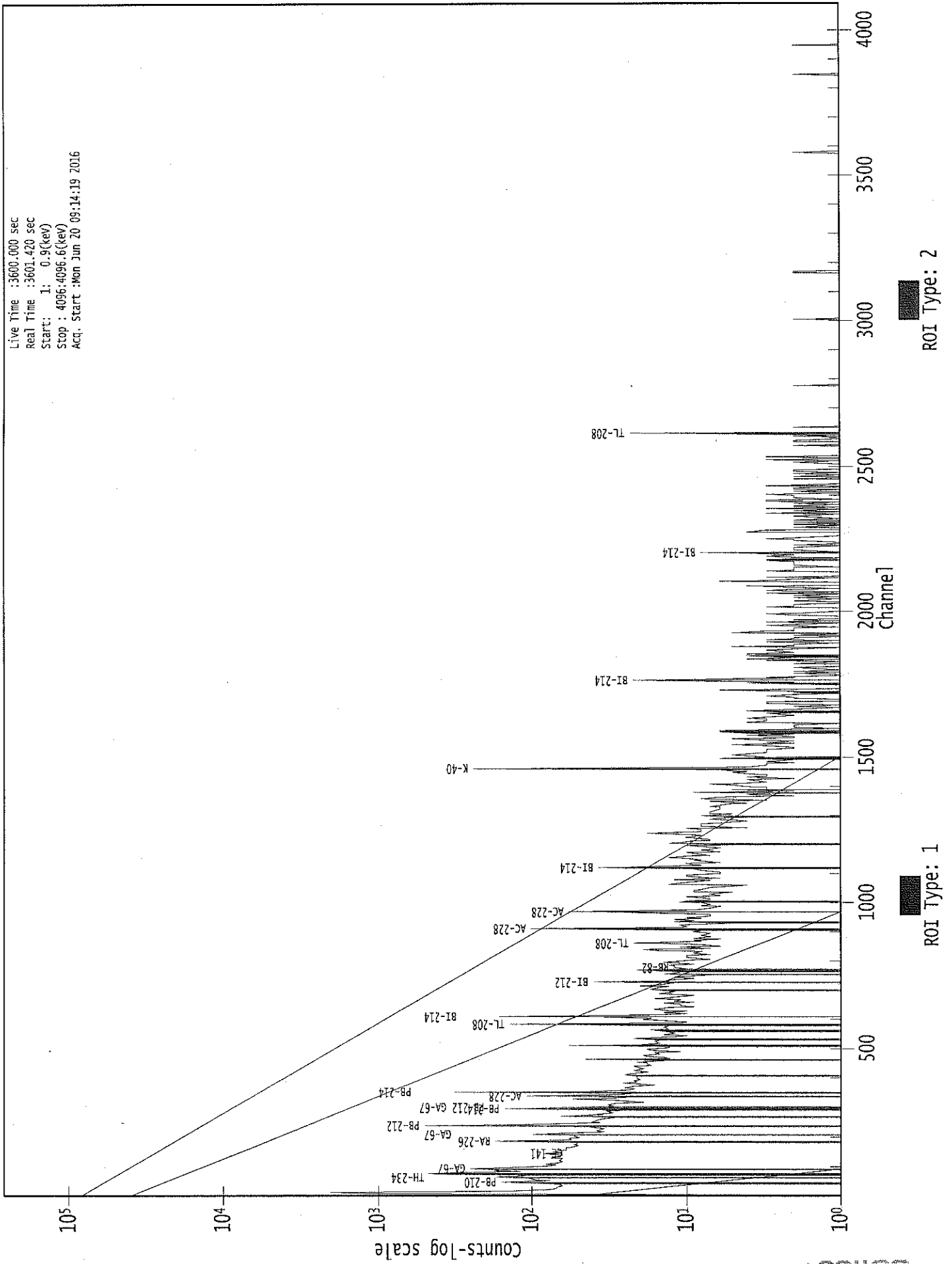
3825: 0 0 1 0 0 1 0 0

Sample Title: CP-5023 02-05 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	0	0	0	0
3841:	0	0	1	0	0	0	2	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	1	0	1	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	1	0	0
3881:	0	0	0	0	0	0	1	0
3889:	0	0	0	0	1	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	0	0	1	0
3929:	0	0	1	0	0	0	0	0
3937:	0	0	1	0	0	0	0	0
3945:	0	0	2	0	0	0	0	0
3953:	0	0	0	1	0	0	0	0
3961:	0	0	1	0	0	0	0	0
3969:	0	0	0	0	0	0	0	1
3977:	1	1	0	0	0	0	0	0
3985:	1	0	0	1	0	0	0	0
3993:	1	0	0	0	0	0	0	0
4001:	0	0	1	0	0	0	0	0
4009:	1	0	0	0	0	0	0	0
4017:	0	0	0	1	0	0	0	0
4025:	1	0	0	1	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	1	0	0	0	0	0	0	1
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	0	1	0	0
4089:	0	0	0	0	0	2	1	0

0000039147.CNF

Live Time : 3600.000 sec
Real Time : 3601.420 sec
Start : 1: 0.9(keV)
Stop : 4096.4096.6(keV)
Acq. Start : Mon Jun 20 09:14:19 2016



KBS
6/20/16Analysis Report for 1606067-07
CP-5010 00-02 QC

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606067-07
Sample Description : CP-5010 00-02 QC
Sample Type : SOIL

Sample Size : 5.040E+02 grams
Facility : Countroom

Sample Taken On : 6/7/2016 9:12:18AM
Acquisition Started : 6/20/2016 9:14:28AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE3
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3614.8 seconds

Dead Time : 0.41 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 9 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 10/25/2014
Efficiency Calibration Used Done On : 10/25/2014
Efficiency Calibration Description :

Sample Number : 39148

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/20/16

Analysis Report for 1606067-07

CP-5010 00-02 QC

PEAK LOCATE REPORT

Peak Locate Performed on : 6/20/2016 10:14:53AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.10	46.33	0.0000	0.00
2	63.36	63.59	0.0000	0.00
3	75.10	75.32	0.0000	0.00
4	77.54	77.75	0.0000	0.00
5	93.18	93.38	0.0000	0.00
6	186.32	186.48	0.0000	0.00
7	238.89	239.02	0.0000	0.00
8	242.18	242.31	0.0000	0.00
9	257.49	257.61	0.0000	0.00
10	270.56	270.67	0.0000	0.00
11	277.75	277.86	0.0000	0.00
12	295.38	295.48	0.0000	0.00
13	328.60	328.68	0.0000	0.00
14	338.35	338.42	0.0000	0.00
15	352.24	352.31	0.0000	0.00
16	357.93	358.00	0.0000	0.00
17	463.70	463.71	0.0000	0.00
18	511.34	511.33	0.0000	0.00
19	583.62	583.58	0.0000	0.00
20	609.67	609.62	0.0000	0.00
21	727.79	727.68	0.0000	0.00
22	768.78	768.64	0.0000	0.00
23	861.20	861.03	0.0000	0.00
24	903.90	903.71	0.0000	0.00
25	913.09	912.89	0.0000	0.00
26	935.46	935.26	0.0000	0.00
27	968.84	968.62	0.0000	0.00
28	1111.14	1110.86	0.0000	0.00
29	1120.34	1120.05	0.0000	0.00
30	1153.67	1153.37	0.0000	0.00
31	1238.11	1237.78	0.0000	0.00
32	1260.07	1259.72	0.0000	0.00
33	1281.73	1281.38	0.0000	0.00
34	1325.97	1325.60	0.0000	0.00
35	1373.79	1373.40	0.0000	0.00
36	1377.97	1377.58	0.0000	0.00
37	1460.98	1460.56	0.0000	0.00
38	1630.87	1630.38	0.0000	0.00
39	1675.28	1674.78	0.0000	0.00
40	1705.04	1704.53	0.0000	0.00
41	1729.92	1729.40	0.0000	0.00
42	1764.88	1764.35	0.0000	0.00

Analysis Report for 1606067-07
CP-5010 00-02 QC

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1833.31	1832.75	0.0000	0.00
44	1875.34	1874.77	0.0000	0.00
45	2104.43	2103.79	0.0000	0.00
46	2204.18	2203.51	0.0000	0.00
47	2614.67	2613.90	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606067-07

CP-5010 00-02 QC

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 10:14:53AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
1	46.10	43 -	49	46.33	1.35E+02	80.66	1.09E+03	1.27
2	63.36	60 -	67	63.59	1.61E+02	109.03	1.89E+03	1.54
M 3	75.10	72 -	81	75.32	4.74E+02	91.55	1.16E+03	1.83
m 4	77.54	72 -	81	77.75	8.11E+02	99.18	1.11E+03	1.83
5	93.18	89 -	97	93.38	3.54E+02	120.36	1.91E+03	1.72
6	186.32	183 -	189	186.48	2.37E+02	71.82	7.65E+02	2.02
M 7	238.89	235 -	245	239.02	7.19E+02	66.14	3.63E+02	1.73
m 8	242.18	235 -	245	242.31	2.15E+02	55.52	3.61E+02	1.83
9	257.49	254 -	261	257.61	5.55E+01	53.89	4.45E+02	3.92
10	270.56	267 -	274	270.67	8.93E+01	58.48	5.07E+02	2.25
11	277.75	275 -	281	277.86	4.38E+01	48.63	3.96E+02	1.93
12	295.38	291 -	298	295.48	3.30E+02	62.93	4.39E+02	1.90
13	328.60	325 -	332	328.68	4.31E+01	48.25	3.58E+02	2.10
14	338.35	334 -	342	338.42	1.01E+02	59.49	4.84E+02	1.84
M 15	352.24	348 -	364	352.31	5.66E+02	54.94	1.69E+02	1.63
m 16	357.93	348 -	364	358.00	2.35E+01	29.37	1.59E+02	1.82
17	463.70	459 -	466	463.71	3.09E+01	38.52	2.24E+02	1.73
18	511.34	507 -	514	511.33	9.74E+01	41.90	2.27E+02	2.15
19	583.62	580 -	588	583.58	1.57E+02	48.11	2.56E+02	1.90
20	609.67	604 -	615	609.62	3.62E+02	61.64	2.94E+02	2.03
21	727.79	722 -	732	727.68	5.14E+01	34.55	1.31E+02	1.88
22	768.78	765 -	772	768.64	3.36E+01	31.62	1.45E+02	2.24
23	861.20	857 -	864	861.03	2.94E+01	23.32	6.92E+01	2.63
24	903.90	899 -	908	903.71	2.89E+01	24.62	7.03E+01	6.43
25	913.09	908 -	927	912.89	1.42E+02	51.92	1.65E+02	1.83
26	935.46	927 -	942	935.26	3.90E+01	35.72	1.12E+02	9.20
27	968.84	963 -	974	968.62	1.06E+02	37.63	1.19E+02	2.50
M 28	1111.14	1107 -	1124	1110.86	1.50E+01	20.71	6.49E+01	2.49
m 29	1120.34	1107 -	1124	1120.05	8.76E+01	27.07	7.13E+01	2.50
30	1153.67	1150 -	1156	1153.37	1.66E+01	20.32	5.68E+01	4.44
31	1238.11	1233 -	1241	1237.78	3.71E+01	24.82	7.17E+01	3.19
32	1260.07	1256 -	1263	1259.72	1.99E+01	18.55	4.43E+01	4.13
33	1281.73	1277 -	1284	1281.38	1.61E+01	19.39	5.18E+01	2.97
34	1325.97	1323 -	1329	1325.60	1.13E+01	13.48	2.54E+01	2.60
M 35	1373.79	1371 -	1388	1373.40	8.99E+00	8.49	1.17E+01	3.45
m 36	1377.97	1371 -	1388	1377.58	3.07E+01	18.25	2.64E+01	3.49
37	1460.98	1456 -	1467	1460.56	3.81E+02	42.57	3.60E+01	2.30
38	1630.87	1627 -	1633	1630.38	1.49E+01	10.81	1.03E+01	1.51
39	1675.28	1671 -	1678	1674.78	6.80E+00	8.49	6.40E+00	1.36
40	1705.04	1702 -	1708	1704.53	5.88E+00	6.65	4.25E+00	2.94

Analysis Report for 1606067-07

CP-5010 00-02 QC

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1729.92	1727 -	1732	1729.40	1.52E+01	10.34	9.55E+00	2.97
42	1764.88	1760 -	1767	1764.35	6.69E+01	17.09	4.28E+00	1.98
43	1833.31	1828 -	1837	1832.75	1.18E+01	9.00	4.36E+00	1.90
44	1875.34	1870 -	1878	1874.77	8.73E+00	8.02	4.55E+00	3.64
45	2104.43	2100 -	2107	2103.79	8.15E+00	7.48	3.70E+00	1.17
46	2204.18	2199 -	2206	2203.51	1.28E+01	8.72	4.47E+00	3.25
47	2614.67	2609 -	2617	2613.90	6.70E+01	16.37	0.00E+00	3.10

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 10:14:53AM

Peak Analysis From Channel : 1
Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	46.10	43 -	49	1.35E+02	80.66	1.09E+03	3.48E+01
2	63.36	60 -	67	1.61E+02	109.03	1.89E+03	8.72E+01
M 3	75.10	72 -	81	4.74E+02	91.55	1.16E+03	5.61E+01
m 4	77.54	72 -	81	8.11E+02	99.18	1.11E+03	5.48E+01
5	93.18	89 -	97	3.54E+02	120.36	1.91E+03	9.40E+01
6	186.32	183 -	189	2.37E+02	71.82	7.65E+02	5.34E+01
M 7	238.89	235 -	245	7.19E+02	66.14	3.63E+02	3.13E+01
m 8	242.18	235 -	245	2.15E+02	55.52	3.61E+02	3.12E+01
9	257.49	254 -	261	5.55E+01	53.89	4.45E+02	4.26E+01
10	270.56	267 -	274	8.93E+01	58.48	5.07E+02	4.55E+01
11	277.75	275 -	281	4.38E+01	48.63	3.96E+02	3.85E+01
12	295.38	291 -	298	3.30E+02	62.93	4.39E+02	4.22E+01
13	328.60	325 -	332	4.31E+01	48.25	3.58E+02	3.82E+01
14	338.35	334 -	342	1.01E+02	59.49	4.84E+02	4.60E+01
M 15	352.24	348 -	364	5.66E+02	54.94	1.69E+02	2.14E+01
m 16	357.93	348 -	364	2.35E+01	29.37	1.59E+02	2.07E+01
17	463.70	459 -	466	3.09E+01	38.52	2.24E+02	3.03E+01
18	511.34	507 -	514	9.74E+01	41.90	2.27E+02	3.04E+01
19	583.62	580 -	588	1.57E+02	48.11	2.56E+02	3.38E+01
20	609.67	604 -	615	3.62E+02	61.64	2.94E+02	3.99E+01

: 00465

Analysis Report for 1606067-07

CP-5010 00-02 QC

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
21	727.79	722 -	732	5.14E+01	34.55	1.31E+02	2.58E+01
22	768.78	765 -	772	3.36E+01	31.62	1.45E+02	2.42E+01
23	861.20	857 -	864	2.94E+01	23.32	6.92E+01	1.70E+01
24	903.90	899 -	908	2.89E+01	24.62	7.03E+01	1.82E+01
25	913.09	908 -	927	1.42E+02	51.92	1.65E+02	1.34E+01
26	935.46	927 -	942	3.90E+01	35.72	1.12E+02	2.75E+01
27	968.84	963 -	974	1.06E+02	37.63	1.19E+02	2.59E+01
M 28	1111.14	1107 -	1124	1.50E+01	20.71	6.49E+01	1.32E+01
m 29	1120.34	1107 -	1124	8.76E+01	27.07	7.13E+01	1.39E+01
30	1153.67	1150 -	1156	1.66E+01	20.32	5.68E+01	1.53E+01
31	1238.11	1233 -	1241	3.71E+01	24.82	7.17E+01	1.78E+01
32	1260.07	1256 -	1263	1.99E+01	18.55	4.43E+01	1.34E+01
33	1281.73	1277 -	1284	1.61E+01	19.39	5.18E+01	1.45E+01
34	1325.97	1323 -	1329	1.13E+01	13.48	2.54E+01	9.60E+00
M 35	1373.79	1371 -	1388	8.99E+00	8.49	1.17E+01	5.62E+00
m 36	1377.97	1371 -	1388	3.07E+01	18.25	2.64E+01	8.44E+00
37	1460.98	1456 -	1467	3.81E+02	42.57	3.60E+01	1.39E+01
38	1630.87	1627 -	1633	1.49E+01	10.81	1.03E+01	6.22E+00
39	1675.28	1671 -	1678	6.80E+00	8.49	6.40E+00	5.50E+00
40	1705.04	1702 -	1708	5.88E+00	6.65	4.25E+00	3.74E+00
41	1729.92	1727 -	1732	1.52E+01	10.34	9.55E+00	5.58E+00
42	1764.88	1760 -	1767	6.69E+01	17.09	4.28E+00	4.07E+00
43	1833.31	1828 -	1837	1.18E+01	9.00	4.36E+00	4.77E+00
44	1875.34	1870 -	1878	8.73E+00	8.02	4.55E+00	4.45E+00
45	2104.43	2100 -	2107	8.15E+00	7.48	3.70E+00	3.98E+00
46	2204.18	2199 -	2206	1.28E+01	8.72	4.47E+00	4.10E+00
47	2614.67	2609 -	2617	6.70E+01	16.37	0.00E+00	0.00E+00

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/20/2016 10:14:53AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Peak Match Tolerance : 1.000 keV

Analysis Report for 1606067-07

CP-5010 00-02 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.10	43 -	49	46.33	1.35E+02	80.66	1.09E+03	PB-210
	2	63.36	60 -	67	63.59	1.61E+02	109.03	1.89E+03	TH-234
									TH-230
M	3	75.10	72 -	81	75.32	4.74E+02	91.55	1.16E+03	AM-243
m	4	77.54	72 -	81	77.75	8.11E+02	99.18	1.11E+03	TI-44
	5	93.18	89 -	97	93.38	3.54E+02	120.36	1.91E+03	GA-67
	6	186.32	183 -	189	186.48	2.37E+02	71.82	7.65E+02	RA-226
M	7	238.89	235 -	245	239.02	7.19E+02	66.14	3.63E+02	PB-212
m	8	242.18	235 -	245	242.31	2.15E+02	55.52	3.61E+02	.....
	9	257.49	254 -	261	257.61	5.55E+01	53.89	4.45E+02	.....
	10	270.56	267 -	274	270.67	8.93E+01	58.48	5.07E+02	.....
	11	277.75	275 -	281	277.86	4.38E+01	48.63	3.96E+02	CM-243
									NP-239
	12	295.38	291 -	298	295.48	3.30E+02	62.93	4.39E+02	PB-214
	13	328.60	325 -	332	328.68	4.31E+01	48.25	3.58E+02	LA-140
	14	338.35	334 -	342	338.42	1.01E+02	59.49	4.84E+02	AC-228
M	15	352.24	348 -	364	352.31	5.66E+02	54.94	1.69E+02	PB-214
m	16	357.93	348 -	364	358.00	2.35E+01	29.37	1.59E+02	.....
	17	463.70	459 -	466	463.71	3.09E+01	38.52	2.24E+02	SB-125
	18	511.34	507 -	514	511.33	9.74E+01	41.90	2.27E+02	.....
	19	583.62	580 -	588	583.58	1.57E+02	48.11	2.56E+02	TL-208
	20	609.67	604 -	615	609.62	3.62E+02	61.64	2.94E+02	BI-214
	21	727.79	722 -	732	727.68	5.14E+01	34.55	1.31E+02	BI-212
	22	768.78	765 -	772	768.64	3.36E+01	31.62	1.45E+02	.....
	23	861.20	857 -	864	861.03	2.94E+01	23.32	6.92E+01	TL-208
	24	903.90	899 -	908	903.71	2.89E+01	24.62	7.03E+01	.....
	25	913.09	908 -	927	912.89	1.42E+02	51.92	1.65E+02	LU-172
	26	935.46	927 -	942	935.26	3.90E+01	35.72	1.12E+02	.....
	27	968.84	963 -	974	968.62	1.06E+02	37.63	1.19E+02	AC-228
M	28	1111.14	1107 -	1124	1110.86	1.50E+01	20.71	6.49E+01	EU-152
m	29	1120.34	1107 -	1124	1120.05	8.76E+01	27.07	7.13E+01	BI-214
									SC-46
									TA-182
	30	1153.67	1150 -	1156	1153.37	1.66E+01	20.32	5.68E+01	EU-156
	31	1238.11	1233 -	1241	1237.78	3.71E+01	24.82	7.17E+01	CO-56
	32	1260.07	1256 -	1263	1259.72	1.99E+01	18.55	4.43E+01	I-135
	33	1281.73	1277 -	1284	1281.38	1.61E+01	19.39	5.18E+01	.....
	34	1325.97	1323 -	1329	1325.60	1.13E+01	13.48	2.54E+01	.....
M	35	1373.79	1371 -	1388	1373.40	8.99E+00	8.49	1.17E+01	.....
m	36	1377.97	1371 -	1388	1377.58	3.07E+01	18.25	2.64E+01	.....
	37	1460.98	1456 -	1467	1460.56	3.81E+02	42.57	3.60E+01	K-40
	38	1630.87	1627 -	1633	1630.38	1.49E+01	10.81	1.03E+01	.....
	39	1675.28	1671 -	1678	1674.78	6.80E+00	8.49	6.40E+00	.....
	40	1705.04	1702 -	1708	1704.53	5.88E+00	6.65	4.25E+00	.....
	41	1729.92	1727 -	1732	1729.40	1.52E+01	10.34	9.55E+00	.....
	42	1764.88	1760 -	1767	1764.35	6.69E+01	17.09	4.28E+00	BI-214
	43	1833.31	1828 -	1837	1832.75	1.18E+01	9.00	4.36E+00	.....
	44	1875.34	1870 -	1878	1874.77	8.73E+00	8.02	4.55E+00	.....
	45	2104.43	2100 -	2107	2103.79	8.15E+00	7.48	3.70E+00	.....
	46	2204.18	2199 -	2206	2203.51	1.28E+01	8.72	4.47E+00	BI-214
	47	2614.67	2609 -	2617	2613.90	6.70E+01	16.37	0.00E+00	TL-208

Analysis Report for 1606067-07

CP-5010 00-02 QC

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/20/2016 10:14:53AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.10	1.35E+02	80.66	1.48E-02	1.58E-03
	2	63.36	1.61E+02	109.03	2.16E-02	1.71E-03
M	3	75.10	4.74E+02	91.55	2.37E-02	2.10E-03
m	4	77.54	8.11E+02	99.18	2.39E-02	2.18E-03
	5	93.18	3.54E+02	120.36	2.44E-02	2.40E-03
	6	186.32	2.37E+02	71.82	1.83E-02	1.42E-03
M	7	238.89	7.19E+02	66.14	1.52E-02	1.18E-03
m	8	242.18	2.15E+02	55.52	1.50E-02	1.16E-03
	9	257.49	5.55E+01	53.89	1.43E-02	1.10E-03
	10	270.56	8.93E+01	58.48	1.38E-02	1.04E-03
	11	277.75	4.38E+01	48.63	1.35E-02	1.00E-03
	12	295.38	3.30E+02	62.93	1.28E-02	9.74E-04
	13	328.60	4.31E+01	48.25	1.17E-02	9.27E-04
	14	338.35	1.01E+02	59.49	1.14E-02	9.13E-04
M	15	352.24	5.66E+02	54.94	1.11E-02	8.93E-04
m	16	357.93	2.35E+01	29.37	1.09E-02	8.85E-04
	17	463.70	3.09E+01	38.52	8.72E-03	7.65E-04
	18	511.34	9.74E+01	41.90	8.01E-03	7.18E-04
	19	583.62	1.57E+02	48.11	7.13E-03	6.46E-04
	20	609.67	3.62E+02	61.64	6.87E-03	6.20E-04
	21	727.79	5.14E+01	34.55	5.89E-03	5.14E-04
	22	768.78	3.36E+01	31.62	5.61E-03	4.80E-04
	23	861.20	2.94E+01	23.32	5.09E-03	4.05E-04
	24	903.90	2.89E+01	24.62	4.89E-03	3.74E-04
	25	913.09	1.42E+02	51.92	4.84E-03	3.72E-04
	26	935.46	3.90E+01	35.72	4.74E-03	3.68E-04
	27	968.84	1.06E+02	37.63	4.61E-03	3.61E-04
M	28	1111.14	1.50E+01	20.71	4.10E-03	3.35E-04
m	29	1120.34	8.76E+01	27.07	4.08E-03	3.33E-04
	30	1153.67	1.66E+01	20.32	3.98E-03	3.27E-04
	31	1238.11	3.71E+01	24.82	3.76E-03	3.09E-04
	32	1260.07	1.99E+01	18.55	3.70E-03	3.04E-04
	33	1281.73	1.61E+01	19.39	3.65E-03	3.00E-04
	34	1325.97	1.13E+01	13.48	3.55E-03	2.90E-04

Analysis Report for 1606067-07

CP-5010 00-02 QC

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	35	1373.79	8.99E+00	8.49	3.45E-03	2.82E-04
m	36	1377.97	3.07E+01	18.25	3.45E-03	2.82E-04
	37	1460.98	3.81E+02	42.57	3.29E-03	2.69E-04
	38	1630.87	1.49E+01	10.81	3.03E-03	2.44E-04
	39	1675.28	6.80E+00	8.49	2.97E-03	2.37E-04
	40	1705.04	5.88E+00	6.65	2.93E-03	2.33E-04
	41	1729.92	1.52E+01	10.34	2.90E-03	2.29E-04
	42	1764.88	6.69E+01	17.09	2.86E-03	2.24E-04
	43	1833.31	1.18E+01	9.00	2.78E-03	2.14E-04
	44	1875.34	8.73E+00	8.02	2.74E-03	2.13E-04
	45	2104.43	8.15E+00	7.48	2.54E-03	2.13E-04
	46	2204.18	1.28E+01	8.72	2.46E-03	2.13E-04
	47	2614.67	6.70E+01	16.37	2.24E-03	2.13E-04

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000 sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/20/2016 10:14:53AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039129.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.10	1.35E+02	80.66	4.51E+01	7.97E+00	9.01E+01	8.10E+01
	2	63.36	1.61E+02	109.03	4.97E+01	4.03E+00	1.11E+02	1.09E+02
M	3	75.10	4.74E+02	91.55	6.39E+00	4.68E+00	4.68E+02	9.17E+01
m	4	77.54	8.11E+02	99.18	6.06E+00	4.43E+00	8.05E+02	9.93E+01
	5	93.18	3.54E+02	120.36	8.11E+01	4.75E+00	2.73E+02	1.20E+02
	6	186.32	2.37E+02	71.82	3.42E+01	6.46E+00	2.02E+02	7.21E+01
M	7	238.89	7.19E+02	66.14	1.33E+01	5.60E+00	7.06E+02	6.64E+01
m	8	242.18	2.15E+02	55.52			2.15E+02	5.55E+01
	9	257.49	5.55E+01	53.89			5.55E+01	5.39E+01
	10	270.56	8.93E+01	58.48			8.93E+01	5.85E+01
	11	277.75	4.38E+01	48.63			4.38E+01	4.86E+01
	12	295.38	3.30E+02	62.93	4.79E-01	4.81E+00	3.30E+02	6.31E+01
	13	328.60	4.31E+01	48.25			4.31E+01	4.82E+01
	14	338.35	1.01E+02	59.49			1.01E+02	5.95E+01
M	15	352.24	5.66E+02	54.94	2.25E+00	3.58E+00	5.63E+02	5.51E+01
m	16	357.93	2.35E+01	29.37			2.35E+01	2.94E+01
	17	463.70	3.09E+01	38.52			3.09E+01	3.85E+01

Analysis Report for 1606067-07

CP-5010 00-02 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
18	511.34	9.74E+01	41.90	5.80E+01	4.89E+00	3.94E+01	4.22E+01
19	583.62	1.57E+02	48.11	1.49E+00	2.92E+00	1.56E+02	4.82E+01
20	609.67	3.62E+02	61.64	6.79E+00	3.66E+00	3.55E+02	6.18E+01
21	727.79	5.14E+01	34.55			5.14E+01	3.46E+01
22	768.78	3.36E+01	31.62			3.36E+01	3.16E+01
23	861.20	2.94E+01	23.32			2.94E+01	2.33E+01
24	903.90	2.89E+01	24.62			2.89E+01	2.46E+01
25	913.09	1.42E+02	51.92			1.42E+02	5.19E+01
26	935.46	3.90E+01	35.72			3.90E+01	3.57E+01
27	968.84	1.06E+02	37.63			1.06E+02	3.76E+01
M 28	1111.14	1.50E+01	20.71			1.50E+01	2.07E+01
m 29	1120.34	8.76E+01	27.07			8.76E+01	2.71E+01
30	1153.67	1.66E+01	20.32			1.66E+01	2.03E+01
31	1238.11	3.71E+01	24.82			3.71E+01	2.48E+01
32	1260.07	1.99E+01	18.55			1.99E+01	1.85E+01
33	1281.73	1.61E+01	19.39			1.61E+01	1.94E+01
34	1325.97	1.13E+01	13.48			1.13E+01	1.35E+01
M 35	1373.79	8.99E+00	8.49			8.99E+00	8.49E+00
m 36	1377.97	3.07E+01	18.25			3.07E+01	1.82E+01
37	1460.98	3.81E+02	42.57	1.76E+00	1.91E+00	3.79E+02	4.26E+01
38	1630.87	1.49E+01	10.81			1.49E+01	1.08E+01
39	1675.28	6.80E+00	8.49			6.80E+00	8.49E+00
40	1705.04	5.88E+00	6.65			5.88E+00	6.65E+00
41	1729.92	1.52E+01	10.34			1.52E+01	1.03E+01
42	1764.88	6.69E+01	17.09			6.69E+01	1.71E+01
43	1833.31	1.18E+01	9.00			1.18E+01	9.00E+00
44	1875.34	8.73E+00	8.02			8.73E+00	8.02E+00
45	2104.43	8.15E+00	7.48			8.15E+00	7.48E+00
46	2204.18	1.28E+01	8.72			1.28E+01	8.72E+00
47	2614.67	6.70E+01	16.37	2.72E+00	1.24E+00	6.43E+01	1.64E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/20/2016 10:14:53AM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039129.CNF

Corrected Area is: Original * Peak Ratio - Background

: 00470

Analysis Report for 1606067-07

CP-5010 00-02 QC

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.10	1.35E+02	80.66	4.51E+01	7.97E+00	9.01E+01	8.10E+01
	2	63.36	1.61E+02	109.03	4.97E+01	4.03E+00	1.11E+02	1.09E+02
M	3	75.10	4.74E+02	91.55	6.39E+00	4.68E+00	4.68E+02	9.17E+01
m	4	77.54	8.11E+02	99.18	6.06E+00	4.43E+00	8.05E+02	9.93E+01
	5	93.18	3.54E+02	120.36	8.11E+01	4.75E+00	2.73E+02	1.20E+02
	6	186.32	2.37E+02	71.82	3.42E+01	6.46E+00	2.02E+02	7.21E+01
M	7	238.89	7.19E+02	66.14	1.33E+01	5.60E+00	7.06E+02	6.64E+01
m	8	242.18	2.15E+02	55.52			2.15E+02	5.55E+01
	9	257.49	5.55E+01	53.89			5.55E+01	5.39E+01
	10	270.56	8.93E+01	58.48			8.93E+01	5.85E+01
	11	277.75	4.38E+01	48.63			4.38E+01	4.86E+01
	12	295.38	3.30E+02	62.93	4.79E-01	4.81E+00	3.30E+02	6.31E+01
	13	328.60	4.31E+01	48.25			4.31E+01	4.82E+01
	14	338.35	1.01E+02	59.49			1.01E+02	5.95E+01
M	15	352.24	5.66E+02	54.94	2.25E+00	3.58E+00	5.63E+02	5.51E+01
m	16	357.93	2.35E+01	29.37			2.35E+01	2.94E+01
	17	463.70	3.09E+01	38.52			3.09E+01	3.85E+01
	18	511.34	9.74E+01	41.90	5.80E+01	4.89E+00	3.94E+01	4.22E+01
	19	583.62	1.57E+02	48.11	1.49E+00	2.92E+00	1.56E+02	4.82E+01
	20	609.67	3.62E+02	61.64	6.79E+00	3.66E+00	3.55E+02	6.18E+01
	21	727.79	5.14E+01	34.55			5.14E+01	3.46E+01
	22	768.78	3.36E+01	31.62			3.36E+01	3.16E+01
	23	861.20	2.94E+01	23.32			2.94E+01	2.33E+01
	24	903.90	2.89E+01	24.62			2.89E+01	2.46E+01
	25	913.09	1.42E+02	51.92			1.42E+02	5.19E+01
	26	935.46	3.90E+01	35.72			3.90E+01	3.57E+01
	27	968.84	1.06E+02	37.63			1.06E+02	3.76E+01
M	28	1111.14	1.50E+01	20.71			1.50E+01	2.07E+01
m	29	1120.34	8.76E+01	27.07			8.76E+01	2.71E+01
	30	1153.67	1.66E+01	20.32			1.66E+01	2.03E+01
	31	1238.11	3.71E+01	24.82			3.71E+01	2.48E+01
	32	1260.07	1.99E+01	18.55			1.99E+01	1.85E+01
	33	1281.73	1.61E+01	19.39			1.61E+01	1.94E+01
	34	1325.97	1.13E+01	13.48			1.13E+01	1.35E+01
M	35	1373.79	8.99E+00	8.49			8.99E+00	8.49E+00
m	36	1377.97	3.07E+01	18.25			3.07E+01	1.82E+01
	37	1460.98	3.81E+02	42.57	1.76E+00	1.91E+00	3.79E+02	4.26E+01
	38	1630.87	1.49E+01	10.81			1.49E+01	1.08E+01
	39	1675.28	6.80E+00	8.49			6.80E+00	8.49E+00
	40	1705.04	5.88E+00	6.65			5.88E+00	6.65E+00
	41	1729.92	1.52E+01	10.34			1.52E+01	1.03E+01
	42	1764.88	6.69E+01	17.09			6.69E+01	1.71E+01
	43	1833.31	1.18E+01	9.00			1.18E+01	9.00E+00
	44	1875.34	8.73E+00	8.02			8.73E+00	8.02E+00
	45	2104.43	8.15E+00	7.48			8.15E+00	7.48E+00
	46	2204.18	1.28E+01	8.72			1.28E+01	8.72E+00
	47	2614.67	6.70E+01	16.37	2.72E+00	1.24E+00	6.43E+01	1.64E+01

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

Analysis Report for 1606067-07

CP-5010 00-02 QC

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.995	1460.81 *	10.67	1.61E+01	2.26E+00
GA-67	0.519	93.31 *	35.70	7.42E+00	1.54E+01
		208.95	2.24		
		300.22	16.00		
TL-208	0.977	583.14 *	30.22	1.07E+00	3.47E-01
		860.37 *	4.48	1.92E+00	1.53E+00
		2614.66 *	35.85	1.19E+00	3.25E-01
PB-210	0.974	46.50 *	4.25	2.14E+00	1.94E+00
BI-212	0.722	727.17 *	11.80	1.10E+00	7.47E-01
		1620.62	2.75		
PB-212	0.886	238.63 *	44.60	1.55E+00	1.89E-01
		300.09	3.41		
BI-214	0.983	609.31 *	46.30	1.66E+00	3.26E-01
		1120.29 *	15.10	2.12E+00	6.78E-01
		1764.49 *	15.80	2.21E+00	5.90E-01
		2204.22 *	4.98	1.55E+00	1.07E+00
PB-214	0.988	295.21 *	19.19	2.00E+00	4.11E-01
		351.92 *	37.19	2.04E+00	2.59E-01
RA-226	0.998	186.21 *	3.28	5.03E+00	9.38E+00
TH-234	0.999	63.29 *	3.80	2.02E+00	1.99E+00
AM-243	0.971	74.67 *	66.00	4.46E-01	9.60E-02

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 10:14:53AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

: 00472

Analysis Report for 1606067-07

CP-5010 00-02 QC

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.54	2.23477E-01	6.17	
m	8	242.18	5.95871E-02	12.94	
	9	257.49	1.54167E-02	48.55	
	10	270.56	2.48024E-02	32.75	
	11	277.75	1.21775E-02	55.46	Tol. NP-239 CM-243
	13	328.60	1.19695E-02	55.99	Tol. LA-140
	14	338.35	2.80782E-02	29.43	Tol. AC-228
m	16	357.93	6.53993E-03	62.38	Sum
	17	463.70	8.58003E-03	62.36	Tol. SB-125
	18	511.34	1.09396E-02	53.56	
	22	768.78	9.33962E-03	47.03	
	24	903.90	8.02083E-03	42.63	
	25	913.09	3.93304E-02	18.34	Tol. LU-172
	26	935.46	1.08363E-02	45.78	Sum
	27	968.84	2.93409E-02	17.81	Tol. AC-228
M	28	1111.14	4.17050E-03	68.98	Tol. EU-152
	30	1153.67	4.60494E-03	61.28	Tol. EU-156
	31	1238.11	1.03177E-02	33.41	
	32	1260.07	5.51918E-03	46.67	Tol. I-135
	33	1281.73	4.46759E-03	60.28	
	34	1325.97	3.14236E-03	59.59	
M	35	1373.79	2.49767E-03	47.18	
m	36	1377.97	8.53019E-03	29.71	
	38	1630.87	4.13194E-03	36.32	
	39	1675.28	1.88889E-03	62.39	
	40	1705.04	1.63194E-03	56.61	
	41	1729.92	4.22917E-03	33.97	Sum
	43	1833.31	3.28373E-03	38.07	
	44	1875.34	2.42424E-03	45.92	
	45	2104.43	2.26389E-03	45.91	S-Esc

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2,000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Analysis Report for 1606067-07

CP-5010 00-02 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81 *	10.67	1.61E+01	2.26E+00
GA-67	0.51	93.31 *	35.70	7.42E+00	1.54E+01
		208.95	2.24		
		300.22	16.00		
TL-208	0.97	583.14 *	30.22	1.07E+00	3.47E-01
		860.37 *	4.48	1.92E+00	1.53E+00
		2614.66 *	35.85	1.19E+00	3.25E-01
PB-210	0.97	46.50 *	4.25	2.14E+00	1.94E+00
BI-212	0.72	727.17 *	11.80	1.10E+00	7.47E-01
		1620.62	2.75		
PB-212	0.88	238.63 *	44.60	1.55E+00	1.89E-01
		300.09	3.41		
BI-214	0.98	609.31 *	46.30	1.66E+00	3.26E-01
		1120.29 *	15.10	2.12E+00	6.78E-01
		1764.49 *	15.80	2.21E+00	5.90E-01
		2204.22 *	4.98	1.55E+00	1.07E+00
PB-214	0.98	295.21 *	19.19	2.00E+00	4.11E-01
		351.92 *	37.19	2.04E+00	2.59E-01
RA-226	0.99	186.21 *	3.28	5.03E+00	9.38E+00
TH-234	0.99	63.29 *	3.80	2.02E+00	1.99E+00
AM-243	0.97	74.67 *	66.00	4.46E-01	9.60E-02

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.995	1.61E+01	2.26E+00	
GA-67	0.519	7.42E+00	1.54E+01	
TL-208	0.977	1.16E+00	2.34E-01	
PB-210	0.974	2.14E+00	1.94E+00	
BI-212	0.722	1.10E+00	7.47E-01	
PB-212	0.886	1.55E+00	1.89E-01	

Analysis Report for 1606067-07

CP-5010 00-02 QC

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
BI-214	0.983	1.82E+00	2.55E-01	
PB-214	0.988	2.03E+00	2.19E-01	
RA-226	0.998	5.03E+00	9.38E+00	
TH-234	0.999	2.02E+00	1.99E+00	
AM-243	0.971	4.46E-01	9.60E-02	

- ? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1606067-07

CP-5010 00-02 QC

 UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 10:14:53AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m 4	77.54	2.23477E-01	6.17		
m 8	242.18	5.95871E-02	12.94		
9	257.49	1.54167E-02	48.55		
10	270.56	2.48024E-02	32.75		
11	277.75	1.21775E-02	55.46	Tol.	NP-239 CM-243
13	328.60	1.19695E-02	55.99	Tol.	LA-140
14	338.35	2.80782E-02	29.43	Tol.	AC-228
m 16	357.93	6.53993E-03	62.38	Sum	
17	463.70	8.58003E-03	62.36	Tol.	SB-125
18	511.34	1.09396E-02	53.56		
22	768.78	9.33962E-03	47.03		
24	903.90	8.02083E-03	42.63		
25	913.09	3.93304E-02	18.34	Tol.	LU-172
26	935.46	1.08363E-02	45.78	Sum	
27	968.84	2.93409E-02	17.81	Tol.	AC-228
M 28	1111.14	4.17050E-03	68.98	Tol.	EU-152
30	1153.67	4.60494E-03	61.28	Tol.	EU-156
31	1238.11	1.03177E-02	33.41		
32	1260.07	5.51918E-03	46.67	Tol.	I-135
33	1281.73	4.46759E-03	60.28		
34	1325.97	3.14236E-03	59.59		
M 35	1373.79	2.49767E-03	47.18		
m 36	1377.97	8.53019E-03	29.71		
38	1630.87	4.13194E-03	36.32		
39	1675.28	1.88889E-03	62.39		
40	1705.04	1.63194E-03	56.61		
41	1729.92	4.22917E-03	33.97	Sum	
43	1833.31	3.28373E-03	38.07		
44	1875.34	2.42424E-03	45.92		
45	2104.43	2.26389E-03	45.91	S-Esc	

Analysis Report for 1606067-07
CP-5010 00-02 QC

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-2.52E-01	9.67E-01	9.67E-01
+	NA-22	1274.54	99.94	3.74E-02	1.30E-01	1.30E-01
+	NA-24	1368.53	99.99	-1.07E+04	1.38E+05	1.67E+05
		2754.09	99.86	2.56E+04		1.38E+05
+	AL-26	1808.65	99.76	5.32E-03	7.98E-02	7.98E-02
+	K-40	1460.81	* 10.67	1.61E+01	1.32E+00	1.32E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-3.53E-03	8.45E-02	8.45E-02
		78.34	96.00	2.95E-01		1.10E-01
+	SC-46	889.25	99.98	-2.37E-02	1.05E-01	1.05E-01
		1120.51	99.99	3.50E-01		2.18E-01
+	V-48	983.52	99.98	-6.67E-03	1.67E-01	1.67E-01
		1312.10	97.50	-1.08E-01		1.91E-01
+	CR-51	320.08	9.83	5.15E-01	1.17E+00	1.17E+00
+	MN-54	834.83	99.97	3.12E-02	1.06E-01	1.06E-01
+	CO-56	846.75	99.96	-3.69E-02	1.07E-01	1.07E-01
		1037.75	14.03	-5.85E-01		8.49E-01
		1238.25	67.00	2.32E-01		2.67E-01
		1771.40	15.51	-2.06E+00		6.00E-01
		2598.48	16.90	2.20E-02		4.09E-01
+	CO-57	122.06	85.51	-1.58E-02	7.05E-02	7.05E-02
		136.48	10.60	2.08E-01		6.04E-01
+	CO-58	810.76	99.40	8.51E-03	1.24E-01	1.24E-01
+	FE-59	1099.22	56.50	6.51E-02	2.53E-01	2.53E-01
		1291.56	43.20	2.46E-01		4.02E-01
+	CO-60	1173.22	100.00	4.53E-02	1.23E-01	1.23E-01
		1332.49	100.00	3.87E-02		1.24E-01
+	ZN-65	1115.52	50.75	-7.78E-01	2.34E-01	2.34E-01
+	GA-67	93.31	* 35.70	7.42E+00	5.26E+00	5.26E+00
		208.95	2.24	3.10E+01		5.93E+01
		300.22	16.00	3.53E+00		9.05E+00
+	SE-75	121.11	16.70	3.16E-02	1.14E-01	3.78E-01

Analysis Report for 1606067-07

CP-5010 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	4.12E-02	1.14E-01	1.14E-01
		264.65	59.80	2.12E-02		1.35E-01
		279.53	25.20	5.98E-02		3.62E-01
		400.65	11.40	-2.72E-02		8.00E-01
+	RB-82	776.52	13.00	2.02E-01	1.09E+00	1.09E+00
+	RB-83	520.41	46.00	-3.59E-02	2.12E-01	2.12E-01
		529.64	30.30	-1.52E-01		3.12E-01
		552.65	16.40	4.33E-02		5.83E-01
+	KR-85	513.99	0.43	4.82E+00	2.85E+01	2.85E+01
+	SR-85	513.99	99.27	2.41E-02	1.43E-01	1.43E-01
+	Y-88	898.02	93.40	-1.04E-02	1.10E-01	1.10E-01
		1836.01	99.38	1.96E-03		1.14E-01
+	NB-93M	16.57	9.43	2.79E+01	9.54E+01	9.54E+01
+	NB-94	702.63	100.00	1.84E-02	9.49E-02	9.80E-02
		871.10	100.00	2.95E-04		9.49E-02
+	NB-95	765.79	99.81	2.40E-02	1.65E-01	1.65E-01
+	NB-95M	235.69	25.00	6.96E-01	6.38E+00	6.38E+00
+	ZR-95	724.18	43.70	2.95E-02	1.89E-01	2.82E-01
		756.72	55.30	-9.41E-02		1.89E-01
+	MO-99	181.06	6.20	9.20E+00	1.97E+01	2.78E+01
		739.58	12.80	-3.62E+00		1.97E+01
		778.00	4.50	-3.13E+01		5.32E+01
+	RU-103	497.08	89.00	2.24E-02	1.25E-01	1.25E-01
+	RU-106	621.84	9.80	1.62E-01	9.54E-01	9.54E-01
+	AG-108M	433.93	89.90	-3.02E-02	9.52E-02	9.89E-02
		614.37	90.40	-1.53E-02		1.26E-01
		722.95	90.50	-1.90E-03		9.52E-02
+	CD-109	88.03	3.72	1.12E+00	2.16E+00	2.16E+00
+	AG-110M	657.75	93.14	-1.16E-01	1.05E-01	1.05E-01
		677.61	10.53	-2.91E-01		9.14E-01
		706.67	16.46	-3.63E-01		6.07E-01
		763.93	21.98	2.38E-01		5.18E-01
		884.67	71.63	-6.39E-02		1.34E-01
		1384.27	23.94	-7.58E-02		5.13E-01
+	CD-113M	263.70	0.02	5.12E+01	3.24E+02	3.24E+02
+	SN-113	255.12	1.93	9.69E-01	1.55E-01	4.39E+00
		391.69	64.90	1.02E-01		1.55E-01
+	TE123M	159.00	84.10	2.28E-02	8.29E-02	8.29E-02
+	SB-124	602.71	97.87	3.00E-03	1.14E-01	1.14E-01
		645.85	7.26	-5.44E-01		1.35E+00
		722.78	11.10	-1.79E-02		9.02E-01
		1691.02	49.00	-6.39E-02		1.57E-01
+	I-125	35.49	6.49	-1.53E+00	2.64E+00	2.64E+00
+	SB-125	176.33	6.89	-3.27E-01	3.04E-01	9.22E-01
		427.89	29.33	-1.04E-01		3.04E-01
		463.38	10.35	2.25E-01		9.25E-01
		600.56	17.80	-9.96E-02		5.47E-01
		635.90	11.32	-1.65E-01		7.83E-01

Analysis Report for 1606067-07

CP-5010 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70	83.30	-2.36E-02	2.12E-01	2.31E-01
		666.33	99.60	-1.66E-01		2.12E-01
		695.00	99.60	-7.05E-02		2.15E-01
		720.50	53.80	-1.19E-01		3.17E-01
+	SN-126	87.57	37.00	1.11E-01	2.13E-01	2.13E-01
+	SB-127	473.00	25.00	-1.32E+00	2.70E+00	3.41E+00
		685.20	35.70	-3.38E+00		2.70E+00
		783.80	14.70	1.98E+00		7.47E+00
+	I-129	29.78	57.00	-3.54E-01	4.83E-01	4.83E-01
		33.60	13.20	7.59E-01		1.41E+00
		39.58	7.52	-1.79E-01		1.57E+00
+	I-131	284.30	6.05	2.08E-01	2.96E-01	3.89E+00
		364.48	81.20	-5.70E-02		2.96E-01
		636.97	7.26	-1.42E+00		3.75E+00
		722.89	1.80	-2.93E-01		1.47E+01
+	TE-132	49.72	13.10	1.75E+00	1.37E+00	1.09E+01
		228.16	88.00	-2.19E-01		1.37E+00
+	BA-133	81.00	33.00	-8.82E-02	2.06E-01	2.15E-01
		302.84	17.80	5.05E-02		4.74E-01
		356.01	60.00	1.53E-03		2.06E-01
+	I-133	529.87	86.30	-1.61E+03	3.29E+03	3.29E+03
+	XE-133	81.00	38.00	-4.27E-01	1.04E+00	1.04E+00
+	CS-134	563.23	8.38	1.48E-02	1.06E-01	1.11E+00
		569.32	15.43	1.84E-01		6.14E-01
		604.70	97.60	-1.87E-02		1.06E-01
		795.84	85.40	7.11E-02		1.34E-01
		801.93	8.73	-4.87E-01		1.25E+00
+	CS-135	268.24	16.00	1.01E-01	5.64E-01	5.64E-01
+	I-135	1131.51	22.50	-2.45E+13	7.82E+13	8.47E+13
		1260.41	28.60	4.15E+13		7.82E+13
		1678.03	9.54	6.76E+12		1.70E+14
+	CS-136	153.22	7.46	4.14E-01	1.81E-01	1.74E+00
		163.89	4.61	2.56E-01		2.73E+00
		176.55	13.56	-1.65E-01		9.25E-01
		273.65	12.66	-1.33E+00		1.36E+00
		340.57	48.50	-4.60E-02		4.32E-01
		818.50	99.70	-1.19E-01		1.81E-01
		1048.07	79.60	-1.90E-01		2.54E-01
		1235.34	19.70	1.40E-01		1.50E+00
+	CS-137	661.65	85.12	5.61E-02	1.31E-01	1.31E-01
+	LA-138	788.74	34.00	1.26E-02	1.48E-01	3.07E-01
		1435.80	66.00	9.15E-03		1.48E-01
+	CE-139	165.85	80.35	3.19E-03	8.55E-02	8.55E-02
+	BA-140	162.64	6.70	-1.88E-02	7.64E-01	1.93E+00
		304.84	4.50	-1.34E+00		3.62E+00
		423.70	3.20	-1.45E+00		5.64E+00
		437.55	2.00	-2.91E+00		8.62E+00
		537.32	25.00	1.89E-01		7.64E-01
+	LA-140	328.77	20.50	3.67E-01	2.36E-01	8.60E-01

Analysis Report for 1606067-07

CP-5010 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-140	487.03	45.50	-1.65E-01	2.36E-01	3.79E-01
		815.85	23.50	-4.00E-01		8.08E-01
		1596.49	95.49	3.70E-02		2.36E-01
+	CE-141	145.44	48.40	9.29E-03	1.77E-01	1.77E-01
+	CE-143	57.36	11.80	-2.42E+02	2.09E+02	4.68E+02
		293.26	42.00	5.16E+02		2.09E+02
		664.55	5.20	9.92E+02		1.57E+03
+	CE-144	133.54	10.80	-3.17E-01	5.78E-01	5.78E-01
+	PM-144	476.78	42.00	-1.09E-01	9.87E-02	1.99E-01
		618.01	98.60	1.02E-02		9.87E-02
		696.49	99.49	-4.60E-02		1.00E-01
+	PM-145	36.85	21.70	-3.29E-01	3.33E-01	6.20E-01
		37.36	39.70	-7.21E-02		3.33E-01
		42.30	15.10	-1.53E-01		7.34E-01
		72.40	2.31	-8.64E+00		3.95E+00
+	PM-146	453.90	39.94	-2.34E-03	2.01E-01	2.01E-01
		735.90	14.01	-2.42E-01		6.21E-01
		747.13	13.10	-1.77E-01		7.92E-01
+	ND-147	91.11	28.90	-1.01E-01	6.59E-01	6.59E-01
		531.02	13.10	-3.51E-02		1.53E+00
+	PM-149	285.90	3.10	4.43E+01	1.51E+02	1.51E+02
+	EU-152	121.78	20.50	-6.36E-02	2.85E-01	2.85E-01
		244.69	5.40	3.31E-01		1.82E+00
		344.27	19.13	3.47E-02		4.46E-01
		778.89	9.20	-6.28E-01		9.50E-01
		964.01	10.40	1.02E-01		1.29E+00
		1085.78	7.22	-7.39E-01		1.41E+00
		1112.02	9.60	-9.16E-02		1.25E+00
		1407.95	14.94	3.10E-01		8.68E-01
+	GD-153	97.43	31.30	1.57E-02	1.98E-01	1.98E-01
		103.18	22.20	-1.93E-01		2.72E-01
+	EU-154	123.07	40.50	-3.94E-02	1.44E-01	1.44E-01
		723.30	19.70	-8.73E-03		4.39E-01
		873.19	11.50	-4.54E-01		7.60E-01
		996.32	10.30	-2.20E-01		9.36E-01
		1004.76	17.90	-2.55E-01		5.72E-01
		1274.45	35.50	1.05E-01		3.64E-01
+	EU-155	86.50	30.90	2.38E-01	2.57E-01	2.57E-01
		105.30	20.70	1.09E-01		2.95E-01
+	EU-156	811.77	10.40	-8.35E-02	1.85E+00	1.85E+00
		1153.47	7.20	1.31E+00		3.19E+00
		1230.71	8.90	3.67E-01		2.52E+00
+	HO-166M	184.41	72.60	2.42E-01	1.20E-01	1.20E-01
		280.45	29.60	4.50E-02		2.79E-01
		410.94	11.10	-1.15E-01		8.30E-01
		711.69	54.10	6.38E-02		2.04E-01
+	TM-171	66.72	0.14	-3.62E+00	5.78E+01	5.78E+01
+	HF-172	81.75	4.52	2.60E-01	5.34E-01	1.58E+00
		125.81	11.30	-3.97E-01		5.34E-01

Analysis Report for 1606067-07

CP-5010 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53	20.60	1.32E-01	6.40E-01	1.20E+00
		810.06	16.63	6.10E-01		2.65E+00
		912.12	15.25	8.51E+00		4.70E+00
		1093.66	62.50	-7.85E-02		6.40E-01
+	LU-173	100.72	5.24	2.82E-01	4.44E-01	1.15E+00
		272.11	21.20	3.92E-01		4.44E-01
+	HF-175	343.40	84.00	4.23E-02	1.18E-01	1.18E-01
+	LU-176	88.34	13.30	6.08E-01	8.33E-02	6.22E-01
		201.83	86.00	1.93E-02		9.42E-02
		306.78	94.00	2.20E-02		8.33E-02
+	TA-182	67.75	41.20	-8.76E-03	2.10E-01	2.10E-01
		1121.30	34.90	7.34E-01		5.96E-01
		1189.05	16.23	-1.46E-01		8.22E-01
		1221.41	26.98	-5.68E-02		5.34E-01
		1231.02	11.44	4.53E-01		1.21E+00
+	IR-192	308.46	29.68	-3.62E-02	2.06E-01	2.86E-01
		468.07	48.10	3.97E-02		2.06E-01
+	HG-203	279.19	77.30	7.03E-02	1.33E-01	1.33E-01
+	BI-207	569.67	97.72	2.52E-02	9.65E-02	9.65E-02
		1063.62	74.90	1.10E-02		1.50E-01
+	TL-208	583.14	* 30.22	1.07E+00	1.58E-01	4.87E-01
		860.37	* 4.48	1.92E+00		2.39E+00
		2614.66	* 35.85	1.19E+00		1.58E-01
+	BI-210M	262.00	45.00	-2.67E-02	1.66E-01	1.66E-01
		300.00	23.00	1.54E-01		3.95E-01
+	PB-210	46.50	* 4.25	2.14E+00	3.14E+00	3.14E+00
+	PB-211	404.84	2.90	-1.33E+00	3.00E+00	3.00E+00
		831.96	2.90	-9.81E-01		3.49E+00
+	BI-212	727.17	* 11.80	1.10E+00	1.17E+00	1.17E+00
		1620.62	2.75	-3.28E-02		4.09E+00
+	PB-212	238.63	* 44.60	1.55E+00	2.66E-01	2.66E-01
		300.09	3.41	1.04E+00		2.66E+00
+	BI-214	609.31	* 46.30	1.66E+00	3.58E-01	3.90E-01
		1120.29	* 15.10	2.12E+00		1.74E+00
		1764.49	* 15.80	2.21E+00		3.58E-01
		2204.22	* 4.98	1.55E+00		1.33E+00
+	PB-214	295.21	* 19.19	2.00E+00	4.40E-01	5.31E-01
		351.92	* 37.19	2.04E+00		4.40E-01
+	RN-219	401.80	6.50	-1.02E-01	1.32E+00	1.32E+00
+	RA-223	323.87	3.88	7.57E-02	2.08E+00	2.08E+00
+	RA-224	240.98	3.95	2.15E+01	3.98E+00	3.98E+00
+	RA-225	40.00	31.00	-7.82E-02	6.83E-01	6.83E-01
+	RA-226	186.21	* 3.28	5.03E+00	2.78E+00	2.78E+00
+	TH-227	50.10	8.40	1.69E-01	1.06E+00	1.06E+00
		236.00	11.50	1.24E-01		1.14E+00
		256.20	6.30	5.20E-01		1.26E+00
+	AC-228	338.32	11.40	1.16E+00	6.64E-01	9.36E-01
		911.07	27.70	1.07E+00		6.64E-01

Analysis Report for 1806067-07

CP-5010 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	16.60	1.54E+00	6.64E-01	1.08E+00
+	TH-230	48.44	16.90	2.54E-01	6.03E-01	6.03E-01
		62.85	4.60	1.98E+00		1.94E+00
		67.67	0.37	-9.02E-01		2.16E+01
+	PA-231	283.67	1.60	2.55E-01	3.66E+00	4.78E+00
		302.67	2.30	3.90E-01		3.66E+00
+	TH-231	25.64	14.70	1.10E+00	1.12E+00	3.74E+00
		84.21	6.40	-1.81E+00		1.12E+00
+	PA-233	311.98	38.60	-2.12E-01	2.68E-01	2.68E-01
+	PA-234	131.20	20.40	1.35E-01	3.15E-01	3.15E-01
		733.99	8.80	1.36E-01		1.00E+00
		946.00	12.00	-4.22E-02		9.58E-01
+	PA-234M	1001.03	0.92	-4.40E-01	1.15E+01	1.15E+01
+	TH-234	63.29	* 3.80	2.02E+00	3.24E+00	3.24E+00
+	U-235	143.76	10.50	4.25E-01	6.26E-01	6.26E-01
		163.35	4.70	1.26E-01		1.35E+00
		205.31	4.70	-1.80E+00		1.70E+00
+	NP-237	86.50	12.60	5.81E-01	6.26E-01	6.26E-01
+	NP-239	106.10	22.70	3.81E+00	1.25E+01	1.25E+01
		228.18	10.70	-5.22E+00		3.26E+01
		277.60	14.10	1.96E+00		2.72E+01
+	AM-241	59.54	35.90	-6.23E-02	2.18E-01	2.18E-01
+	AM-243	74.67	* 66.00	4.46E-01	1.86E-01	1.86E-01
+	CM-243	209.75	3.29	7.47E-01	5.93E-01	2.50E+00
		228.14	10.60	-1.14E-01		7.14E-01
		277.60	14.00	4.28E-02		5.93E-01

- + = Nuclide identified during the nuclide identification
 * = Energy line found in the spectrum
 > = MDA value not calculated
 @ = Half-life too short to be able to perform the decay correction
 ? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

: 00482

Analysis Report for 1606067-07

CP-5010 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	9.67E-01	9.67E-01	-2.52E-01	4.56E-01
NA-22	1274.54	99.94	1.30E-01	1.30E-01	3.74E-02	5.96E-02
NA-24	1368.53	99.99	1.67E+05	1.38E+05	-1.07E+04	7.25E+04
	2754.09	99.86	1.38E+05		2.56E+04	5.15E+04
AL-26	1808.65	99.76	7.98E-02	7.98E-02	5.32E-03	3.27E-02
+ K-40	1460.81	* 10.67	1.32E+00	1.32E+00	1.61E+01	6.03E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	8.45E-02	8.45E-02	-3.53E-03	4.13E-02
	78.34	96.00	1.10E-01		2.95E-01	5.41E-02
SC-46	889.25	99.98	1.05E-01	1.05E-01	-2.37E-02	4.80E-02
	1120.51	99.99	2.18E-01		3.50E-01	1.04E-01
V-48	983.52	99.98	1.67E-01	1.67E-01	-6.67E-03	7.59E-02
	1312.10	97.50	1.91E-01		-1.08E-01	8.55E-02
CR-51	320.08	9.83	1.17E+00	1.17E+00	5.15E-01	5.63E-01
MN-54	834.83	99.97	1.06E-01	1.06E-01	3.12E-02	4.92E-02
CO-56	846.75	99.96	1.07E-01	1.07E-01	-3.69E-02	4.93E-02
	1037.75	14.03	8.49E-01		-5.85E-01	3.88E-01
	1238.25	67.00	2.67E-01		2.32E-01	1.25E-01
	1771.40	15.51	6.00E-01		-2.06E+00	2.49E-01
	2598.48	16.90	4.09E-01		2.20E-02	1.45E-01
CO-57	122.06	85.51	7.05E-02	7.05E-02	-1.58E-02	3.42E-02
	136.48	10.60	6.04E-01		2.08E-01	2.93E-01
CO-58	810.76	99.40	1.24E-01	1.24E-01	8.51E-03	5.77E-02
FE-59	1099.22	56.50	2.53E-01	2.53E-01	6.51E-02	1.16E-01
	1291.56	43.20	4.02E-01		2.46E-01	1.85E-01
CO-60	1173.22	100.00	1.23E-01	1.23E-01	4.53E-02	5.61E-02
	1332.49	100.00	1.24E-01		3.87E-02	5.65E-02
ZN-65	1115.52	50.75	2.34E-01	2.34E-01	-7.78E-01	1.07E-01
+ GA-67	93.31	* 35.70	5.26E+00	5.26E+00	7.42E+00	2.59E+00
	208.95	2.24	5.93E+01		3.10E+01	2.88E+01
	300.22	16.00	9.05E+00		3.53E+00	4.36E+00
SE-75	121.11	16.70	3.78E-01	1.14E-01	3.16E-02	1.83E-01
	136.00	59.20	1.14E-01		4.12E-02	5.52E-02
	264.65	59.80	1.35E-01		2.12E-02	6.50E-02
	279.53	25.20	3.62E-01		5.98E-02	1.75E-01
	400.65	11.40	8.00E-01		-2.72E-02	3.81E-01
RB-82	776.52	13.00	1.09E+00	1.09E+00	2.02E-01	5.06E-01
RB-83	520.41	46.00	2.12E-01	2.12E-01	-3.59E-02	1.00E-01
	529.64	30.30	3.12E-01		-1.52E-01	1.46E-01
	552.65	16.40	5.83E-01		4.33E-02	2.73E-01
KR-85	513.99	0.43	2.85E+01	2.85E+01	4.82E+00	1.37E+01
SR-85	513.99	99.27	1.43E-01	1.43E-01	2.41E-02	6.85E-02
Y-88	898.02	93.40	1.10E-01	1.10E-01	-1.04E-02	5.00E-02
	1836.01	99.38	1.14E-01		1.96E-03	4.92E-02
NB-93M	16.57	9.43	9.54E+01	9.54E+01	2.79E+01	4.64E+01
NB-94	702.63	100.00	9.80E-02	9.49E-02	1.84E-02	4.57E-02
	871.10	100.00	9.49E-02		2.95E-04	4.35E-02
NB-95	765.79	99.81	1.65E-01	1.65E-01	2.40E-02	7.77E-02
NB-95M	235.69	25.00	6.38E+00	6.38E+00	6.96E-01	3.12E+00
ZR-95	724.18	43.70	2.82E-01	1.89E-01	2.95E-02	1.32E-01
	756.72	55.30	1.89E-01		-9.41E-02	8.69E-02

Analysis Report for 1606067-07

CP-5010 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
MO-99	181.06	6.20	2.78E+01	1.97E+01	9.20E+00	1.34E+01
	739.58	12.80	1.97E+01		-3.62E+00	9.12E+00
	778.00	4.50	5.32E+01		-3.13E+01	2.45E+01
RU-103	497.08	89.00	1.25E-01	1.25E-01	2.24E-02	5.91E-02
RU-106	621.84	9.80	9.54E-01	9.54E-01	1.62E-01	4.46E-01
AG-108M	433.93	89.90	9.89E-02	9.52E-02	-3.02E-02	4.70E-02
	614.37	90.40	1.26E-01		-1.53E-02	5.97E-02
	722.95	90.50	9.52E-02		-1.90E-03	4.39E-02
CD-109	88.03	3.72	2.16E+00	2.16E+00	1.12E+00	1.06E+00
AG-110M	657.75	93.14	1.05E-01	1.05E-01	-1.16E-01	4.91E-02
	677.61	10.53	9.14E-01		-2.91E-01	4.25E-01
	706.67	16.46	6.07E-01		-3.63E-01	2.82E-01
	763.93	21.98	5.18E-01		2.38E-01	2.42E-01
	884.67	71.63	1.34E-01		-6.39E-02	6.13E-02
1384.27	23.94	5.13E-01	-7.58E-02	2.31E-01		
CD-113M	263.70	0.02	3.24E+02	3.24E+02	5.12E+01	1.56E+02
SN-113	255.12	1.93	4.39E+00	1.55E-01	9.69E-01	2.12E+00
	391.69	64.90	1.55E-01		1.02E-01	7.44E-02
TE123M	159.00	84.10	8.29E-02	8.29E-02	2.28E-02	4.02E-02
SB-124	602.71	97.87	1.14E-01	1.14E-01	3.00E-03	5.37E-02
	645.85	7.26	1.35E+00		-5.44E-01	6.24E-01
	722.78	11.10	9.02E-01		-1.79E-02	4.15E-01
	1691.02	49.00	1.57E-01		-6.39E-02	6.23E-02
	I-125	35.49	6.49		2.64E+00	2.64E+00	-1.53E+00	1.28E+00
SB-125	176.33	6.89	9.22E-01	3.04E-01	-3.27E-01	4.46E-01
	427.89	29.33	3.04E-01		-1.04E-01	1.45E-01
	463.38	10.35	9.25E-01		2.25E-01	4.40E-01
	600.56	17.80	5.47E-01		-9.96E-02	2.57E-01
	635.90	11.32	7.83E-01		-1.65E-01	3.64E-01
SB-126	414.70	83.30	2.31E-01	2.12E-01	-2.36E-02	1.10E-01
	666.33	99.60	2.12E-01		-1.66E-01	9.95E-02
	695.00	99.60	2.15E-01		-7.05E-02	1.00E-01
	720.50	53.80	3.17E-01		-1.19E-01	1.46E-01
SN-126	87.57	37.00	2.13E-01	2.13E-01	1.11E-01	1.04E-01
SB-127	473.00	25.00	3.41E+00	2.70E+00	-1.32E+00	1.61E+00
	685.20	35.70	2.70E+00		-3.38E+00	1.25E+00
	783.80	14.70	7.47E+00		1.98E+00	3.48E+00
I-129	29.78	57.00	4.83E-01	4.83E-01	-3.54E-01	2.34E-01
	33.60	13.20	1.41E+00		7.59E-01	6.84E-01
	39.58	7.52	1.57E+00		-1.79E-01	7.59E-01
I-131	284.30	6.05	3.89E+00	2.96E-01	2.08E-01	1.87E+00
	364.48	81.20	2.96E-01		-5.70E-02	1.41E-01
	636.97	7.26	3.75E+00		-1.42E+00	1.75E+00
	722.89	1.80	1.47E+01		-2.93E-01	6.78E+00
TE-132	49.72	13.10	1.09E+01	1.37E+00	1.75E+00	5.32E+00
	228.16	88.00	1.37E+00		-2.19E-01	6.63E-01
BA-133	81.00	33.00	2.15E-01	2.06E-01	-8.82E-02	1.05E-01
	302.84	17.80	4.74E-01		5.05E-02	2.28E-01
	356.01	60.00	2.06E-01		1.53E-03	1.00E-01
I-133	529.87	86.30	3.29E+03	3.29E+03	-1.61E+03	1.54E+03
XE-133	81.00	38.00	1.04E+00	1.04E+00	-4.27E-01	5.09E-01
CS-134	563.23	8.38	1.11E+00	1.06E-01	1.48E-02	5.21E-01
	569.32	15.43	6.14E-01		1.84E-01	2.89E-01

Analysis Report for 1606067-07

CP-5010 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	604.70	97.60	1.06E-01	1.06E-01	-1.87E-02	4.98E-02
	795.84	85.40	1.34E-01		7.11E-02	6.26E-02
	801.93	8.73	1.25E+00		-4.87E-01	5.80E-01
CS-135	268.24	16.00	5.64E-01	5.64E-01	1.01E-01	2.73E-01
	I-135	1131.51	22.50		8.47E+13	7.82E+13	-2.45E+13	3.86E+13
CS-136	1260.41	28.60	7.82E+13	1.81E-01	4.15E+13	3.59E+13
	1678.03	9.54	1.70E+14		6.76E+12	7.26E+13
	153.22	7.46	1.74E+00		4.14E-01	8.42E-01
	163.89	4.61	2.73E+00		2.56E-01	1.32E+00
	176.55	13.56	9.25E-01		-1.65E-01	4.47E-01
	273.65	12.66	1.36E+00		-1.33E+00	6.59E-01
	340.57	48.50	4.32E-01		-4.60E-02	2.09E-01
CS-137	818.50	99.70	1.81E-01	1.31E-01	-1.19E-01	8.31E-02
	1048.07	79.60	2.54E-01		-1.90E-01	1.15E-01
	1235.34	19.70	1.50E+00		1.40E-01	6.95E-01
	661.65	85.12	1.31E-01		5.61E-02	6.18E-02
	LA-138	788.74	34.00		3.07E-01	1.48E-01	1.26E-02	1.43E-01
CE-139	1435.80	66.00	1.48E-01	8.55E-02	9.15E-03	6.49E-02
	165.85	80.35	8.55E-02		3.19E-03	4.14E-02
BA-140	162.64	6.70	1.93E+00	7.64E-01	-1.88E-02	9.32E-01
	304.84	4.50	3.62E+00		-1.34E+00	1.74E+00
	423.70	3.20	5.64E+00		-1.45E+00	2.68E+00
	437.55	2.00	8.62E+00		-2.91E+00	4.09E+00
	537.32	25.00	7.64E-01		1.89E-01	3.61E-01
LA-140	328.77	20.50	8.60E-01	2.36E-01	3.67E-01	4.13E-01
	487.03	45.50	3.79E-01		-1.65E-01	1.79E-01
	815.85	23.50	8.08E-01		-4.00E-01	3.71E-01
	1596.49	95.49	2.36E-01		3.70E-02	1.04E-01
CE-141	145.44	48.40	1.77E-01	1.77E-01	9.29E-03	8.58E-02
CE-143	57.36	11.80	4.68E+02	2.09E+02	-2.42E+02	2.28E+02
	293.26	42.00	2.09E+02		5.16E+02	1.02E+02
	664.55	5.20	1.57E+03		9.92E+02	7.42E+02
CE-144	133.54	10.80	5.78E-01	5.78E-01	-3.17E-01	2.80E-01
PM-144	476.78	42.00	1.99E-01	9.87E-02	-1.09E-01	9.38E-02
	618.01	98.60	9.87E-02		1.02E-02	4.63E-02
	696.49	99.49	1.00E-01		-4.60E-02	4.67E-02
PM-145	36.85	21.70	6.20E-01	3.33E-01	-3.29E-01	3.00E-01
	37.36	39.70	3.33E-01		-7.21E-02	1.61E-01
	42.30	15.10	7.34E-01		-1.53E-01	3.56E-01
	72.40	2.31	3.95E+00		-8.64E+00	1.94E+00
PM-146	453.90	39.94	2.01E-01	2.01E-01	-2.34E-03	9.46E-02
	735.90	14.01	6.21E-01		-2.42E-01	2.86E-01
	747.13	13.10	7.92E-01		-1.77E-01	3.69E-01
ND-147	91.11	28.90	6.59E-01	6.59E-01	-1.01E-01	3.23E-01
	531.02	13.10	1.53E+00		-3.51E-02	7.20E-01
PM-149	285.90	3.10	1.51E+02	1.51E+02	4.43E+01	7.23E+01
EU-152	121.78	20.50	2.85E-01	2.85E-01	-6.36E-02	1.38E-01
	244.69	5.40	1.82E+00		3.31E-01	8.83E-01
	344.27	19.13	4.46E-01		3.47E-02	2.14E-01
	778.89	9.20	9.50E-01		-6.28E-01	4.35E-01
	964.01	10.40	1.29E+00		1.02E-01	6.04E-01
	1085.78	7.22	1.41E+00		-7.39E-01	6.40E-01
	1112.02	9.60	1.25E+00		-9.16E-02	5.71E-01

Analysis Report for 1606067-07

CP-5010 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
EU-152	1407.95	14.94	8.68E-01	2.85E-01	3.10E-01	3.94E-01	
GD-153	97.43	31.30	1.98E-01	1.98E-01	1.57E-02	9.64E-02	
	103.18	22.20	2.72E-01		-1.93E-01	1.32E-01	
EU-154	123.07	40.50	1.44E-01	1.44E-01	-3.94E-02	6.98E-02	
	723.30	19.70	4.39E-01		-8.73E-03	2.02E-01	
	873.19	11.50	7.60E-01		-4.54E-01	3.45E-01	
	996.32	10.30	9.36E-01		-2.20E-01	4.24E-01	
	1004.76	17.90	5.72E-01		-2.55E-01	2.61E-01	
	1274.45	35.50	3.64E-01		1.05E-01	1.67E-01	
EU-155	86.50	30.90	2.57E-01	2.57E-01	2.38E-01	1.26E-01	
	105.30	20.70	2.95E-01		1.09E-01	1.44E-01	
EU-156	811.77	10.40	1.85E+00	1.85E+00	-8.35E-02	8.58E-01	
	1153.47	7.20	3.19E+00		1.31E+00	1.47E+00	
	1230.71	8.90	2.52E+00		3.67E-01	1.15E+00	
HO-166M	184.41	72.60	1.20E-01	1.20E-01	2.42E-01	5.83E-02	
	280.45	29.60	2.79E-01		4.50E-02	1.34E-01	
	410.94	11.10	8.30E-01		-1.15E-01	3.96E-01	
	711.69	54.10	2.04E-01		6.38E-02	9.60E-02	
TM-171	66.72	0.14	5.78E+01	5.78E+01	-3.62E+00	2.83E+01	
HF-172	81.75	4.52	1.58E+00	5.34E-01	2.60E-01	7.72E-01	
	125.81	11.30	5.34E-01		-3.97E-01	2.59E-01	
LU-172	181.53	20.60	1.20E+00	6.40E-01	1.32E-01	5.81E-01	
	810.06	16.63	2.65E+00		6.10E-01	1.24E+00	
	912.12	15.25	4.70E+00		8.51E+00	2.24E+00	
	1093.66	62.50	6.40E-01		-7.85E-02	2.90E-01	
LU-173	100.72	5.24	1.15E+00	4.44E-01	2.82E-01	5.57E-01	
	272.11	21.20	4.44E-01		3.92E-01	2.15E-01	
HF-175	343.40	84.00	1.18E-01	1.18E-01	4.23E-02	5.67E-02	
LU-176	88.34	13.30	6.22E-01	8.33E-02	6.08E-01	3.05E-01	
	201.83	86.00	9.42E-02		1.93E-02	4.57E-02	
	306.78	94.00	8.33E-02		2.20E-02	3.99E-02	
TA-182	67.75	41.20	2.10E-01	2.10E-01	-8.76E-03	1.03E-01	
	1121.30	34.90	5.96E-01		7.34E-01	2.83E-01	
	1189.05	16.23	8.22E-01		-1.46E-01	3.76E-01	
	1221.41	26.98	5.34E-01		-5.68E-02	2.46E-01	
	1231.02	11.44	1.21E+00		4.53E-01	5.56E-01	
IR-192	308.46	29.68	2.86E-01	2.06E-01	-3.62E-02	1.37E-01	
	468.07	48.10	2.06E-01		3.97E-02	9.73E-02	
HG-203	279.19	77.30	1.33E-01	1.33E-01	7.03E-02	6.40E-02	
BI-207	569.67	97.72	9.65E-02	9.65E-02	2.52E-02	4.54E-02	
	1063.62	74.90	1.50E-01		1.10E-02	6.88E-02	
+ TL-208	583.14	*	30.22	4.87E-01	1.58E-01	1.07E+00	2.34E-01
	860.37	*	4.48	2.39E+00		1.92E+00	1.11E+00
	2614.66	*	35.85	1.58E-01		1.19E+00	5.38E-02
BI-210M	262.00	45.00	1.66E-01	1.66E-01	-2.67E-02	8.01E-02	
	300.00	23.00	3.95E-01		1.54E-01	1.91E-01	
+ PB-210	46.50	*	4.25	3.14E+00	3.14E+00	2.14E+00	1.54E+00
PB-211	404.84	2.90	3.00E+00	3.00E+00	-1.33E+00	1.43E+00	
	831.96	2.90	3.49E+00		-9.81E-01	1.61E+00	
+ BI-212	727.17	*	11.80	1.17E+00	1.17E+00	1.10E+00	5.54E-01
	1620.62	2.75	4.09E+00		-3.28E-02	1.81E+00	
+ PB-212	238.63	*	44.60	2.66E-01	2.66E-01	1.55E+00	1.30E-01
	300.09	3.41	2.66E+00		1.04E+00	1.29E+00	

Analysis Report for 1606067-07

CP-5010 00-02 QC

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
+	BI-214	609.31	*	46.30	3.90E-01	3.58E-01	1.66E+00	1.88E-01	
		1120.29	*	15.10	1.74E+00		2.12E+00	8.35E-01	
		1764.49	*	15.80	3.58E-01		2.21E+00	1.34E-01	
		2204.22	*	4.98	1.33E+00		1.55E+00	4.99E-01	
+	PB-214	295.21	*	19.19	5.31E-01	4.40E-01	2.00E+00	2.57E-01	
		351.92	*	37.19	4.40E-01		2.04E+00	2.15E-01	
	RN-219	401.80		6.50	1.32E+00	1.32E+00	-1.02E-01	6.27E-01	
	RA-223	323.87		3.88	2.08E+00	2.08E+00	7.57E-02	9.98E-01	
	RA-224	240.98		3.95	3.98E+00	3.98E+00	2.15E+01	1.95E+00	
	RA-225	40.00		31.00	6.83E-01	6.83E-01	-7.82E-02	3.31E-01	
+	RA-226	186.21	*	3.28	2.78E+00	2.78E+00	5.03E+00	1.36E+00	
		TH-227	50.10		8.40	1.06E+00	1.06E+00	1.69E-01	5.14E-01
			236.00		11.50	1.14E+00		1.24E-01	5.58E-01
		256.20		6.30	1.26E+00		5.20E-01	6.09E-01	
	AC-228	338.32		11.40	9.36E-01	6.64E-01	1.16E+00	4.53E-01	
		911.07		27.70	6.64E-01		1.07E+00	3.17E-01	
		969.11		16.60	1.08E+00		1.54E+00	5.13E-01	
	TH-230	48.44		16.90	6.03E-01	6.03E-01	2.54E-01	2.94E-01	
		62.85		4.60	1.94E+00		1.98E+00	9.50E-01	
		67.67		0.37	2.16E+01		-9.02E-01	1.06E+01	
	PA-231	283.67		1.60	4.78E+00	3.66E+00	2.55E-01	2.29E+00	
		302.67		2.30	3.66E+00		3.90E-01	1.76E+00	
	TH-231	25.64		14.70	3.74E+00	1.12E+00	1.10E+00	1.81E+00	
		84.21		6.40	1.12E+00		-1.81E+00	5.49E-01	
	PA-233	311.98		38.60	2.68E-01	2.68E-01	-2.12E-01	1.28E-01	
	PA-234	131.20		20.40	3.15E-01	3.15E-01	1.35E-01	1.53E-01	
		733.99		8.80	1.00E+00		1.36E-01	4.62E-01	
		946.00		12.00	9.58E-01		-4.22E-02	4.43E-01	
	PA-234M	1001.03		0.92	1.15E+01	1.15E+01	-4.40E-01	5.25E+00	
+	TH-234	63.29	*	3.80	3.24E+00	3.24E+00	2.02E+00	1.60E+00	
		U-235	143.76		10.50	6.26E-01	6.26E-01	4.25E-01	3.04E-01
			163.35		4.70	1.35E+00		1.26E-01	6.52E-01
		205.31		4.70	1.70E+00		-1.80E+00	8.26E-01	
	NP-237	86.50		12.60	6.26E-01	6.26E-01	5.81E-01	3.07E-01	
	NP-239	106.10		22.70	1.25E+01	1.25E+01	3.81E+00	6.07E+00	
		228.18		10.70	3.26E+01		-5.22E+00	1.58E+01	
		277.60		14.10	2.72E+01		1.96E+00	1.31E+01	
	AM-241	59.54		35.90	2.18E-01	2.18E-01	-6.23E-02	1.06E-01	
+	AM-243	74.67	*	66.00	1.86E-01	1.86E-01	4.46E-01	9.19E-02	
		CM-243	209.75		3.29	2.50E+00	5.93E-01	7.47E-01	1.21E+00
			228.14		10.60	7.14E-01		-1.14E-01	3.45E-01
		277.60		14.00	5.93E-01		4.28E-02	2.86E-01	

- + = Nuclide identified during the nuclide identification
 * = Energy line found in the spectrum
 > = MDA value not calculated
 @ = Half-life too short to be able to perform the decay correction

Analysis Report for 1606067-07
CP-5010 00-02 QC

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

<i>Creation Date</i>	<i>Comment</i>	<i>User</i>
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No Data Review Comments Entered.

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: CP-5010 00-02 QC

Elapsed Live time: 3600
 Elapsed Real Time: 3615

Channel	1	9	17	25	33	41	49	57	65	73	81	89	97	105	113	121	129	137	145	153	161	169	177	185	193	201	209	217	225	233	241	249	257	265	273	281	289	297	305	313	321	329	337	345	353	361																																																																																																																																																																																																																																																																																																																											
1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																																																																																							
9:	5	138	151	118	115	110	93	109	17	25	33	41	49	57	65	73	81	89	97	105	113	121	129	137	145	153	161	169	177	185	193	201	209	217	225	233	241	249	257	265	273	281	289	297	305	313	321	329	337	345	353	361																																																																																																																																																																																																																																																																																																																					
17:	97	80	83	72	75	82	88	71	79	87	70	73	59	57	65	74	84	53	66	61	54	57	57	77	104	170	91	66	98	104	82	100	112	95	85	96	81	99	109	116	105	172	221	65	119	129	133	126	128	130	128	116	73	131	170	358	316	411	522	143	121	81	91	119	107	140	152	90	174	215	89	108	154	166	131	277	193	108	107	97	64	70	86	90	77	75	74	81	105	81	94	92	80	76	90	89	63	113	85	63	75	77	69	77	78	69	69	121	68	71	73	73	64	82	69	73	129	99	91	76	77	63	68	80	65	137	88	69	60	71	62	77	67	94	145	87	64	76	52	69	80	55	65	153	78	77	81	66	56	68	77	71	161	62	49	59	70	75	57	53	57	60	61	193	45	54	48	51	53	57	60	61	201	45	55	54	53	56	58	42	47	209	57	93	51	39	43	44	43	48	217	44	55	50	41	49	58	37	41	225	41	41	32	47	30	34	51	32	233	54	39	34	43	49	127	462	186	241	70	143	109	36	30	42	31	29	249	34	18	35	36	33	26	26	45	257	47	35	42	33	24	29	23	31	265	34	38	31	27	44	70	62	42	273	37	30	29	31	43	54	38	28	281	19	36	32	28	30	30	22	33	289	32	27	25	34	37	38	148	194	297	56	18	40	35	47	33	27	29	305	24	20	30	30	23	25	19	18	313	23	24	24	21	36	23	28	28	321	20	28	28	25	22	23	30	41	329	34	25	29	18	25	25	25	26	337	36	69	84	26	24	28	29	20	345	31	28	16	20	25	19	73	310	353	219	29	24	24	18	28	17	20	361	19	23	26	9	22	12	18	23

369: 21 27 13 29 21 13 26 25

Sample Title: CP-5010 00-02 QC

Channel	1	2	3	4	5	6	7	8
377:	15	17	17	21	27	15	25	15
385:	16	20	22	19	19	25	29	30
393:	23	18	25	16	17	20	18	18
401:	20	26	14	16	23	19	23	17
409:	24	29	21	24	20	16	23	25
417:	22	21	21	20	15	24	20	20
425:	14	22	18	20	23	12	20	20
433:	24	16	20	11	16	18	27	14
441:	8	17	19	12	25	19	13	13
449:	7	13	13	4	14	15	14	17
457:	16	19	14	15	17	16	23	32
465:	19	7	17	16	20	14	14	13
473:	17	10	13	10	12	16	19	9
481:	18	17	18	9	12	15	15	17
489:	14	12	18	13	7	19	16	13
497:	11	18	7	14	17	12	10	12
505:	13	16	15	10	15	33	61	43
513:	25	9	17	14	16	7	12	14
521:	11	13	16	10	15	10	11	11
529:	14	8	17	9	10	17	15	13
537:	10	14	14	14	10	18	10	20
545:	7	9	16	13	9	9	13	18
553:	8	8	13	7	8	12	10	12
561:	14	20	10	6	10	12	12	13
569:	14	12	14	9	13	11	10	15
577:	14	13	17	15	14	13	96	90
585:	22	9	14	12	14	11	9	12
593:	10	16	17	13	13	13	7	15
601:	15	8	10	15	10	9	11	29
609:	159	178	45	12	13	14	14	10
617:	5	9	11	12	15	9	2	13
625:	7	11	9	14	13	11	10	8
633:	8	11	13	4	9	7	9	9
641:	12	14	8	4	11	10	8	5
649:	8	8	7	9	6	8	7	9
657:	12	9	11	4	15	30	17	13
665:	4	14	7	9	13	13	10	14
673:	10	10	6	6	6	9	8	15
681:	11	12	10	4	5	8	10	10
689:	14	20	14	16	11	8	7	12
697:	11	8	7	12	7	8	9	10
705:	6	12	13	4	7	9	18	11
713:	10	14	12	13	8	5	6	4
721:	7	6	6	7	7	9	31	23
729:	10	5	10	3	8	8	7	5
737:	6	3	8	10	9	13	6	14
745:	6	12	7	8	10	7	13	9
753:	5	8	6	10	9	4	5	5
761:	16	5	11	11	6	7	14	25
769:	21	14	13	6	13	9	10	5
777:	7	6	5	9	2	7	9	8
785:	11	11	13	10	5	6	11	3
793:	6	9	14	12	10	9	9	9

801: 4 13 7 9 10 7 17 11

Sample Title: CP-5010 00-02 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	4	6	14	11	6	9	8	3
817:	5	6	7	6	6	14	6	10
825:	5	8	9	6	1	10	8	9
833:	8	7	7	11	8	2	3	5
841:	9	11	7	4	5	6	4	7
849:	6	11	7	6	6	8	6	6
857:	6	4	7	14	14	9	5	5
865:	1	8	8	7	8	1	7	5
873:	4	8	3	5	6	8	11	5
881:	4	10	4	6	4	4	5	9
889:	5	4	7	4	7	8	5	7
897:	3	4	2	7	9	1	5	10
905:	11	8	7	4	4	18	68	45
913:	7	5	8	8	6	6	5	6
921:	4	2	10	6	6	2	4	3
929:	6	4	2	8	7	12	9	6
937:	2	5	7	8	9	3	5	6
945:	9	8	12	5	7	10	8	5
953:	11	6	7	3	5	9	4	9
961:	12	9	6	13	10	9	11	28
969:	42	28	8	2	5	3	3	3
977:	5	3	6	1	5	4	5	3
985:	6	8	6	4	5	8	5	4
993:	3	3	5	7	2	7	5	5
1001:	8	7	6	1	5	8	6	3
1009:	6	9	4	7	6	8	3	5
1017:	5	8	4	7	4	7	6	7
1025:	7	6	5	8	4	2	3	7
1033:	10	11	4	5	3	7	9	3
1041:	6	4	9	5	7	4	3	3
1049:	6	6	4	9	8	5	3	6
1057:	6	5	8	6	4	5	6	9
1065:	5	5	4	5	3	6	3	6
1073:	3	3	5	7	7	2	3	9
1081:	6	9	6	2	6	5	8	3
1089:	1	9	3	6	1	3	4	6
1097:	5	9	4	4	9	4	4	7
1105:	4	5	4	4	7	7	11	6
1113:	7	2	2	6	9	6	18	42
1121:	32	9	4	4	7	7	4	4
1129:	2	3	4	11	7	4	5	9
1137:	7	8	5	3	5	10	2	2
1145:	4	4	6	10	7	8	10	2
1153:	5	11	9	0	4	0	4	6
1161:	4	11	4	3	8	8	4	8
1169:	3	7	7	2	7	8	4	5
1177:	3	3	8	6	6	4	6	7
1185:	4	5	4	5	3	10	5	8
1193:	7	8	9	7	5	4	7	3
1201:	6	6	5	4	6	8	4	3
1209:	4	3	9	4	14	3	2	8
1217:	7	4	7	8	8	5	5	8
1225:	6	7	2	8	8	8	3	6

1233: 3 5 6 7 15 14 14 6

Sample Title: CP-5010 00-02 QC

Channel	1	2	3	4	5	6	7	8	9	10	11	12
1241:	3	4	5	7	4	6	4	8				
1249:	6	0	6	8	6	6	4	1				
1257:	4	7	6	8	9	5	2	4				
1265:	4	4	4	3	3	4	3	6				
1273:	2	6	7	4	3	4	3	6				
1281:	10	6	7	3	3	5	5	5				
1289:	6	5	5	7	6	3	5	2				
1297:	2	7	3	6	1	3	4	4				
1305:	4	8	5	3	3	3	2	3				
1313:	1	2	5	2	1	4	6	3				
1321:	3	1	2	5	3	8	2	4				
1329:	0	4	6	2	6	0	4	7				
1337:	5	2	2	1	2	3	4	3				
1345:	1	2	3	4	3	5	3	2				
1353:	2	0	2	3	3	2	0	3				
1361:	6	2	3	1	3	1	3	1				
1369:	2	1	2	1	3	7	0	4				
1377:	11	8	9	5	4	3	5	3				
1385:	3	2	2	1	1	1	6	2				
1393:	2	2	3	2	2	4	6	1				
1401:	7	2	3	3	0	1	6	11				
1409:	5	2	2	3	3	2	4	1				
1417:	1	2	3	5	2	3	0	3				
1425:	2	6	4	0	1	2	3	0				
1433:	2	1	1	2	1	3	4	0				
1441:	4	3	2	1	2	1	0	2				
1449:	2	2	3	3	4	1	2	1				
1457:	3	9	44	124	152	53	6	1				
1465:	2	2	2	1	4	2	2	4				
1473:	3	2	2	1	1	2	2	0				
1481:	1	0	2	1	1	2	2	1				
1489:	1	1	0	3	2	1	1	2				
1497:	0	1	0	3	3	2	3	1				
1505:	3	6	1	2	5	2	1	3				
1513:	1	1	0	2	1	0	1	1				
1521:	0	1	4	1	1	1	2	2				
1529:	2	1	1	2	2	2	0	5				
1537:	1	1	2	3	0	2	4	2				
1545:	0	2	2	3	0	0	3	1				
1553:	1	1	0	1	3	1	1	2				
1561:	1	0	1	0	2	1	1	3				
1569:	2	3	1	2	1	4	0	1				
1577:	0	1	1	1	2	1	5	0				
1585:	2	4	2	4	3	1	4	2				
1593:	2	2	3	1	1	1	5	2				
1601:	2	0	3	1	2	2	0	0				
1609:	0	3	2	2	4	1	2	3				
1617:	2	1	4	3	2	3	1	0				
1625:	3	2	0	1	4	5	9	1				
1633:	0	1	2	1	1	2	1	2				
1641:	1	1	0	0	0	2	0	1				
1649:	1	3	1	0	1	2	0	1				
1657:	1	1	2	2	3	3	0	2				

1665: 2 1 1 0 0 1 1 1

Sample Title: CP-5010 00-02 QC

Channel	1	2	3	4	5	6	7	8
1673:	0	4	2	1	1	0	0	2
1681:	2	0	1	1	0	3	1	0
1689:	1	0	0	2	0	0	1	1
1697:	1	1	2	0	0	0	2	1
1705:	3	1	1	0	1	0	1	2
1713:	2	2	2	1	0	1	0	1
1721:	0	2	1	4	1	1	0	4
1729:	7	5	4	0	2	2	1	1
1737:	2	2	2	2	4	2	1	1
1745:	1	0	0	2	0	2	0	2
1753:	0	0	0	3	0	3	0	1
1761:	1	4	9	18	29	7	0	0
1769:	0	1	1	1	1	1	3	0
1777:	1	0	0	3	0	0	1	0
1785:	0	0	1	1	0	2	0	0
1793:	0	2	1	3	0	0	0	0
1801:	0	1	1	0	0	0	1	2
1809:	2	0	1	1	0	1	1	0
1817:	1	2	1	0	0	3	1	2
1825:	1	1	0	1	1	1	1	2
1833:	4	2	1	1	0	0	2	1
1841:	0	2	1	1	2	2	0	1
1849:	1	0	1	0	1	2	2	0
1857:	1	0	0	0	2	0	1	1
1865:	0	0	1	0	1	0	1	0
1873:	1	4	2	1	2	0	0	0
1881:	3	2	1	1	1	2	0	0
1889:	2	1	0	3	0	0	2	0
1897:	2	0	2	2	1	0	1	1
1905:	0	1	0	2	1	1	0	0
1913:	0	1	0	0	1	0	0	0
1921:	2	2	0	2	1	0	0	1
1929:	1	1	1	1	0	0	3	1
1937:	0	1	1	0	0	0	1	0
1945:	0	1	2	0	2	3	0	0
1953:	1	0	1	2	0	0	0	1
1961:	1	1	0	0	1	0	2	2
1969:	0	0	1	0	1	0	0	2
1977:	1	1	1	0	1	0	2	0
1985:	0	3	0	0	0	2	0	0
1993:	1	1	0	1	0	0	0	0
2001:	0	0	2	2	1	1	0	0
2009:	1	3	2	1	0	1	3	0
2017:	0	0	2	0	1	0	1	0
2025:	1	0	0	0	1	1	1	1
2033:	1	1	0	2	0	2	2	0
2041:	0	1	2	0	0	1	0	1
2049:	0	0	1	0	0	0	0	0
2057:	0	0	0	1	1	0	0	0
2065:	2	0	0	1	0	2	0	0
2073:	0	0	1	1	1	1	2	0
2081:	1	0	0	0	1	1	0	0
2089:	0	0	0	0	2	1	0	1

2097: 2 0 1 0 0 1 5 1

Sample Title: CP-5010 00-02 QC

Channel	1	2	3	4	5	6	7	8
2105:	2	1	0	0	0	2	1	1
2113:	1	0	3	2	0	1	0	1
2121:	0	0	1	0	1	1	0	1
2129:	1	1	0	1	0	1	0	0
2137:	2	1	1	0	1	1	0	0
2145:	1	0	0	0	0	1	1	2
2153:	1	1	0	0	0	0	0	1
2161:	0	1	0	1	1	0	0	2
2169:	1	0	0	2	1	2	1	1
2177:	0	1	0	1	0	0	2	0
2185:	0	1	1	4	1	0	2	0
2193:	0	0	1	0	0	1	0	0
2201:	0	3	5	4	3	0	0	2
2209:	0	0	0	0	1	1	1	0
2217:	0	0	0	0	0	1	0	0
2225:	1	1	2	1	1	0	1	1
2233:	0	1	0	1	1	1	0	2
2241:	1	1	1	1	1	1	3	0
2249:	1	0	1	0	1	0	0	0
2257:	2	1	0	0	0	1	0	2
2265:	0	1	1	1	0	1	0	1
2273:	1	0	0	1	1	2	1	0
2281:	0	2	0	0	1	0	1	1
2289:	0	0	2	0	2	1	2	2
2297:	0	0	2	1	0	1	0	0
2305:	3	2	0	0	1	0	0	0
2313:	0	3	0	0	1	0	2	2
2321:	0	1	1	2	0	2	1	0
2329:	2	1	2	0	0	0	0	1
2337:	0	0	0	2	1	1	0	0
2345:	2	3	0	0	1	2	1	0
2353:	1	1	1	1	1	0	2	1
2361:	0	0	1	1	1	0	0	0
2369:	1	1	0	0	2	0	0	2
2377:	1	1	0	0	0	0	0	1
2385:	1	1	0	2	0	1	0	0
2393:	0	0	4	1	1	0	1	3
2401:	0	0	1	0	0	0	1	1
2409:	0	0	1	0	1	0	1	1
2417:	1	2	1	0	0	0	1	1
2425:	0	0	0	1	0	0	0	1
2433:	1	1	0	0	1	1	0	1
2441:	1	0	0	1	2	3	2	1
2449:	0	0	0	0	0	1	0	1
2457:	1	0	2	1	1	0	0	0
2465:	0	0	0	0	0	0	0	2
2473:	0	1	2	1	0	1	0	0
2481:	1	0	0	0	0	2	0	0
2489:	1	1	1	0	0	0	0	0
2497:	0	0	0	0	0	1	0	0
2505:	0	0	0	0	0	0	0	1
2513:	0	0	0	0	0	1	0	0
2521:	0	0	0	0	2	0	0	0

2529: 0 0 1 1 0 0 0 1

Sample Title: CP-5010 00-02 QC

Channel	1	2	3	4	5	6	7	8
2537:	0	0	0	2	0	1	0	0
2545:	0	0	0	0	1	0	1	0
2553:	1	0	0	0	0	0	0	1
2561:	0	0	0	0	0	0	0	0
2569:	1	0	1	0	0	1	0	0
2577:	0	0	0	0	0	0	1	2
2585:	0	0	0	0	0	1	0	1
2593:	0	0	0	0	1	0	0	1
2601:	0	0	0	0	0	0	1	0
2609:	0	0	1	5	19	21	17	4
2617:	0	0	2	0	0	0	0	0
2625:	0	0	1	1	0	1	0	1
2633:	0	0	1	0	0	0	0	0
2641:	1	0	0	0	0	0	0	0
2649:	0	1	0	1	0	0	0	0
2657:	1	0	1	0	0	1	0	0
2665:	1	0	0	0	0	0	0	0
2673:	0	0	0	0	0	0	0	1
2681:	0	0	0	2	0	0	0	0
2689:	1	0	0	0	0	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	0	1	0	0	0	0	1	0
2713:	0	0	0	0	0	0	0	0
2721:	0	0	1	1	0	0	1	0
2729:	0	0	1	0	0	0	0	0
2737:	1	0	0	0	1	0	1	0
2745:	0	1	0	0	0	0	1	1
2753:	1	0	0	0	0	0	0	0
2761:	1	0	0	0	0	0	0	0
2769:	0	1	0	0	0	0	0	0
2777:	1	0	3	0	0	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	1	1	0	0	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	1	0	0	0	0	0
2817:	0	2	0	0	1	0	1	1
2825:	0	1	0	0	0	1	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	0	0	1	1
2849:	1	2	0	0	0	0	0	0
2857:	0	0	1	0	0	0	0	1
2865:	1	0	0	0	0	0	0	0
2873:	0	1	0	1	0	0	0	0
2881:	0	0	0	0	0	0	0	1
2889:	0	0	0	0	0	0	0	1
2897:	1	0	0	0	0	0	0	0
2905:	0	0	0	0	0	0	1	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	1	0	0	0
2929:	1	0	1	0	0	0	0	0
2937:	0	0	1	1	0	0	0	0
2945:	1	1	0	0	0	0	0	2
2953:	1	0	0	0	0	0	0	0

2961: 0 0 0 0 0 0 0 0 0

Sample Title: CP-5010 00-02 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2969:	0	0	1	0	0	0	0	0
2977:	0	1	0	0	0	0	0	0
2985:	0	0	0	0	0	0	0	0
2993:	0	0	0	0	0	0	0	1
3001:	0	0	1	0	0	0	0	0
3009:	0	0	0	0	0	1	0	0
3017:	0	0	0	0	0	0	0	1
3025:	0	0	0	0	0	0	0	0
3033:	0	1	0	0	0	0	0	0
3041:	0	0	0	0	0	0	1	0
3049:	0	1	0	0	0	0	0	0
3057:	1	1	1	0	0	0	0	0
3065:	0	0	1	0	0	1	0	0
3073:	0	2	1	0	0	0	1	0
3081:	0	0	0	0	0	0	0	0
3089:	1	0	0	1	0	0	0	0
3097:	0	0	0	0	0	0	0	0
3105:	0	0	0	0	1	0	1	0
3113:	0	0	0	0	0	0	0	0
3121:	0	0	0	0	1	0	0	0
3129:	0	0	0	0	0	0	0	0
3137:	0	0	0	1	0	0	0	0
3145:	1	0	0	0	0	0	0	0
3153:	0	0	1	0	0	0	0	0
3161:	0	1	1	0	0	0	0	0
3169:	0	0	0	0	0	1	0	0
3177:	1	0	0	0	0	0	0	0
3185:	1	0	0	0	0	0	0	0
3193:	0	0	0	0	0	0	0	0
3201:	0	0	0	0	1	0	0	0
3209:	0	0	0	0	0	0	1	0
3217:	0	0	0	0	0	0	0	1
3225:	1	0	1	0	0	0	1	0
3233:	0	0	0	1	0	0	0	1
3241:	0	0	0	0	0	0	0	1
3249:	0	0	0	0	0	1	0	0
3257:	0	0	0	0	0	0	1	0
3265:	0	1	0	0	1	2	0	0
3273:	0	0	0	0	0	0	0	0
3281:	0	0	0	0	0	0	0	1
3289:	0	0	0	0	1	0	0	0
3297:	0	0	0	0	0	0	0	0
3305:	0	0	0	1	0	0	0	0
3313:	0	0	0	1	0	0	0	0
3321:	0	0	0	0	0	1	0	0
3329:	0	0	1	0	0	0	1	0
3337:	1	0	1	0	0	0	0	0
3345:	1	0	0	0	0	0	0	0
3353:	0	1	0	1	0	1	0	0
3361:	0	0	0	0	1	0	0	0
3369:	0	0	0	0	0	0	0	0
3377:	0	0	0	0	0	0	0	0
3385:	0	1	0	0	0	0	0	0

3393: 0 0 1 0 0 0 1 0

Sample Title: CP-5010 00-02 QC

Channel								
3401:	0	1	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	1	0	0
3425:	0	0	0	0	0	1	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	1	0
3449:	0	0	0	0	0	0	1	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	1	0	1	0	0	0	1
3481:	0	0	1	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	1	0
3505:	0	0	0	0	0	1	0	0
3513:	0	0	1	0	0	0	0	0
3521:	0	0	0	0	0	0	0	0
3529:	0	1	0	0	0	0	0	0
3537:	0	0	0	0	0	1	0	0
3545:	1	0	0	0	0	0	0	0
3553:	0	0	0	0	1	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	0	0	0	0	0	0
3577:	0	0	0	0	1	0	0	0
3585:	0	0	0	0	0	0	0	0
3593:	1	1	0	0	0	0	0	0
3601:	1	0	0	0	0	0	0	0
3609:	0	0	0	0	0	1	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	0	0	0	0	0	0
3633:	0	0	0	0	0	0	0	1
3641:	1	0	0	0	0	0	0	0
3649:	0	0	0	0	0	2	0	0
3657:	0	0	1	0	0	0	0	0
3665:	0	0	0	0	0	0	0	0
3673:	0	0	0	0	0	1	0	0
3681:	0	0	0	0	0	0	0	0
3689:	0	0	0	2	0	0	0	1
3697:	0	0	0	1	0	1	0	0
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	0	1	0	0	0
3721:	1	0	0	0	0	0	1	0
3729:	1	0	1	0	1	0	0	0
3737:	0	2	1	0	0	0	0	0
3745:	0	0	0	1	0	1	0	0
3753:	2	0	0	0	0	0	0	0
3761:	0	0	0	1	0	1	0	0
3769:	0	0	0	0	0	0	0	1
3777:	0	0	0	0	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	0	0	1	0	1	1	0	0
3801:	0	0	0	0	0	0	0	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0

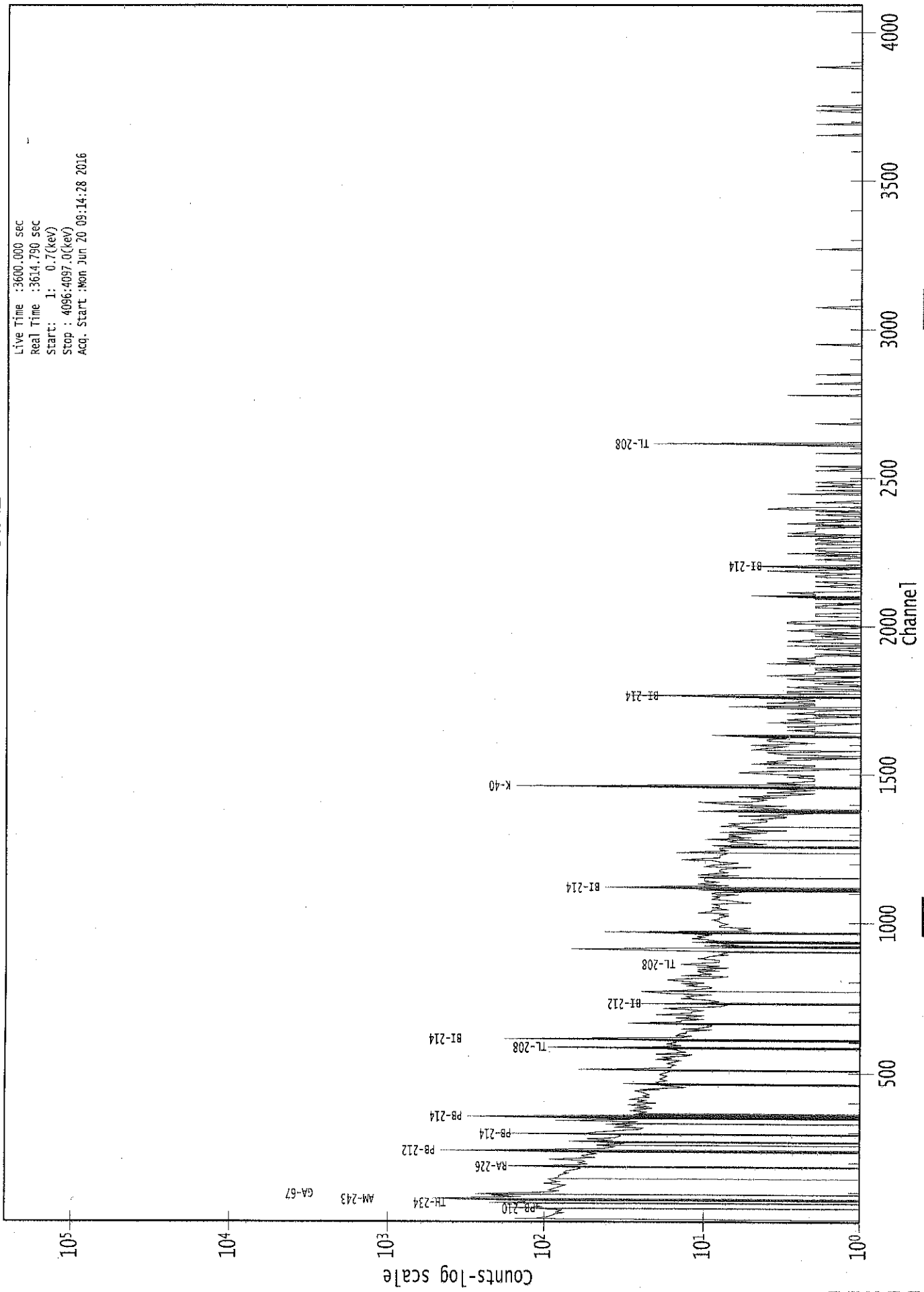
3825: 0 0 0 0 0 0 0 0

Sample Title: CP-5010 00-02 QC

Channel	1	2	3	4	5	6	7	8	9
3833:	0	1	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0	0
3857:	0	0	0	1	0	0	1	1	1
3865:	0	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	1	0	0	0
3881:	0	0	0	2	0	0	0	1	1
3889:	0	0	0	0	0	0	1	0	0
3897:	0	0	0	0	0	0	0	0	0
3905:	1	0	0	0	0	0	1	0	0
3913:	0	0	1	0	0	0	0	0	0
3921:	0	0	0	0	0	0	0	0	0
3929:	1	0	0	0	0	0	0	0	0
3937:	0	0	0	0	0	0	0	0	0
3945:	0	0	0	0	0	0	1	0	0
3953:	0	0	0	0	0	1	0	0	0
3961:	0	0	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	1	0	0
3977:	1	0	1	0	0	0	0	1	1
3985:	0	0	0	0	1	0	0	0	0
3993:	0	0	0	0	0	0	0	0	0
4001:	0	0	0	0	1	0	0	0	0
4009:	0	0	0	0	1	0	0	0	0
4017:	1	0	0	0	0	0	0	0	0
4025:	0	0	0	0	0	0	0	0	0
4033:	0	1	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0	0
4049:	0	0	1	0	0	0	0	0	0
4057:	0	1	0	0	0	0	0	0	0
4065:	0	0	0	0	0	0	2	0	0
4073:	0	0	0	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	0	0
4089:	0	0	0	0	1	0	0	0	0

0000039148.CNF

Live Time : 3600.000 sec
Real Time : 3614.790 sec
Start : 1: 0.7(keV)
Stop : 4096.4097.0(keV)
Acq. Start : Mon Jun 20 09:14:28 2016



ROI Type: 2

ROI Type: 1

KCS
6/20/16Analysis Report for 1606067-08
CP-5010 09-15 QC

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606067-08
Sample Description : CP-5010 09-15 QC
Sample Type : SOIL

Sample Size : 3.672E+02 grams
Facility : Countroom

Sample Taken On : 6/7/2016 9:16:05AM
Acquisition Started : 6/20/2016 10:16:21AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE2
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.4 seconds

Dead Time : 0.04 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 6 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 11/2/2014
Efficiency Calibration Used Done On : 4/6/2016
Efficiency Calibration Description :

Sample Number : 39151

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/20/16

Analysis Report for 1606067-08

CP-5010 09-15 QC

PEAK LOCATE REPORT

Peak Locate Performed on : 6/20/2016 11:16:36AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	12.87	12.99	0.0000	0.00
2	63.28	63.38	0.0000	0.00
3	76.39	76.48	0.0000	0.00
4	90.02	90.10	0.0000	0.00
5	93.02	93.10	0.0000	0.00
6	129.71	129.77	0.0000	0.00
7	186.00	186.03	0.0000	0.00
8	209.40	209.41	0.0000	0.00
9	239.03	239.03	0.0000	0.00
10	242.12	242.11	0.0000	0.00
11	270.15	270.13	0.0000	0.00
12	277.16	277.13	0.0000	0.00
13	295.30	295.26	0.0000	0.00
14	300.12	300.08	0.0000	0.00
15	328.58	328.53	0.0000	0.00
16	338.43	338.37	0.0000	0.00
17	351.90	351.84	0.0000	0.00
18	462.96	462.84	0.0000	0.00
19	466.28	466.16	0.0000	0.00
20	510.90	510.75	0.0000	0.00
21	562.97	562.80	0.0000	0.00
22	583.18	583.00	0.0000	0.00
23	609.47	609.28	0.0000	0.00
24	619.76	619.56	0.0000	0.00
25	623.18	622.98	0.0000	0.00
26	654.86	654.65	0.0000	0.00
27	727.68	727.44	0.0000	0.00
28	770.85	770.58	0.0000	0.00
29	795.08	794.80	0.0000	0.00
30	839.13	838.83	0.0000	0.00
31	911.15	910.82	0.0000	0.00
32	953.16	952.82	0.0000	0.00
33	969.38	969.03	0.0000	0.00
34	1119.80	1119.39	0.0000	0.00
35	1245.48	1245.03	0.0000	0.00
36	1309.83	1309.35	0.0000	0.00
37	1335.03	1334.55	0.0000	0.00
38	1357.34	1356.85	0.0000	0.00
39	1389.25	1388.75	0.0000	0.00
40	1461.12	1460.60	0.0000	0.00
41	1495.80	1495.26	0.0000	0.00
42	1534.33	1533.79	0.0000	0.00

Analysis Report for 1606067-08
CP-5010 09-15 QC

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1542.76	1542.21	0.0000	0.00
44	1620.85	1620.28	0.0000	0.00
45	1630.86	1630.29	0.0000	0.00
46	1661.06	1660.48	0.0000	0.00
47	1729.70	1729.10	0.0000	0.00
48	1764.96	1764.35	0.0000	0.00
49	1897.04	1896.40	0.0000	0.00
50	2034.43	2033.76	0.0000	0.00
51	2103.24	2102.56	0.0000	0.00
52	2111.42	2110.75	0.0000	0.00
53	2119.34	2118.66	0.0000	0.00
54	2126.63	2125.95	0.0000	0.00
55	2203.43	2202.73	0.0000	0.00
56	2356.76	2356.04	0.0000	0.00
57	2369.27	2368.56	0.0000	0.00
58	2448.30	2447.57	0.0000	0.00
59	2614.49	2613.75	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606067-08

CP-5010 09-15 QC

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 11:16:36AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
1	12.87	12 -	15	12.99	2.00E+03	123.66	1.54E+03	1.01
2	63.28	60 -	66	63.38	1.38E+02	83.25	1.16E+03	1.89
3	76.39	72 -	82	76.48	7.69E+02	137.17	2.06E+03	3.37
M 4	90.02	89 -	96	90.10	6.52E+01	20.85	2.17E+02	1.11
m 5	93.02	89 -	96	93.10	1.82E+02	49.77	5.13E+02	1.12
6	129.71	128 -	133	129.77	9.88E+01	57.68	5.88E+02	1.36
7	186.00	183 -	189	186.03	1.53E+02	61.69	5.80E+02	1.24
8	209.40	207 -	212	209.41	5.36E+01	49.26	4.45E+02	1.70
M 9	239.03	235 -	250	239.03	6.44E+02	59.77	2.43E+02	1.41
m 10	242.12	235 -	250	242.11	1.06E+02	38.94	1.84E+02	1.42
M 11	270.15	267 -	280	270.13	6.13E+01	32.74	2.10E+02	1.46
m 12	277.16	267 -	280	277.13	4.69E+01	30.92	1.98E+02	1.47
13	295.30	292 -	297	295.26	1.74E+02	45.89	2.82E+02	1.55
14	300.12	299 -	302	300.08	3.02E+01	30.27	1.98E+02	1.02
15	328.58	326 -	333	328.53	4.67E+01	43.03	2.81E+02	1.49
16	338.43	334 -	342	338.37	1.32E+02	52.72	3.47E+02	1.52
17	351.90	348 -	355	351.84	2.90E+02	56.71	3.40E+02	1.26
M 18	462.96	458 -	476	462.84	4.54E+01	26.13	1.14E+02	1.71
m 19	466.28	458 -	476	466.16	2.00E+01	24.31	1.08E+02	1.72
20	510.90	507 -	515	510.75	1.28E+02	44.73	2.29E+02	1.67
21	562.97	559 -	568	562.80	3.14E+01	34.86	1.57E+02	2.20
22	583.18	579 -	584	583.00	1.39E+02	40.96	2.10E+02	1.23
23	609.47	604 -	613	609.28	2.13E+02	48.19	2.10E+02	1.67
M 24	619.76	616 -	628	619.56	2.22E+01	28.77	1.01E+02	2.50
m 25	623.18	616 -	628	622.98	1.63E+01	24.19	9.04E+01	2.07
26	654.86	650 -	657	654.65	2.23E+01	27.57	1.11E+02	1.50
27	727.68	724 -	732	727.44	5.39E+01	30.43	1.02E+02	2.80
28	770.85	764 -	778	770.58	4.49E+01	45.81	2.00E+02	10.05
29	795.08	791 -	797	794.80	3.35E+01	24.37	8.30E+01	1.93
30	839.13	835 -	842	838.83	3.70E+01	24.41	7.20E+01	5.92
31	911.15	907 -	915	910.82	1.54E+02	31.67	6.26E+01	1.47
32	953.16	948 -	957	952.82	3.33E+01	22.61	5.14E+01	5.03
33	969.38	966 -	974	969.03	7.06E+01	35.90	1.39E+02	2.19
34	1119.80	1115 -	1123	1119.39	4.78E+01	27.87	9.04E+01	1.66
35	1245.48	1242 -	1249	1245.03	1.85E+01	22.18	6.51E+01	2.57
36	1309.83	1306 -	1313	1309.35	2.05E+01	16.61	3.30E+01	5.35
37	1335.03	1332 -	1338	1334.55	9.75E+00	11.54	1.65E+01	2.95
38	1357.34	1352 -	1362	1356.85	2.95E+01	14.16	1.10E+01	5.46
39	1389.25	1382 -	1396	1388.75	2.33E+01	21.01	3.34E+01	9.59
40	1461.12	1454 -	1466	1460.60	5.72E+02	50.63	3.26E+01	2.28

: 00503

Analysis Report for 1606067-08

CP-5010 09-15 QC

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1495.80	1491 - 1498		1495.26	9.03E+00	10.39	1.19E+01	2.54
42	1534.33	1531 - 1536		1533.79	7.60E+00	7.62	4.80E+00	1.92
43	1542.76	1539 - 1544		1542.21	5.00E+00	7.07	6.00E+00	1.14
44	1620.85	1619 - 1623		1620.28	5.75E+00	7.66	8.50E+00	1.26
45	1630.86	1628 - 1633		1630.29	6.00E+00	7.35	6.00E+00	2.63
46	1661.06	1657 - 1663		1660.48	8.58E+00	8.51	6.83E+00	2.66
47	1729.70	1725 - 1733		1729.10	2.00E+01	8.94	0.00E+00	2.00
48	1764.96	1760 - 1768		1764.35	3.10E+01	11.14	0.00E+00	2.43
49	1897.04	1892 - 1900		1896.40	1.00E+01	6.32	0.00E+00	2.92
50	2034.43	2028 - 2039		2033.76	1.19E+01	13.86	1.81E+01	7.54
51	2103.24	2100 - 2105		2102.56	9.25E+00	9.11	9.50E+00	2.23
52	2111.42	2108 - 2113		2110.75	4.42E+00	5.74	3.17E+00	2.56
53	2119.34	2115 - 2122		2118.66	6.80E+00	8.49	6.40E+00	1.12
54	2126.63	2123 - 2128		2125.95	5.50E+00	6.08	3.00E+00	2.87
55	2203.43	2197 - 2207		2202.73	1.73E+01	10.50	5.40E+00	1.82
56	2356.76	2353 - 2358		2356.04	6.50E+00	6.40	3.00E+00	2.84
57	2369.27	2365 - 2371		2368.56	9.00E+00	6.00	0.00E+00	3.50
58	2448.30	2444 - 2450		2447.57	7.28E+00	6.95	3.44E+00	1.61
59	2614.49	2609 - 2618		2613.75	9.24E+01	20.12	5.20E+00	1.79

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 11:16:36AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	12.87	12 -	15	2.00E+03	123.66	1.54E+03	8.22E+01
2	63.28	60 -	66	1.38E+02	83.25	1.16E+03	6.57E+01
3	76.39	72 -	82	7.69E+02	137.17	2.06E+03	1.03E+02
M 4	90.02	89 -	96	6.52E+01	20.85	2.17E+02	2.42E+01
m 5	93.02	89 -	96	1.82E+02	49.77	5.13E+02	3.72E+01
6	129.71	128 -	133	9.88E+01	57.68	5.88E+02	4.45E+01
7	186.00	183 -	189	1.53E+02	61.69	5.80E+02	4.65E+01
8	209.40	207 -	212	5.36E+01	49.26	4.45E+02	3.87E+01
M 9	239.03	235 -	250	6.44E+02	59.77	2.43E+02	2.56E+01

: 00504

Analysis Report for 1606067-08

CP-5010 09-15 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	10	242.12	235 -	250	1.06E+02	38.94	1.84E+02	2.23E+01
M	11	270.15	267 -	280	6.13E+01	32.74	2.10E+02	2.38E+01
m	12	277.16	267 -	280	4.69E+01	30.92	1.98E+02	2.31E+01
	13	295.30	292 -	297	1.74E+02	45.89	2.82E+02	3.09E+01
	14	300.12	299 -	302	3.02E+01	30.27	1.98E+02	2.32E+01
	15	328.58	326 -	333	4.67E+01	43.03	2.81E+02	3.35E+01
	16	338.43	334 -	342	1.32E+02	52.72	3.47E+02	3.90E+01
	17	351.90	348 -	355	2.90E+02	56.71	3.40E+02	3.73E+01
M	18	462.96	458 -	476	4.54E+01	26.13	1.14E+02	1.76E+01
m	19	466.28	458 -	476	2.00E+01	24.31	1.08E+02	1.71E+01
	20	510.90	507 -	515	1.28E+02	44.73	2.29E+02	3.17E+01
	21	562.97	559 -	568	3.14E+01	34.86	1.57E+02	2.71E+01
	22	583.18	579 -	584	1.39E+02	40.96	2.10E+02	2.75E+01
	23	609.47	604 -	613	2.13E+02	48.19	2.10E+02	3.15E+01
M	24	619.76	616 -	628	2.22E+01	28.77	1.01E+02	1.66E+01
m	25	623.18	616 -	628	1.63E+01	24.19	9.04E+01	1.56E+01
	26	654.86	650 -	657	2.23E+01	27.57	1.11E+02	2.13E+01
	27	727.68	724 -	732	5.39E+01	30.43	1.02E+02	2.19E+01
	28	770.85	764 -	778	4.49E+01	45.81	2.00E+02	3.60E+01
	29	795.08	791 -	797	3.35E+01	24.37	8.30E+01	1.76E+01
	30	839.13	835 -	842	3.70E+01	24.41	7.20E+01	1.74E+01
	31	911.15	907 -	915	1.54E+02	31.67	6.26E+01	1.62E+01
	32	953.16	948 -	957	3.33E+01	22.61	5.14E+01	1.60E+01
	33	969.38	966 -	974	7.06E+01	35.90	1.39E+02	2.61E+01
	34	1119.80	1115 -	1123	4.78E+01	27.87	9.04E+01	1.99E+01
	35	1245.48	1242 -	1249	1.85E+01	22.18	6.51E+01	1.68E+01
	36	1309.83	1306 -	1313	2.05E+01	16.61	3.30E+01	1.15E+01
	37	1335.03	1332 -	1338	9.75E+00	11.54	1.65E+01	7.98E+00
	38	1357.34	1352 -	1362	2.95E+01	14.16	1.10E+01	7.47E+00
	39	1389.25	1382 -	1396	2.33E+01	21.01	3.34E+01	1.53E+01
	40	1461.12	1454 -	1466	5.72E+02	50.63	3.26E+01	1.37E+01
	41	1495.80	1491 -	1498	9.03E+00	10.39	1.19E+01	6.97E+00
	42	1534.33	1531 -	1536	7.60E+00	7.62	4.80E+00	4.32E+00
	43	1542.76	1539 -	1544	5.00E+00	7.07	6.00E+00	4.50E+00
	44	1620.85	1619 -	1623	5.75E+00	7.66	8.50E+00	4.91E+00
	45	1630.86	1628 -	1633	6.00E+00	7.35	6.00E+00	4.50E+00
	46	1661.06	1657 -	1663	8.58E+00	8.51	6.83E+00	5.08E+00
	47	1729.70	1725 -	1733	2.00E+01	8.94	0.00E+00	0.00E+00
	48	1764.96	1760 -	1768	3.10E+01	11.14	0.00E+00	0.00E+00
	49	1897.04	1892 -	1900	1.00E+01	6.32	0.00E+00	0.00E+00
	50	2034.43	2028 -	2039	1.19E+01	13.86	1.81E+01	9.87E+00
	51	2103.24	2100 -	2105	9.25E+00	9.11	9.50E+00	5.58E+00
	52	2111.42	2108 -	2113	4.42E+00	5.74	3.17E+00	3.22E+00
	53	2119.34	2115 -	2122	6.80E+00	8.49	6.40E+00	5.50E+00
	54	2126.63	2123 -	2128	5.50E+00	6.08	3.00E+00	3.18E+00
	55	2203.43	2197 -	2207	1.73E+01	10.50	5.40E+00	5.27E+00
	56	2356.76	2353 -	2358	6.50E+00	6.40	3.00E+00	3.18E+00
	57	2369.27	2365 -	2371	9.00E+00	6.00	0.00E+00	0.00E+00
	58	2448.30	2444 -	2450	7.28E+00	6.95	3.44E+00	3.60E+00
	59	2614.49	2609 -	2618	9.24E+01	20.12	5.20E+00	4.89E+00

Analysis Report for 1606067-08

CP-5010 09-15 QC

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/20/2016 11:16:36AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	12.87	12 -	15	12.99	2.00E+03	123.66	1.54E+03	.....
2	63.28	60 -	66	63.38	1.38E+02	83.25	1.16E+03	TH-234 TH-230
3	76.39	72 -	82	76.48	7.69E+02	137.17	2.06E+03	.....
M 4	90.02	89 -	96	90.10	6.52E+01	20.85	2.17E+02	.....
m 5	93.02	89 -	96	93.10	1.82E+02	49.77	5.13E+02	GA-67
6	129.71	128 -	133	129.77	9.88E+01	57.68	5.88E+02	.....
7	186.00	183 -	189	186.03	1.53E+02	61.69	5.80E+02	RA-226
8	209.40	207 -	212	209.41	5.36E+01	49.26	4.45E+02	CM-243 GA-67
M 9	239.03	235 -	250	239.03	6.44E+02	59.77	2.43E+02	PB-212
m 10	242.12	235 -	250	242.11	1.06E+02	38.94	1.84E+02	.....
M 11	270.15	267 -	280	270.13	6.13E+01	32.74	2.10E+02	.....
m 12	277.16	267 -	280	277.13	4.69E+01	30.92	1.98E+02	CM-243 NP-239
13	295.30	292 -	297	295.26	1.74E+02	45.89	2.82E+02	PB-214
14	300.12	299 -	302	300.08	3.02E+01	30.27	1.98E+02	PB-212 GA-67 BI-210M
15	328.58	326 -	333	328.53	4.67E+01	43.03	2.81E+02	LA-140
16	338.43	334 -	342	338.37	1.32E+02	52.72	3.47E+02	AC-228
17	351.90	348 -	355	351.84	2.90E+02	56.71	3.40E+02	PB-214
M 18	462.96	458 -	476	462.84	4.54E+01	26.13	1.14E+02	SB-125
m 19	466.28	458 -	476	466.16	2.00E+01	24.31	1.08E+02	.....
20	510.90	507 -	515	510.75	1.28E+02	44.73	2.29E+02	.....
21	562.97	559 -	568	562.80	3.14E+01	34.86	1.57E+02	CS-134
22	583.18	579 -	584	583.00	1.39E+02	40.96	2.10E+02	TL-208
23	609.47	604 -	613	609.28	2.13E+02	48.19	2.10E+02	BI-214
M 24	619.76	616 -	628	619.56	2.22E+01	28.77	1.01E+02	.....
m 25	623.18	616 -	628	622.98	1.63E+01	24.19	9.04E+01	.....

Analysis Report for 1606067-08

CP-5010 09-15 QC

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
26	654.86	650 -	657	654.65	2.23E+01	27.57	1.11E+02	.....
27	727.68	724 -	732	727.44	5.39E+01	30.43	1.02E+02	BI-212
28	770.85	764 -	778	770.58	4.49E+01	45.81	2.00E+02	.....
29	795.08	791 -	797	794.80	3.35E+01	24.37	8.30E+01	CS-134
30	839.13	835 -	842	838.83	3.70E+01	24.41	7.20E+01	.....
31	911.15	907 -	915	910.82	1.54E+02	31.67	6.26E+01	AC-228 LU-172
32	953.16	948 -	957	952.82	3.33E+01	22.61	5.14E+01	.....
33	969.38	966 -	974	969.03	7.06E+01	35.90	1.39E+02	AC-228
34	1119.80	1115 -	1123	1119.39	4.78E+01	27.87	9.04E+01	BI-214 SC-46
35	1245.48	1242 -	1249	1245.03	1.85E+01	22.18	6.51E+01	.....
36	1309.83	1306 -	1313	1309.35	2.05E+01	16.61	3.30E+01	.....
37	1335.03	1332 -	1338	1334.55	9.75E+00	11.54	1.65E+01	.....
38	1357.34	1352 -	1362	1356.85	2.95E+01	14.16	1.10E+01	.....
39	1389.25	1382 -	1396	1388.75	2.33E+01	21.01	3.34E+01	.....
40	1461.12	1454 -	1466	1460.60	5.72E+02	50.63	3.26E+01	K-40
41	1495.80	1491 -	1498	1495.26	9.03E+00	10.39	1.19E+01	.....
42	1534.33	1531 -	1536	1533.79	7.60E+00	7.62	4.80E+00	.....
43	1542.76	1539 -	1544	1542.21	5.00E+00	7.07	6.00E+00	.....
44	1620.85	1619 -	1623	1620.28	5.75E+00	7.66	8.50E+00	BI-212
45	1630.86	1628 -	1633	1630.29	6.00E+00	7.35	6.00E+00	.....
46	1661.06	1657 -	1663	1660.48	8.58E+00	8.51	6.83E+00	.....
47	1729.70	1725 -	1733	1729.10	2.00E+01	8.94	0.00E+00	.....
48	1764.96	1760 -	1768	1764.35	3.10E+01	11.14	0.00E+00	BI-214
49	1897.04	1892 -	1900	1896.40	1.00E+01	6.32	0.00E+00	.....
50	2034.43	2028 -	2039	2033.76	1.19E+01	13.86	1.81E+01	.....
51	2103.24	2100 -	2105	2102.56	9.25E+00	9.11	9.50E+00	.....
52	2111.42	2108 -	2113	2110.75	4.42E+00	5.74	3.17E+00	.....
53	2119.34	2115 -	2122	2118.66	6.80E+00	8.49	6.40E+00	.....
54	2126.63	2123 -	2128	2125.95	5.50E+00	6.08	3.00E+00	.....
55	2203.43	2197 -	2207	2202.73	1.73E+01	10.50	5.40E+00	BI-214
56	2356.76	2353 -	2358	2356.04	6.50E+00	6.40	3.00E+00	.....
57	2369.27	2365 -	2371	2368.56	9.00E+00	6.00	0.00E+00	.....
58	2448.30	2444 -	2450	2447.57	7.28E+00	6.95	3.44E+00	.....
59	2614.49	2609 -	2618	2613.75	9.24E+01	20.12	5.20E+00	TL-208

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/20/2016 11:16:36AM

: 00507

Analysis Report for 1606067-08

CP-5010 09-15 QC

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	12.87	2.00E+03	123.66	1.11E-05	1.66E-03
	2	63.28	1.38E+02	83.25	2.37E-02	1.74E-03
	3	76.39	7.69E+02	137.17	2.56E-02	2.02E-03
M	4	90.02	6.52E+01	20.85	2.60E-02	2.27E-03
m	5	93.02	1.82E+02	49.77	2.60E-02	2.27E-03
	6	129.71	9.88E+01	57.68	2.39E-02	2.29E-03
	7	186.00	1.53E+02	61.69	1.99E-02	2.40E-03
	8	209.40	5.36E+01	49.26	1.85E-02	2.36E-03
M	9	239.03	6.44E+02	59.77	1.70E-02	2.31E-03
m	10	242.12	1.06E+02	38.94	1.69E-02	2.30E-03
M	11	270.15	6.13E+01	32.74	1.57E-02	2.26E-03
m	12	277.16	4.69E+01	30.92	1.54E-02	2.24E-03
	13	295.30	1.74E+02	45.89	1.47E-02	2.21E-03
	14	300.12	3.02E+01	30.27	1.45E-02	2.21E-03
	15	328.58	4.67E+01	43.03	1.36E-02	2.16E-03
	16	338.43	1.32E+02	52.72	1.33E-02	2.14E-03
	17	351.90	2.90E+02	56.71	1.30E-02	2.12E-03
M	18	462.96	4.54E+01	26.13	1.05E-02	1.68E-03
m	19	466.28	2.00E+01	24.31	1.05E-02	1.66E-03
	20	510.90	1.28E+02	44.73	9.77E-03	1.43E-03
	21	562.97	3.14E+01	34.86	9.04E-03	1.16E-03
	22	583.18	1.39E+02	40.96	8.79E-03	1.06E-03
	23	609.47	2.13E+02	48.19	8.48E-03	9.22E-04
M	24	619.76	2.22E+01	28.77	8.37E-03	8.69E-04
m	25	623.18	1.63E+01	24.19	8.33E-03	8.51E-04
	26	654.86	2.23E+01	27.57	8.00E-03	6.87E-04
	27	727.68	5.39E+01	30.43	7.34E-03	7.37E-04
	28	770.85	4.49E+01	45.81	7.00E-03	7.92E-04
	29	795.08	3.35E+01	24.37	6.82E-03	8.23E-04
	30	839.13	3.70E+01	24.41	6.52E-03	8.80E-04
	31	911.15	1.54E+02	31.67	6.09E-03	9.29E-04
	32	953.16	3.33E+01	22.61	5.87E-03	8.44E-04
	33	969.38	7.06E+01	35.90	5.79E-03	8.11E-04
	34	1119.80	4.78E+01	27.87	5.16E-03	5.07E-04
	35	1245.48	1.85E+01	22.18	4.75E-03	3.82E-04
	36	1309.83	2.05E+01	16.61	4.57E-03	3.68E-04
	37	1335.03	9.75E+00	11.54	4.51E-03	3.63E-04
	38	1357.34	2.95E+01	14.16	4.45E-03	3.65E-04
	39	1389.25	2.33E+01	21.01	4.38E-03	3.67E-04
	40	1461.12	5.72E+02	50.63	4.23E-03	3.72E-04
	41	1495.80	9.03E+00	10.39	4.17E-03	3.75E-04
	42	1534.33	7.60E+00	7.62	4.10E-03	3.78E-04
	43	1542.76	5.00E+00	7.07	4.08E-03	3.79E-04
	44	1620.85	5.75E+00	7.66	3.96E-03	3.85E-04
	45	1630.86	6.00E+00	7.35	3.94E-03	3.85E-04
	46	1661.06	8.58E+00	8.51	3.90E-03	3.88E-04
	47	1729.70	2.00E+01	8.94	3.81E-03	3.93E-04
	48	1764.96	3.10E+01	11.14	3.77E-03	3.96E-04
	49	1897.04	1.00E+01	6.32	3.64E-03	4.01E-04
	50	2034.43	1.19E+01	13.86	3.54E-03	4.01E-04

Analysis Report for 1606067-08

CP-5010 09-15 QC

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
51	2103.24	9.25E+00	9.11	3.50E-03	4.01E-04
52	2111.42	4.42E+00	5.74	3.50E-03	4.01E-04
53	2119.34	6.80E+00	8.49	3.49E-03	4.01E-04
54	2126.63	5.50E+00	6.08	3.49E-03	4.01E-04
55	2203.43	1.73E+01	10.50	3.45E-03	4.01E-04
56	2356.76	6.50E+00	6.40	3.41E-03	4.01E-04
57	2369.27	9.00E+00	6.00	3.41E-03	4.01E-04
58	2448.30	7.28E+00	6.95	3.40E-03	4.01E-04
59	2614.49	9.24E+01	20.12	3.40E-03	4.01E-04

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000 sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/20/2016 11:16:36AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039128.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.	
1	12.87	2.00E+03	123.66			2.00E+03	1.24E+02	
2	63.28	1.38E+02	83.25	2.21E+01	9.43E+00	1.16E+02	8.38E+01	
3	76.39	7.69E+02	137.17			7.69E+02	1.37E+02	
M	4	90.02	6.52E+01	20.85		6.52E+01	2.09E+01	
m	5	93.02	1.82E+02	49.77	5.53E+01	7.92E+00	1.26E+02	5.04E+01
	6	129.71	9.88E+01	57.68			9.88E+01	5.77E+01
	7	186.00	1.53E+02	61.69	3.09E+01	6.97E+00	1.22E+02	6.21E+01
	8	209.40	5.36E+01	49.26			5.36E+01	4.93E+01
M	9	239.03	6.44E+02	59.77	5.00E+00	6.32E+00	6.39E+02	6.01E+01
m	10	242.12	1.06E+02	38.94			1.06E+02	3.89E+01
M	11	270.15	6.13E+01	32.74			6.13E+01	3.27E+01
m	12	277.16	4.69E+01	30.92			4.69E+01	3.09E+01
	13	295.30	1.74E+02	45.89	5.52E+00	5.27E+00	1.69E+02	4.62E+01
	14	300.12	3.02E+01	30.27			3.02E+01	3.03E+01
	15	328.58	4.67E+01	43.03			4.67E+01	4.30E+01
	16	338.43	1.32E+02	52.72			1.32E+02	5.27E+01
	17	351.90	2.90E+02	56.71	4.46E+00	4.93E+00	2.85E+02	5.69E+01
M	18	462.96	4.54E+01	26.13			4.54E+01	2.61E+01
m	19	466.28	2.00E+01	24.31			2.00E+01	2.43E+01
	20	510.90	1.28E+02	44.73	6.55E+01	5.04E+00	6.21E+01	4.50E+01
	21	562.97	3.14E+01	34.86			3.14E+01	3.49E+01

: 00509

Analysis Report for 1606067-08

CP-5010 09-15 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.	
	22	583.18	1.39E+02	40.96	3.26E+00	3.64E+00	1.36E+02	4.11E+01
	23	609.47	2.13E+02	48.19	7.35E+00	3.67E+00	2.06E+02	4.83E+01
M	24	619.76	2.22E+01	28.77			2.22E+01	2.88E+01
m	25	623.18	1.63E+01	24.19			1.63E+01	2.42E+01
	26	654.86	2.23E+01	27.57			2.23E+01	2.76E+01
	27	727.68	5.39E+01	30.43			5.39E+01	3.04E+01
	28	770.85	4.49E+01	45.81			4.49E+01	4.58E+01
	29	795.08	3.35E+01	24.37			3.35E+01	2.44E+01
	30	839.13	3.70E+01	24.41			3.70E+01	2.44E+01
	31	911.15	1.54E+02	31.67	1.08E+00	2.95E+00	1.53E+02	3.18E+01
	32	953.16	3.33E+01	22.61			3.33E+01	2.26E+01
	33	969.38	7.06E+01	35.90	8.92E-03	2.31E+00	7.06E+01	3.60E+01
	34	1119.80	4.78E+01	27.87			4.78E+01	2.79E+01
	35	1245.48	1.85E+01	22.18			1.85E+01	2.22E+01
	36	1309.83	2.05E+01	16.61			2.05E+01	1.66E+01
	37	1335.03	9.75E+00	11.54			9.75E+00	1.15E+01
	38	1357.34	2.95E+01	14.16			2.95E+01	1.42E+01
	39	1389.25	2.33E+01	21.01			2.33E+01	2.10E+01
	40	1461.12	5.72E+02	50.63	3.11E+00	2.41E+00	5.69E+02	5.07E+01
	41	1495.80	9.03E+00	10.39			9.03E+00	1.04E+01
	42	1534.33	7.60E+00	7.62			7.60E+00	7.62E+00
	43	1542.76	5.00E+00	7.07			5.00E+00	7.07E+00
	44	1620.85	5.75E+00	7.66			5.75E+00	7.66E+00
	45	1630.86	6.00E+00	7.35			6.00E+00	7.35E+00
	46	1661.06	8.58E+00	8.51			8.58E+00	8.51E+00
	47	1729.70	2.00E+01	8.94			2.00E+01	8.94E+00
	48	1764.96	3.10E+01	11.14	6.26E-01	1.97E+00	3.04E+01	1.13E+01
	49	1897.04	1.00E+01	6.32			1.00E+01	6.32E+00
	50	2034.43	1.19E+01	13.86			1.19E+01	1.39E+01
	51	2103.24	9.25E+00	9.11			9.25E+00	9.11E+00
	52	2111.42	4.42E+00	5.74			4.42E+00	5.74E+00
	53	2119.34	6.80E+00	8.49			6.80E+00	8.49E+00
	54	2126.63	5.50E+00	6.08			5.50E+00	6.08E+00
	55	2203.43	1.73E+01	10.50			1.73E+01	1.05E+01
	56	2356.76	6.50E+00	6.40			6.50E+00	6.40E+00
	57	2369.27	9.00E+00	6.00			9.00E+00	6.00E+00
	58	2448.30	7.28E+00	6.95			7.28E+00	6.95E+00
	59	2614.49	9.24E+01	20.12	5.31E+00	1.43E+00	8.71E+01	2.02E+01

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

Analysis Report for 1606067-08

CP-5010 09-15 QC

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/20/2016 11:16:36AM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039128.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	12.87	2.00E+03	123.66			2.00E+03	1.24E+02
2	63.28	1.38E+02	83.25	2.21E+01	9.43E+00	1.16E+02	8.38E+01
3	76.39	7.69E+02	137.17			7.69E+02	1.37E+02
M 4	90.02	6.52E+01	20.85			6.52E+01	2.09E+01
m 5	93.02	1.82E+02	49.77	5.53E+01	7.92E+00	1.26E+02	5.04E+01
6	129.71	9.88E+01	57.68			9.88E+01	5.77E+01
7	186.00	1.53E+02	61.69	3.09E+01	6.97E+00	1.22E+02	6.21E+01
8	209.40	5.36E+01	49.26			5.36E+01	4.93E+01
M 9	239.03	6.44E+02	59.77	5.00E+00	6.32E+00	6.39E+02	6.01E+01
m 10	242.12	1.06E+02	38.94			1.06E+02	3.89E+01
M 11	270.15	6.13E+01	32.74			6.13E+01	3.27E+01
m 12	277.16	4.69E+01	30.92			4.69E+01	3.09E+01
13	295.30	1.74E+02	45.89	5.52E+00	5.27E+00	1.69E+02	4.62E+01
14	300.12	3.02E+01	30.27			3.02E+01	3.03E+01
15	328.58	4.67E+01	43.03			4.67E+01	4.30E+01
16	338.43	1.32E+02	52.72			1.32E+02	5.27E+01
17	351.90	2.90E+02	56.71	4.46E+00	4.93E+00	2.85E+02	5.69E+01
M 18	462.96	4.54E+01	26.13			4.54E+01	2.61E+01
m 19	466.28	2.00E+01	24.31			2.00E+01	2.43E+01
20	510.90	1.28E+02	44.73	6.55E+01	5.04E+00	6.21E+01	4.50E+01
21	562.97	3.14E+01	34.86			3.14E+01	3.49E+01
22	583.18	1.39E+02	40.96	3.26E+00	3.64E+00	1.36E+02	4.11E+01
23	609.47	2.13E+02	48.19	7.35E+00	3.67E+00	2.06E+02	4.83E+01
M 24	619.76	2.22E+01	28.77			2.22E+01	2.88E+01
m 25	623.18	1.63E+01	24.19			1.63E+01	2.42E+01
26	654.86	2.23E+01	27.57			2.23E+01	2.76E+01
27	727.68	5.39E+01	30.43			5.39E+01	3.04E+01
28	770.85	4.49E+01	45.81			4.49E+01	4.58E+01
29	795.08	3.35E+01	24.37			3.35E+01	2.44E+01
30	839.13	3.70E+01	24.41			3.70E+01	2.44E+01
31	911.15	1.54E+02	31.67	1.08E+00	2.95E+00	1.53E+02	3.18E+01
32	953.16	3.33E+01	22.61			3.33E+01	2.26E+01
33	969.38	7.06E+01	35.90	8.92E-03	2.31E+00	7.06E+01	3.60E+01
34	1119.80	4.78E+01	27.87			4.78E+01	2.79E+01
35	1245.48	1.85E+01	22.18			1.85E+01	2.22E+01
36	1309.83	2.05E+01	16.61			2.05E+01	1.66E+01
37	1335.03	9.75E+00	11.54			9.75E+00	1.15E+01
38	1357.34	2.95E+01	14.16			2.95E+01	1.42E+01
39	1389.25	2.33E+01	21.01			2.33E+01	2.10E+01
40	1461.12	5.72E+02	50.63	3.11E+00	2.41E+00	5.69E+02	5.07E+01
41	1495.80	9.03E+00	10.39			9.03E+00	1.04E+01

Analysis Report for 1606067-08

CP-5010 09-15 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
42	1534.33	7.60E+00	7.62			7.60E+00	7.62E+00
43	1542.76	5.00E+00	7.07			5.00E+00	7.07E+00
44	1620.85	5.75E+00	7.66			5.75E+00	7.66E+00
45	1630.86	6.00E+00	7.35			6.00E+00	7.35E+00
46	1661.06	8.58E+00	8.51			8.58E+00	8.51E+00
47	1729.70	2.00E+01	8.94			2.00E+01	8.94E+00
48	1764.96	3.10E+01	11.14	6.26E-01	1.97E+00	3.04E+01	1.13E+01
49	1897.04	1.00E+01	6.32			1.00E+01	6.32E+00
50	2034.43	1.19E+01	13.86			1.19E+01	1.39E+01
51	2103.24	9.25E+00	9.11			9.25E+00	9.11E+00
52	2111.42	4.42E+00	5.74			4.42E+00	5.74E+00
53	2119.34	6.80E+00	8.49			6.80E+00	8.49E+00
54	2126.63	5.50E+00	6.08			5.50E+00	6.08E+00
55	2203.43	1.73E+01	10.50			1.73E+01	1.05E+01
56	2356.76	6.50E+00	6.40			6.50E+00	6.40E+00
57	2369.27	9.00E+00	6.00			9.00E+00	6.00E+00
58	2448.30	7.28E+00	6.95			7.28E+00	6.95E+00
59	2614.49	9.24E+01	20.12	5.31E+00	1.43E+00	8.71E+01	2.02E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.985	1460.81 *	10.67	2.57E+01	3.27E+00
GA-67	0.913	93.31 *	35.70	4.47E+00	9.28E+00
		208.95 *	2.24	4.24E+01	8.22E+01
		300.22 *	16.00	4.26E+00	9.70E+00
TL-208	0.889	583.14 *	30.22	1.05E+00	3.41E-01
		860.37	4.48		
		2614.66 *	35.85	1.46E+00	3.80E-01
BI-212	0.965	727.17 *	11.80	1.27E+00	7.30E-01
		1620.62 *	2.75	1.08E+00	1.44E+00
PB-212	0.976	238.63 *	44.60	1.72E+00	2.85E-01
		300.09 *	3.41	1.24E+00	1.26E+00
BI-214	0.978	609.31 *	46.30	1.07E+00	2.77E-01
		1120.29 *	15.10	1.26E+00	7.42E-01

: 00512

Analysis Report for 1606067-08
 CP-5010 09-15 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.978	1764.49 *	15.80	1.04E+00	4.03E-01
		2204.22 *	4.98	2.06E+00	1.27E+00
PB-214	1.000	295.21 *	19.19	1.22E+00	3.82E-01
		351.92 *	37.19	1.21E+00	3.12E-01
RA-226	0.993	186.21 *	3.28	3.82E+00	7.27E+00
AC-228	0.996	338.32 *	11.40	1.77E+00	7.63E-01
		911.07 *	27.70	1.85E+00	4.77E-01
		969.11 *	16.60	1.50E+00	7.93E-01
TH-234	1.000	63.29 *	3.80	2.63E+00	1.91E+00
CM-243	0.356	209.75 *	3.29	1.80E+00	1.67E+00
		228.14	10.60		
		277.60 *	14.00	4.46E-01	3.01E-01

* = Energy line found in the spectrum.
 - = Manually added nuclide.
 ? = Manually edited nuclide.
 Energy Tolerance : 1.000 keV
 Nuclide confidence index threshold = 0.30
 Errors quoted at 2.000sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 11:16:36AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	12.87	5.54752E-01	3.10		
3	76.39	2.13568E-01	8.92		
M 4	90.02	1.81025E-02	16.00		
6	129.71	2.74572E-02	29.18		
m 10	242.12	2.95609E-02	18.29		
M 11	270.15	1.70165E-02	26.72		
15	328.58	1.29768E-02	46.06		
M 18	462.96	1.26218E-02	28.76	Sum	
m 19	466.28	5.55792E-03	60.75		
20	510.90	1.72532E-02	36.24		
21	562.97	8.73232E-03	55.44	Tol.	CS-134
M 24	619.76	6.17325E-03	64.74		
m 25	623.18	4.53341E-03	74.10		
26	654.86	6.18234E-03	61.93		
28	770.85	1.24761E-02	51.00		
29	795.08	9.30370E-03	36.38	Sum	
30	839.13	1.02816E-02	32.98		

Analysis Report for 1606067-08

CP-5010 09-15 QC

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
32	953.16	9.24435E-03	33.96		
35	1245.48	5.13072E-03	60.04		
36	1309.83	5.69069E-03	40.55		
37	1335.03	2.70833E-03	59.20		
38	1357.34	8.19444E-03	24.00		
39	1389.25	6.47569E-03	45.05		
41	1495.80	2.50926E-03	57.52		
42	1534.33	2.11111E-03	50.10		
43	1542.76	1.38889E-03	70.71		
45	1630.86	1.66667E-03	61.24		
46	1661.06	2.38426E-03	49.60		
47	1729.70	5.55556E-03	22.36	Sum	
49	1897.04	2.77778E-03	31.62	Sum	
50	2034.43	3.31349E-03	58.08		
51	2103.24	2.56944E-03	49.25	S-Esc	
52	2111.42	1.22685E-03	65.03		
53	2119.34	1.88889E-03	62.39		
54	2126.63	1.52778E-03	55.30		
56	2356.76	1.80556E-03	49.25		
57	2369.27	2.50000E-03	33.33		
58	2448.30	2.02160E-03	47.72		

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81 *	10.67	2.57E+01	3.27E+00
GA-67	0.91	93.31 *	35.70	4.47E+00	9.28E+00
		208.95 *	2.24	4.24E+01	8.22E+01
		300.22 *	16.00	4.26E+00	9.70E+00
TL-208	0.88	583.14 *	30.22	1.05E+00	3.41E-01
		860.37	4.48		
		2614.66 *	35.85	1.46E+00	3.80E-01

Analysis Report for 1606067-08

CP-5010 09-15 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-212	0.96	727.17 *	11.80	1.27E+00	7.30E-01
		1620.62 *	2.75	1.08E+00	1.44E+00
PB-212	0.97	238.63 *	44.60	1.72E+00	2.85E-01
		300.09 *	3.41	1.24E+00	1.26E+00
BI-214	0.97	609.31 *	46.30	1.07E+00	2.77E-01
		1120.29 *	15.10	1.26E+00	7.42E-01
		1764.49 *	15.80	1.04E+00	4.03E-01
		2204.22 *	4.98	2.06E+00	1.27E+00
PB-214	1.00	295.21 *	19.19	1.22E+00	3.82E-01
		351.92 *	37.19	1.21E+00	3.12E-01
RA-226	0.99	186.21 *	3.28	3.82E+00	7.27E+00
AC-228	0.99	338.32 *	11.40	1.77E+00	7.63E-01
		911.07 *	27.70	1.85E+00	4.77E-01
		969.11 *	16.60	1.50E+00	7.93E-01
TH-234	1.00	63.29 *	3.80	2.63E+00	1.91E+00
CM-243	0.35	209.75 *	3.29	1.80E+00	1.67E+00
		228.14	10.60		
		277.60 *	14.00	4.46E-01	3.01E-01

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.985	2.57E+01	3.27E+00	
GA-67	0.913	3.63E+00	6.40E+00	
TL-208	0.889	1.23E+00	2.54E-01	
BI-212	0.965	1.23E+00	6.51E-01	
PB-212	0.976	1.65E+00	2.79E-01	
BI-214	0.978	1.11E+00	2.15E-01	
PB-214	1.000	1.21E+00	2.41E-01	
RA-226	0.993	3.82E+00	7.27E+00	
AC-228	0.996	1.76E+00	3.60E-01	

Analysis Report for 1606067-08

CP-5010 09-15 QC

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
TH-234	1.000	2.63E+00	1.91E+00	
CM-243	0.356	4.84E-01	2.96E-01	

- ? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1606067-08

CP-5010 09-15 QC

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 11:16:36AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	12.87	5.54752E-01	3.10		
3	76.39	2.13568E-01	8.92		
M 4	90.02	1.81025E-02	16.00		
6	129.71	2.74572E-02	29.18		
m 10	242.12	2.95609E-02	18.29		
M 11	270.15	1.70165E-02	26.72		
15	328.58	1.29768E-02	46.06		
M 18	462.96	1.26218E-02	28.76	Sum	
m 19	466.28	5.55792E-03	60.75		
20	510.90	1.72532E-02	36.24		
21	562.97	8.73232E-03	55.44	Tol.	CS-134
M 24	619.76	6.17325E-03	64.74		
m 25	623.18	4.53341E-03	74.10		
26	654.86	6.18234E-03	61.93		
28	770.85	1.24761E-02	51.00		
29	795.08	9.30370E-03	36.38	Sum	
30	839.13	1.02816E-02	32.98		
32	953.16	9.24435E-03	33.96		
35	1245.48	5.13072E-03	60.04		
36	1309.83	5.69069E-03	40.55		
37	1335.03	2.70833E-03	59.20		
38	1357.34	8.19444E-03	24.00		
39	1389.25	6.47569E-03	45.05		
41	1495.80	2.50926E-03	57.52		
42	1534.33	2.11111E-03	50.10		
43	1542.76	1.38889E-03	70.71		
45	1630.86	1.66667E-03	61.24		
46	1661.06	2.38426E-03	49.60		
47	1729.70	5.55556E-03	22.36	Sum	
49	1897.04	2.77778E-03	31.62	Sum	
50	2034.43	3.31349E-03	58.08		
51	2103.24	2.56944E-03	49.25	S-Esc	
52	2111.42	1.22685E-03	65.03		
53	2119.34	1.88889E-03	62.39		
54	2126.63	1.52778E-03	55.30		

Analysis Report for 1606067-08
CP-5010 09-15 QC

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
56	2356.76	1.80556E-03	49.25		
57	2369.27	2.50000E-03	33.33		
58	2448.30	2.02160E-03	47.72		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	2.91E-01	8.81E-01	8.81E-01
+	NA-22	1274.54	99.94	-2.22E-02	1.13E-01	1.13E-01
+	NA-24	1368.53	99.99	-5.65E+03	1.54E+05	1.93E+05
		2754.09	99.86	3.90E+04		1.54E+05
+	AL-26	1808.65	99.76	-1.98E-02	7.21E-02	7.21E-02
+	K-40	1460.81	* 10.67	2.57E+01	1.40E+00	1.40E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	1.60E-02	7.14E-02	7.14E-02
		78.34	96.00	4.05E-01		1.07E-01
+	SC-46	889.25	99.98	-4.96E-02	1.08E-01	1.08E-01
		1120.51	99.99	1.81E-01		1.97E-01
+	V-48	983.52	99.98	-2.52E-02	1.98E-01	1.98E-01
		1312.10	97.50	1.98E-02		2.42E-01
+	CR-51	320.08	9.83	-3.90E-01	1.07E+00	1.07E+00
+	MN-54	834.83	99.97	-2.13E-02	1.26E-01	1.26E-01
+	CO-56	846.75	99.96	1.82E-02	1.19E-01	1.19E-01
		1037.75	14.03	-1.52E-01		9.25E-01
		1238.25	67.00	1.68E-01		2.87E-01
		1771.40	15.51	1.96E-02		5.15E-01
		2598.48	16.90	0.00E+00		4.30E-01
+	CO-57	122.06	85.51	-6.56E-02	7.39E-02	7.39E-02
		136.48	10.60	2.60E-01		6.46E-01
+	CO-58	810.76	99.40	-2.33E-02	1.11E-01	1.11E-01
+	FE-59	1099.22	56.50	7.55E-02	2.78E-01	2.78E-01
		1291.56	43.20	1.46E-01		3.99E-01
+	CO-60	1173.22	100.00	-4.50E-02	1.07E-01	1.15E-01

Analysis Report for 1606067-08

CP-5010 09-15 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-60	1332.49	100.00	-1.59E-02	1.07E-01	1.07E-01
+	ZN-65	1115.52	50.75	-1.97E-02	2.54E-01	2.54E-01
+	GA-67	93.31	* 35.70	4.47E+00	4.92E+00	4.92E+00
		208.95	* 2.24	4.24E+01		6.34E+01
		300.22	* 16.00	4.26E+00		6.93E+00
+	SE-75	121.11	16.70	-1.47E-01	1.20E-01	3.91E-01
		136.00	59.20	-1.75E-02		1.20E-01
		264.65	59.80	-2.80E-03		1.30E-01
		279.53	25.20	1.65E-02		3.21E-01
		400.65	11.40	2.44E-01		7.40E-01
+	RB-82	776.52	13.00	4.44E-01	1.27E+00	1.27E+00
+	RB-83	520.41	46.00	-5.44E-02	1.88E-01	1.88E-01
		529.64	30.30	9.98E-02		2.96E-01
		552.65	16.40	-4.21E-02		5.22E-01
+	KR-85	513.99	0.43	-3.93E+01	2.13E+01	2.13E+01
+	SR-85	513.99	99.27	-1.97E-01	1.07E-01	1.07E-01
+	Y-88	898.02	93.40	1.44E-02	8.54E-02	1.27E-01
		1836.01	99.38	0.00E+00		8.54E-02
+	NB-93M	16.57	9.43	6.79E+01	1.30E+02	1.30E+02
+	NB-94	702.63	100.00	-3.41E-02	1.02E-01	1.02E-01
		871.10	100.00	3.72E-02		1.10E-01
+	NB-95	765.79	99.81	7.90E-02	1.64E-01	1.64E-01
+	NB-95M	235.69	25.00	-4.19E+01	5.35E+00	5.35E+00
+	ZR-95	724.18	43.70	-1.87E-02	2.23E-01	3.37E-01
		756.72	55.30	-8.76E-02		2.23E-01
+	MO-99	181.06	6.20	-1.03E+00	2.11E+01	3.05E+01
		739.58	12.80	-2.91E-01		2.11E+01
		778.00	4.50	-1.37E+01		6.32E+01
+	RU-103	497.08	89.00	6.37E-02	1.17E-01	1.17E-01
+	RU-106	621.84	9.80	4.76E-01	1.22E+00	1.22E+00
+	AG-108M	433.93	89.90	6.28E-03	8.60E-02	8.60E-02
		614.37	90.40	4.03E-03		1.04E-01
		722.95	90.50	3.01E-02		1.37E-01
+	CD-109	88.03	3.72	2.63E+00	2.57E+00	2.57E+00
+	AG-110M	657.75	93.14	-1.86E-02	1.21E-01	1.21E-01
		677.61	10.53	3.88E-02		1.01E+00
		706.67	16.46	2.77E-01		6.79E-01
		763.93	21.98	8.45E-02		5.46E-01
		884.67	71.63	1.02E-01		1.62E-01
		1384.27	23.94	9.07E-02		4.94E-01
+	CD-113M	263.70	0.02	1.49E+02	3.16E+02	3.16E+02
+	SN-113	255.12	1.93	-1.98E+00	1.22E-01	3.94E+00
		391.69	64.90	-5.29E-02		1.22E-01
+	TE123M	159.00	84.10	-5.79E-02	8.58E-02	8.58E-02
+	SB-124	602.71	97.87	-6.34E-03	1.27E-01	1.27E-01
		645.85	7.26	-7.48E-01		1.31E+00
		722.78	11.10	2.85E-01		1.30E+00
		1691.02	49.00	-2.72E-02		1.77E-01

Analysis Report for 1606067-08

CP-5010 09-15 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	I-125	35.49	6.49	8.29E-01	2.32E+00	2.32E+00
+	SB-125	176.33	6.89	7.85E-01	2.72E-01	1.08E+00
		427.89	29.33	3.56E-02		2.72E-01
		463.38	10.35	3.84E-01		9.44E-01
		600.56	17.80	-9.48E-02		6.05E-01
		635.90	11.32	-3.43E-01		8.20E-01
+	SB-126	414.70	83.30	-2.80E-02	1.76E-01	1.76E-01
		666.33	99.60	7.38E-02		2.39E-01
		695.00	99.60	1.34E-01		2.26E-01
		720.50	53.80	-2.28E-03		4.23E-01
+	SN-126	87.57	37.00	2.59E-01	2.54E-01	2.54E-01
+	SB-127	473.00	25.00	1.50E+00	3.12E+00	3.28E+00
		685.20	35.70	1.39E+00		3.12E+00
		783.80	14.70	4.57E+00		8.14E+00
+	I-129	29.78	57.00	-8.42E-02	3.83E-01	3.83E-01
		33.60	13.20	9.43E-02		1.15E+00
		39.58	7.52	4.17E-01		1.40E+00
+	I-131	284.30	6.05	1.62E+00	2.45E-01	3.75E+00
		364.48	81.20	-3.84E-04		2.45E-01
		636.97	7.26	-4.77E-01		3.95E+00
		722.89	1.80	4.67E+00		2.13E+01
+	TE-132	49.72	13.10	6.07E+00	1.32E+00	9.66E+00
		228.16	88.00	-7.98E-02		1.32E+00
+	BA-133	81.00	33.00	-7.92E-02	1.26E-01	1.78E-01
		302.84	17.80	3.16E-02		4.36E-01
		356.01	60.00	3.45E-02		1.26E-01
+	I-133	529.87	86.30	-9.90E+02	3.03E+03	3.03E+03
+	XE-133	81.00	38.00	-3.86E-01	8.68E-01	8.68E-01
+	CS-134	563.23	8.38	4.00E-01	1.19E-01	1.08E+00
		569.32	15.43	-1.38E-01		5.33E-01
		604.70	97.60	-1.45E-03		1.19E-01
		795.84	85.40	-6.22E-03		1.51E-01
		801.93	8.73	9.75E-02		1.15E+00
+	CS-135	268.24	16.00	-2.60E-02	5.25E-01	5.25E-01
+	I-135	1131.51	22.50	2.45E+13	7.34E+13	1.09E+14
		1260.41	28.60	1.87E+13		7.34E+13
		1678.03	9.54	-7.50E+13		1.74E+14
+	CS-136	153.22	7.46	5.30E-01	2.06E-01	1.85E+00
		163.89	4.61	1.48E+00		2.99E+00
		176.55	13.56	2.07E-01		1.08E+00
		273.65	12.66	-2.89E+00		1.12E+00
		340.57	48.50	-4.09E-01		3.60E-01
		818.50	99.70	5.07E-02		2.06E-01
		1048.07	79.60	1.10E-02		2.53E-01
		1235.34	19.70	7.20E-01		1.70E+00
+	CS-137	661.65	85.12	-7.86E-02	1.17E-01	1.17E-01
+	LA-138	788.74	34.00	-5.09E-04	1.62E-01	3.09E-01
		1435.80	66.00	4.76E-02		1.62E-01
+	CE-139	165.85	80.35	-3.33E-02	8.85E-02	8.85E-02

Analysis Report for 1606067-08

CP-5010 09-15 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BA-140	162.64	6.70	1.56E-01	6.18E-01	2.07E+00
		304.84	4.50	-1.84E-01		3.36E+00
		423.70	3.20	1.07E+00		4.91E+00
		437.55	2.00	1.56E+00		7.84E+00
		537.32	25.00	-1.76E-01		6.18E-01
+	LA-140	328.77	20.50	5.13E-01	2.77E-01	8.34E-01
		487.03	45.50	5.02E-02		3.43E-01
		815.85	23.50	6.90E-02		9.06E-01
		1596.49	95.49	1.52E-01		2.77E-01
+	CE-141	145.44	48.40	4.86E-02	1.96E-01	1.96E-01
+	CE-143	57.36	11.80	-8.29E+01	1.74E+02	4.02E+02
		293.26	42.00	-8.40E+01		1.74E+02
		664.55	5.20	-1.11E+01		1.53E+03
+	CE-144	133.54	10.80	-1.25E-01	6.24E-01	6.24E-01
+	PM-144	476.78	42.00	6.25E-02	1.04E-01	1.89E-01
		618.01	98.60	-2.81E-02		1.04E-01
		696.49	99.49	4.15E-02		1.08E-01
+	PM-145	36.85	21.70	-3.11E-01	2.79E-01	5.28E-01
		37.36	39.70	-1.64E-01		2.79E-01
		42.30	15.10	-3.97E-02		6.05E-01
		72.40	2.31	-4.06E-01		3.02E+00
+	PM-146	453.90	39.94	4.80E-02	2.01E-01	2.01E-01
		735.90	14.01	3.50E-02		6.98E-01
		747.13	13.10	-5.73E-02		7.70E-01
+	ND-147	91.11	28.90	2.38E-01	7.62E-01	7.62E-01
		531.02	13.10	-5.36E-01		1.27E+00
+	PM-149	285.90	3.10	-7.23E+01	1.34E+02	1.34E+02
+	EU-152	121.78	20.50	-2.65E-01	2.99E-01	2.99E-01
		244.69	5.40	-1.91E+00		1.36E+00
		344.27	19.13	-1.49E-01		3.94E-01
		778.89	9.20	1.44E-01		1.17E+00
		964.01	10.40	7.39E-01		1.41E+00
		1085.78	7.22	4.75E-01		1.71E+00
		1112.02	9.60	-2.78E-03		1.32E+00
		1407.95	14.94	5.84E-01		8.35E-01
+	GD-153	97.43	31.30	-8.37E-03	2.23E-01	2.23E-01
		103.18	22.20	-2.58E-01		3.18E-01
+	EU-154	123.07	40.50	-6.08E-02	1.56E-01	1.56E-01
		723.30	19.70	1.39E-01		6.33E-01
		873.19	11.50	3.27E-01		9.87E-01
		996.32	10.30	2.77E-01		1.17E+00
		1004.76	17.90	-9.98E-02		5.83E-01
		1274.45	35.50	-6.21E-02		3.16E-01
+	EU-155	86.50	30.90	1.57E-01	2.90E-01	2.90E-01
		105.30	20.70	6.19E-02		3.34E-01
+	EU-156	811.77	10.40	1.06E-01	1.79E+00	1.79E+00
		1153.47	7.20	-1.95E+00		2.93E+00
		1230.71	8.90	-2.01E+00		2.73E+00
+	HO-166M	184.41	72.60	1.22E-01	1.25E-01	1.25E-01

Analysis Report for 1606067-08

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	HO-166M	280.45	29.60	1.31E-02	1.25E-01	2.54E-01
		410.94	11.10	3.41E-01		7.43E-01
		711.69	54.10	-1.09E-01		1.59E-01
+	TM-171	66.72	0.14	3.64E+00	4.75E+01	4.75E+01
+	HF-172	81.75	4.52	-1.20E+00	6.01E-01	1.37E+00
		125.81	11.30	3.72E-01		6.01E-01
+	LU-172	181.53	20.60	3.20E-01	7.08E-01	1.32E+00
		810.06	16.63	-4.72E-01		2.25E+00
		912.12	15.25	1.26E+01		5.52E+00
		1093.66	62.50	-3.28E-03		7.08E-01
+	LU-173	100.72	5.24	7.91E-01	4.19E-01	1.34E+00
		272.11	21.20	3.35E-01		4.19E-01
+	HF-175	343.40	84.00	-4.21E-02	1.01E-01	1.01E-01
+	LU-176	88.34	13.30	7.21E-01	7.82E-02	7.06E-01
		201.83	86.00	1.38E-02		8.72E-02
		306.78	94.00	-5.80E-03		7.82E-02
+	TA-182	67.75	41.20	3.96E-02	1.77E-01	1.77E-01
		1121.30	34.90	5.60E-01		5.58E-01
		1189.05	16.23	-8.19E-02		9.50E-01
		1221.41	26.98	-2.60E-01		5.65E-01
		1231.02	11.44	-1.17E+00		1.20E+00
+	IR-192	308.46	29.68	1.13E-01	1.79E-01	2.76E-01
		468.07	48.10	-7.23E-03		1.79E-01
+	HG-203	279.19	77.30	1.06E-01	1.32E-01	1.32E-01
+	BI-207	569.67	97.72	-2.16E-02	8.32E-02	8.32E-02
		1063.62	74.90	9.36E-02		1.56E-01
+	TL-208	583.14	* 30.22	1.05E+00	2.57E-01	4.50E-01
		860.37	4.48	6.58E-01		2.72E+00
		2614.66	* 35.85	1.46E+00		2.57E-01
+	BI-210M	262.00	45.00	-8.27E-02	1.53E-01	1.53E-01
		300.00	23.00	2.38E-01		3.73E-01
+	PB-210	46.50	4.25	2.24E+00	2.24E+00	2.24E+00
+	PB-211	404.84	2.90	-5.27E-01	2.64E+00	2.64E+00
		831.96	2.90	-5.50E-01		3.96E+00
+	BI-212	727.17	* 11.80	1.27E+00	1.10E+00	1.10E+00
		1620.62	* 2.75	1.08E+00		2.36E+00
+	PB-212	238.63	* 44.60	1.72E+00	4.02E-01	4.02E-01
		300.09	* 3.41	1.24E+00		2.02E+00
+	BI-214	609.31	* 46.30	1.07E+00	2.35E-01	3.47E-01
		1120.29	* 15.10	1.26E+00		1.12E+00
		1764.49	* 15.80	1.04E+00		2.35E-01
		2204.22	* 4.98	2.06E+00		1.57E+00
+	PB-214	295.21	* 19.19	1.22E+00	3.31E-01	4.75E-01
		351.92	* 37.19	1.21E+00		3.31E-01
+	RN-219	401.80	6.50	-5.35E-03	1.15E+00	1.15E+00
+	RA-223	323.87	3.88	8.09E-01	1.94E+00	1.94E+00
+	RA-224	240.98	3.95	1.21E+01	3.97E+00	3.97E+00
+	RA-225	40.00	31.00	1.82E-01	6.10E-01	6.10E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-226	186.21	*	3.28	3.82E+00	3.07E+00	3.07E+00
+	TH-227	50.10		8.40	5.82E-01	9.26E-01	9.26E-01
		236.00		11.50	-7.42E+00		9.47E-01
		256.20		6.30	-5.03E-01		1.12E+00
+	AC-228	338.32	*	11.40	1.77E+00	4.32E-01	1.09E+00
		911.07	*	27.70	1.85E+00		4.32E-01
		969.11	*	16.60	1.50E+00		1.17E+00
+	TH-230	48.44		16.90	-6.82E-01	4.55E-01	4.55E-01
		62.85		4.60	3.39E+00		1.83E+00
		67.67		0.37	4.08E+00		1.82E+01
+	PA-231	283.67		1.60	1.99E+00	3.36E+00	4.59E+00
		302.67		2.30	2.44E-01		3.36E+00
+	TH-231	25.64		14.70	1.26E-01	1.05E+00	3.13E+00
		84.21		6.40	1.08E+00		1.05E+00
+	PA-233	311.98		38.60	-1.10E-01	2.37E-01	2.37E-01
+	PA-234	131.20		20.40	4.40E-01	3.76E-01	3.76E-01
		733.99		8.80	3.83E-01		1.10E+00
		946.00		12.00	3.74E-01		9.16E-01
+	PA-234M	1001.03		0.92	8.44E-01	1.19E+01	1.19E+01
+	TH-234	63.29	*	3.80	2.63E+00	3.09E+00	3.09E+00
+	U-235	143.76		10.50	3.48E-01	6.83E-01	6.83E-01
		163.35		4.70	1.10E-01		1.46E+00
		205.31		4.70	6.53E-01		1.54E+00
+	NP-237	86.50		12.60	3.83E-01	7.08E-01	7.08E-01
+	NP-239	106.10		22.70	2.48E+00	1.41E+01	1.41E+01
		228.18		10.70	-1.91E+00		3.16E+01
		277.60		14.10	1.26E+01		2.72E+01
+	AM-241	59.54		35.90	-8.89E-02	1.86E-01	1.86E-01
+	AM-243	74.67		66.00	-3.75E-01	1.44E-01	1.44E-01
+	CM-243	209.75	*	3.29	1.80E+00	6.82E-01	2.69E+00
		228.14		10.60	-4.12E-02		6.82E-01
		277.60	*	14.00	4.46E-01		1.17E+00

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

Analysis Report for 1606067-08

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NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	8.81E-01	8.81E-01	2.91E-01	4.10E-01
NA-22	1274.54	99.94	1.13E-01	1.13E-01	-2.22E-02	5.04E-02
NA-24	1368.53	99.99	1.93E+05	1.54E+05	-5.65E+03	8.41E+04
	2754.09	99.86	1.54E+05		3.90E+04	6.09E+04
AL-26	1808.65	99.76	7.21E-02	7.21E-02	-1.98E-02	2.86E-02
+ K-40	1460.81	*	1.40E+00	1.40E+00	2.57E+01	6.39E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	7.14E-02	7.14E-02	1.60E-02	3.45E-02
	78.34	96.00	1.07E-01		4.05E-01	5.22E-02
SC-46	889.25	99.98	1.08E-01	1.08E-01	-4.96E-02	4.90E-02
	1120.51	99.99	1.97E-01		1.81E-01	9.25E-02
V-48	983.52	99.98	1.98E-01	1.98E-01	-2.52E-02	9.03E-02
	1312.10	97.50	2.42E-01		1.98E-02	1.10E-01
CR-51	320.08	9.83	1.07E+00	1.07E+00	-3.90E-01	5.09E-01
MN-54	834.83	99.97	1.26E-01	1.26E-01	-2.13E-02	5.89E-02
CO-56	846.75	99.96	1.19E-01	1.19E-01	1.82E-02	5.47E-02
	1037.75	14.03	9.25E-01		-1.52E-01	4.22E-01
	1238.25	67.00	2.87E-01		1.68E-01	1.34E-01
	1771.40	15.51	5.15E-01		1.96E-02	2.04E-01
	2598.48	16.90	4.30E-01		0.00E+00	1.61E-01
CO-57	122.06	85.51	7.39E-02	7.39E-02	-6.56E-02	3.56E-02
	136.48	10.60	6.46E-01		2.60E-01	3.11E-01
CO-58	810.76	99.40	1.11E-01	1.11E-01	-2.33E-02	5.06E-02
FE-59	1099.22	56.50	2.78E-01	2.78E-01	7.55E-02	1.28E-01
	1291.56	43.20	3.99E-01		1.46E-01	1.82E-01
CO-60	1173.22	100.00	1.15E-01	1.07E-01	-4.50E-02	5.18E-02
	1332.49	100.00	1.07E-01		-1.59E-02	4.73E-02
ZN-65	1115.52	50.75	2.54E-01	2.54E-01	-1.97E-02	1.16E-01
+ GA-67	93.31	*	4.92E+00	4.92E+00	4.47E+00	2.41E+00
	208.95	*	2.24		4.24E+01	3.06E+01
	300.22	*	6.93E+00		4.26E+00	3.27E+00
SE-75	121.11	16.70	3.91E-01	1.20E-01	-1.47E-01	1.88E-01
	136.00	59.20	1.20E-01		-1.75E-02	5.78E-02
	264.65	59.80	1.30E-01		-2.80E-03	6.21E-02
	279.53	25.20	3.21E-01		1.65E-02	1.53E-01
	400.65	11.40	7.40E-01		2.44E-01	3.48E-01
RB-82	776.52	13.00	1.27E+00	1.27E+00	4.44E-01	5.90E-01
RB-83	520.41	46.00	1.88E-01	1.88E-01	-5.44E-02	8.69E-02
	529.64	30.30	2.96E-01		9.98E-02	1.37E-01
	552.65	16.40	5.22E-01		-4.21E-02	2.41E-01
KR-85	513.99	0.43	2.13E+01	2.13E+01	-3.93E+01	9.98E+00
SR-85	513.99	99.27	1.07E-01	1.07E-01	-1.97E-01	5.01E-02
Y-88	898.02	93.40	1.27E-01	8.54E-02	1.44E-02	5.83E-02
	1836.01	99.38	8.54E-02		0.00E+00	3.45E-02
NB-93M	16.57	9.43	1.30E+02	1.30E+02	6.79E+01	6.29E+01

: 00524

Analysis Report for 1606067-08

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NB-94	702.63	100.00	1.02E-01	1.02E-01	-3.41E-02	4.75E-02
	871.10	100.00	1.10E-01		3.72E-02	5.04E-02
NB-95	765.79	99.81	1.64E-01	1.64E-01	7.90E-02	7.69E-02
NB-95M	235.69	25.00	5.35E+00	5.35E+00	-4.19E+01	2.59E+00
ZR-95	724.18	43.70	3.37E-01	2.23E-01	-1.87E-02	1.59E-01
	756.72	55.30	2.23E-01		-8.76E-02	1.03E-01
MO-99	181.06	6.20	3.05E+01	2.11E+01	-1.03E+00	1.47E+01
	739.58	12.80	2.11E+01		-2.91E-01	9.75E+00
	778.00	4.50	6.32E+01		-1.37E+01	2.92E+01
RU-103	497.08	89.00	1.17E-01	1.17E-01	6.37E-02	5.43E-02
RU-106	621.84	9.80	1.22E+00	1.22E+00	4.76E-01	5.75E-01
AG-108M	433.93	89.90	8.60E-02	8.60E-02	6.28E-03	4.02E-02
	614.37	90.40	1.04E-01		4.03E-03	4.84E-02
	722.95	90.50	1.37E-01		3.01E-02	6.45E-02
	88.03	3.72	2.57E+00	2.57E+00	2.63E+00	1.26E+00
AG-110M	657.75	93.14	1.21E-01	1.21E-01	-1.86E-02	5.67E-02
	677.61	10.53	1.01E+00		3.88E-02	4.70E-01
	706.67	16.46	6.79E-01		2.77E-01	3.16E-01
	763.93	21.98	5.46E-01		8.45E-02	2.55E-01
	884.67	71.63	1.62E-01		1.02E-01	7.48E-02
CD-113M	1384.27	23.94	4.94E-01		9.07E-02	2.20E-01
SN-113	255.12	1.93	3.94E+00	1.22E-01	-1.98E+00	1.87E+00
TE123M	391.69	64.90	1.22E-01		-5.29E-02	5.73E-02
	159.00	84.10	8.58E-02	8.58E-02	-5.79E-02	4.13E-02
SB-124	602.71	97.87	1.27E-01	1.27E-01	-6.34E-03	5.98E-02
	645.85	7.26	1.31E+00		-7.48E-01	6.02E-01
	722.78	11.10	1.30E+00		2.85E-01	6.11E-01
	1691.02	49.00	1.77E-01		-2.72E-02	7.16E-02
I-125	35.49	6.49	2.32E+00	2.32E+00	8.29E-01	1.11E+00
SB-125	176.33	6.89	1.08E+00	2.72E-01	7.85E-01	5.18E-01
	427.89	29.33	2.72E-01		3.56E-02	1.27E-01
	463.38	10.35	9.44E-01		3.84E-01	4.46E-01
	600.56	17.80	6.05E-01		-9.48E-02	2.84E-01
	635.90	11.32	8.20E-01		-3.43E-01	3.80E-01
SB-126	414.70	83.30	1.76E-01	1.76E-01	-2.80E-02	8.19E-02
	666.33	99.60	2.39E-01		7.38E-02	1.12E-01
	695.00	99.60	2.26E-01		1.34E-01	1.06E-01
	720.50	53.80	4.23E-01		-2.28E-03	1.97E-01
SN-126	87.57	37.00	2.54E-01	2.54E-01	2.59E-01	1.24E-01
SB-127	473.00	25.00	3.28E+00	3.12E+00	1.50E+00	1.53E+00
	685.20	35.70	3.12E+00		1.39E+00	1.45E+00
	783.80	14.70	8.14E+00		4.57E+00	3.78E+00
I-129	29.78	57.00	3.83E-01	3.83E-01	-8.42E-02	1.83E-01
	33.60	13.20	1.15E+00		9.43E-02	5.47E-01
	39.58	7.52	1.40E+00		4.17E-01	6.69E-01
I-131	284.30	6.05	3.75E+00	2.45E-01	1.62E+00	1.78E+00
	364.48	81.20	2.45E-01		-3.84E-04	1.14E-01
	636.97	7.26	3.95E+00		-4.77E-01	1.83E+00
	722.89	1.80	2.13E+01		4.67E+00	1.00E+01
TE-132	49.72	13.10	9.66E+00	1.32E+00	6.07E+00	4.65E+00
	228.16	88.00	1.32E+00		-7.98E-02	6.32E-01
BA-133	81.00	33.00	1.78E-01	1.26E-01	-7.92E-02	8.58E-02

Analysis Report for 1606067-08

CP-5010 09-15 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BA-133	302.84	17.80	4.36E-01	1.26E-01	3.16E-02	2.07E-01
	356.01	60.00	1.26E-01		3.45E-02	5.92E-02
I-133	529.87	86.30	3.03E+03	3.03E+03	-9.90E+02	1.40E+03
XE-133	81.00	38.00	8.68E-01	8.68E-01	-3.86E-01	4.18E-01
CS-134	563.23	8.38	1.08E+00	1.19E-01	4.00E-01	5.04E-01
	569.32	15.43	5.33E-01		-1.38E-01	2.46E-01
	604.70	97.60	1.19E-01		-1.45E-03	5.60E-02
	795.84	85.40	1.51E-01		-6.22E-03	7.07E-02
	801.93	8.73	1.15E+00		9.75E-02	5.28E-01
CS-135	268.24	16.00	5.25E-01	5.25E-01	-2.60E-02	2.51E-01
I-135	1131.51	22.50	1.09E+14	7.34E+13	2.45E+13	5.01E+13
	1260.41	28.60	7.34E+13		1.87E+13	3.28E+13
	1678.03	9.54	1.74E+14		-7.50E+13	7.30E+13
CS-136	153.22	7.46	1.85E+00	2.06E-01	5.30E-01	8.93E-01
	163.89	4.61	2.99E+00		1.48E+00	1.44E+00
	176.55	13.56	1.08E+00		2.07E-01	5.18E-01
	273.65	12.66	1.12E+00		-2.89E+00	5.34E-01
	340.57	48.50	3.60E-01		-4.09E-01	1.71E-01
	818.50	99.70	2.06E-01		5.07E-02	9.46E-02
	1048.07	79.60	2.53E-01		1.10E-02	1.14E-01
	1235.34	19.70	1.70E+00		7.20E-01	7.92E-01
CS-137	661.65	85.12	1.17E-01	1.17E-01	-7.86E-02	5.46E-02
LA-138	788.74	34.00	3.09E-01	1.62E-01	-5.09E-04	1.43E-01
	1435.80	66.00	1.62E-01		4.76E-02	7.14E-02
CE-139	165.85	80.35	8.85E-02	8.85E-02	-3.33E-02	4.25E-02
BA-140	162.64	6.70	2.07E+00	6.18E-01	1.56E-01	9.98E-01
	304.84	4.50	3.36E+00		-1.84E-01	1.59E+00
	423.70	3.20	4.91E+00		1.07E+00	2.30E+00
	437.55	2.00	7.84E+00		1.56E+00	3.67E+00
	537.32	25.00	6.18E-01		-1.76E-01	2.85E-01
LA-140	328.77	20.50	8.34E-01	2.77E-01	5.13E-01	3.97E-01
	487.03	45.50	3.43E-01		5.02E-02	1.59E-01
	815.85	23.50	9.06E-01		6.90E-02	4.17E-01
	1596.49	95.49	2.77E-01		1.52E-01	1.24E-01
CE-141	145.44	48.40	1.96E-01	1.96E-01	4.86E-02	9.46E-02
CE-143	57.36	11.80	4.02E+02	1.74E+02	-8.29E+01	1.93E+02
	293.26	42.00	1.74E+02		-8.40E+01	8.39E+01
	664.55	5.20	1.53E+03		-1.11E+01	7.16E+02
CE-144	133.54	10.80	6.24E-01	6.24E-01	-1.25E-01	3.01E-01
PM-144	476.78	42.00	1.89E-01	1.04E-01	6.25E-02	8.79E-02
	618.01	98.60	1.04E-01		-2.81E-02	4.86E-02
	696.49	99.49	1.08E-01		4.15E-02	5.03E-02
PM-145	36.85	21.70	5.28E-01	2.79E-01	-3.11E-01	2.52E-01
	37.36	39.70	2.79E-01		-1.64E-01	1.33E-01
	42.30	15.10	6.05E-01		-3.97E-02	2.90E-01
	72.40	2.31	3.02E+00		-4.06E-01	1.46E+00
PM-146	453.90	39.94	2.01E-01	2.01E-01	4.80E-02	9.41E-02
	735.90	14.01	6.98E-01		3.50E-02	3.22E-01
	747.13	13.10	7.70E-01		-5.73E-02	3.56E-01
ND-147	91.11	28.90	7.62E-01	7.62E-01	2.38E-01	3.72E-01
	531.02	13.10	1.27E+00		-5.36E-01	5.86E-01
PM-149	285.90	3.10	1.34E+02	1.34E+02	-7.23E+01	6.32E+01
EU-152	121.78	20.50	2.99E-01	2.99E-01	-2.65E-01	1.44E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	244.69	5.40	1.36E+00	2.99E-01	-1.91E+00	6.50E-01
	344.27	19.13	3.94E-01		-1.49E-01	1.86E-01
	778.89	9.20	1.17E+00		1.44E-01	5.44E-01
	964.01	10.40	1.41E+00		7.39E-01	6.59E-01
	1085.78	7.22	1.71E+00		4.75E-01	7.80E-01
	1112.02	9.60	1.32E+00		-2.78E-03	6.05E-01
	1407.95	14.94	8.35E-01		5.84E-01	3.75E-01
GD-153	97.43	31.30	2.23E-01	2.23E-01	-8.37E-03	1.08E-01
	103.18	22.20	3.18E-01		-2.58E-01	1.54E-01
EU-154	123.07	40.50	1.56E-01	1.56E-01	-6.08E-02	7.53E-02
	723.30	19.70	6.33E-01		1.39E-01	2.97E-01
	873.19	11.50	9.87E-01		3.27E-01	4.55E-01
	996.32	10.30	1.17E+00		2.77E-01	5.36E-01
	1004.76	17.90	5.83E-01		-9.98E-02	2.64E-01
	1274.45	35.50	3.16E-01		-6.21E-02	1.41E-01
EU-155	86.50	30.90	2.90E-01	2.90E-01	1.57E-01	1.42E-01
	105.30	20.70	3.34E-01		6.19E-02	1.62E-01
EU-156	811.77	10.40	1.79E+00	1.79E+00	1.06E-01	8.21E-01
	1153.47	7.20	2.93E+00		-1.95E+00	1.33E+00
	1230.71	8.90	2.73E+00		-2.01E+00	1.25E+00
HO-166M	184.41	72.60	1.25E-01	1.25E-01	1.22E-01	6.07E-02
	280.45	29.60	2.54E-01		1.31E-02	1.21E-01
	410.94	11.10	7.43E-01		3.41E-01	3.50E-01
	711.69	54.10	1.59E-01		-1.09E-01	7.25E-02
TM-171	66.72	0.14	4.75E+01	4.75E+01	3.64E+00	2.29E+01
HF-172	81.75	4.52	1.37E+00	6.01E-01	-1.20E+00	6.63E-01
	125.81	11.30	6.01E-01		3.72E-01	2.90E-01
LU-172	181.53	20.60	1.32E+00	7.08E-01	3.20E-01	6.33E-01
	810.06	16.63	2.25E+00		-4.72E-01	1.03E+00
	912.12	15.25	5.52E+00		1.26E+01	2.65E+00
	1093.66	62.50	7.08E-01		-3.28E-03	3.21E-01
LU-173	100.72	5.24	1.34E+00	4.19E-01	7.91E-01	6.49E-01
	272.11	21.20	4.19E-01		3.35E-01	2.01E-01
HF-175	343.40	84.00	1.01E-01	1.01E-01	-4.21E-02	4.78E-02
LU-176	88.34	13.30	7.06E-01	7.82E-02	7.21E-01	3.45E-01
	201.83	86.00	8.72E-02		1.38E-02	4.19E-02
	306.78	94.00	7.82E-02		-5.80E-03	3.70E-02
TA-182	67.75	41.20	1.77E-01	1.77E-01	3.96E-02	8.57E-02
	1121.30	34.90	5.58E-01		5.60E-01	2.62E-01
	1189.05	16.23	9.50E-01		-8.19E-02	4.37E-01
	1221.41	26.98	5.65E-01		-2.60E-01	2.60E-01
	1231.02	11.44	1.20E+00		-1.17E+00	5.48E-01
IR-192	308.46	29.68	2.76E-01	1.79E-01	1.13E-01	1.31E-01
	468.07	48.10	1.79E-01		-7.23E-03	8.34E-02
HG-203	279.19	77.30	1.32E-01	1.32E-01	1.06E-01	6.29E-02
BI-207	569.67	97.72	8.32E-02	8.32E-02	-2.16E-02	3.84E-02
	1063.62	74.90	1.56E-01		9.36E-02	7.10E-02
+ TL-208	583.14	*	4.50E-01	2.57E-01	1.05E+00	2.14E-01
	860.37		2.72E+00		6.58E-01	1.27E+00
	2614.66	*	2.57E-01		1.46E+00	1.06E-01
BI-210M	262.00	45.00	1.53E-01	1.53E-01	-8.27E-02	7.24E-02
	300.00	23.00	3.73E-01		2.38E-01	1.78E-01
PB-210	46.50	4.25	2.24E+00	2.24E+00	2.24E+00	1.08E+00

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PB-211	404.84	2.90	2.64E+00	2.64E+00	-5.27E-01	1.24E+00
	831.96	2.90	3.96E+00		-5.50E-01	1.83E+00
+ BI-212	727.17 *	11.80	1.10E+00	1.10E+00	1.27E+00	5.18E-01
	1620.62 *	2.75	2.36E+00		1.08E+00	9.24E-01
+ PB-212	238.63 *	44.60	4.02E-01	4.02E-01	1.72E+00	1.97E-01
	300.09 *	3.41	2.02E+00		1.24E+00	9.56E-01
+ BI-214	609.31 *	46.30	3.47E-01	2.35E-01	1.07E+00	1.66E-01
	1120.29 *	15.10	1.12E+00		1.26E+00	5.23E-01
	1764.49 *	15.80	2.35E-01		1.04E+00	7.13E-02
	2204.22 *	4.98	1.57E+00		2.06E+00	6.26E-01
+ PB-214	295.21 *	19.19	4.75E-01	3.31E-01	1.22E+00	2.27E-01
	351.92 *	37.19	3.31E-01		1.21E+00	1.60E-01
RN-219	401.80	6.50	1.15E+00	1.15E+00	-5.35E-03	5.39E-01
RA-223	323.87	3.88	1.94E+00	1.94E+00	8.09E-01	9.16E-01
RA-224	240.98	3.95	3.97E+00	3.97E+00	1.21E+01	1.94E+00
RA-225	40.00	31.00	6.10E-01	6.10E-01	1.82E-01	2.92E-01
+ RA-226	186.21 *	3.28	3.07E+00	3.07E+00	3.82E+00	1.49E+00
TH-227	50.10	8.40	9.26E-01	9.26E-01	5.82E-01	4.46E-01
	236.00	11.50	9.47E-01		-7.42E+00	4.60E-01
	256.20	6.30	1.12E+00		-5.03E-01	5.34E-01
+ AC-228	338.32 *	11.40	1.09E+00	4.32E-01	1.77E+00	5.25E-01
	911.07 *	27.70	4.32E-01		1.85E+00	2.00E-01
	969.11 *	16.60	1.17E+00		1.50E+00	5.56E-01
TH-230	48.44	16.90	4.55E-01	4.55E-01	-6.82E-01	2.19E-01
	62.85	4.60	1.83E+00		3.39E+00	8.87E-01
	67.67	0.37	1.82E+01		4.08E+00	8.82E+00
PA-231	283.67	1.60	4.59E+00	3.36E+00	1.99E+00	2.18E+00
	302.67	2.30	3.36E+00		2.44E-01	1.60E+00
TH-231	25.64	14.70	3.13E+00	1.05E+00	1.26E-01	1.50E+00
	84.21	6.40	1.05E+00		1.08E+00	5.07E-01
PA-233	311.98	38.60	2.37E-01	2.37E-01	-1.10E-01	1.12E-01
PA-234	131.20	20.40	3.76E-01	3.76E-01	4.40E-01	1.82E-01
	733.99	8.80	1.10E+00		3.83E-01	5.09E-01
	946.00	12.00	9.16E-01		3.74E-01	4.19E-01
PA-234M	1001.03	0.92	1.19E+01	1.19E+01	8.44E-01	5.42E+00
+ TH-234	63.29 *	3.80	3.09E+00	3.09E+00	2.63E+00	1.51E+00
U-235	143.76	10.50	6.83E-01	6.83E-01	3.48E-01	3.30E-01
	163.35	4.70	1.46E+00		1.10E-01	7.03E-01
	205.31	4.70	1.54E+00		6.53E-01	7.40E-01
NP-237	86.50	12.60	7.08E-01	7.08E-01	3.83E-01	3.45E-01
NP-239	106.10	22.70	1.41E+01	1.41E+01	2.48E+00	6.84E+00
	228.18	10.70	3.16E+01		-1.91E+00	1.51E+01
	277.60	14.10	2.72E+01		1.26E+01	1.30E+01
AM-241	59.54	35.90	1.86E-01	1.86E-01	-8.89E-02	8.96E-02
AM-243	74.67	66.00	1.44E-01	1.44E-01	-3.75E-01	7.02E-02
+ CM-243	209.75 *	3.29	2.69E+00	6.82E-01	1.80E+00	1.30E+00
	228.14	10.60	6.82E-01		-4.12E-02	3.26E-01
	277.60 *	14.00	1.17E+00		4.46E-01	5.74E-01

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CP-5010 09-15 QC

-
- + = Nuclide identified during the nuclide identification
 - * = Energy line found in the spectrum
 - > = MDA value not calculated
 - @ = Half-life too short to be able to perform the decay correction
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No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

<i>Creation Date</i>	<i>Comment</i>	<i>User</i>
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No Data Review Comments Entered.

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: CP-5010 09-15 QC

Elapsed Live time: 3600

Elapsed Real Time: 3601

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	3	75	783	
9:	1065	693	436	398	2130	141	100	120	
17:	152	99	111	88	66	56	59	63	
25:	52	63	61	55	39	46	56	49	
33:	54	50	50	50	56	42	66	65	
41:	46	57	73	57	53	82	136	54	
49:	69	75	79	62	84	67	69	68	
57:	66	78	79	82	74	96	151	162	
65:	78	76	94	94	96	95	110	108	
73:	102	118	370	128	414	243	80	72	
81:	94	71	95	128	92	78	171	140	
89:	87	156	87	105	232	113	73	61	
97:	59	57	73	64	66	63	61	54	
105:	70	85	49	59	60	59	66	62	
113:	63	52	69	44	50	45	51	50	
121:	43	44	38	54	64	58	48	47	
129:	101	72	69	53	51	49	49	42	
137:	52	52	51	39	49	49	45	74	
145:	58	51	46	52	43	34	55	41	
153:	44	62	41	51	36	46	49	48	
161:	37	54	49	45	36	40	38	45	
169:	44	45	36	34	37	36	49	54	
177:	48	46	35	48	40	44	40	33	
185:	64	162	65	37	42	40	44	36	
193:	38	43	41	38	30	34	39	48	
201:	39	39	42	38	39	40	29	35	
209:	74	64	36	38	40	34	34	39	
217:	37	39	27	28	26	40	33	30	
225:	39	30	27	37	37	31	29	37	
233:	29	41	37	40	32	213	481	52	
241:	73	97	42	39	24	26	21	23	
249:	26	16	21	30	32	20	24	33	
257:	22	33	31	28	15	28	21	28	
265:	29	28	26	23	32	68	43	31	
273:	24	22	25	21	58	33	27	21	
281:	27	24	25	22	26	26	15	18	
289:	28	33	22	21	12	33	141	85	
297:	23	28	24	54	27	24	24	24	
305:	26	23	17	23	21	22	11	23	
313:	17	11	21	12	19	30	20	19	
321:	22	20	30	25	16	15	26	41	
329:	23	19	23	22	18	20	18	21	
337:	26	99	59	16	22	24	15	17	
345:	18	23	22	28	9	14	88	243	
353:	41	21	16	20	15	20	13	15	
361:	19	15	12	11	16	10	9	12	

369: 15 15 21 12 12 14 12 20

Sample Title: CP-5010 09-15 QC

Channel	1	2	3	4	5	6	7	8
377:	17	12	12	17	15	12	12	17
385:	22	20	17	14	24	16	12	15
393:	15	17	15	12	11	21	17	21
401:	13	15	17	9	14	28	10	19
409:	21	23	18	11	16	15	11	7
417:	14	16	11	11	12	15	10	19
425:	11	19	15	13	14	15	14	13
433:	21	9	12	16	15	11	16	6
441:	15	16	9	11	11	10	18	10
449:	17	11	14	9	15	23	15	9
457:	12	12	13	16	10	21	39	16
465:	17	23	13	10	9	6	10	12
473:	17	13	11	5	15	16	14	8
481:	16	15	11	11	5	6	19	16
489:	12	11	9	16	11	8	12	16
497:	7	20	10	11	5	10	6	12
505:	11	16	10	12	22	53	87	25
513:	18	10	5	20	14	10	10	17
521:	5	11	11	9	9	14	14	11
529:	12	7	12	7	7	15	8	11
537:	10	10	9	15	9	9	13	10
545:	8	14	9	13	17	16	9	6
553:	8	8	8	7	14	4	10	8
561:	13	19	14	12	5	6	14	9
569:	8	4	15	15	10	8	10	8
577:	13	14	8	9	11	36	132	48
585:	8	7	6	8	9	10	10	9
593:	17	3	12	14	11	11	13	9
601:	14	14	10	15	10	10	9	26
609:	134	79	17	9	9	8	6	4
617:	7	9	12	19	11	12	17	7
625:	15	14	11	7	12	6	12	11
633:	6	8	7	7	6	8	12	7
641:	10	7	7	1	2	6	12	5
649:	8	7	10	12	5	4	16	21
657:	3	10	3	11	9	11	6	10
665:	12	13	12	16	11	9	9	7
673:	10	5	5	10	11	13	9	8
681:	7	10	12	6	9	11	11	5
689:	5	7	5	11	8	9	8	7
697:	14	9	6	6	5	9	13	11
705:	7	8	9	8	7	7	6	4
713:	2	4	8	9	4	7	7	17
721:	12	9	7	10	9	18	22	21
729:	6	9	7	3	5	9	6	10
737:	7	3	7	8	7	8	5	9
745:	8	7	5	4	6	10	10	6
753:	3	7	13	10	9	6	7	11
761:	12	6	10	5	8	12	11	16
769:	15	6	8	9	13	10	10	11
777:	6	5	7	6	6	12	9	6
785:	9	12	5	7	2	8	6	8
793:	6	16	23	12	4	6	6	6

801: 7 5 10 6 2 7 5 8

Sample Title: CP-5010 09-15 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	3	6	5	9	3	10	6	6
817:	3	10	8	4	7	4	4	5
825:	10	8	7	4	6	6	11	8
833:	10	7	6	17	5	9	5	13
841:	15	3	3	7	8	9	7	7
849:	3	4	2	5	8	6	8	8
857:	3	5	3	20	15	6	6	6
865:	6	5	3	4	4	8	8	7
873:	6	8	4	7	5	7	5	2
881:	7	10	3	8	4	6	8	4
889:	3	7	2	3	7	7	4	6
897:	3	6	7	10	6	5	3	4
905:	8	1	1	5	10	30	91	33
913:	6	4	5	6	4	2	5	2
921:	0	5	5	5	5	2	4	3
929:	5	5	10	2	8	6	7	2
937:	3	5	7	5	7	2	10	7
945:	7	4	4	4	3	7	9	12
953:	5	5	7	6	1	2	6	9
961:	7	7	4	19	20	7	6	39
969:	43	22	5	6	8	4	5	2
977:	8	6	6	7	2	9	2	4
985:	8	6	3	9	6	5	8	7
993:	5	7	7	5	5	5	9	4
1001:	2	6	6	3	4	5	5	4
1009:	4	6	2	4	6	4	6	4
1017:	1	6	1	7	8	6	8	2
1025:	6	3	7	4	8	5	7	4
1033:	4	7	2	8	6	2	6	6
1041:	8	7	4	6	3	2	6	3
1049:	3	5	5	2	3	8	4	5
1057:	3	6	3	6	3	10	2	1
1065:	8	6	1	1	5	8	7	6
1073:	5	4	4	3	2	10	4	6
1081:	6	4	7	7	4	6	4	7
1089:	4	2	5	6	3	5	5	7
1097:	2	6	8	6	7	6	4	5
1105:	7	5	7	6	8	9	4	7
1113:	4	5	3	9	2	8	19	32
1121:	10	3	7	5	6	5	2	5
1129:	3	8	5	5	8	7	7	5
1137:	15	6	4	9	5	2	5	6
1145:	2	8	11	4	9	5	6	7
1153:	4	3	4	2	8	7	4	2
1161:	4	8	9	3	6	6	3	8
1169:	7	6	3	3	2	11	2	2
1177:	7	2	2	7	2	7	5	8
1185:	7	3	6	4	10	8	7	8
1193:	6	7	5	2	9	8	10	4
1201:	7	7	6	9	4	12	4	10
1209:	3	3	5	4	6	4	7	7
1217:	5	7	9	4	5	5	4	9
1225:	10	10	8	3	2	2	5	11

1233: 7 4 11 7 9 13 9 9

Sample Title: CP-5010 09-15 QC

Channel	1	2	3	4	5	6	7	8	9
1241:	6	6	6	13	8	8	4	5	
1249:	1	5	7	7	4	4	3	2	
1257:	0	2	4	7	4	2	5	1	
1265:	4	4	3	3	2	9	1	1	
1273:	8	6	2	2	4	3	3	8	
1281:	5	2	5	2	1	4	6	8	
1289:	1	6	4	5	11	4	3	3	
1297:	2	4	3	9	5	2	5	3	
1305:	2	1	5	6	8	6	3	7	
1313:	1	4	5	5	1	6	4	1	
1321:	4	4	4	5	4	3	6	5	
1329:	0	5	2	1	3	6	3	4	
1337:	1	0	2	1	2	5	2	0	
1345:	5	2	2	5	2	5	0	1	
1353:	1	4	4	4	7	6	5	2	
1361:	1	0	1	1	3	5	3	1	
1369:	0	3	1	0	6	1	2	2	
1377:	7	3	2	3	2	2	1	2	
1385:	8	4	3	4	1	4	3	1	
1393:	1	4	2	0	1	2	1	1	
1401:	4	1	0	3	1	4	10	3	
1409:	3	2	2	1	4	1	0	4	
1417:	2	4	3	2	2	2	0	2	
1425:	2	4	2	2	3	2	4	5	
1433:	1	2	0	2	4	4	0	1	
1441:	2	1	1	6	2	3	1	2	
1449:	3	3	1	1	2	2	2	4	
1457:	2	6	50	207	227	80	5	2	
1465:	1	0	1	2	1	3	1	2	
1473:	3	0	1	1	1	6	3	0	
1481:	1	4	1	1	1	1	2	3	
1489:	0	2	0	2	2	1	3	4	
1497:	3	0	1	1	3	1	2	2	
1505:	0	2	1	0	5	1	1	4	
1513:	2	1	2	0	0	0	0	2	
1521:	2	0	1	3	0	1	0	3	
1529:	2	0	2	1	1	3	3	0	
1537:	0	1	0	0	0	6	2	0	
1545:	1	1	0	2	0	1	0	1	
1553:	1	3	0	0	2	1	2	2	
1561:	4	1	3	2	1	2	1	1	
1569:	0	0	1	1	0	1	2	1	
1577:	0	0	3	2	4	1	5	1	
1585:	1	3	3	9	4	2	3	3	
1593:	3	2	2	3	3	3	2	3	
1601:	0	0	2	0	1	0	0	3	
1609:	0	0	0	0	0	1	3	3	
1617:	1	1	0	6	3	1	0	2	
1625:	3	2	1	0	2	3	3	1	
1633:	0	1	1	2	2	2	1	1	
1641:	1	0	0	1	1	0	1	1	
1649:	0	0	0	2	2	2	1	0	
1657:	0	1	1	3	4	3	0	2	

1665: 0 0 2 0 3 1 1 2

Sample Title: CP-5010 09-15 QC

Channel	1	2	3	4	5	6	7	8
1673:	1	1	2	1	1	0	1	1
1681:	1	2	2	2	1	2	0	1
1689:	0	0	1	0	1	1	0	1
1697:	0	2	2	0	1	0	0	2
1705:	1	1	0	1	1	2	0	2
1713:	1	0	2	0	0	0	1	1
1721:	0	1	2	0	0	1	3	3
1729:	6	3	1	3	0	0	2	1
1737:	0	1	0	1	0	1	1	0
1745:	1	1	1	0	1	0	2	0
1753:	1	1	2	1	2	0	0	0
1761:	1	1	4	11	9	4	1	0
1769:	0	0	0	1	1	1	1	1
1777:	0	1	1	1	2	0	0	1
1785:	0	0	1	0	1	1	1	0
1793:	1	0	2	0	0	0	2	2
1801:	0	4	1	1	1	1	0	1
1809:	0	1	0	0	0	1	1	1
1817:	1	1	2	1	1	2	2	0
1825:	1	0	1	2	0	0	2	1
1833:	2	0	0	0	0	1	0	1
1841:	1	0	1	2	3	0	3	0
1849:	3	1	0	3	1	1	1	2
1857:	0	2	2	2	0	2	1	1
1865:	1	2	0	2	1	0	2	0
1873:	2	0	0	2	0	2	0	0
1881:	1	1	0	0	0	1	2	0
1889:	2	3	0	0	1	1	0	3
1897:	2	2	1	0	0	1	0	0
1905:	1	0	0	1	1	1	1	0
1913:	1	0	0	1	0	2	0	0
1921:	1	0	0	0	0	1	1	2
1929:	4	1	1	3	0	1	0	3
1937:	1	2	0	1	0	0	0	0
1945:	0	1	1	0	1	2	0	1
1953:	0	0	1	1	2	1	1	0
1961:	1	1	0	0	1	0	2	0
1969:	1	1	1	0	0	1	0	1
1977:	1	0	0	0	1	0	0	1
1985:	0	0	0	2	0	0	1	0
1993:	1	1	1	0	1	1	1	0
2001:	0	1	2	0	0	3	0	0
2009:	1	2	0	0	1	1	2	1
2017:	0	1	1	2	0	1	0	1
2025:	2	0	1	0	2	1	3	2
2033:	3	1	1	1	4	3	0	2
2041:	3	1	0	1	3	0	0	1
2049:	0	0	0	1	1	0	1	1
2057:	1	0	0	1	0	2	0	0
2065:	0	0	1	0	0	2	0	1
2073:	1	1	2	0	0	1	1	0
2081:	1	0	1	3	0	1	0	0
2089:	1	0	0	0	1	0	1	1

2097: 3 1 0 1 2 3 5 3

Sample Title: CP-5010 09-15 QC

Channel	1	2	3	4	5	6	7	8
2105:	0	2	0	0	0	3	1	2
2113:	0	1	1	0	1	5	1	1
2121:	1	0	0	0	3	1	3	0
2129:	1	0	1	1	0	0	0	2
2137:	1	1	0	1	2	0	0	1
2145:	0	0	0	0	0	1	3	1
2153:	1	4	0	1	1	0	0	2
2161:	2	0	0	1	0	2	0	1
2169:	0	0	1	2	0	1	1	0
2177:	1	0	1	0	1	0	1	1
2185:	1	0	1	1	0	1	0	1
2193:	1	0	1	0	1	1	0	2
2201:	1	2	7	4	1	1	0	0
2209:	1	0	0	0	2	1	1	0
2217:	0	0	0	1	0	0	1	0
2225:	0	0	2	1	0	0	0	1
2233:	1	0	0	1	0	0	0	1
2241:	0	1	0	1	0	2	0	1
2249:	0	3	1	3	0	3	1	3
2257:	2	1	3	1	0	1	1	0
2265:	1	4	1	0	1	2	1	1
2273:	0	1	4	0	0	3	2	1
2281:	1	0	1	1	0	2	0	1
2289:	0	1	1	3	1	1	1	2
2297:	2	0	4	0	0	0	2	1
2305:	0	0	0	1	1	0	0	0
2313:	2	1	0	2	0	0	0	2
2321:	0	1	2	1	1	1	0	1
2329:	2	2	2	0	0	0	1	1
2337:	0	1	1	2	1	1	2	3
2345:	1	2	1	1	1	2	0	1
2353:	0	0	3	2	3	0	0	2
2361:	2	1	1	0	0	0	2	2
2369:	3	2	0	0	1	2	0	1
2377:	2	0	1	0	2	0	0	0
2385:	1	2	2	1	2	1	1	1
2393:	0	0	0	2	0	2	1	1
2401:	1	0	2	0	1	0	1	0
2409:	1	1	0	0	2	1	2	0
2417:	2	1	2	2	0	2	0	2
2425:	1	0	1	0	0	2	0	0
2433:	0	3	1	0	0	2	2	0
2441:	0	0	1	0	2	0	1	4
2449:	2	0	0	0	2	0	2	1
2457:	2	0	0	1	1	0	1	0
2465:	0	0	0	0	1	0	0	0
2473:	0	0	0	0	2	0	0	2
2481:	0	1	0	1	0	1	0	2
2489:	0	0	0	1	0	0	1	1
2497:	0	0	1	0	1	0	0	0
2505:	0	0	0	1	0	0	0	0
2513:	0	1	0	0	1	0	0	0
2521:	0	0	0	0	0	2	0	0

2529: 0 0 0 0 0 1 0 0

Sample Title: CP-5010 09-15 QC

Channel	1	2	3	4	5	6	7	8
2537:	0	0	0	1	0	0	0	1
2545:	0	0	0	0	1	1	0	1
2553:	0	0	0	0	0	0	0	0
2561:	0	0	0	1	0	0	1	0
2569:	0	0	1	0	0	0	0	1
2577:	0	0	0	1	0	0	0	0
2585:	0	0	1	2	0	0	1	0
2593:	0	0	0	1	1	0	0	0
2601:	0	1	0	1	0	0	2	0
2609:	0	1	3	9	20	40	15	5
2617:	1	1	0	0	0	0	0	0
2625:	0	0	0	0	1	0	0	0
2633:	0	0	0	0	0	0	0	0
2641:	0	0	0	0	0	0	0	0
2649:	1	0	0	0	0	2	0	0
2657:	1	1	2	0	0	1	0	0
2665:	0	0	0	1	0	1	0	1
2673:	1	1	0	0	0	1	0	0
2681:	0	1	1	0	0	0	0	2
2689:	0	0	0	0	0	0	1	1
2697:	0	1	0	0	1	0	1	1
2705:	0	1	0	1	0	0	2	0
2713:	0	0	0	1	0	0	0	0
2721:	0	1	0	0	0	0	1	1
2729:	0	1	0	0	0	1	0	0
2737:	0	1	0	0	0	0	0	0
2745:	0	0	0	0	1	0	0	0
2753:	2	1	0	1	0	0	0	1
2761:	1	0	1	1	0	0	0	0
2769:	1	0	0	0	0	0	1	0
2777:	0	0	0	0	0	1	0	0
2785:	0	1	0	0	1	0	0	0
2793:	0	0	0	1	0	1	0	1
2801:	0	0	1	0	0	0	1	0
2809:	0	0	0	0	0	0	0	1
2817:	2	0	0	0	0	0	0	0
2825:	0	1	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	0	1	0	1
2849:	0	0	0	0	0	1	0	0
2857:	1	0	0	0	0	0	0	0
2865:	0	0	0	3	0	0	0	0
2873:	1	0	0	0	0	1	0	0
2881:	0	0	1	0	1	1	0	0
2889:	0	1	0	0	0	0	0	0
2897:	0	1	0	1	0	0	0	0
2905:	0	0	1	1	1	0	0	2
2913:	0	1	0	0	0	0	0	0
2921:	0	0	0	0	1	0	0	1
2929:	1	1	0	1	0	1	0	0
2937:	0	1	1	0	1	0	0	1
2945:	1	0	0	0	2	0	0	0
2953:	0	0	0	0	0	1	1	1

2961: 1 0 1 1 2 1 0 0

Sample Title: CP-5010 09-15 QC

Channel	1	2	3	4	5	6	7	8
2969:	0	0	0	0	0	1	1	0
2977:	0	0	2	0	1	0	0	0
2985:	0	1	0	0	0	0	0	0
2993:	0	0	0	1	0	1	1	0
3001:	0	0	0	0	0	0	0	0
3009:	0	2	1	1	1	0	0	0
3017:	0	0	1	0	0	0	0	0
3025:	0	0	0	0	0	0	0	0
3033:	0	0	0	0	0	1	0	0
3041:	0	0	0	0	0	1	0	0
3049:	0	0	0	1	0	0	1	0
3057:	0	0	1	0	0	0	0	1
3065:	0	0	0	0	0	0	0	0
3073:	0	0	0	0	1	0	0	1
3081:	0	0	1	0	0	0	0	0
3089:	0	0	0	0	0	0	0	0
3097:	0	0	0	0	0	0	1	0
3105:	0	0	1	1	1	0	0	0
3113:	0	0	0	0	1	0	0	0
3121:	1	0	0	0	0	0	0	0
3129:	0	0	0	0	0	0	0	1
3137:	0	2	0	0	0	0	0	1
3145:	1	0	0	0	0	0	0	0
3153:	0	1	0	0	1	0	0	0
3161:	0	0	0	1	0	0	0	1
3169:	0	0	0	0	0	0	0	0
3177:	1	0	0	1	0	0	2	0
3185:	0	0	0	0	0	0	0	0
3193:	0	0	0	1	0	0	0	0
3201:	0	0	0	0	0	0	0	0
3209:	1	0	0	1	1	0	0	0
3217:	0	0	0	0	0	0	1	0
3225:	0	0	0	0	0	0	0	1
3233:	1	0	0	0	0	0	0	0
3241:	1	0	1	0	1	0	0	0
3249:	0	0	0	0	0	0	0	0
3257:	1	0	0	0	0	0	0	0
3265:	0	1	0	0	0	0	0	1
3273:	1	0	0	0	0	0	0	0
3281:	0	0	0	0	1	0	0	0
3289:	0	0	0	0	0	0	1	0
3297:	0	0	0	0	0	0	0	0
3305:	0	0	0	0	0	0	0	1
3313:	0	0	0	0	0	0	0	0
3321:	0	0	1	0	0	0	0	1
3329:	0	0	0	0	0	0	1	1
3337:	0	0	0	0	0	2	1	0
3345:	0	0	1	0	0	0	0	0
3353:	0	0	0	0	0	0	0	0
3361:	0	0	1	0	0	0	0	0
3369:	0	0	0	0	0	0	0	0
3377:	1	1	0	0	1	0	0	1
3385:	0	0	0	0	0	0	0	0

3393: 0 1 0 0 0 0 0 0 0

Sample Title: CP-5010 09-15 QC

Channel	1	2	3	4	5	6	7	8	9
3401:	0	1	0	0	0	0	0	0	0
3409:	0	0	0	1	1	0	0	0	0
3417:	0	0	0	0	1	0	1	0	0
3425:	0	0	1	0	0	1	0	0	0
3433:	0	0	0	0	0	0	0	0	0
3441:	0	0	0	1	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0	0
3457:	0	0	0	1	0	0	0	0	0
3465:	1	0	1	0	0	0	0	0	0
3473:	0	0	1	0	0	0	0	0	0
3481:	0	0	0	1	0	0	0	0	0
3489:	0	0	0	0	0	1	0	0	0
3497:	0	0	0	0	0	1	0	0	0
3505:	0	1	0	0	1	0	0	0	0
3513:	0	0	0	0	0	0	0	1	0
3521:	0	1	0	1	1	0	0	1	0
3529:	0	1	0	0	0	0	0	0	0
3537:	0	0	0	0	0	1	1	0	0
3545:	0	1	0	0	0	0	0	0	0
3553:	0	0	0	0	0	0	1	0	0
3561:	0	0	0	0	1	0	0	0	0
3569:	0	0	0	0	0	0	1	0	0
3577:	0	0	0	1	1	0	0	0	0
3585:	0	0	0	0	0	0	0	0	0
3593:	0	0	1	0	1	0	1	0	0
3601:	0	0	1	0	0	0	0	0	0
3609:	0	0	0	0	0	0	0	0	0
3617:	0	0	0	0	0	0	0	1	0
3625:	0	0	0	0	0	0	1	0	0
3633:	0	0	1	0	0	0	0	1	0
3641:	0	0	0	0	0	0	0	0	0
3649:	0	0	0	0	0	0	0	0	0
3657:	0	0	0	0	0	0	1	1	0
3665:	0	0	0	1	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0	0
3681:	0	0	0	0	0	0	0	0	0
3689:	1	0	3	1	0	0	1	0	0
3697:	0	0	0	0	0	0	0	0	0
3705:	1	0	0	0	0	0	0	0	0
3713:	0	0	0	0	0	0	0	0	0
3721:	0	0	0	0	0	0	0	0	0
3729:	0	0	0	0	0	1	0	0	0
3737:	0	0	0	0	0	0	0	0	0
3745:	0	0	0	0	0	0	0	0	0
3753:	0	0	0	0	0	0	0	0	0
3761:	0	0	0	0	0	0	0	0	0
3769:	0	0	0	1	0	0	0	0	0
3777:	0	0	1	0	0	1	1	0	0
3785:	0	0	0	0	1	0	0	0	0
3793:	0	0	1	0	1	0	0	0	0
3801:	0	0	0	0	0	0	1	1	0
3809:	0	1	0	0	0	0	1	0	0
3817:	0	0	0	0	0	0	0	0	0

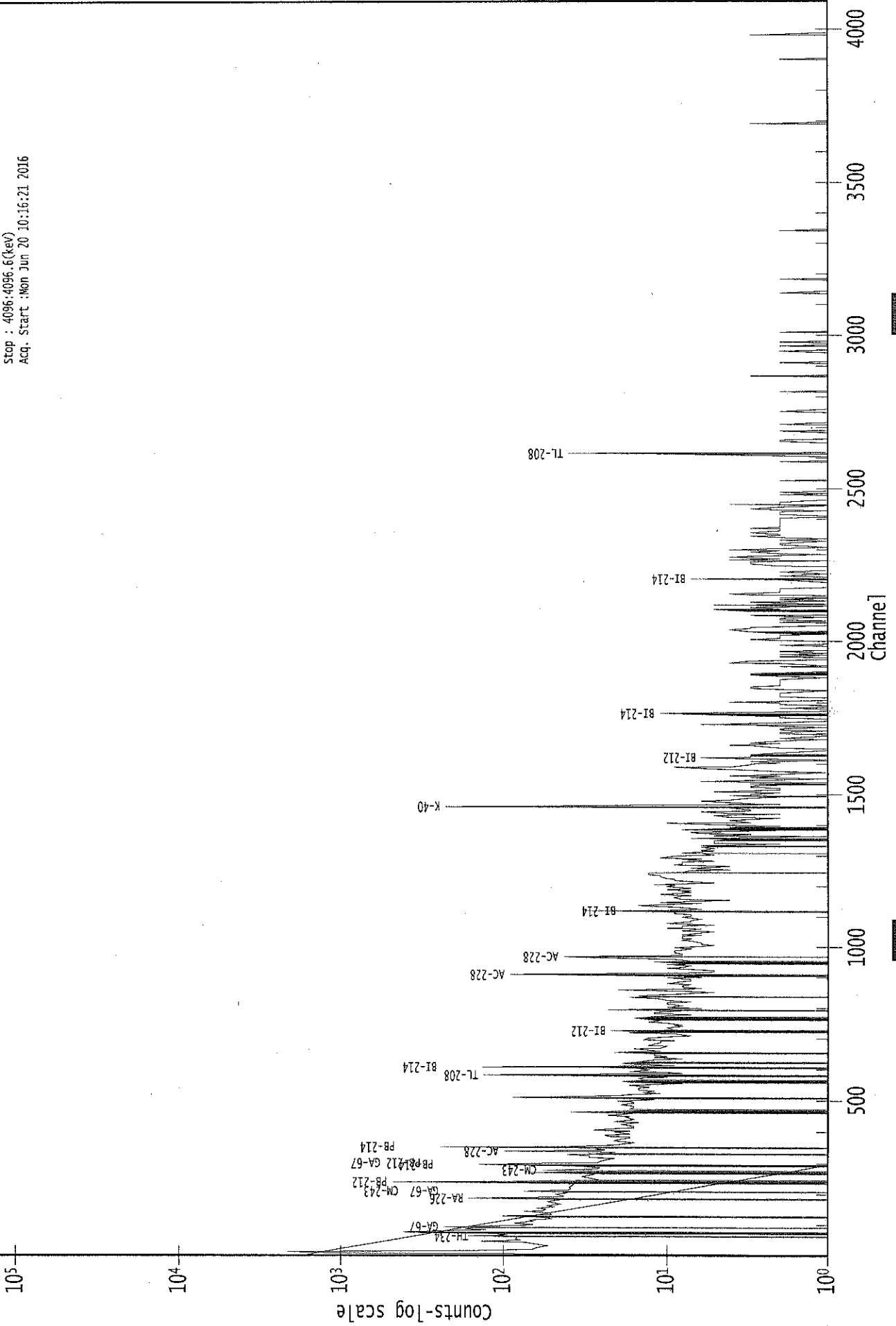
3825: 0 0 0 0 1 0 0 0

Sample Title: CP-5010 09-15 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	1	0	0	0	1	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	1	0
3857:	0	0	0	0	0	0	0	1
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	1	0	0	1	0	0	0
3889:	1	0	1	0	0	0	0	0
3897:	0	0	1	1	0	2	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	1
3921:	0	1	0	0	1	0	0	0
3929:	0	0	0	1	0	0	0	0
3937:	0	0	0	0	0	0	0	0
3945:	1	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	3	0	0	0
3985:	0	0	0	1	0	0	0	0
3993:	0	1	0	0	0	0	0	0
4001:	0	0	0	0	0	0	1	1
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	0
4025:	1	0	1	0	0	0	0	1
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	1	0	0	0	0	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	1	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000039151.CNF

Live Time : 3600.000 sec
Real Time : 3601.380 sec
Start : 1: 0.9(keV)
Stop : 4096.4096.6(keV)
Acq. Start : Mon Jun 20 10:16:21 2016



*Web
6/20/16*Analysis Report for 1606067-09
CP-5012 09-15 QC

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606067-09
Sample Description : CP-5012 09-15 QC
Sample Type : SOIL

Sample Size : 2.595E+02 grams
Facility : Countroom

Sample Taken On : 6/7/2016 9:16:34AM
Acquisition Started : 6/20/2016 10:16:31AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE3
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3613.7 seconds

Dead Time : 0.38 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 9 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 10/25/2014
Efficiency Calibration Used Done On : 10/25/2014
Efficiency Calibration Description :

Sample Number : 39152

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

*Ag
6/20/16*

Analysis Report for 1606067-09

CP-5012 09-15 QC

PEAK LOCATE REPORT

Peak Locate Performed on : 6/20/2016 11:16:56AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096
 Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.72	46.95	0.0000	0.00
2	70.47	70.68	0.0000	0.00
3	74.81	75.03	0.0000	0.00
4	77.45	77.66	0.0000	0.00
5	88.30	88.51	0.0000	0.00
6	92.82	93.03	0.0000	0.00
7	129.27	129.46	0.0000	0.00
8	153.56	153.73	0.0000	0.00
9	186.15	186.31	0.0000	0.00
10	238.88	239.01	0.0000	0.00
11	242.05	242.17	0.0000	0.00
12	270.75	270.86	0.0000	0.00
13	295.53	295.63	0.0000	0.00
14	301.17	301.27	0.0000	0.00
15	338.50	338.58	0.0000	0.00
16	346.52	346.60	0.0000	0.00
17	352.25	352.32	0.0000	0.00
18	409.75	409.79	0.0000	0.00
19	462.53	462.54	0.0000	0.00
20	477.03	477.04	0.0000	0.00
21	511.43	511.43	0.0000	0.00
22	583.39	583.35	0.0000	0.00
23	609.86	609.80	0.0000	0.00
24	727.08	726.97	0.0000	0.00
25	767.93	767.80	0.0000	0.00
26	785.49	785.35	0.0000	0.00
27	794.90	794.76	0.0000	0.00
28	825.18	825.03	0.0000	0.00
29	861.42	861.25	0.0000	0.00
30	911.35	911.16	0.0000	0.00
31	968.63	968.41	0.0000	0.00
32	1079.20	1078.93	0.0000	0.00
33	1121.58	1121.29	0.0000	0.00
34	1238.48	1238.14	0.0000	0.00
35	1244.28	1243.94	0.0000	0.00
36	1254.34	1254.00	0.0000	0.00
37	1375.02	1374.63	0.0000	0.00
38	1448.80	1448.39	0.0000	0.00
39	1461.07	1460.65	0.0000	0.00
40	1588.44	1587.98	0.0000	0.00
41	1594.50	1594.03	0.0000	0.00
42	1654.46	1653.97	0.0000	0.00

Analysis Report for 1606067-09
CP-5012 09-15 QC

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1661.90	1661.40	0.0000	0.00
44	1712.60	1712.09	0.0000	0.00
45	1728.81	1728.30	0.0000	0.00
46	1764.54	1764.01	0.0000	0.00
47	2103.73	2103.10	0.0000	0.00
48	2203.74	2203.07	0.0000	0.00
49	2291.29	2290.60	0.0000	0.00
50	2412.66	2411.93	0.0000	0.00
51	2614.66	2613.88	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606067-09

CP-5012 09-15 QC

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 11:16:56AM

 Peak Analysis From Channel : 1
 Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.72	43 -	49	46.95	1.21E+02	68.93	7.75E+02	1.42
m	2	70.47	56 -	81	70.68	7.23E+01	57.51	5.87E+02	1.82
m	3	74.81	56 -	81	75.03	4.07E+02	91.91	8.61E+02	2.21
m	4	77.45	56 -	81	77.66	5.90E+02	78.76	6.32E+02	1.74
M	5	88.30	82 -	102	88.51	1.96E+02	68.60	7.04E+02	2.04
m	6	92.82	82 -	102	93.03	3.11E+02	70.10	6.20E+02	2.05
	7	129.27	125 -	133	129.46	6.53E+01	76.10	8.51E+02	1.56
	8	153.56	150 -	157	153.73	7.58E+01	59.93	5.40E+02	2.07
	9	186.15	183 -	190	186.31	1.30E+02	59.80	5.13E+02	1.70
M	10	238.88	233 -	249	239.01	6.48E+02	62.54	2.68E+02	1.89
m	11	242.05	233 -	249	242.17	1.20E+02	61.83	2.36E+02	1.89
	12	270.75	268 -	274	270.86	5.14E+01	41.81	2.81E+02	1.69
M	13	295.53	290 -	308	295.63	1.87E+02	39.94	1.73E+02	2.14
m	14	301.17	290 -	308	301.27	4.71E+01	33.93	1.81E+02	2.15
M	15	338.50	335 -	356	338.58	1.42E+02	39.61	1.92E+02	2.19
m	16	346.52	335 -	356	346.60	2.63E+01	33.54	1.86E+02	2.17
m	17	352.25	335 -	356	352.32	2.65E+02	44.10	1.80E+02	2.20
	18	409.75	404 -	415	409.79	7.12E+01	48.46	2.58E+02	2.06
	19	462.53	459 -	466	462.54	4.42E+01	31.43	1.34E+02	1.55
	20	477.03	473 -	481	477.04	4.10E+01	32.24	1.34E+02	1.46
	21	511.43	505 -	516	511.43	1.18E+02	46.90	2.16E+02	2.94
	22	583.39	579 -	588	583.35	1.28E+02	40.35	1.59E+02	1.98
	23	609.86	605 -	615	609.80	2.09E+02	44.62	1.54E+02	1.90
	24	727.08	724 -	731	726.97	4.50E+01	28.35	1.04E+02	3.05
	25	767.93	764 -	771	767.80	2.24E+01	23.83	7.91E+01	1.65
	26	785.49	780 -	790	785.35	2.30E+01	28.78	9.60E+01	1.17
	27	794.90	791 -	801	794.76	3.98E+01	29.43	9.65E+01	3.17
	28	825.18	823 -	827	825.03	1.61E+01	13.36	2.58E+01	2.69
	29	861.42	857 -	865	861.25	3.03E+01	24.08	6.75E+01	2.38
	30	911.35	908 -	915	911.16	1.09E+02	31.18	9.24E+01	2.01
	31	968.63	964 -	972	968.41	7.96E+01	30.55	9.47E+01	1.54
	32	1079.20	1075 -	1083	1078.93	2.51E+01	19.76	4.37E+01	4.04
	33	1121.58	1117 -	1127	1121.29	3.81E+01	31.32	1.12E+02	1.91
	34	1238.48	1234 -	1241	1238.14	2.78E+01	22.18	6.24E+01	2.57
M	35	1244.28	1242 -	1260	1243.94	1.83E+01	12.49	2.40E+01	2.61
m	36	1254.34	1242 -	1260	1254.00	1.48E+01	17.41	4.20E+01	2.33
	37	1375.02	1369 -	1381	1374.63	2.00E+01	20.33	3.99E+01	9.97
	38	1448.80	1442 -	1452	1448.39	1.25E+01	15.85	2.50E+01	6.92
	39	1461.07	1456 -	1464	1460.65	3.73E+02	40.46	2.26E+01	2.11
M	40	1588.44	1585 -	1598	1587.98	8.86E+00	9.84	1.20E+01	3.61

Analysis Report for 1606067-09

CP-5012 09-15 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	1594.50	1585 -	1598	1594.03	8.50E+00	10.81	1.08E+01	3.61
	42	1654.46	1651 -	1657	1653.97	7.06E+00	6.95	3.89E+00	1.52
	43	1661.90	1658 -	1664	1661.40	8.45E+00	7.23	3.10E+00	2.55
	44	1712.60	1710 -	1715	1712.09	7.11E+00	6.71	3.78E+00	1.90
	45	1728.81	1724 -	1731	1728.30	8.33E+00	8.94	7.33E+00	2.34
	46	1764.54	1759 -	1767	1764.01	4.15E+01	14.98	9.00E+00	2.86
	47	2103.73	2100 -	2106	2103.10	9.50E+00	8.75	7.00E+00	4.11
	48	2203.74	2199 -	2208	2203.07	9.60E+00	10.49	1.08E+01	5.78
	49	2291.29	2287 -	2292	2290.60	5.00E+00	4.47	0.00E+00	1.70
	50	2412.66	2407 -	2414	2411.93	4.50E+00	6.32	3.00E+00	2.70
	51	2614.66	2609 -	2617	2613.88	6.50E+01	16.12	0.00E+00	2.88

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 11:16:56AM

Peak Analysis From Channel : 1
Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.72	43 -	49	1.21E+02	68.93	7.75E+02	5.37E+01
m	2	70.47	56 -	81	7.23E+01	57.51	5.87E+02	3.98E+01
m	3	74.81	56 -	81	4.07E+02	91.91	8.61E+02	4.82E+01
m	4	77.45	56 -	81	5.90E+02	78.76	6.32E+02	4.13E+01
M	5	88.30	82 -	102	1.96E+02	68.60	7.04E+02	4.36E+01
m	6	92.82	82 -	102	3.11E+02	70.10	6.20E+02	4.09E+01
	7	129.27	125 -	133	6.53E+01	76.10	8.51E+02	6.11E+01
	8	153.56	150 -	157	7.58E+01	59.93	5.40E+02	4.71E+01
	9	186.15	183 -	190	1.30E+02	59.80	5.13E+02	4.55E+01
M	10	238.88	233 -	249	6.48E+02	62.54	2.68E+02	2.69E+01
m	11	242.05	233 -	249	1.20E+02	61.83	2.36E+02	2.53E+01
	12	270.75	268 -	274	5.14E+01	41.81	2.81E+02	3.23E+01
M	13	295.53	290 -	308	1.87E+02	39.94	1.73E+02	2.16E+01
m	14	301.17	290 -	308	4.71E+01	33.93	1.81E+02	2.21E+01
M	15	338.50	335 -	356	1.42E+02	39.61	1.92E+02	2.28E+01
m	16	346.52	335 -	356	2.63E+01	33.54	1.86E+02	2.24E+01
m	17	352.25	335 -	356	2.65E+02	44.10	1.80E+02	2.21E+01

: 00545

Analysis Report for 1606067-09

CP-5012 09-15 QC

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level	
18	409.75	404 -	415	7.12E+01	48.46	2.58E+02	3.73E+01	
19	462.53	459 -	466	4.42E+01	31.43	1.34E+02	1.22E+01	
20	477.03	473 -	481	4.10E+01	32.24	1.34E+02	2.43E+01	
21	511.43	505 -	516	1.18E+02	46.90	2.16E+02	3.42E+01	
22	583.39	579 -	588	1.28E+02	40.35	1.59E+02	2.75E+01	
23	609.86	605 -	615	2.09E+02	44.62	1.54E+02	2.79E+01	
24	727.08	724 -	731	4.50E+01	28.35	1.04E+02	2.05E+01	
25	767.93	764 -	771	2.24E+01	23.83	7.91E+01	1.80E+01	
26	785.49	780 -	790	2.30E+01	28.78	9.60E+01	2.23E+01	
27	794.90	791 -	801	3.98E+01	29.43	9.65E+01	2.19E+01	
28	825.18	823 -	827	1.61E+01	13.36	2.58E+01	8.78E+00	
29	861.42	857 -	865	3.03E+01	24.08	6.75E+01	1.76E+01	
30	911.35	908 -	915	1.09E+02	31.18	9.24E+01	1.90E+01	
31	968.63	964 -	972	7.96E+01	30.55	9.47E+01	2.04E+01	
32	1079.20	1075 -	1083	2.51E+01	19.76	4.37E+01	1.40E+01	
33	1121.58	1117 -	1127	3.81E+01	31.32	1.12E+02	2.37E+01	
34	1238.48	1234 -	1241	2.78E+01	22.18	6.24E+01	1.60E+01	
M	35	1244.28	1242 -	1260	1.83E+01	12.49	2.40E+01	8.05E+00
m	36	1254.34	1242 -	1260	1.48E+01	17.41	4.20E+01	1.07E+01
	37	1375.02	1369 -	1381	2.00E+01	20.33	3.99E+01	1.50E+01
	38	1448.80	1442 -	1452	1.25E+01	15.85	2.50E+01	1.17E+01
	39	1461.07	1456 -	1464	3.73E+02	40.46	2.26E+01	9.95E+00
M	40	1588.44	1585 -	1598	8.86E+00	9.84	1.20E+01	5.69E+00
m	41	1594.50	1585 -	1598	8.50E+00	10.81	1.08E+01	5.41E+00
	42	1654.46	1651 -	1657	7.06E+00	6.95	3.89E+00	3.68E+00
	43	1661.90	1658 -	1664	8.45E+00	7.23	3.10E+00	3.53E+00
	44	1712.60	1710 -	1715	7.11E+00	6.71	3.78E+00	3.34E+00
	45	1728.81	1724 -	1731	8.33E+00	8.94	7.33E+00	5.62E+00
	46	1764.54	1759 -	1767	4.15E+01	14.98	9.00E+00	6.29E+00
	47	2103.73	2100 -	2106	9.50E+00	8.75	7.00E+00	5.10E+00
	48	2203.74	2199 -	2208	9.60E+00	10.49	1.08E+01	6.96E+00
	49	2291.29	2287 -	2292	5.00E+00	4.47	0.00E+00	0.00E+00
	50	2412.66	2407 -	2414	4.50E+00	6.32	3.00E+00	3.86E+00
	51	2614.66	2609 -	2617	6.50E+01	16.12	0.00E+00	0.00E+00

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

Analysis Report for 1606067-09

CP-5012 09-15 QC

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/20/2016 11:16:56AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m 1	46.72	43 -	49	46.95	1.21E+02	68.93	7.75E+02	PB-210
m 2	70.47	56 -	81	70.68	7.23E+01	57.51	5.87E+02	.....
m 3	74.81	56 -	81	75.03	4.07E+02	91.91	8.61E+02	AM-243
m 4	77.45	56 -	81	77.66	5.90E+02	78.76	6.32E+02	TI-44
M 5	88.30	82 -	102	88.51	1.96E+02	68.60	7.04E+02	LU-176 CD-109 SN-126
m 6	92.82	82 -	102	93.03	3.11E+02	70.10	6.20E+02	GA-67
7	129.27	125 -	133	129.46	6.53E+01	76.10	8.51E+02	.....
8	153.56	150 -	157	153.73	7.58E+01	59.93	5.40E+02	CS-136
9	186.15	183 -	190	186.31	1.30E+02	59.80	5.13E+02	RA-226
M 10	238.88	233 -	249	239.01	6.48E+02	62.54	2.68E+02	PB-212
m 11	242.05	233 -	249	242.17	1.20E+02	61.83	2.36E+02	.....
12	270.75	268 -	274	270.86	5.14E+01	41.81	2.81E+02	.....
M 13	295.53	290 -	308	295.63	1.87E+02	39.94	1.73E+02	PB-214
m 14	301.17	290 -	308	301.27	4.71E+01	33.93	1.81E+02	GA-67
M 15	338.50	335 -	356	338.58	1.42E+02	39.61	1.92E+02	AC-228
m 16	346.52	335 -	356	346.60	2.63E+01	33.54	1.86E+02	.....
m 17	352.25	335 -	356	352.32	2.65E+02	44.10	1.80E+02	PB-214
18	409.75	404 -	415	409.79	7.12E+01	48.46	2.58E+02	.....
19	462.53	459 -	466	462.54	4.42E+01	31.43	1.34E+02	SB-125
20	477.03	473 -	481	477.04	4.10E+01	32.24	1.34E+02	PM-144 BE-7
21	511.43	505 -	516	511.43	1.18E+02	46.90	2.16E+02	.....
22	583.39	579 -	588	583.35	1.28E+02	40.35	1.59E+02	TL-208
23	609.86	605 -	615	609.80	2.09E+02	44.62	1.54E+02	BI-214
24	727.08	724 -	731	726.97	4.50E+01	28.35	1.04E+02	BI-212
25	767.93	764 -	771	767.80	2.24E+01	23.83	7.91E+01	.....
26	785.49	780 -	790	785.35	2.30E+01	28.78	9.60E+01	.....
27	794.90	791 -	801	794.76	3.98E+01	29.43	9.65E+01	CS-134
28	825.18	823 -	827	825.03	1.61E+01	13.36	2.58E+01	.....
29	861.42	857 -	865	861.25	3.03E+01	24.08	6.75E+01	.....
30	911.35	908 -	915	911.16	1.09E+02	31.18	9.24E+01	AC-228 LU-172
31	968.63	964 -	972	968.41	7.96E+01	30.55	9.47E+01	AC-228
32	1079.20	1075 -	1083	1078.93	2.51E+01	19.76	4.37E+01	.....
33	1121.58	1117 -	1127	1121.29	3.81E+01	31.32	1.12E+02	TA-182
34	1238.48	1234 -	1241	1238.14	2.78E+01	22.18	6.24E+01	CO-56
M 35	1244.28	1242 -	1260	1243.94	1.83E+01	12.49	2.40E+01	.....
m 36	1254.34	1242 -	1260	1254.00	1.48E+01	17.41	4.20E+01	.....
37	1375.02	1369 -	1381	1374.63	2.00E+01	20.33	3.99E+01	.....

: 00547

Analysis Report for 1606067-09

CP-5012.09-15 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	38	1448.80	1442 -	1452	1448.39	1.25E+01	15.85	2.50E+01	.....
	39	1461.07	1456 -	1464	1460.65	3.73E+02	40.46	2.26E+01	K-40
M	40	1588.44	1585 -	1598	1587.98	8.86E+00	9.84	1.20E+01	.....
m	41	1594.50	1585 -	1598	1594.03	8.50E+00	10.81	1.08E+01	.....
	42	1654.46	1651 -	1657	1653.97	7.06E+00	6.95	3.89E+00	.....
	43	1661.90	1658 -	1664	1661.40	8.45E+00	7.23	3.10E+00	.....
	44	1712.60	1710 -	1715	1712.09	7.11E+00	6.71	3.78E+00	.....
	45	1728.81	1724 -	1731	1728.30	8.33E+00	8.94	7.33E+00	.....
	46	1764.54	1759 -	1767	1764.01	4.15E+01	14.98	9.00E+00	BI-214
	47	2103.73	2100 -	2106	2103.10	9.50E+00	8.75	7.00E+00	.....
	48	2203.74	2199 -	2208	2203.07	9.60E+00	10.49	1.08E+01	BI-214
	49	2291.29	2287 -	2292	2290.60	5.00E+00	4.47	0.00E+00	.....
	50	2412.66	2407 -	2414	2411.93	4.50E+00	6.32	3.00E+00	.....
	51	2614.66	2609 -	2617	2613.88	6.50E+01	16.12	0.00E+00	TL-208

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/20/2016 11:16:56AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.72	1.21E+02	68.93	1.51E-02	1.58E-03
m	2	70.47	7.23E+01	57.51	2.30E-02	1.94E-03
m	3	74.81	4.07E+02	91.91	2.36E-02	2.09E-03
m	4	77.45	5.90E+02	78.76	2.39E-02	2.18E-03
M	5	88.30	1.96E+02	68.60	2.44E-02	2.52E-03
m	6	92.82	3.11E+02	70.10	2.44E-02	2.41E-03
	7	129.27	6.53E+01	76.10	2.25E-02	1.70E-03
	8	153.56	7.58E+01	59.93	2.06E-02	1.57E-03
	9	186.15	1.30E+02	59.80	1.83E-02	1.42E-03
M	10	238.88	6.48E+02	62.54	1.52E-02	1.18E-03
m	11	242.05	1.20E+02	61.83	1.51E-02	1.17E-03
	12	270.75	5.14E+01	41.81	1.38E-02	1.04E-03
M	13	295.53	1.87E+02	39.94	1.28E-02	9.74E-04
m	14	301.17	4.71E+01	33.93	1.26E-02	9.66E-04
M	15	338.50	1.42E+02	39.61	1.14E-02	9.13E-04
m	16	346.52	2.63E+01	33.54	1.12E-02	9.01E-04

: 00548

Analysis Report for 1606067-09

CP-5012 09-15 QC

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	17	352.25	2.65E+02	44.10	1.11E-02	8.93E-04
	18	409.75	7.12E+01	48.46	9.71E-03	8.19E-04
	19	462.53	4.42E+01	31.43	8.74E-03	7.67E-04
	20	477.03	4.10E+01	32.24	8.51E-03	7.52E-04
	21	511.43	1.18E+02	46.90	8.01E-03	7.18E-04
	22	583.39	1.28E+02	40.35	7.14E-03	6.46E-04
	23	609.86	2.09E+02	44.62	6.87E-03	6.20E-04
	24	727.08	4.50E+01	28.35	5.89E-03	5.14E-04
	25	767.93	2.24E+01	23.83	5.62E-03	4.81E-04
	26	785.49	2.30E+01	28.78	5.51E-03	4.67E-04
	27	794.90	3.98E+01	29.43	5.45E-03	4.59E-04
	28	825.18	1.61E+01	13.36	5.28E-03	4.34E-04
	29	861.42	3.03E+01	24.08	5.09E-03	4.05E-04
	30	911.35	1.09E+02	31.18	4.85E-03	3.72E-04
	31	968.63	7.96E+01	30.55	4.61E-03	3.62E-04
	32	1079.20	2.51E+01	19.76	4.21E-03	3.41E-04
	33	1121.58	3.81E+01	31.32	4.07E-03	3.33E-04
	34	1238.48	2.78E+01	22.18	3.75E-03	3.09E-04
M	35	1244.28	1.83E+01	12.49	3.74E-03	3.08E-04
m	36	1254.34	1.48E+01	17.41	3.72E-03	3.06E-04
	37	1375.02	2.00E+01	20.33	3.45E-03	2.82E-04
	38	1448.80	1.25E+01	15.85	3.31E-03	2.71E-04
	39	1461.07	3.73E+02	40.46	3.29E-03	2.69E-04
M	40	1588.44	8.86E+00	9.84	3.09E-03	2.50E-04
m	41	1594.50	8.50E+00	10.81	3.08E-03	2.49E-04
	42	1654.46	7.06E+00	6.95	2.99E-03	2.40E-04
	43	1661.90	8.45E+00	7.23	2.99E-03	2.39E-04
	44	1712.60	7.11E+00	6.71	2.92E-03	2.32E-04
	45	1728.81	8.33E+00	8.94	2.90E-03	2.29E-04
	46	1764.54	4.15E+01	14.98	2.86E-03	2.24E-04
	47	2103.73	9.50E+00	8.75	2.54E-03	2.13E-04
	48	2203.74	9.60E+00	10.49	2.46E-03	2.13E-04
	49	2291.29	5.00E+00	4.47	2.41E-03	2.13E-04
	50	2412.66	4.50E+00	6.32	2.34E-03	2.13E-04
	51	2614.66	6.50E+01	16.12	2.24E-03	2.13E-04

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000 sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/20/2016 11:16:56AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039129.CNF

Analysis Report for 1606067-09

CP-5012 09-15 QC

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.72	1.21E+02	68.93	4.51E+01	7.97E+00	7.56E+01	6.94E+01
m	2	70.47	7.23E+01	57.51			7.23E+01	5.75E+01
m	3	74.81	4.07E+02	91.91	6.39E+00	4.68E+00	4.01E+02	9.20E+01
m	4	77.45	5.90E+02	78.76	6.06E+00	4.43E+00	5.84E+02	7.89E+01
M	5	88.30	1.96E+02	68.60	7.58E+00	2.36E+00	1.88E+02	6.86E+01
m	6	92.82	3.11E+02	70.10	8.11E+01	4.75E+00	2.29E+02	7.03E+01
	7	129.27	6.53E+01	76.10			6.53E+01	7.61E+01
	8	153.56	7.58E+01	59.93			7.58E+01	5.99E+01
	9	186.15	1.30E+02	59.80	3.42E+01	6.46E+00	9.54E+01	6.01E+01
M	10	238.88	6.48E+02	62.54	1.33E+01	5.60E+00	6.35E+02	6.28E+01
m	11	242.05	1.20E+02	61.83			1.20E+02	6.18E+01
	12	270.75	5.14E+01	41.81			5.14E+01	4.18E+01
M	13	295.53	1.87E+02	39.94	4.79E-01	4.81E+00	1.86E+02	4.02E+01
m	14	301.17	4.71E+01	33.93			4.71E+01	3.39E+01
M	15	338.50	1.42E+02	39.61			1.42E+02	3.96E+01
m	16	346.52	2.63E+01	33.54			2.63E+01	3.35E+01
m	17	352.25	2.65E+02	44.10	2.25E+00	3.58E+00	2.63E+02	4.43E+01
	18	409.75	7.12E+01	48.46			7.12E+01	4.85E+01
	19	462.53	4.42E+01	31.43			4.42E+01	3.14E+01
	20	477.03	4.10E+01	32.24			4.10E+01	3.22E+01
	21	511.43	1.18E+02	46.90	5.80E+01	4.89E+00	6.02E+01	4.72E+01
	22	583.39	1.28E+02	40.35	1.49E+00	2.92E+00	1.26E+02	4.05E+01
	23	609.86	2.09E+02	44.62	6.79E+00	3.66E+00	2.02E+02	4.48E+01
	24	727.08	4.50E+01	28.35			4.50E+01	2.84E+01
	25	767.93	2.24E+01	23.83			2.24E+01	2.38E+01
	26	785.49	2.30E+01	28.78			2.30E+01	2.88E+01
	27	794.90	3.98E+01	29.43			3.98E+01	2.94E+01
	28	825.18	1.61E+01	13.36			1.61E+01	1.34E+01
	29	861.42	3.03E+01	24.08			3.03E+01	2.41E+01
	30	911.35	1.09E+02	31.18	2.46E+00	2.65E+00	1.06E+02	3.13E+01
	31	968.63	7.96E+01	30.55			7.96E+01	3.05E+01
	32	1079.20	2.51E+01	19.76			2.51E+01	1.98E+01
	33	1121.58	3.81E+01	31.32			3.81E+01	3.13E+01
	34	1238.48	2.78E+01	22.18			2.78E+01	2.22E+01
M	35	1244.28	1.83E+01	12.49			1.83E+01	1.25E+01
m	36	1254.34	1.48E+01	17.41			1.48E+01	1.74E+01
	37	1375.02	2.00E+01	20.33			2.00E+01	2.03E+01
	38	1448.80	1.25E+01	15.85			1.25E+01	1.59E+01
	39	1461.07	3.73E+02	40.46	1.76E+00	1.91E+00	3.71E+02	4.05E+01
M	40	1588.44	8.86E+00	9.84			8.86E+00	9.84E+00
m	41	1594.50	8.50E+00	10.81			8.50E+00	1.08E+01
	42	1654.46	7.06E+00	6.95			7.06E+00	6.95E+00
	43	1661.90	8.45E+00	7.23			8.45E+00	7.23E+00
	44	1712.60	7.11E+00	6.71			7.11E+00	6.71E+00
	45	1728.81	8.33E+00	8.94			8.33E+00	8.94E+00
	46	1764.54	4.15E+01	14.98			4.15E+01	1.50E+01
	47	2103.73	9.50E+00	8.75			9.50E+00	8.75E+00
	48	2203.74	9.60E+00	10.49			9.60E+00	1.05E+01
	49	2291.29	5.00E+00	4.47			5.00E+00	4.47E+00
	50	2412.66	4.50E+00	6.32			4.50E+00	6.32E+00
	51	2614.66	6.50E+01	16.12	2.72E+00	1.24E+00	6.23E+01	1.62E+01

Analysis Report for 1606067-09

CP-5012 09-15 QC

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/20/2016 11:16:56AM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039129.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.72	1.21E+02	68.93	4.51E+01	7.97E+00	7.56E+01	6.94E+01
m	2	70.47	7.23E+01	57.51			7.23E+01	5.75E+01
m	3	74.81	4.07E+02	91.91	6.39E+00	4.68E+00	4.01E+02	9.20E+01
m	4	77.45	5.90E+02	78.76	6.06E+00	4.43E+00	5.84E+02	7.89E+01
M	5	88.30	1.96E+02	68.60	7.58E+00	2.36E+00	1.88E+02	6.86E+01
m	6	92.82	3.11E+02	70.10	8.11E+01	4.75E+00	2.29E+02	7.03E+01
	7	129.27	6.53E+01	76.10			6.53E+01	7.61E+01
	8	153.56	7.58E+01	59.93			7.58E+01	5.99E+01
	9	186.15	1.30E+02	59.80	3.42E+01	6.46E+00	9.54E+01	6.01E+01
M	10	238.88	6.48E+02	62.54	1.33E+01	5.60E+00	6.35E+02	6.28E+01
m	11	242.05	1.20E+02	61.83			1.20E+02	6.18E+01
	12	270.75	5.14E+01	41.81			5.14E+01	4.18E+01
M	13	295.53	1.87E+02	39.94	4.79E-01	4.81E+00	1.86E+02	4.02E+01
m	14	301.17	4.71E+01	33.93			4.71E+01	3.39E+01
M	15	338.50	1.42E+02	39.61			1.42E+02	3.96E+01
m	16	346.52	2.63E+01	33.54			2.63E+01	3.35E+01
m	17	352.25	2.65E+02	44.10	2.25E+00	3.58E+00	2.63E+02	4.43E+01
	18	409.75	7.12E+01	48.46			7.12E+01	4.85E+01
	19	462.53	4.42E+01	31.43			4.42E+01	3.14E+01
	20	477.03	4.10E+01	32.24			4.10E+01	3.22E+01
	21	511.43	1.18E+02	46.90	5.80E+01	4.89E+00	6.02E+01	4.72E+01
	22	583.39	1.28E+02	40.35	1.49E+00	2.92E+00	1.26E+02	4.05E+01
	23	609.86	2.09E+02	44.62	6.79E+00	3.66E+00	2.02E+02	4.48E+01
	24	727.08	4.50E+01	28.35			4.50E+01	2.84E+01
	25	767.93	2.24E+01	23.83			2.24E+01	2.38E+01
	26	785.49	2.30E+01	28.78			2.30E+01	2.88E+01
	27	794.90	3.98E+01	29.43			3.98E+01	2.94E+01
	28	825.18	1.61E+01	13.36			1.61E+01	1.34E+01
	29	861.42	3.03E+01	24.08			3.03E+01	2.41E+01
	30	911.35	1.09E+02	31.18	2.46E+00	2.65E+00	1.06E+02	3.13E+01
	31	968.63	7.96E+01	30.55			7.96E+01	3.05E+01
	32	1079.20	2.51E+01	19.76			2.51E+01	1.98E+01

Analysis Report for 1606067-09

CP-5012 09-15 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	33	1121.58	3.81E+01			3.81E+01	3.13E+01
	34	1238.48	2.78E+01			2.78E+01	2.22E+01
M	35	1244.28	1.83E+01			1.83E+01	1.25E+01
m	36	1254.34	1.48E+01			1.48E+01	1.74E+01
	37	1375.02	2.00E+01			2.00E+01	2.03E+01
	38	1448.80	1.25E+01			1.25E+01	1.59E+01
	39	1461.07	3.73E+02	40.46	1.76E+00 1.91E+00	3.71E+02	4.05E+01
M	40	1588.44	8.86E+00	9.84		8.86E+00	9.84E+00
m	41	1594.50	8.50E+00	10.81		8.50E+00	1.08E+01
	42	1654.46	7.06E+00	6.95		7.06E+00	6.95E+00
	43	1661.90	8.45E+00	7.23		8.45E+00	7.23E+00
	44	1712.60	7.11E+00	6.71		7.11E+00	6.71E+00
	45	1728.81	8.33E+00	8.94		8.33E+00	8.94E+00
	46	1764.54	4.15E+01	14.98		4.15E+01	1.50E+01
	47	2103.73	9.50E+00	8.75		9.50E+00	8.75E+00
	48	2203.74	9.60E+00	10.49		9.60E+00	1.05E+01
	49	2291.29	5.00E+00	4.47		5.00E+00	4.47E+00
	50	2412.66	4.50E+00	6.32		4.50E+00	6.32E+00
	51	2614.66	6.50E+01	16.12	2.72E+00 1.24E+00	6.23E+01	1.62E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BE-7	0.951	477.59 *	10.42	1.58E+00	1.25E+00
K-40	0.989	1460.81 *	10.67	3.05E+01	4.22E+00
GA-67	0.806	93.31 *	35.70	1.22E+01	2.52E+01
		208.95	2.24		
		300.22 *	16.00	1.08E+01	2.35E+01
CD-109	0.989	88.03 *	3.72	6.11E+00	2.34E+00
SN-126	0.919	87.57 *	37.00	6.02E-01	2.28E-01
TL-208	0.884	583.14 *	30.22	1.69E+00	5.64E-01
		860.37	4.48		
		2614.66 *	35.85	2.24E+00	6.21E-01
PB-210	0.992	46.50 *	4.25	3.40E+00	3.14E+00
BI-212	0.769	727.17 *	11.80	1.87E+00	1.19E+00

: 00552

Analysis Report for 1606067-09

CP-5012 09-15 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-212	0.769	1620.62	2.75		
PB-212	0.887	238.63 *	44.60	2.71E+00	3.40E-01
		300.09	3.41		
BI-214	0.709	609.31 *	46.30	1.84E+00	4.40E-01
		1120.29	15.10		
		1764.49 *	15.80	2.66E+00	9.82E-01
		2204.22 *	4.98	2.26E+00	2.48E+00
PB-214	0.983	295.21 *	19.19	2.19E+00	5.02E-01
		351.92 *	37.19	1.85E+00	3.45E-01
RA-226	0.999	186.21 *	3.28	4.60E+00	8.92E+00
AC-228	0.982	338.32 *	11.40	3.15E+00	9.14E-01
		911.07 *	27.70	2.29E+00	6.96E-01
		969.11 *	16.60	3.01E+00	1.18E+00
AM-243	0.997	74.67 *	66.00	7.44E-01	1.83E-01

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 11:16:56AM

Peak Locate From Channel : 1

Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m 2	70.47	2.00700E-02	39.80		
m 4	77.45	1.62260E-01	6.75	Tol.	TI-44
7	129.27	1.81251E-02	58.31		
8	153.56	2.10485E-02	39.55	Tol.	CS-136
m 11	242.05	3.34284E-02	25.69		
12	270.75	1.42752E-02	40.68		
m 16	346.52	7.31249E-03	63.71		
18	409.75	1.97840E-02	34.02		
19	462.53	1.22748E-02	35.57	Tol.	SB-125
21	511.43	1.67332E-02	39.14		
25	767.93	6.23208E-03	53.11		
26	785.49	6.39084E-03	62.55		
27	794.90	1.10464E-02	37.01		
28	825.18	4.47318E-03	41.48		
29	861.42	8.40278E-03	39.81		

Analysis Report for 1606067-09

CP-5012 09-15 QC

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
32	1079.20	6.98582E-03	39.29	Sum	
33	1121.58	1.05851E-02	41.10	Tol.	TA-182
34	1238.48	7.72599E-03	39.87	Tol.	CO-56
M 35	1244.28	5.09470E-03	34.05		
m 36	1254.34	4.11416E-03	58.76	S-Esc	
37	1375.02	5.56250E-03	50.77		
38	1448.80	3.47222E-03	63.40		
M 40	1588.44	2.46028E-03	55.53		
m 41	1594.50	2.36150E-03	63.55		
42	1654.46	1.95988E-03	49.23		
43	1661.90	2.34722E-03	42.77		
44	1712.60	1.97531E-03	47.17		
45	1728.81	2.31481E-03	53.67		
47	2103.73	2.63889E-03	46.03	S-Esc	
49	2291.29	1.38889E-03	44.72	Sum	
50	2412.66	1.25000E-03	70.27		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BE-7	0.95	477.59 *	10.42	1.58E+00	1.25E+00
K-40	0.98	1460.81 *	10.67	3.05E+01	4.22E+00
GA-67	0.80	93.31 *	35.70	1.22E+01	2.52E+01
		208.95	2.24		
		300.22 *	16.00	1.08E+01	2.35E+01
CD-109	0.98	88.03 *	3.72	6.11E+00	2.34E+00
SN-126	0.91	87.57 *	37.00	6.02E-01	2.28E-01
TL-208	0.88	583.14 *	30.22	1.69E+00	5.64E-01
		860.37	4.48		
		2614.66 *	35.85	2.24E+00	6.21E-01
PB-210	0.99	46.50 *	4.25	3.40E+00	3.14E+00
BI-212	0.76	727.17 *	11.80	1.87E+00	1.19E+00

Analysis Report for 1606067-09

CP-5012 09-15 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-212	0.76	1620.62	2.75		
PB-212	0.88	238.63 *	44.60	2.71E+00	3.40E-01
		300.09	3.41		
BI-214	0.70	609.31 *	46.30	1.84E+00	4.40E-01
		1120.29	15.10		
		1764.49 *	15.80	2.66E+00	9.82E-01
		2204.22 *	4.98	2.26E+00	2.48E+00
PB-214	0.98	295.21 *	19.19	2.19E+00	5.02E-01
		351.92 *	37.19	1.85E+00	3.45E-01
RA-226	0.99	186.21 *	3.28	4.60E+00	8.92E+00
AC-228	0.98	338.32 *	11.40	3.15E+00	9.14E-01
		911.07 *	27.70	2.29E+00	6.96E-01
		969.11 *	16.60	3.01E+00	1.18E+00
AM-243	0.99	74.67 *	66.00	7.44E-01	1.83E-01

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
BE-7	0.951	1.58E+00	1.25E+00	
K-40	0.989	3.05E+01	4.22E+00	
GA-67	0.806	1.15E+01	2.21E+01	
? CD-109	0.989	6.11E+00	2.34E+00	
? SN-126	0.919	6.02E-01	2.28E-01	
TL-208	0.884	1.94E+00	4.17E-01	
PB-210	0.992	3.40E+00	3.14E+00	
BI-212	0.769	1.87E+00	1.19E+00	
PB-212	0.887	2.71E+00	3.40E-01	
BI-214	0.709	1.98E+00	3.96E-01	
PB-214	0.983	1.96E+00	2.85E-01	
RA-226	0.999	4.60E+00	8.92E+00	
AC-228	0.982	2.68E+00	5.01E-01	

Analysis Report for 1606067-09

CP-5012 09-15 QC

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
AM-243	0.997	7.44E-01	1.83E-01	

- ? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1606067-09

CP-5012 09-15 QC

 UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 11:16:56AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	70.47	2.00700E-02		
m	4	77.45	1.62260E-01		
	7	129.27	1.81251E-02		
	8	153.56	2.10485E-02	Tol.	CS-136
m	11	242.05	3.34284E-02		
	12	270.75	1.42752E-02		
m	16	346.52	7.31249E-03		
	18	409.75	1.97840E-02		
	19	462.53	1.22748E-02	Tol.	SB-125
	21	511.43	1.67332E-02		
	25	767.93	6.23208E-03		
	26	785.49	6.39084E-03		
	27	794.90	1.10464E-02		
	28	825.18	4.47318E-03		
	29	861.42	8.40278E-03		
	32	1079.20	6.98582E-03	Sum	
	33	1121.58	1.05851E-02	Tol.	TA-182
	34	1238.48	7.72599E-03	Tol.	CO-56
M	35	1244.28	5.09470E-03		
m	36	1254.34	4.11416E-03	S-Esc	
	37	1375.02	5.56250E-03		
	38	1448.80	3.47222E-03		
M	40	1588.44	2.46028E-03		
m	41	1594.50	2.36150E-03		
	42	1654.46	1.95988E-03		
	43	1661.90	2.34722E-03		
	44	1712.60	1.97531E-03		
	45	1728.81	2.31481E-03		
	47	2103.73	2.63889E-03	S-Esc	
	49	2291.29	1.38889E-03	Sum	
	50	2412.66	1.25000E-03		

Analysis Report for 1606067-09

CP-5012 09-15 QC

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \WOR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+ BE-7	477.59	* 10.42	1.58E+00	1.99E+00	1.99E+00
+ NA-22	1274.54	99.94	-5.00E-02	2.28E-01	2.28E-01
+ NA-24	1368.53	99.99	5.80E+04	3.40E+05	4.09E+05
	2754.09	99.86	7.44E+04		3.40E+05
+ AL-26	1808.65	99.76	3.36E-02	1.64E-01	1.64E-01
+ K-40	1460.81	* 10.67	3.05E+01	1.92E+00	1.92E+00
+ @ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+ TI-44	67.88	94.40	-6.38E-02	1.35E-01	1.35E-01
	78.34	96.00	4.90E-01		1.78E-01
+ SC-46	889.25	99.98	8.36E-03	1.78E-01	1.78E-01
	1120.51	99.99	1.49E-01		3.13E-01
+ V-48	983.52	99.98	7.01E-02	3.43E-01	3.43E-01
	1312.10	97.50	-3.17E-01		3.72E-01
+ CR-51	320.08	9.83	2.72E-01	1.67E+00	1.67E+00
+ MN-54	834.83	99.97	3.42E-02	1.91E-01	1.91E-01
+ CO-56	846.75	99.96	1.09E-01	1.97E-01	1.97E-01
	1037.75	14.03	4.82E-01		1.71E+00
	1238.25	67.00	2.19E-01		4.76E-01
	1771.40	15.51	-1.36E+00		8.82E-01
	2598.48	16.90	3.42E-01		1.03E+00
+ CO-57	122.06	85.51	1.97E-02	1.06E-01	1.06E-01
	136.48	10.60	7.19E-02		9.31E-01
+ CO-58	810.76	99.40	-2.69E-02	1.86E-01	1.86E-01
+ FE-59	1099.22	56.50	-1.48E-02	4.81E-01	4.81E-01
	1291.56	43.20	3.04E-01		6.74E-01
+ CO-60	1173.22	100.00	5.20E-02	2.41E-01	2.41E-01
	1332.49	100.00	6.98E-02		2.64E-01
+ ZN-65	1115.52	50.75	6.18E-02	3.75E-01	3.75E-01
+ GA-67	93.31	* 35.70	1.22E+01	1.42E+01	1.42E+01
	208.95	2.24	1.03E+02		1.02E+02
	300.22	* 16.00	1.08E+01		2.92E+01
+ SE-75	121.11	16.70	-7.37E-02	1.77E-01	5.64E-01

Analysis Report for 1606067-09

CP-5012 09-15 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	3.65E-02	1.77E-01	1.77E-01
		264.65	59.80	7.81E-02		2.24E-01
		279.53	25.20	3.65E-01		5.90E-01
		400.65	11.40	3.93E-01		1.38E+00
+	RB-82	776.52	13.00	2.02E-01	1.89E+00	1.89E+00
+	RB-83	520.41	46.00	8.13E-03	3.46E-01	3.46E-01
		529.64	30.30	-6.83E-03		5.25E-01
		552.65	16.40	-5.82E-03		1.04E+00
+	KR-85	513.99	0.43	6.03E+01	5.02E+01	5.02E+01
+	SR-85	513.99	99.27	3.03E-01	2.52E-01	2.52E-01
+	Y-88	898.02	93.40	1.14E-01	1.50E-01	2.07E-01
		1836.01	99.38	1.22E-02		1.50E-01
+	NB-93M	16.57	9.43	2.05E+01	1.73E+02	1.73E+02
+	NB-94	702.63	100.00	-3.44E-02	1.69E-01	1.82E-01
		871.10	100.00	1.20E-02		1.69E-01
+	NB-95	765.79	99.81	1.59E-01	2.60E-01	2.60E-01
+	NB-95M	235.69	25.00	2.80E+01	1.13E+01	1.13E+01
+	ZR-95	724.18	43.70	1.11E-01	3.70E-01	5.91E-01
		756.72	55.30	9.43E-02		3.70E-01
+	MO-99	181.06	6.20	-5.57E-01	3.79E+01	4.26E+01
		739.58	12.80	-3.80E+00		3.79E+01
		778.00	4.50	-7.77E+00		1.03E+02
+	RU-103	497.08	89.00	-4.82E-02	2.06E-01	2.06E-01
+	RU-106	621.84	9.80	6.48E-01	1.67E+00	1.67E+00
+	AG-108M	433.93	89.90	-3.48E-02	1.58E-01	1.58E-01
		614.37	90.40	-1.50E-02		2.03E-01
		722.95	90.50	3.51E-02		2.25E-01
+	CD-109	88.03	* 3.72	6.11E+00	8.62E+00	8.62E+00
+	AG-110M	657.75	93.14	-1.22E-01	1.94E-01	1.94E-01
		677.61	10.53	9.09E-02		1.63E+00
		706.67	16.46	1.23E-02		1.22E+00
		763.93	21.98	1.45E-01		8.36E-01
		884.67	71.63	1.05E-03		2.44E-01
		1384.27	23.94	1.99E-01		8.77E-01
+	CD-113M	263.70	0.02	-1.07E+01	5.36E+02	5.36E+02
+	SN-113	255.12	1.93	-7.10E-01	2.25E-01	7.14E+00
		391.69	64.90	1.27E-02		2.25E-01
+	TE123M	159.00	84.10	3.57E-02	1.19E-01	1.19E-01
+	SB-124	602.71	97.87	6.69E-02	1.90E-01	1.90E-01
		645.85	7.26	-9.94E-01		2.28E+00
		722.78	11.10	3.32E-01		2.13E+00
		1691.02	49.00	1.16E-01		3.28E-01
+	I-125	35.49	6.49	-6.29E-01	4.99E+00	4.99E+00
+	SB-125	176.33	6.89	9.36E-01	4.43E-01	1.58E+00
		427.89	29.33	-3.57E-01		4.43E-01
		463.38	10.35	1.24E+00		1.63E+00
		600.56	17.80	2.46E-01		9.06E-01
		635.90	11.32	1.77E-01		1.45E+00

Analysis Report for 1606067-09

CP-5012 09-15 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70	83.30	-1.24E-01	3.34E-01	3.34E-01
		666.33	99.60	4.78E-02		3.87E-01
		695.00	99.60	-2.12E-02		3.72E-01
		720.50	53.80	1.79E-01		7.45E-01
+	SN-126	87.57 *	37.00	6.02E-01	8.50E-01	8.50E-01
+	SB-127	473.00	25.00	1.37E+00	4.75E+00	6.29E+00
		685.20	35.70	-5.82E-01		4.75E+00
		783.80	14.70	3.61E+00		1.33E+01
+	I-129	29.78	57.00	2.41E-01	8.71E-01	8.71E-01
		33.60	13.20	1.72E-01		2.57E+00
		39.58	7.52	-9.15E-01		2.76E+00
+	I-131	284.30	6.05	3.96E+00	4.79E-01	6.67E+00
		364.48	81.20	-9.21E-03		4.79E-01
		636.97	7.26	1.62E+00		6.74E+00
		722.89	1.80	5.44E+00		3.48E+01
+	TE-132	49.72	13.10	-2.15E+00	2.25E+00	1.78E+01
		228.16	88.00	2.75E-01		2.25E+00
+	BA-133	81.00	33.00	-1.84E+00	2.92E-01	3.33E-01
		302.84	17.80	9.07E-01		8.54E-01
		356.01	60.00	-1.61E-02		2.92E-01
+	I-133	529.87	86.30	-7.44E+01	5.72E+03	5.72E+03
+	XE-133	81.00	38.00	-8.95E+00	1.62E+00	1.62E+00
+	CS-134	563.23	8.38	-1.05E+00	1.68E-01	1.75E+00
		569.32	15.43	2.03E-01		1.09E+00
		604.70	97.60	-6.50E-03		1.68E-01
		795.84	85.40	2.34E-01		2.60E-01
		801.93	8.73	1.41E-01		2.01E+00
+	CS-135	268.24	16.00	1.44E-02	8.78E-01	8.78E-01
+	I-135	1131.51	22.50	-3.20E+12	1.34E+14	1.72E+14
		1260.41	28.60	-6.96E+12		1.34E+14
		1678.03	9.54	4.84E+13		2.91E+14
+	CS-136	153.22	7.46	2.73E+00	3.19E-01	2.82E+00
		163.89	4.61	7.45E-02		4.31E+00
		176.55	13.56	5.00E-01		1.56E+00
		273.65	12.66	3.10E-01		2.24E+00
		340.57	48.50	1.02E+00		7.60E-01
		818.50	99.70	8.99E-02		3.19E-01
		1048.07	79.60	5.87E-02		5.07E-01
		1235.34	19.70	3.53E-02		2.74E+00
+	CS-137	661.65	85.12	1.27E-03	2.17E-01	2.17E-01
+	LA-138	788.74	34.00	-3.48E-01	1.97E-01	5.36E-01
		1435.80	66.00	-1.15E-01		1.97E-01
+	CE-139	165.85	80.35	5.10E-02	1.36E-01	1.36E-01
+	BA-140	162.64	6.70	-9.76E-02	1.18E+00	2.98E+00
		304.84	4.50	-3.32E+00		6.08E+00
		423.70	3.20	1.29E+00		9.02E+00
		437.55	2.00	2.45E+00		1.46E+01
		537.32	25.00	-3.58E-01		1.18E+00
+	LA-140	328.77	20.50	1.05E+00	3.76E-01	1.48E+00

Analysis Report for 1606067-09

CP-5012 09-15 QC

<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>	
LA-140	487.03	45.50	5.57E-02	3.76E-01	6.12E-01	
	815.85	23.50	2.14E-02		1.40E+00	
	1596.49	95.49	-8.00E-02		3.76E-01	
+ CE-141	145.44	48.40	7.97E-02	2.73E-01	2.73E-01	
+ CE-143	57.36	11.80	5.70E+02	3.06E+02	8.47E+02	
	293.26	42.00	5.29E+02		3.06E+02	
	664.55	5.20	8.47E+02		2.67E+03	
+ CE-144	133.54	10.80	2.11E-01	9.54E-01	9.54E-01	
+ PM-144	476.78	42.00	3.41E-01	1.56E-01	3.95E-01	
	618.01	98.60	-2.02E-02		1.56E-01	
	696.49	99.49	9.40E-02		1.92E-01	
+ PM-145	36.85	21.70	1.88E-01	6.18E-01	1.17E+00	
	37.36	39.70	1.93E-01		6.18E-01	
	42.30	15.10	4.56E-02		1.24E+00	
	72.40	2.31	-7.78E+00		6.54E+00	
+ PM-146	453.90	39.94	1.84E-01	3.88E-01	3.88E-01	
	735.90	14.01	-6.73E-01		1.27E+00	
	747.13	13.10	2.35E-01		1.21E+00	
+ ND-147	91.11	28.90	2.70E-01	1.11E+00	1.11E+00	
	531.02	13.10	-4.40E-02		2.56E+00	
+ PM-149	285.90	3.10	-3.65E+01	2.39E+02	2.39E+02	
+ EU-152	121.78	20.50	7.94E-02	4.29E-01	4.29E-01	
	244.69	5.40	-1.39E+00		2.81E+00	
	344.27	19.13	-1.24E+00		7.24E-01	
	778.89	9.20	4.30E-01		2.02E+00	
	964.01	10.40	-4.76E-01		2.16E+00	
	1085.78	7.22	1.50E-01		2.49E+00	
	1112.02	9.60	-1.06E-01		2.01E+00	
	1407.95	14.94	1.25E-01		1.40E+00	
	97.43	31.30	-2.44E-01		3.30E-01	3.30E-01
	103.18	22.20	-1.90E-01		4.18E-01	
+ EU-154	123.07	40.50	-1.68E-02	2.20E-01	2.20E-01	
	723.30	19.70	1.62E-01		1.04E+00	
	873.19	11.50	-1.21E-01		1.45E+00	
	996.32	10.30	-5.38E-01		1.63E+00	
+ EU-155	1004.76	17.90	1.81E-01	4.28E-01	1.26E+00	
	1274.45	35.50	-1.40E-01		6.37E-01	
	86.50	30.90	1.12E-01		4.28E-01	
+ EU-156	105.30	20.70	-2.24E-02	2.77E+00	4.56E-01	
	811.77	10.40	-9.68E-01		2.77E+00	
+ HO-166M	1153.47	7.20	-3.91E-01	1.75E-01	5.39E+00	
	1230.71	8.90	-1.04E+00		4.73E+00	
	184.41	72.60	2.30E-01		1.75E-01	
	280.45	29.60	5.70E-03		4.48E-01	
+ TM-171	410.94	11.10	1.17E+00	9.34E+01	1.50E+00	
	711.69	54.10	-1.07E-01		3.40E-01	
	66.72	0.14	-1.31E+02		9.34E+01	
+ HF-172	81.75	4.52	-1.05E+01	8.21E-01	2.44E+00	
	125.81	11.30	-1.25E+00		8.21E-01	

Analysis Report for 1606067-09

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	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
+	LU-172	181.53	20.60	5.97E-02	1.25E+00	1.86E+00
		810.06	16.63	-1.14E+00		3.74E+00
		912.12	15.25	1.76E+01		9.08E+00
		1093.66	62.50	-1.61E-01		1.25E+00
+	LU-173	100.72	5.24	2.45E-01	6.94E-01	1.82E+00
		272.11	21.20	4.07E-01		6.94E-01
+	HF-175	343.40	84.00	-4.67E-01	1.96E-01	1.96E-01
+	LU-176	88.34	13.30	-7.78E-02	1.32E-01	1.04E+00
		201.83	86.00	-6.55E-02		1.32E-01
		306.78	94.00	5.73E-03		1.40E-01
+	TA-182	67.75	41.20	-1.58E-01	3.34E-01	3.34E-01
		1121.30	34.90	5.96E-01		9.11E-01
		1189.05	16.23	-7.83E-02		1.46E+00
		1221.41	26.98	-3.02E-01		9.12E-01
		1231.02	11.44	1.96E-01		2.25E+00
+	IR-192	308.46	29.68	3.72E-02	3.25E-01	4.84E-01
		468.07	48.10	1.51E-01		3.25E-01
+	HG-203	279.19	77.30	1.13E-01	2.15E-01	2.15E-01
+	BI-207	569.67	97.72	8.57E-02	1.74E-01	1.74E-01
		1063.62	74.90	1.60E-01		2.92E-01
+	TL-208	583.14	* 30.22	1.69E+00	3.06E-01	7.79E-01
		860.37	4.48	2.78E+00		4.71E+00
		2614.66	* 35.85	2.24E+00		3.06E-01
+	BI-210M	262.00	45.00	-2.26E-03	2.80E-01	2.80E-01
		300.00	23.00	-1.73E+00		6.56E-01
+	PB-210	46.50	* 4.25	3.40E+00	5.10E+00	5.10E+00
+	PB-211	404.84	2.90	-5.73E-01	4.94E+00	4.94E+00
		831.96	2.90	9.15E-01		6.25E+00
+	BI-212	727.17	* 11.80	1.87E+00	1.82E+00	1.82E+00
		1620.62	2.75	2.34E+00		5.76E+00
+	PB-212	238.63	* 44.60	2.71E+00	5.94E-01	5.94E-01
		300.09	3.41	-1.17E+01		4.43E+00
+	BI-214	609.31	* 46.30	1.84E+00	5.42E-01	5.42E-01
		1120.29	15.10	8.87E-01		1.86E+00
		1764.49	* 15.80	2.66E+00		9.79E-01
		2204.22	* 4.98	2.26E+00		3.92E+00
+	PB-214	295.21	* 19.19	2.19E+00	9.73E-01	1.49E+00
		351.92	* 37.19	1.85E+00		9.73E-01
+	RN-219	401.80	6.50	4.14E-01	2.23E+00	2.23E+00
+	RA-223	323.87	3.88	-4.08E+00	3.18E+00	3.18E+00
+	RA-224	240.98	3.95	3.23E+01	6.79E+00	6.79E+00
+	RA-225	40.00	31.00	-4.00E-01	1.21E+00	1.21E+00
+	RA-226	186.21	* 3.28	4.60E+00	4.65E+00	4.65E+00
+	TH-227	50.10	8.40	-2.06E-01	1.71E+00	1.71E+00
		236.00	11.50	4.95E+00		2.00E+00
		256.20	6.30	1.14E+00		2.09E+00
+	AC-228	338.32	* 11.40	3.15E+00	8.91E-01	3.07E+00
		911.07	* 27.70	2.29E+00		8.91E-01

Analysis Report for 1606067-09

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	*	16.60	3.01E+00	8.91E-01	1.65E+00
+	TH-230	48.44		16.90	3.04E-01	1.01E+00	1.01E+00
		62.85		4.60	1.34E+00		3.07E+00
		67.67		0.37	-1.63E+01		3.44E+01
+	PA-231	283.67		1.60	4.84E+00	6.59E+00	8.17E+00
		302.67		2.30	7.00E+00		6.59E+00
+	TH-231	25.64		14.70	-3.35E+00	1.77E+00	5.82E+00
		84.21		6.40	-2.34E+00		1.77E+00
+	PA-233	311.98		38.60	3.02E-01	4.68E-01	4.68E-01
+	PA-234	131.20		20.40	4.85E-01	5.40E-01	5.40E-01
		733.99		8.80	2.81E-01		2.00E+00
		946.00		12.00	-4.60E-02		1.42E+00
+	PA-234M	1001.03		0.92	7.33E+00	2.26E+01	2.26E+01
+	TH-234	63.29		3.80	2.05E+00	3.67E+00	3.67E+00
+	U-235	143.76		10.50	2.72E-01	9.59E-01	9.59E-01
		163.35		4.70	3.67E-02		2.12E+00
		205.31		4.70	-4.62E+00		2.52E+00
+	NP-237	86.50		12.60	2.74E-01	1.04E+00	1.04E+00
+	NP-239	106.10		22.70	2.01E+00	1.97E+01	1.97E+01
		228.18		10.70	6.56E+00		5.37E+01
		277.60		14.10	3.01E+00		4.47E+01
+	AM-241	59.54		35.90	9.35E-02	3.85E-01	3.85E-01
+	AM-243	74.67	*	66.00	7.44E-01	6.30E-01	6.30E-01
+	CM-243	209.75		3.29	2.44E+00	9.63E-01	4.24E+00
		228.14		10.60	1.42E-01		1.16E+00
		277.60		14.00	6.50E-02		9.63E-01

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

: 00563

Analysis Report for 1606067-09

CP-5012 09-15 QC

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	BE-7	477.59	*	10.42	1.99E+00	1.99E+00	1.58E+00	9.41E-01
	NA-22	1274.54		99.94	2.28E-01	2.28E-01	-5.00E-02	1.03E-01
	NA-24	1368.53		99.99	4.09E+05	3.40E+05	5.80E+04	1.82E+05
		2754.09		99.86	3.40E+05		7.44E+04	1.35E+05
	AL-26	1808.65		99.76	1.64E-01	1.64E-01	3.36E-02	6.79E-02
+	K-40	1460.81	*	10.67	1.92E+00	1.92E+00	3.05E+01	8.49E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	1.35E-01	1.35E-01	-6.38E-02	6.55E-02
		78.34		96.00	1.78E-01		4.90E-01	8.71E-02
	SC-46	889.25		99.98	1.78E-01	1.78E-01	8.36E-03	8.01E-02
		1120.51		99.99	3.13E-01		1.49E-01	1.46E-01
	V-48	983.52		99.98	3.43E-01	3.43E-01	7.01E-02	1.57E-01
		1312.10		97.50	3.72E-01		-3.17E-01	1.66E-01
	CR-51	320.08		9.83	1.67E+00	1.67E+00	2.72E-01	7.88E-01
	MN-54	834.83		99.97	1.91E-01	1.91E-01	3.42E-02	8.79E-02
	CO-56	846.75		99.96	1.97E-01	1.97E-01	1.09E-01	9.01E-02
		1037.75		14.03	1.71E+00		4.82E-01	7.83E-01
		1238.25		67.00	4.76E-01		2.19E-01	2.20E-01
		1771.40		15.51	8.82E-01		-1.36E+00	3.42E-01
		2598.48		16.90	1.03E+00		3.42E-01	3.98E-01
	CO-57	122.06		85.51	1.06E-01	1.06E-01	1.97E-02	5.11E-02
		136.48		10.60	9.31E-01		7.19E-02	4.48E-01
	CO-58	810.76		99.40	1.86E-01	1.86E-01	-2.69E-02	8.49E-02
	FE-59	1099.22		56.50	4.81E-01	4.81E-01	-1.48E-02	2.20E-01
		1291.56		43.20	6.74E-01		3.04E-01	3.07E-01
	CO-60	1173.22		100.00	2.41E-01	2.41E-01	5.20E-02	1.10E-01
		1332.49		100.00	2.64E-01		6.98E-02	1.21E-01
	ZN-65	1115.52		50.75	3.75E-01	3.75E-01	6.18E-02	1.68E-01
+	GA-67	93.31	*	35.70	1.42E+01	1.42E+01	1.22E+01	7.01E+00
		208.95		2.24	1.02E+02		1.03E+02	4.92E+01
		300.22	*	16.00	2.92E+01		1.08E+01	1.43E+01
	SE-75	121.11		16.70	5.64E-01	1.77E-01	-7.37E-02	2.71E-01
		136.00		59.20	1.77E-01		3.65E-02	8.53E-02
		264.65		59.80	2.24E-01		7.81E-02	1.07E-01
		279.53		25.20	5.90E-01		3.65E-01	2.82E-01
		400.65		11.40	1.38E+00		3.93E-01	6.53E-01
	RB-82	776.52		13.00	1.89E+00	1.89E+00	2.02E-01	8.69E-01
	RB-83	520.41		46.00	3.46E-01	3.46E-01	8.13E-03	1.61E-01
		529.64		30.30	5.25E-01		-6.83E-03	2.44E-01
		552.65		16.40	1.04E+00		-5.82E-03	4.83E-01
	KR-85	513.99		0.43	5.02E+01	5.02E+01	6.03E+01	2.40E+01
	SR-85	513.99		99.27	2.52E-01	2.52E-01	3.03E-01	1.20E-01
	Y-88	898.02		93.40	2.07E-01	1.50E-01	1.14E-01	9.45E-02
		1836.01		99.38	1.50E-01		1.22E-02	5.93E-02
	NB-93M	16.57		9.43	1.73E+02	1.73E+02	2.05E+01	8.38E+01
	NB-94	702.63		100.00	1.82E-01	1.69E-01	-3.44E-02	8.44E-02
		871.10		100.00	1.69E-01		1.20E-02	7.67E-02
	NB-95	765.79		99.81	2.60E-01	2.60E-01	1.59E-01	1.21E-01
	NB-95M	235.69		25.00	1.13E+01	1.13E+01	2.80E+01	5.52E+00
	ZR-95	724.18		43.70	5.91E-01	3.70E-01	1.11E-01	2.78E-01
		756.72		55.30	3.70E-01		9.43E-02	1.71E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
MO-99	181.06	6.20	4.26E+01	3.79E+01	-5.57E-01	2.04E+01
	739.58	12.80	3.79E+01		-3.80E+00	1.76E+01
	778.00	4.50	1.03E+02		-7.77E+00	4.74E+01
RU-103	497.08	89.00	2.06E-01	2.06E-01	-4.82E-02	9.63E-02
RU-106	621.84	9.80	1.67E+00	1.67E+00	6.48E-01	7.73E-01
AG-108M	433.93	89.90	1.58E-01	1.58E-01	-3.48E-02	7.43E-02
	614.37	90.40	2.03E-01		-1.50E-02	9.51E-02
	722.95	90.50	2.25E-01		3.51E-02	1.05E-01
+ CD-109	88.03	* 3.72	8.62E+00	8.62E+00	6.11E+00	4.26E+00
AG-110M	657.75	93.14	1.94E-01	1.94E-01	-1.22E-01	9.03E-02
	677.61	10.53	1.63E+00		9.09E-02	7.55E-01
	706.67	16.46	1.22E+00		1.23E-02	5.70E-01
	763.93	21.98	8.36E-01		1.45E-01	3.85E-01
	884.67	71.63	2.44E-01		1.05E-03	1.11E-01
	1384.27	23.94	8.77E-01		1.99E-01	3.89E-01
	CD-113M	263.70	0.02	5.36E+02	5.36E+02	-1.07E+01	2.56E+02
SN-113	255.12	1.93	7.14E+00	2.25E-01	-7.10E-01	3.42E+00
	391.69	64.90	2.25E-01		1.27E-02	1.06E-01
	TE123M	159.00	84.10	1.19E-01	1.19E-01	3.57E-02	5.68E-02
SB-124	602.71	97.87	1.90E-01	1.90E-01	6.69E-02	8.85E-02
	645.85	7.26	2.28E+00		-9.94E-01	1.04E+00
	722.78	11.10	2.13E+00		3.32E-01	9.95E-01
	1691.02	49.00	3.28E-01		1.16E-01	1.33E-01
	I-125	35.49	6.49	4.99E+00	4.99E+00	-6.29E-01	2.41E+00
SB-125	176.33	6.89	1.58E+00	4.43E-01	9.36E-01	7.59E-01
	427.89	29.33	4.43E-01		-3.57E-01	2.07E-01
	463.38	10.35	1.63E+00		1.24E+00	7.71E-01
	600.56	17.80	9.06E-01		2.46E-01	4.21E-01
	635.90	11.32	1.45E+00		1.77E-01	6.72E-01
	SB-126	414.70	83.30	3.34E-01	3.34E-01	-1.24E-01	1.57E-01
SB-126	666.33	99.60	3.87E-01		4.78E-02	1.81E-01
	695.00	99.60	3.72E-01		-2.12E-02	1.73E-01
	720.50	53.80	7.45E-01		1.79E-01	3.47E-01
	+ SN-126	87.57	* 37.00	8.50E-01	8.50E-01	6.02E-01	4.20E-01
SB-127	473.00	25.00	6.29E+00	4.75E+00	1.37E+00	2.95E+00
	685.20	35.70	4.75E+00		-5.82E-01	2.19E+00
	783.80	14.70	1.33E+01		3.61E+00	6.16E+00
I-129	29.78	57.00	8.71E-01	8.71E-01	2.41E-01	4.21E-01
	33.60	13.20	2.57E+00		1.72E-01	1.24E+00
	39.58	7.52	2.76E+00		-9.15E-01	1.33E+00
I-131	284.30	6.05	6.67E+00	4.79E-01	3.96E+00	3.19E+00
	364.48	81.20	4.79E-01		-9.21E-03	2.26E-01
	636.97	7.26	6.74E+00		1.62E+00	3.12E+00
	722.89	1.80	3.48E+01		5.44E+00	1.63E+01
TE-132	49.72	13.10	1.78E+01	2.25E+00	-2.15E+00	8.63E+00
	228.16	88.00	2.25E+00		2.75E-01	1.08E+00
BA-133	81.00	33.00	3.33E-01	2.92E-01	-1.84E+00	1.61E-01
	302.84	17.80	8.54E-01		9.07E-01	4.09E-01
	356.01	60.00	2.92E-01		-1.61E-02	1.40E-01
I-133	529.87	86.30	5.72E+03	5.72E+03	-7.44E+01	2.66E+03
XE-133	81.00	38.00	1.62E+00	1.62E+00	-8.95E+00	7.87E-01
CS-134	563.23	8.38	1.75E+00	1.68E-01	-1.05E+00	8.12E-01
	569.32	15.43	1.09E+00		2.03E-01	5.10E-01

Analysis Report for 1606067-09

CP-5012 09-15 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	604.70	97.60	1.68E-01	1.68E-01	-6.50E-03	7.81E-02
	795.84	85.40	2.60E-01		2.34E-01	1.22E-01
	801.93	8.73	2.01E+00		1.41E-01	9.23E-01
CS-135	268.24	16.00	8.78E-01	8.78E-01	1.44E-02	4.21E-01
	I-135	1131.51	22.50		1.72E+14	1.34E+14	-3.20E+12	7.80E+13
CS-136	1260.41	28.60	1.34E+14	3.19E-01	-6.96E+12	6.02E+13
	1678.03	9.54	2.91E+14		4.84E+13	1.19E+14
	153.22	7.46	2.82E+00		2.73E+00	1.36E+00
	163.89	4.61	4.31E+00		7.45E-02	2.07E+00
	176.55	13.56	1.56E+00		5.00E-01	7.48E-01
	273.65	12.66	2.24E+00		3.10E-01	1.08E+00
	340.57	48.50	7.60E-01		1.02E+00	3.66E-01
	818.50	99.70	3.19E-01		8.99E-02	1.45E-01
	1048.07	79.60	5.07E-01		5.87E-02	2.31E-01
	1235.34	19.70	2.74E+00		3.53E-02	1.26E+00
CS-137	661.65	85.12	2.17E-01	2.17E-01	1.27E-03	1.01E-01
LA-138	788.74	34.00	5.36E-01	1.97E-01	-3.48E-01	2.47E-01
	1435.80	66.00	1.97E-01		-1.15E-01	8.08E-02
CE-139	165.85	80.35	1.36E-01	1.36E-01	5.10E-02	6.54E-02
BA-140	162.64	6.70	2.98E+00	1.18E+00	-9.76E-02	1.43E+00
	304.84	4.50	6.08E+00		-3.32E+00	2.90E+00
	423.70	3.20	9.02E+00		1.29E+00	4.25E+00
	437.55	2.00	1.46E+01		2.45E+00	6.87E+00
	537.32	25.00	1.18E+00		-3.58E-01	5.47E-01
	LA-140	328.77	20.50		1.48E+00	3.76E-01	1.05E+00	7.06E-01
LA-140	487.03	45.50	6.12E-01	3.76E-01	5.57E-02	2.85E-01
	815.85	23.50	1.40E+00		2.14E-02	6.35E-01
	1596.49	95.49	3.76E-01		-8.00E-02	1.61E-01
	CE-141	145.44	48.40		2.73E-01	2.73E-01	7.97E-02	1.32E-01
CE-143	57.36	11.80	8.47E+02	3.06E+02	5.70E+02	4.11E+02
	293.26	42.00	3.06E+02		5.29E+02	1.48E+02
	664.55	5.20	2.67E+03		8.47E+02	1.25E+03
CE-144	133.54	10.80	9.54E-01	9.54E-01	2.11E-01	4.60E-01
PM-144	476.78	42.00	3.95E-01	1.56E-01	3.41E-01	1.86E-01
	618.01	98.60	1.56E-01		-2.02E-02	7.22E-02
	696.49	99.49	1.92E-01		9.40E-02	8.93E-02
PM-145	36.85	21.70	1.17E+00	6.18E-01	1.88E-01	5.64E-01
	37.36	39.70	6.18E-01		1.93E-01	2.99E-01
	42.30	15.10	1.24E+00		4.56E-02	5.98E-01
	72.40	2.31	6.54E+00		-7.78E+00	3.20E+00
PM-146	453.90	39.94	3.88E-01	3.88E-01	1.84E-01	1.83E-01
	735.90	14.01	1.27E+00		-6.73E-01	5.85E-01
	747.13	13.10	1.21E+00		2.35E-01	5.53E-01
ND-147	91.11	28.90	1.11E+00	1.11E+00	2.70E-01	5.40E-01
	531.02	13.10	2.56E+00		-4.40E-02	1.19E+00
PM-149	285.90	3.10	2.39E+02	2.39E+02	-3.65E+01	1.14E+02
EU-152	121.78	20.50	4.29E-01	4.29E-01	7.94E-02	2.06E-01
	244.69	5.40	2.81E+00		-1.39E+00	1.35E+00
	344.27	19.13	7.24E-01		-1.24E+00	3.44E-01
	778.89	9.20	2.02E+00		4.30E-01	9.34E-01
	964.01	10.40	2.16E+00		-4.76E-01	1.00E+00
	1085.78	7.22	2.49E+00		1.50E-01	1.12E+00
	1112.02	9.60	2.01E+00		-1.06E-01	9.06E-01

Analysis Report for 1606067-09

CP-5012 09-15 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	1407.95	14.94	1.40E+00	4.29E-01	1.25E-01	6.25E-01
GD-153	97.43	31.30	3.30E-01	3.30E-01	-2.44E-01	1.60E-01
	103.18	22.20	4.18E-01		-1.90E-01	2.01E-01
EU-154	123.07	40.50	2.20E-01	2.20E-01	-1.68E-02	1.06E-01
	723.30	19.70	1.04E+00		1.62E-01	4.84E-01
	873.19	11.50	1.45E+00		-1.21E-01	6.60E-01
	996.32	10.30	1.63E+00		-5.38E-01	7.28E-01
	1004.76	17.90	1.26E+00		1.81E-01	5.79E-01
	1274.45	35.50	6.37E-01		-1.40E-01	2.89E-01
EU-155	86.50	30.90	4.28E-01	4.28E-01	1.12E-01	2.09E-01
	105.30	20.70	4.56E-01		-2.24E-02	2.20E-01
EU-156	811.77	10.40	2.77E+00	2.77E+00	-9.68E-01	1.26E+00
	1153.47	7.20	5.39E+00		-3.91E-01	2.45E+00
	1230.71	8.90	4.73E+00		-1.04E+00	2.15E+00
HO-166M	184.41	72.60	1.75E-01	1.75E-01	2.30E-01	8.46E-02
	280.45	29.60	4.48E-01		5.70E-03	2.14E-01
	410.94	11.10	1.50E+00		1.17E+00	7.11E-01
	711.69	54.10	3.40E-01		-1.07E-01	1.58E-01
TM-171	66.72	0.14	9.34E+01	9.34E+01	-1.31E+02	4.54E+01
HF-172	81.75	4.52	2.44E+00	8.21E-01	-1.05E+01	1.18E+00
	125.81	11.30	8.21E-01		-1.25E+00	3.95E-01
LU-172	181.53	20.60	1.86E+00	1.25E+00	5.97E-02	8.93E-01
	810.06	16.63	3.74E+00		-1.14E+00	1.70E+00
	912.12	15.25	9.08E+00		1.76E+01	4.33E+00
	1093.66	62.50	1.25E+00		-1.61E-01	5.66E-01
LU-173	100.72	5.24	1.82E+00	6.94E-01	2.45E-01	8.79E-01
	272.11	21.20	6.94E-01		4.07E-01	3.33E-01
HF-175	343.40	84.00	1.96E-01	1.96E-01	-4.67E-01	9.31E-02
LU-176	88.34	13.30	1.04E+00	1.32E-01	-7.78E-02	5.07E-01
	201.83	86.00	1.32E-01		-6.55E-02	6.36E-02
	306.78	94.00	1.40E-01		5.73E-03	6.67E-02
TA-182	67.75	41.20	3.34E-01	3.34E-01	-1.58E-01	1.62E-01
	1121.30	34.90	9.11E-01		5.96E-01	4.25E-01
	1189.05	16.23	1.46E+00		-7.83E-02	6.64E-01
	1221.41	26.98	9.12E-01		-3.02E-01	4.15E-01
	1231.02	11.44	2.25E+00		1.96E-01	1.03E+00
IR-192	308.46	29.68	4.84E-01	3.25E-01	3.72E-02	2.30E-01
	468.07	48.10	3.25E-01		1.51E-01	1.52E-01
HG-203	279.19	77.30	2.15E-01	2.15E-01	1.13E-01	1.03E-01
BI-207	569.67	97.72	1.74E-01	1.74E-01	8.57E-02	8.14E-02
	1063.62	74.90	2.92E-01		1.60E-01	1.34E-01
+ TL-208	583.14	*	30.22	7.79E-01	3.06E-01	1.69E+00
	860.37	*	4.48	4.71E+00		2.78E+00
	2614.66	*	35.85	3.06E-01		2.24E+00
BI-210M	262.00		45.00	2.80E-01	2.80E-01	-2.26E-03
	300.00		23.00	6.56E-01		-1.73E+00
+ PB-210	46.50	*	4.25	5.10E+00	5.10E+00	3.40E+00
PB-211	404.84		2.90	4.94E+00	4.94E+00	-5.73E-01
	831.96		2.90	6.25E+00		9.15E-01
+ BI-212	727.17	*	11.80	1.82E+00	1.82E+00	1.87E+00
	1620.62		2.75	5.76E+00		2.34E+00
+ PB-212	238.63	*	44.60	5.94E-01	5.94E-01	2.71E+00
	300.09		3.41	4.43E+00		-1.17E+01
						2.12E+00

Analysis Report for 1606067-09

CP-5012 09-15 QC

Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	BI-214	609.31 *	46.30	5.42E-01	5.42E-01	1.84E+00	2.59E-01
		1120.29	15.10	1.86E+00		8.87E-01	8.68E-01
		1764.49 *	15.80	9.79E-01		2.66E+00	4.03E-01
		2204.22 *	4.98	3.92E+00		2.26E+00	1.64E+00
+	PB-214	295.21 *	19.19	1.49E+00	9.73E-01	2.19E+00	7.30E-01
		351.92 *	37.19	9.73E-01		1.85E+00	4.77E-01
	RN-219	401.80	6.50	2.23E+00	2.23E+00	4.14E-01	1.05E+00
	RA-223	323.87	3.88	3.18E+00	3.18E+00	-4.08E+00	1.50E+00
	RA-224	240.98	3.95	6.79E+00	6.79E+00	3.23E+01	3.33E+00
	RA-225	40.00	31.00	1.21E+00	1.21E+00	-4.00E-01	5.82E-01
+	RA-226	186.21 *	3.28	4.65E+00	4.65E+00	4.60E+00	2.26E+00
	TH-227	50.10	8.40	1.71E+00	1.71E+00	-2.06E-01	8.27E-01
		236.00	11.50	2.00E+00		4.95E+00	9.78E-01
		256.20	6.30	2.09E+00		1.14E+00	1.00E+00
+	AC-228	338.32 *	11.40	3.07E+00	8.91E-01	3.15E+00	1.51E+00
		911.07 *	27.70	8.91E-01		2.29E+00	4.17E-01
		969.11 *	16.60	1.65E+00		3.01E+00	7.71E-01
	TH-230	48.44	16.90	1.01E+00	1.01E+00	3.04E-01	4.89E-01
		62.85	4.60	3.07E+00		1.34E+00	1.50E+00
		67.67	0.37	3.44E+01		-1.63E+01	1.67E+01
	PA-231	283.67	1.60	8.17E+00	6.59E+00	4.84E+00	3.90E+00
		302.67	2.30	6.59E+00		7.00E+00	3.16E+00
	TH-231	25.64	14.70	5.82E+00	1.77E+00	-3.35E+00	2.81E+00
		84.21	6.40	1.77E+00		-2.34E+00	8.62E-01
	PA-233	311.98	38.60	4.68E-01	4.68E-01	3.02E-01	2.23E-01
	PA-234	131.20	20.40	5.40E-01	5.40E-01	4.85E-01	2.61E-01
		733.99	8.80	2.00E+00		2.81E-01	9.25E-01
		946.00	12.00	1.42E+00		-4.60E-02	6.43E-01
	PA-234M	1001.03	0.92	2.26E+01	2.26E+01	7.33E+00	1.03E+01
	TH-234	63.29	3.80	3.67E+00	3.67E+00	2.05E+00	1.79E+00
	U-235	143.76	10.50	9.59E-01	9.59E-01	2.72E-01	4.62E-01
		163.35	4.70	2.12E+00		3.67E-02	1.02E+00
		205.31	4.70	2.52E+00		-4.62E+00	1.21E+00
	NP-237	86.50	12.60	1.04E+00	1.04E+00	2.74E-01	5.09E-01
	NP-239	106.10	22.70	1.97E+01	1.97E+01	2.01E+00	9.50E+00
		228.18	10.70	5.37E+01		6.56E+00	2.58E+01
		277.60	14.10	4.47E+01		3.01E+00	2.14E+01
	AM-241	59.54	35.90	3.85E-01	3.85E-01	9.35E-02	1.87E-01
+	AM-243	74.67 *	66.00	6.30E-01	6.30E-01	7.44E-01	3.13E-01
	CM-243	209.75	3.29	4.24E+00	9.63E-01	2.44E+00	2.05E+00
		228.14	10.60	1.16E+00		1.42E-01	5.57E-01
		277.60	14.00	9.63E-01		6.50E-02	4.61E-01

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

Analysis Report for 1606067-09
CP-5012 09-15 QC

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

<i>Creation Date</i>	<i>Comment</i>	<i>User</i>
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No Data Review Comments Entered.

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: CP-5012 09-15 QC

Elapsed Live time: 3600
 Elapsed Real Time: 3614

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	5	140	126	81	90	95	76	95	
17:	92	73	63	67	57	74	55	55	
25:	42	55	39	50	58	55	48	70	
33:	61	51	52	61	64	46	54	54	
41:	50	61	54	65	55	68	132	85	
49:	49	58	64	46	64	74	51	56	
57:	57	77	91	109	78	65	93	158	
65:	89	70	87	92	97	84	100	82	
73:	99	119	254	185	276	368	96	75	
81:	71	60	62	91	94	90	112	148	
89:	96	146	96	80	200	154	62	67	
97:	62	51	56	67	56	44	43	40	
105:	56	71	53	51	61	57	39	47	
113:	60	37	47	55	48	29	44	45	
121:	37	47	35	45	48	34	47	48	
129:	94	73	46	51	50	46	49	56	
137:	41	42	37	42	41	49	46	63	
145:	44	36	48	41	39	39	46	46	
153:	39	60	54	37	25	35	34	47	
161:	36	32	37	49	42	40	38	39	
169:	39	36	46	28	29	42	44	46	
177:	37	44	35	41	34	32	27	39	
185:	35	104	77	38	37	29	39	32	
193:	42	29	30	32	18	28	29	29	
201:	34	28	20	31	26	43	37	23	
209:	55	68	26	43	30	33	33	34	
217:	30	28	32	29	35	23	22	32	
225:	29	32	35	19	19	27	30	24	
233:	27	28	34	35	42	112	381	161	
241:	51	86	52	29	31	21	25	18	
249:	13	23	26	22	27	20	23	29	
257:	19	31	34	18	19	19	26	24	
265:	20	24	19	20	17	40	53	24	
273:	25	13	28	18	32	35	15	22	
281:	17	32	20	18	15	27	22	17	
289:	13	15	19	22	17	22	85	90	
297:	30	21	19	32	38	21	24	24	
305:	24	21	15	13	18	19	20	17	
313:	21	18	12	9	15	13	6	20	
321:	13	21	11	17	13	14	17	39	
329:	27	19	19	19	21	12	16	12	
337:	19	70	63	33	17	15	14	15	
345:	12	27	21	18	12	16	34	128	
353:	100	18	16	11	14	16	11	16	
361:	15	11	10	13	17	16	11	12	

369: 6 16 12 9 15 19 10 18

Sample Title: CP-5012 09-15 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	16	12	13	14	12	16	16	14
385:	19	13	11	16	13	15	14	11
393:	14	12	12	12	12	15	19	20
401:	14	13	9	13	13	15	15	19
409:	22	31	17	9	15	16	15	6
417:	13	7	10	17	16	13	14	15
425:	13	9	8	9	12	12	7	14
433:	16	12	16	8	11	15	14	13
441:	8	12	6	8	17	9	9	17
449:	10	11	11	12	17	12	15	13
457:	12	13	6	18	11	14	31	18
465:	9	4	11	8	11	15	11	10
473:	6	11	15	12	22	12	10	11
481:	9	5	9	11	7	8	11	13
489:	7	6	11	8	15	8	8	7
497:	11	11	12	12	10	12	9	11
505:	9	11	9	10	21	24	45	38
513:	29	10	13	7	9	6	9	11
521:	8	12	6	9	6	11	9	10
529:	4	6	11	9	10	12	5	11
537:	7	7	12	5	11	10	12	7
545:	8	11	11	7	7	9	9	7
553:	11	14	5	8	10	11	13	7
561:	8	7	10	8	5	9	8	12
569:	11	11	11	9	12	10	6	5
577:	10	9	8	11	10	19	66	57
585:	10	11	7	8	7	8	7	6
593:	6	8	9	8	7	5	8	12
601:	11	7	9	7	7	6	12	12
609:	81	105	22	11	13	11	6	8
617:	5	6	10	7	7	6	9	11
625:	5	9	3	5	8	6	10	6
633:	9	5	6	4	11	11	9	6
641:	7	3	7	9	5	2	4	8
649:	5	6	13	14	7	11	9	12
657:	9	9	4	11	6	17	11	9
665:	9	11	9	11	7	8	6	12
673:	5	9	2	8	6	8	10	8
681:	9	9	5	8	6	4	10	5
689:	6	7	11	3	10	8	14	7
697:	6	9	8	8	3	13	9	8
705:	5	12	11	9	13	8	10	6
713:	10	3	8	9	11	7	9	6
721:	15	6	9	4	10	20	22	19
729:	9	7	6	7	8	9	8	9
737:	3	5	8	12	12	3	8	7
745:	5	9	5	4	3	5	5	3
753:	5	8	6	14	5	5	6	4
761:	7	6	7	4	5	7	11	18
769:	9	4	4	5	10	3	2	6
777:	9	9	4	7	6	9	4	5
785:	4	15	7	6	6	2	5	6
793:	10	15	13	10	7	7	7	3

801: 5 5 10 6 5 6 8 6

Sample Title: CP-5012 09-15 QC

Channel	1	2	3	4	5	6	7	8	9
809:	3	6	5	4	2	9	4	5	
817:	6	5	3	3	7	2	2	7	
825:	9	8	3	3	6	7	5	8	
833:	3	7	6	9	5	6	4	6	
841:	6	1	3	9	5	7	3	5	
849:	3	6	5	2	2	4	4	6	
857:	5	5	7	13	13	7	5	7	
865:	2	3	4	5	6	5	5	5	
873:	3	4	7	3	5	4	2	6	
881:	5	3	4	5	4	8	3	6	
889:	4	3	1	3	3	4	7	3	
897:	3	8	5	4	5	2	2	8	
905:	5	8	4	3	7	23	57	40	
913:	8	9	8	7	5	3	9	3	
921:	5	3	4	2	2	3	6	4	
929:	3	2	7	7	8	6	6	5	
937:	4	7	6	2	5	3	3	5	
945:	4	3	4	5	5	5	4	3	
953:	3	6	4	5	7	3	3	2	
961:	5	9	2	8	12	11	4	15	
969:	44	22	4	7	4	6	3	6	
977:	2	2	3	5	3	8	5	7	
985:	5	3	4	7	6	6	3	3	
993:	4	3	6	2	4	3	3	7	
1001:	5	5	11	6	6	5	8	6	
1009:	7	5	4	4	3	2	5	5	
1017:	5	7	5	3	4	9	1	5	
1025:	4	1	6	2	4	6	5	5	
1033:	3	4	7	7	6	2	8	9	
1041:	1	3	7	2	5	4	5	3	
1049:	4	8	6	5	4	1	7	4	
1057:	4	1	3	8	4	4	9	5	
1065:	6	4	4	4	4	4	8	4	
1073:	4	3	3	2	9	7	8	8	
1081:	4	4	2	2	4	6	4	4	
1089:	3	2	6	5	2	8	4	5	
1097:	7	6	7	2	5	7	6	5	
1105:	7	6	6	3	5	3	5	4	
1113:	3	4	4	5	3	2	6	21	
1121:	22	5	4	9	7	8	7	5	
1129:	3	6	5	7	1	4	2	3	
1137:	2	7	4	4	4	5	3	3	
1145:	3	3	4	6	3	5	4	2	
1153:	3	4	12	3	6	5	4	8	
1161:	8	6	5	1	3	3	4	2	
1169:	4	5	4	3	10	7	5	7	
1177:	5	8	2	2	4	6	1	3	
1185:	4	4	5	7	3	6	2	6	
1193:	10	2	7	6	5	1	4	4	
1201:	5	5	7	6	5	7	9	9	
1209:	6	1	6	4	2	4	7	7	
1217:	5	3	5	5	6	3	6	6	
1225:	8	5	3	5	7	4	5	6	

1233: 5 5 6 5 10 12 13 3

Sample Title: CP-5012 09-15 QC

Channel	1	2	3	4	5	6	7	8	9
1241:	5	1	10	10	6	2	7	6	
1249:	5	6	6	5	4	9	4	6	
1257:	5	3	4	0	6	6	1	6	
1265:	5	3	3	2	5	5	6	2	
1273:	5	3	3	2	4	1	3	6	
1281:	5	6	2	2	4	3	6	5	
1289:	2	5	4	2	3	4	3	2	
1297:	1	2	2	6	5	3	1	3	
1305:	6	3	6	4	2	1	6	2	
1313:	1	2	4	2	6	5	4	2	
1321:	4	2	0	5	4	5	2	5	
1329:	6	4	4	8	7	1	3	2	
1337:	5	2	1	1	1	4	6	1	
1345:	2	2	3	2	1	2	1	0	
1353:	4	1	3	2	2	1	3	3	
1361:	1	0	2	2	1	3	2	2	
1369:	0	3	5	5	3	3	2	3	
1377:	4	3	5	4	0	4	2	6	
1385:	1	1	3	0	1	2	1	2	
1393:	1	4	2	2	4	1	1	1	
1401:	2	1	1	3	1	3	6	1	
1409:	2	4	0	2	3	3	1	1	
1417:	3	0	2	1	1	1	0	2	
1425:	2	0	2	2	2	1	1	1	
1433:	1	0	0	0	1	2	1	1	
1441:	3	2	1	2	5	2	0	3	
1449:	4	3	3	0	0	2	2	1	
1457:	1	4	41	116	162	46	13	0	
1465:	2	0	1	1	3	3	1	3	
1473:	0	3	1	1	0	2	1	1	
1481:	1	1	0	1	2	0	0	1	
1489:	0	4	2	2	2	1	4	2	
1497:	3	0	0	3	2	0	2	1	
1505:	0	0	4	1	0	1	2	2	
1513:	1	0	1	1	2	1	2	2	
1521:	0	1	0	1	0	1	0	1	
1529:	2	0	2	1	1	2	4	1	
1537:	1	2	0	3	1	2	1	1	
1545:	0	3	2	3	0	1	4	1	
1553:	0	0	0	5	2	1	1	1	
1561:	2	2	1	2	2	0	3	0	
1569:	1	0	0	0	1	0	1	1	
1577:	1	0	0	0	3	1	2	2	
1585:	0	1	4	2	5	1	2	1	
1593:	4	1	3	1	1	0	1	0	
1601:	2	3	0	2	0	1	1	1	
1609:	0	1	0	1	1	0	0	1	
1617:	0	0	1	3	2	0	0	2	
1625:	0	1	0	0	1	3	1	2	
1633:	0	1	2	1	1	1	0	0	
1641:	1	1	0	1	2	1	1	0	
1649:	0	0	0	1	1	4	2	1	
1657:	0	1	1	1	2	3	2	0	

1665: 0 1 1 0 0 0 0 1

Sample Title: CP-5012 09-15 QC

Channel	1	2	3	4	5	6	7	8
1673:	0	1	1	0	1	0	2	0
1681:	2	0	0	1	0	0	1	1
1689:	1	0	2	0	0	1	0	0
1697:	0	0	1	1	1	1	2	0
1705:	0	1	0	4	0	0	2	4
1713:	2	1	0	1	1	1	0	0
1721:	3	1	0	2	1	1	0	2
1729:	3	3	0	0	1	2	0	0
1737:	2	1	0	1	0	2	0	0
1745:	0	0	0	0	0	2	0	2
1753:	0	0	1	1	1	0	1	1
1761:	0	3	10	15	11	5	0	1
1769:	1	1	0	0	0	0	1	2
1777:	2	1	0	1	3	0	0	1
1785:	1	3	0	0	0	2	0	0
1793:	0	0	1	1	1	0	1	2
1801:	0	0	3	1	1	0	1	1
1809:	0	0	2	2	0	0	0	0
1817:	1	1	2	0	0	3	0	1
1825:	0	0	0	0	0	1	1	0
1833:	0	0	0	0	0	1	3	1
1841:	0	1	1	3	0	3	4	2
1849:	0	2	4	0	1	0	1	0
1857:	0	1	0	1	0	1	0	2
1865:	0	1	1	1	2	0	0	1
1873:	0	0	0	0	1	0	0	0
1881:	2	1	0	0	1	0	1	1
1889:	1	1	1	0	1	1	0	0
1897:	0	0	1	1	2	0	1	3
1905:	1	0	0	0	2	2	1	0
1913:	0	2	0	0	0	2	1	0
1921:	0	1	0	1	0	1	2	3
1929:	1	0	1	0	2	0	0	0
1937:	0	1	0	0	1	0	0	2
1945:	0	0	0	2	0	1	0	0
1953:	2	0	1	0	0	1	3	1
1961:	1	0	0	1	1	1	0	0
1969:	1	1	1	2	1	2	0	0
1977:	0	1	0	0	0	0	2	1
1985:	0	0	1	0	1	1	1	1
1993:	0	1	0	1	0	0	0	0
2001:	0	0	1	0	0	0	2	1
2009:	1	0	1	0	0	2	2	0
2017:	1	1	0	0	1	1	0	0
2025:	0	1	2	0	0	0	0	0
2033:	0	2	0	1	1	0	0	0
2041:	0	1	3	0	0	1	1	1
2049:	1	1	0	1	2	1	0	1
2057:	1	0	0	2	3	0	0	0
2065:	0	4	0	0	0	0	0	0
2073:	0	1	0	0	0	0	1	0
2081:	1	0	0	0	1	1	1	1
2089:	1	0	0	0	0	2	1	1

2097: 0 0 1 0 3 1 3 4

Sample Title: CP-5012 09-15 QC

Channel	1	2	3	4	5	6	7	8
2105:	2	0	1	2	0	0	1	0
2113:	0	0	0	1	1	1	1	0
2121:	1	2	2	2	0	2	1	0
2129:	3	1	1	0	0	0	0	0
2137:	1	0	0	0	0	1	1	1
2145:	1	0	1	0	0	0	0	0
2153:	0	1	1	2	0	0	0	0
2161:	0	0	1	0	1	0	0	0
2169:	1	0	0	0	3	1	0	2
2177:	0	0	0	2	0	0	1	2
2185:	1	0	1	2	0	1	0	0
2193:	0	0	1	2	0	0	0	3
2201:	0	1	1	4	4	1	1	0
2209:	2	0	0	2	1	0	0	0
2217:	3	0	0	0	1	0	1	0
2225:	1	1	1	2	0	2	1	0
2233:	0	2	1	0	0	1	0	2
2241:	1	2	1	0	0	0	1	1
2249:	0	0	0	0	1	0	1	0
2257:	1	0	0	1	1	4	0	1
2265:	0	0	1	1	0	1	0	2
2273:	0	0	0	0	2	0	0	0
2281:	0	1	0	0	0	0	0	0
2289:	0	2	3	0	0	0	1	1
2297:	0	0	0	0	1	1	2	0
2305:	0	1	0	3	1	0	0	0
2313:	0	0	0	0	0	0	2	0
2321:	1	1	0	0	0	1	1	2
2329:	0	0	1	1	0	0	1	0
2337:	0	0	1	1	2	0	0	0
2345:	1	0	0	1	2	1	0	1
2353:	0	1	1	1	0	0	0	1
2361:	2	1	0	1	1	0	0	1
2369:	1	0	0	0	0	1	0	0
2377:	0	1	0	0	1	1	0	0
2385:	1	2	0	2	1	0	1	0
2393:	1	1	0	0	1	0	0	2
2401:	1	1	0	0	0	0	0	0
2409:	0	0	2	2	2	0	1	1
2417:	0	0	0	0	1	0	0	0
2425:	0	3	0	2	2	0	1	1
2433:	1	0	1	0	2	1	0	1
2441:	0	2	1	1	1	2	1	0
2449:	0	1	0	1	0	0	1	0
2457:	2	0	0	0	0	0	1	0
2465:	3	1	1	2	1	0	0	2
2473:	0	0	2	0	0	0	0	1
2481:	0	0	0	1	1	0	1	0
2489:	0	0	1	0	0	0	0	0
2497:	0	0	0	0	0	0	0	0
2505:	0	0	2	0	0	0	0	1
2513:	1	0	1	0	1	0	0	0
2521:	0	0	0	3	0	0	0	0

2529: 0 0 0 0 0 0 0 1 0

Sample Title: CP-5012 09-15 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2537:	0	0	1	0	0	0	0	0
2545:	0	1	0	0	0	0	0	0
2553:	0	0	0	0	1	2	0	1
2561:	0	0	0	1	0	0	0	0
2569:	0	0	0	0	0	0	1	0
2577:	0	0	1	0	0	1	1	0
2585:	0	0	1	1	0	0	0	0
2593:	0	0	1	0	0	2	1	0
2601:	0	0	0	0	0	0	1	0
2609:	0	1	0	4	19	22	15	4
2617:	0	0	0	0	1	1	2	0
2625:	1	0	2	1	0	1	0	0
2633:	0	0	1	1	0	0	0	0
2641:	1	0	0	1	1	0	0	0
2649:	0	0	0	0	0	1	2	0
2657:	0	0	1	0	0	0	0	0
2665:	0	0	0	0	0	0	0	0
2673:	0	0	0	0	0	1	0	0
2681:	0	0	1	0	0	0	0	0
2689:	1	0	0	0	0	0	0	0
2697:	1	0	1	0	0	0	0	1
2705:	0	0	0	1	0	1	0	1
2713:	0	0	0	0	0	0	0	0
2721:	0	1	0	0	0	0	0	0
2729:	0	0	0	0	0	1	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	1	1	0	0	1	1	1
2753:	1	0	1	0	0	0	0	0
2761:	0	1	0	0	0	0	0	0
2769:	0	1	0	0	0	0	0	0
2777:	0	0	0	1	0	1	0	0
2785:	0	0	2	0	0	0	0	0
2793:	0	0	1	0	0	0	1	0
2801:	0	1	0	1	0	0	0	0
2809:	0	1	0	1	1	0	0	0
2817:	0	0	0	0	0	0	0	1
2825:	1	1	0	1	0	0	0	0
2833:	0	0	1	0	0	0	1	1
2841:	0	0	0	0	0	0	1	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	2	0
2865:	0	0	0	0	0	0	0	0
2873:	1	0	0	0	0	0	0	0
2881:	0	0	0	1	0	0	0	0
2889:	0	0	0	0	0	0	2	0
2897:	0	0	0	0	0	0	1	0
2905:	0	1	0	0	0	0	0	0
2913:	1	0	0	0	2	0	0	0
2921:	0	0	0	0	0	0	0	0
2929:	1	0	1	0	0	0	0	0
2937:	0	0	0	0	0	1	0	0
2945:	0	0	0	0	0	0	0	1
2953:	0	0	0	0	0	0	0	0

2961: 0 0 0 0 0 0 0 0

Sample Title: CP-5012 09-15 QC

Channel								
2969:	0	0	0	0	0	0	0	0
2977:	0	1	0	0	0	2	0	0
2985:	0	0	0	0	1	1	0	0
2993:	0	0	0	0	0	0	0	0
3001:	0	0	0	1	0	0	0	0
3009:	0	0	0	0	0	1	0	0
3017:	0	0	0	1	0	0	0	0
3025:	0	0	0	0	0	0	0	0
3033:	0	0	0	0	0	0	0	0
3041:	0	0	0	0	0	0	0	0
3049:	0	0	1	0	0	1	1	0
3057:	0	0	0	0	0	0	0	0
3065:	0	0	0	0	0	0	0	0
3073:	0	0	0	1	0	0	0	0
3081:	0	1	0	0	0	0	0	0
3089:	1	0	0	0	0	0	0	0
3097:	0	0	1	0	0	0	0	1
3105:	0	0	0	0	0	0	0	0
3113:	0	0	0	0	0	0	0	0
3121:	0	0	0	0	0	0	0	0
3129:	0	0	0	0	0	1	0	0
3137:	0	0	0	0	0	0	0	0
3145:	0	0	0	0	0	0	1	0
3153:	1	0	0	0	0	1	0	0
3161:	0	1	0	1	0	0	0	0
3169:	0	0	0	0	0	0	0	0
3177:	0	0	0	0	0	0	0	0
3185:	0	0	0	0	1	0	0	0
3193:	1	0	0	0	0	0	0	0
3201:	0	0	0	0	0	0	0	0
3209:	0	0	0	0	0	0	0	1
3217:	0	0	0	0	0	0	0	0
3225:	0	0	1	0	0	0	0	0
3233:	0	0	0	1	0	0	1	0
3241:	1	0	1	0	0	0	0	0
3249:	0	0	0	0	1	0	0	0
3257:	0	0	0	0	0	0	0	0
3265:	0	1	0	0	0	0	0	0
3273:	0	1	0	0	1	0	0	0
3281:	1	1	0	2	0	0	0	1
3289:	0	0	0	0	0	0	0	1
3297:	0	0	0	0	0	0	1	0
3305:	1	1	0	0	0	1	0	0
3313:	0	0	0	0	0	1	0	0
3321:	0	0	0	1	0	0	0	0
3329:	0	0	0	1	1	0	0	0
3337:	0	0	0	0	0	0	0	0
3345:	0	0	0	0	0	0	1	0
3353:	0	0	0	0	0	1	1	0
3361:	0	0	0	0	0	0	0	0
3369:	0	0	0	0	0	0	0	1
3377:	0	0	0	0	0	0	1	1
3385:	0	0	0	0	0	0	1	0

3393: 0 1 1 1 0 0 0 0

Sample Title: CP-5012 09-15 QC

Channel	1	2	3	4	5	6	7	8
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	1	0	0	0	0	0
3433:	1	0	1	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	1	0	0
3465:	0	0	0	0	0	0	0	1
3473:	0	0	0	0	0	0	0	0
3481:	1	1	0	1	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0
3505:	0	1	0	0	0	0	0	0
3513:	0	0	0	0	0	0	0	1
3521:	0	1	1	0	0	0	0	0
3529:	0	0	0	0	0	0	1	0
3537:	0	1	1	0	0	0	1	0
3545:	0	0	0	0	0	0	0	0
3553:	0	0	0	0	1	1	0	0
3561:	0	2	0	0	0	0	0	0
3569:	0	1	0	0	0	1	1	1
3577:	1	0	0	0	0	0	0	0
3585:	0	2	0	0	0	0	0	0
3593:	0	0	0	0	0	0	0	1
3601:	0	0	0	0	0	0	0	1
3609:	0	0	0	0	0	0	0	0
3617:	1	0	0	0	0	0	0	1
3625:	0	0	0	0	0	0	0	0
3633:	0	0	0	0	0	0	1	0
3641:	0	0	0	0	0	0	0	0
3649:	0	0	0	0	0	1	0	0
3657:	0	0	0	0	0	0	0	0
3665:	0	0	0	0	1	0	0	0
3673:	0	0	0	0	0	1	0	1
3681:	0	0	1	0	1	0	0	1
3689:	0	0	0	0	0	0	0	0
3697:	1	0	1	0	0	0	0	1
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	0	0	0	1	0
3721:	0	0	0	0	0	0	0	0
3729:	1	0	0	0	0	0	0	0
3737:	0	1	0	0	0	0	0	0
3745:	0	0	0	0	0	0	0	0
3753:	0	0	0	0	0	0	0	0
3761:	0	0	1	1	0	0	0	0
3769:	0	0	0	0	0	0	0	0
3777:	0	1	1	0	0	0	0	0
3785:	0	0	0	0	0	1	0	0
3793:	0	1	0	0	0	0	1	0
3801:	0	1	0	0	0	0	0	0
3809:	0	0	0	0	0	0	2	0
3817:	0	0	1	0	0	0	0	0

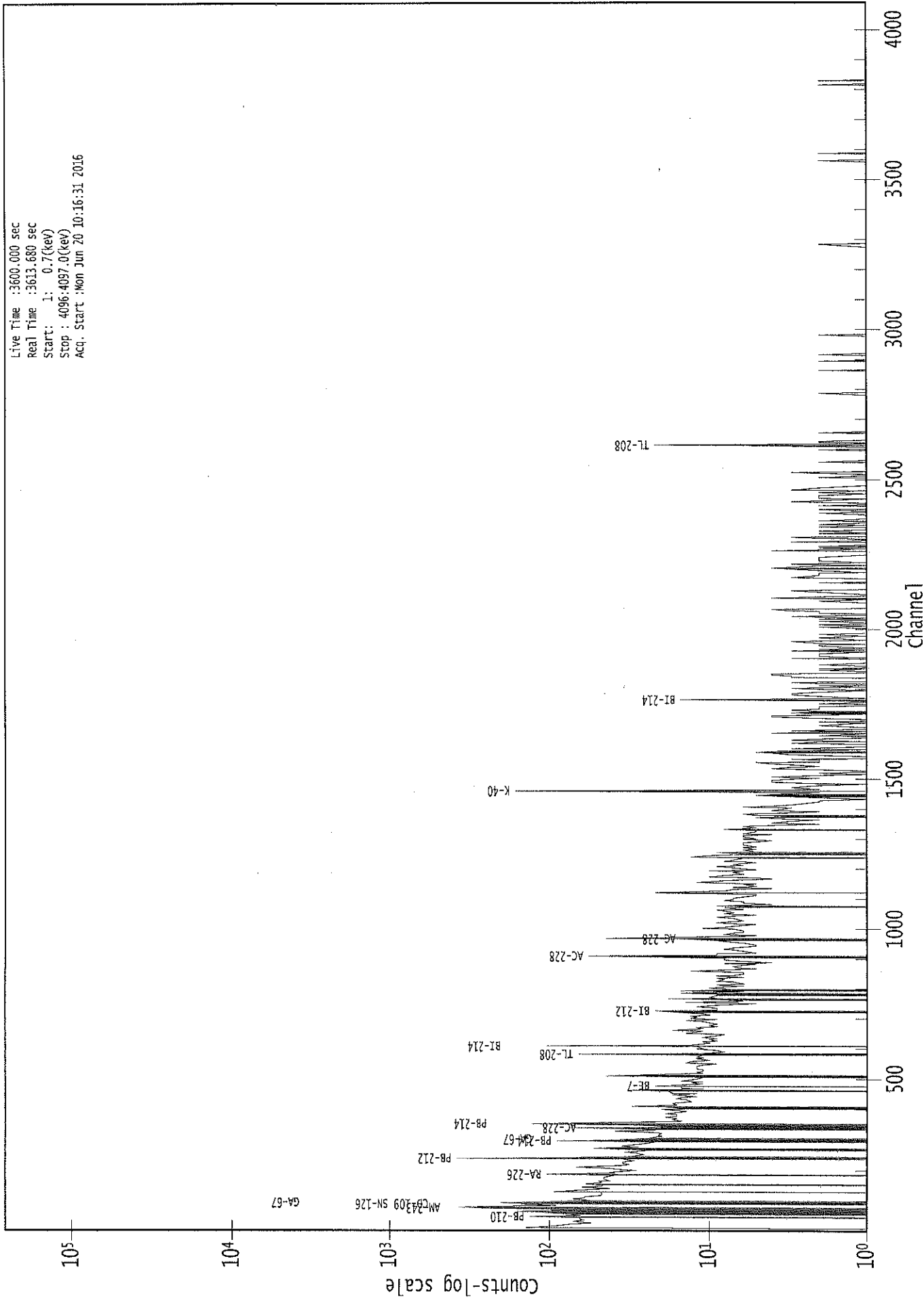
3825: 0 0 0 0 2 0 0 0

Sample Title: CP-5012 09-15 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	1	0	0	1
3841:	0	0	0	0	0	0	0	0
3849:	1	0	0	0	0	1	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	0	0	0	1	0	1
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	0	0	1
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	1	0	0	0	0	1
3921:	0	0	0	0	0	0	0	0
3929:	0	1	0	0	0	0	0	0
3937:	0	0	1	0	0	0	0	0
3945:	0	0	1	0	0	0	0	0
3953:	0	0	0	1	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	1	0	0	0	0	1	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	0	0	0	0	0
3993:	0	0	0	0	0	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	0
4025:	0	0	0	0	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	1	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	1	0
4065:	0	0	0	0	0	1	0	0
4073:	1	1	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	1	0

0000039152.CNF

Live Time :3600.000 sec
Real Time :3613.680 sec
Start : 1: 0.7(kev)
Stop : 4096.4097 0(kev)
Acq. Start :Mon Jun 20 10:16:31 2016



ROI Type: 1

ROI Type: 2

KJ
6/20/14Analysis Report for 1606067-10
CP-5014 09-15 QC

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606067-10
Sample Description : CP-5014 09-15 QC
Sample Type : SOIL

Sample Size : 3.805E+02 grams
Facility : Countroom

Sample Taken On : 6/7/2016 9:17:02AM
Acquisition Started : 6/20/2016 11:17:46AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE1
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.2 seconds

Dead Time : 0.03 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 19 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 10/25/2014
Efficiency Calibration Used Done On : 10/25/2014
Efficiency Calibration Description :

Sample Number : 39153

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/20/16

Analysis Report for 1606067-10
 CP-5014 09-15 QC

PEAK LOCATE REPORT

Peak Locate Performed on : 6/20/2016 12:17:50PM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096
 Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	47.97	48.32	0.0000	0.00
2	63.71	64.06	0.0000	0.00
3	76.78	77.12	0.0000	0.00
4	93.14	93.47	0.0000	0.00
5	99.66	100.00	0.0000	0.00
6	186.45	186.75	0.0000	0.00
7	209.88	210.18	0.0000	0.00
8	239.77	240.05	0.0000	0.00
9	251.30	251.58	0.0000	0.00
10	271.08	271.36	0.0000	0.00
11	295.82	296.09	0.0000	0.00
12	300.58	300.84	0.0000	0.00
13	338.88	339.14	0.0000	0.00
14	352.42	352.67	0.0000	0.00
15	463.54	463.75	0.0000	0.00
16	511.15	511.34	0.0000	0.00
17	533.71	533.89	0.0000	0.00
18	583.90	584.07	0.0000	0.00
19	587.83	588.00	0.0000	0.00
20	609.92	610.08	0.0000	0.00
21	727.96	728.08	0.0000	0.00
22	731.84	731.96	0.0000	0.00
23	768.44	768.54	0.0000	0.00
24	795.33	795.43	0.0000	0.00
25	861.62	861.69	0.0000	0.00
26	912.08	912.14	0.0000	0.00
27	943.16	943.20	0.0000	0.00
28	965.49	965.52	0.0000	0.00
29	969.65	969.68	0.0000	0.00
30	1121.69	1121.67	0.0000	0.00
31	1240.04	1239.98	0.0000	0.00
32	1386.44	1386.32	0.0000	0.00
33	1401.09	1400.96	0.0000	0.00
34	1440.27	1440.13	0.0000	0.00
35	1461.72	1461.58	0.0000	0.00
36	1588.90	1588.71	0.0000	0.00
37	1613.15	1612.95	0.0000	0.00
38	1620.91	1620.70	0.0000	0.00
39	1631.59	1631.38	0.0000	0.00
40	1765.37	1765.11	0.0000	0.00
41	1772.19	1771.93	0.0000	0.00
42	1939.58	1939.26	0.0000	0.00

Analysis Report for 1606067-10
CP-5014 09-15 QC

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1977.98	1977.65	0.0000	0.00
44	2054.70	2054.33	0.0000	0.00
45	2103.74	2103.35	0.0000	0.00
46	2204.60	2204.18	0.0000	0.00
47	2459.12	2458.60	0.0000	0.00
48	2575.85	2575.29	0.0000	0.00
49	2615.18	2614.60	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606067-10

CP-5014 09-15 QC

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 12:17:50PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
1	47.97	43 -	52	48.32	2.16E+02	102.21	1.37E+03	2.08
2	63.71	60 -	67	64.06	2.31E+02	104.04	1.65E+03	1.49
3	76.78	72 -	82	77.12	1.10E+03	146.53	2.25E+03	3.07
4	93.14	91 -	97	93.47	3.30E+02	97.85	1.41E+03	1.59
5	99.66	98 -	102	100.00	8.84E+01	55.61	5.91E+02	2.19
6	186.45	182 -	191	186.75	2.17E+02	86.40	9.37E+02	1.68
7	209.88	207 -	212	210.18	7.48E+01	53.47	5.10E+02	1.71
8	239.77	234 -	245	240.05	1.09E+03	107.57	8.97E+02	1.94
9	251.30	248 -	254	251.58	4.04E+01	49.17	4.05E+02	2.00
10	271.08	267 -	275	271.36	9.25E+01	60.13	4.99E+02	2.83
M m 11	295.82	291 -	304	296.09	2.70E+02	45.12	2.30E+02	1.74
12	300.58	291 -	304	300.84	6.56E+01	37.36	2.44E+02	1.74
13	338.88	335 -	342	339.14	1.69E+02	53.67	3.66E+02	1.29
14	352.42	348 -	357	352.67	3.77E+02	65.95	4.09E+02	1.64
15	463.54	460 -	467	463.75	5.85E+01	37.58	1.97E+02	2.24
16	511.15	506 -	515	511.34	1.83E+02	45.37	1.88E+02	1.80
17	533.71	530 -	537	533.89	3.27E+01	33.94	1.67E+02	2.12
M m 18	583.90	578 -	591	584.07	2.71E+02	37.77	8.12E+01	1.78
19	587.83	578 -	591	588.00	2.05E+01	26.81	1.09E+02	1.79
20	609.92	606 -	614	610.08	2.57E+02	49.11	2.15E+02	1.45
M m 21	727.96	725 -	734	728.08	7.34E+01	25.81	7.65E+01	2.05
22	731.84	725 -	734	731.96	1.98E+01	22.93	8.22E+01	2.05
23	768.44	766 -	772	768.54	2.25E+01	27.06	1.19E+02	2.08
24	795.33	792 -	799	795.43	4.56E+01	30.27	1.19E+02	1.76
25	861.62	857 -	867	861.69	5.29E+01	30.93	1.00E+02	1.98
26	912.08	908 -	916	912.14	1.95E+02	38.08	1.01E+02	1.66
27	943.16	939 -	948	943.20	2.17E+01	25.38	7.86E+01	2.71
M m 28	965.49	963 -	972	965.52	1.79E+01	23.32	1.14E+02	2.29
29	969.65	963 -	972	969.68	1.03E+02	31.03	1.03E+02	2.07
30	1121.69	1115 -	1128	1121.67	1.08E+02	39.52	1.24E+02	2.34
31	1240.04	1236 -	1244	1239.98	2.91E+01	31.62	1.18E+02	4.03
32	1386.44	1382 -	1394	1386.32	1.70E+01	18.63	3.41E+01	4.35
33	1401.09	1398 -	1404	1400.96	1.55E+01	10.99	1.09E+01	2.93
34	1440.27	1438 -	1442	1440.13	6.50E+00	6.96	5.00E+00	2.66
35	1461.72	1455 -	1468	1461.58	7.70E+02	58.25	3.46E+01	2.34
36	1588.90	1585 -	1592	1588.71	2.59E+01	16.49	2.83E+01	2.29
37	1613.15	1607 -	1617	1612.95	1.62E+01	10.31	5.53E+00	5.62
38	1620.91	1618 -	1624	1620.70	1.60E+01	10.22	8.00E+00	4.34
39	1631.59	1628 -	1634	1631.38	8.09E+00	11.19	1.58E+01	2.16
40	1765.37	1760 -	1769	1765.11	6.30E+01	15.87	0.00E+00	1.81

Analysis Report for 1606067-10

CP-5014 09-15 QC

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1772.19	1770 - 1774		1771.93	4.50E+00	5.50	3.00E+00	2.70
42	1939.58	1935 - 1944		1939.26	8.00E+00	10.10	1.00E+01	2.94
43	1977.98	1974 - 1980		1977.65	6.70E+00	8.03	6.60E+00	1.21
44	2054.70	2051 - 2057		2054.33	9.00E+00	6.00	0.00E+00	2.99
45	2103.74	2099 - 2107		2103.35	1.33E+01	11.86	1.34E+01	1.79
46	2204.60	2199 - 2207		2204.18	1.14E+01	10.22	9.13E+00	3.74
47	2459.12	2455 - 2460		2458.60	5.00E+00	4.47	0.00E+00	1.00
48	2575.85	2572 - 2578		2575.29	7.00E+00	5.29	0.00E+00	1.92
49	2615.18	2611 - 2619		2614.60	1.07E+02	20.69	0.00E+00	2.38

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 12:17:50PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	47.97	43 -	52	2.16E+02	102.21	1.37E+03	8.05E+01
2	63.71	60 -	67	2.31E+02	104.04	1.65E+03	8.18E+01
3	76.78	72 -	82	1.10E+03	146.53	2.25E+03	1.07E+02
4	93.14	91 -	97	3.30E+02	97.85	1.41E+03	7.47E+01
5	99.66	98 -	102	8.84E+01	55.61	5.91E+02	4.30E+01
6	186.45	182 -	191	2.17E+02	86.40	9.37E+02	6.68E+01
7	209.88	207 -	212	7.48E+01	53.47	5.10E+02	4.16E+01
8	239.77	234 -	245	1.09E+03	107.57	8.97E+02	6.97E+01
9	251.30	248 -	254	4.04E+01	49.17	4.05E+02	3.90E+01
10	271.08	267 -	275	9.25E+01	60.13	4.99E+02	4.68E+01
M 11	295.82	291 -	304	2.70E+02	45.12	2.30E+02	2.49E+01
m 12	300.58	291 -	304	6.56E+01	37.36	2.44E+02	2.57E+01
13	338.88	335 -	342	1.69E+02	53.67	3.66E+02	3.86E+01
14	352.42	348 -	357	3.77E+02	65.95	4.09E+02	4.38E+01
15	463.54	460 -	467	5.85E+01	37.58	1.97E+02	2.82E+01
16	511.15	506 -	515	1.83E+02	45.37	1.88E+02	2.99E+01
17	533.71	530 -	537	3.27E+01	33.94	1.67E+02	2.63E+01
M 18	583.90	578 -	591	2.71E+02	37.77	8.12E+01	1.48E+01

: 00585

Analysis Report for 1606067-10

CP-5014 09-15 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	19	587.83	578 -	591	2.05E+01	26.81	1.09E+02	1.71E+01
	20	609.92	606 -	614	2.57E+02	49.11	2.15E+02	3.06E+01
M	21	727.96	725 -	734	7.34E+01	25.81	7.65E+01	1.44E+01
m	22	731.84	725 -	734	1.98E+01	22.93	8.22E+01	1.49E+01
	23	768.44	766 -	772	2.25E+01	27.06	1.19E+02	2.08E+01
	24	795.33	792 -	799	4.56E+01	30.27	1.19E+02	2.23E+01
	25	861.62	857 -	867	5.29E+01	30.93	1.00E+02	2.24E+01
	26	912.08	908 -	916	1.95E+02	38.08	1.01E+02	2.12E+01
	27	943.16	939 -	948	2.17E+01	25.38	7.86E+01	1.94E+01
M	28	965.49	963 -	972	1.79E+01	23.32	1.14E+02	1.76E+01
m	29	969.65	963 -	972	1.03E+02	31.03	1.03E+02	1.67E+01
	30	1121.69	1115 -	1128	1.08E+02	39.52	1.24E+02	2.76E+01
	31	1240.04	1236 -	1244	2.91E+01	31.62	1.18E+02	2.44E+01
	32	1386.44	1382 -	1394	1.70E+01	18.63	3.41E+01	1.37E+01
	33	1401.09	1398 -	1404	1.55E+01	10.99	1.09E+01	6.29E+00
	34	1440.27	1438 -	1442	6.50E+00	6.96	5.00E+00	3.90E+00
	35	1461.72	1455 -	1468	7.70E+02	58.25	3.46E+01	1.46E+01
	36	1588.90	1585 -	1592	2.59E+01	16.49	2.83E+01	1.07E+01
	37	1613.15	1607 -	1617	1.62E+01	10.31	5.53E+00	5.28E+00
	38	1620.91	1618 -	1624	1.60E+01	10.22	8.00E+00	5.23E+00
	39	1631.59	1628 -	1634	8.09E+00	11.19	1.58E+01	7.92E+00
	40	1765.37	1760 -	1769	6.30E+01	15.87	0.00E+00	0.00E+00
	41	1772.19	1770 -	1774	4.50E+00	5.50	3.00E+00	2.88E+00
	42	1939.58	1935 -	1944	8.00E+00	10.10	1.00E+01	6.88E+00
	43	1977.98	1974 -	1980	6.70E+00	8.03	6.60E+00	5.05E+00
	44	2054.70	2051 -	2057	9.00E+00	6.00	0.00E+00	0.00E+00
	45	2103.74	2099 -	2107	1.33E+01	11.86	1.34E+01	7.70E+00
	46	2204.60	2199 -	2207	1.14E+01	10.22	9.13E+00	6.30E+00
	47	2459.12	2455 -	2460	5.00E+00	4.47	0.00E+00	0.00E+00
	48	2575.85	2572 -	2578	7.00E+00	5.29	0.00E+00	0.00E+00
	49	2615.18	2611 -	2619	1.07E+02	20.69	0.00E+00	0.00E+00

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/20/2016 12:17:50PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Peak Match Tolerance : 1.000 keV

: 00586

Analysis Report for 1606067-10

CP-5014 09-15 QC

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	47.97	43 -	52	48.32	2.16E+02	102.21	1.37E+03	TH-230
2	63.71	60 -	67	64.06	2.31E+02	104.04	1.65E+03	TH-234 TH-230
3	76.78	72 -	82	77.12	1.10E+03	146.53	2.25E+03	.....
4	93.14	91 -	97	93.47	3.30E+02	97.85	1.41E+03	GA-67
5	99.66	98 -	102	100.00	8.84E+01	55.61	5.91E+02	.....
6	186.45	182 -	191	186.75	2.17E+02	86.40	9.37E+02	RA-226
7	209.88	207 -	212	210.18	7.48E+01	53.47	5.10E+02	CM-243 GA-67
8	239.77	234 -	245	240.05	1.09E+03	107.57	8.97E+02	.....
9	251.30	248 -	254	251.58	4.04E+01	49.17	4.05E+02	.....
10	271.08	267 -	275	271.36	9.25E+01	60.13	4.99E+02	.....
M 11	295.82	291 -	304	296.09	2.70E+02	45.12	2.30E+02	PB-214
m 12	300.58	291 -	304	300.84	6.56E+01	37.36	2.44E+02	GA-67 PB-212 BI-210M
13	338.88	335 -	342	339.14	1.69E+02	53.67	3.66E+02	AC-228
14	352.42	348 -	357	352.67	3.77E+02	65.95	4.09E+02	PB-214
15	463.54	460 -	467	463.75	5.85E+01	37.58	1.97E+02	SB-125
16	511.15	506 -	515	511.34	1.83E+02	45.37	1.88E+02	.....
17	533.71	530 -	537	533.89	3.27E+01	33.94	1.67E+02	.....
M 18	583.90	578 -	591	584.07	2.71E+02	37.77	8.12E+01	TL-208
m 19	587.83	578 -	591	588.00	2.05E+01	26.81	1.09E+02	.....
20	609.92	606 -	614	610.08	2.57E+02	49.11	2.15E+02	BI-214
M 21	727.96	725 -	734	728.08	7.34E+01	25.81	7.65E+01	BI-212
m 22	731.84	725 -	734	731.96	1.98E+01	22.93	8.22E+01	.....
23	768.44	766 -	772	768.54	2.25E+01	27.06	1.19E+02	.....
24	795.33	792 -	799	795.43	4.56E+01	30.27	1.19E+02	CS-134
25	861.62	857 -	867	861.69	5.29E+01	30.93	1.00E+02	.....
26	912.08	908 -	916	912.14	1.95E+02	38.08	1.01E+02	LU-172
27	943.16	939 -	948	943.20	2.17E+01	25.38	7.86E+01	.....
M 28	965.49	963 -	972	965.52	1.79E+01	23.32	1.14E+02	.....
m 29	969.65	963 -	972	969.68	1.03E+02	31.03	1.03E+02	AC-228
30	1121.69	1115 -	1128	1121.67	1.08E+02	39.52	1.24E+02	TA-182
31	1240.04	1236 -	1244	1239.98	2.91E+01	31.62	1.18E+02	.....
32	1386.44	1382 -	1394	1386.32	1.70E+01	18.63	3.41E+01	.....
33	1401.09	1398 -	1404	1400.96	1.55E+01	10.99	1.09E+01	.....
34	1440.27	1438 -	1442	1440.13	6.50E+00	6.96	5.00E+00	.....
35	1461.72	1455 -	1468	1461.58	7.70E+02	58.25	3.46E+01	K-40
36	1588.90	1585 -	1592	1588.71	2.59E+01	16.49	2.83E+01	.....
37	1613.15	1607 -	1617	1612.95	1.62E+01	10.31	5.53E+00	.....
38	1620.91	1618 -	1624	1620.70	1.60E+01	10.22	8.00E+00	BI-212
39	1631.59	1628 -	1634	1631.38	8.09E+00	11.19	1.58E+01	.....
40	1765.37	1760 -	1769	1765.11	6.30E+01	15.87	0.00E+00	BI-214
41	1772.19	1770 -	1774	1771.93	4.50E+00	5.50	3.00E+00	CO-56
42	1939.58	1935 -	1944	1939.26	8.00E+00	10.10	1.00E+01	.....
43	1977.98	1974 -	1980	1977.65	6.70E+00	8.03	6.60E+00	.....
44	2054.70	2051 -	2057	2054.33	9.00E+00	6.00	0.00E+00	.....
45	2103.74	2099 -	2107	2103.35	1.33E+01	11.86	1.34E+01	.....
46	2204.60	2199 -	2207	2204.18	1.14E+01	10.22	9.13E+00	BI-214
47	2459.12	2455 -	2460	2458.60	5.00E+00	4.47	0.00E+00	.....

Analysis Report for 1606067-10

CP-5014 09-15 QC

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
48	2575.85	2572 -	2578	2575.29	7.00E+00	5.29	0.00E+00	.....
49	2615.18	2611 -	2619	2614.60	1.07E+02	20.69	0.00E+00	TL-208

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/20/2016 12:17:50PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty	
1	47.97	2.16E+02	102.21	1.77E-02	1.78E-03	
2	63.71	2.31E+02	104.04	2.50E-02	1.92E-03	
3	76.78	1.10E+03	146.53	2.77E-02	2.36E-03	
4	93.14	3.30E+02	97.85	2.86E-02	2.64E-03	
5	99.66	8.84E+01	55.61	2.85E-02	2.51E-03	
6	186.45	2.17E+02	86.40	2.24E-02	2.02E-03	
7	209.88	7.48E+01	53.47	2.08E-02	1.85E-03	
8	239.77	1.09E+03	107.57	1.92E-02	1.63E-03	
9	251.30	4.04E+01	49.17	1.86E-02	1.54E-03	
10	271.08	9.25E+01	60.13	1.77E-02	1.40E-03	
M	11	295.82	2.70E+02	45.12	1.67E-02	1.31E-03
m	12	300.58	6.56E+01	37.36	1.65E-02	1.30E-03
	13	338.88	1.69E+02	53.67	1.52E-02	1.22E-03
	14	352.42	3.77E+02	65.95	1.48E-02	1.19E-03
	15	463.54	5.85E+01	37.58	1.21E-02	1.04E-03
	16	511.15	1.83E+02	45.37	1.12E-02	9.90E-04
	17	533.71	3.27E+01	33.94	1.09E-02	9.67E-04
M	18	583.90	2.71E+02	37.77	1.02E-02	9.15E-04
m	19	587.83	2.05E+01	26.81	1.01E-02	9.11E-04
	20	609.92	2.57E+02	49.11	9.82E-03	8.88E-04
M	21	727.96	7.34E+01	25.81	8.55E-03	7.75E-04
m	22	731.84	1.98E+01	22.93	8.51E-03	7.71E-04
	23	768.44	2.25E+01	27.06	8.19E-03	7.38E-04
	24	795.33	4.56E+01	30.27	7.97E-03	7.14E-04
	25	861.62	5.29E+01	30.93	7.47E-03	6.55E-04
	26	912.08	1.95E+02	38.08	7.14E-03	6.15E-04
	27	943.16	2.17E+01	25.38	6.95E-03	5.99E-04
M	28	965.49	1.79E+01	23.32	6.82E-03	5.87E-04

Analysis Report for 1606067-10

CP-5014 09-15 QC

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	29	969.65	1.03E+02	31.03	6.80E-03	5.85E-04
	30	1121.69	1.08E+02	39.52	6.06E-03	5.06E-04
	31	1240.04	2.91E+01	31.62	5.61E-03	4.67E-04
	32	1386.44	1.70E+01	18.63	5.16E-03	4.38E-04
	33	1401.09	1.55E+01	10.99	5.12E-03	4.34E-04
	34	1440.27	6.50E+00	6.96	5.02E-03	4.24E-04
	35	1461.72	7.70E+02	58.25	4.97E-03	4.19E-04
	36	1588.90	2.59E+01	16.49	4.69E-03	3.87E-04
	37	1613.15	1.62E+01	10.31	4.65E-03	3.81E-04
	38	1620.91	1.60E+01	10.22	4.63E-03	3.79E-04
	39	1631.59	8.09E+00	11.19	4.61E-03	3.77E-04
	40	1765.37	6.30E+01	15.87	4.39E-03	3.43E-04
	41	1772.19	4.50E+00	5.50	4.38E-03	3.42E-04
	42	1939.58	8.00E+00	10.10	4.17E-03	3.26E-04
	43	1977.98	6.70E+00	8.03	4.13E-03	3.26E-04
	44	2054.70	9.00E+00	6.00	4.06E-03	3.26E-04
	45	2103.74	1.33E+01	11.86	4.02E-03	3.26E-04
	46	2204.60	1.14E+01	10.22	3.95E-03	3.26E-04
	47	2459.12	5.00E+00	4.47	3.83E-03	3.26E-04
	48	2575.85	7.00E+00	5.29	3.80E-03	3.26E-04
	49	2615.18	1.07E+02	20.69	3.79E-03	3.26E-04

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000 sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/20/2016 12:17:50PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038676.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	47.97	2.16E+02	102.21			2.16E+02	1.02E+02
2	63.71	2.31E+02	104.04	1.14E+02	2.81E+01	1.17E+02	1.08E+02
3	76.78	1.10E+03	146.53			1.10E+03	1.47E+02
4	93.14	3.30E+02	97.85	1.29E+02	7.14E+00	2.00E+02	9.81E+01
5	99.66	8.84E+01	55.61	7.10E+00	2.43E+00	8.13E+01	5.57E+01
6	186.45	2.17E+02	86.40	5.81E+01	8.50E+00	1.58E+02	8.68E+01
7	209.88	7.48E+01	53.47			7.48E+01	5.35E+01
8	239.77	1.09E+03	107.57	1.81E+01	5.76E+00	1.08E+03	1.08E+02
9	251.30	4.04E+01	49.17			4.04E+01	4.92E+01

Analysis Report for 1606067-10

CP-5014 09-15 QC

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	10	271.08	9.25E+01	60.13			9.25E+01	6.01E+01
M	11	295.82	2.70E+02	45.12	1.02E+00	5.38E+00	2.69E+02	4.54E+01
m	12	300.58	6.56E+01	37.36			6.56E+01	3.74E+01
	13	338.88	1.69E+02	53.67	3.86E+00	4.98E+00	1.65E+02	5.39E+01
	14	352.42	3.77E+02	65.95	7.25E+00	4.86E+00	3.69E+02	6.61E+01
	15	463.54	5.85E+01	37.58			5.85E+01	3.76E+01
	16	511.15	1.83E+02	45.37	7.58E+01	5.38E+00	1.07E+02	4.57E+01
	17	533.71	3.27E+01	33.94			3.27E+01	3.39E+01
M	18	583.90	2.71E+02	37.77	6.11E+00	3.78E+00	2.65E+02	3.80E+01
m	19	587.83	2.05E+01	26.81			2.05E+01	2.68E+01
	20	609.92	2.57E+02	49.11	6.74E+00	3.64E+00	2.51E+02	4.92E+01
M	21	727.96	7.34E+01	25.81			7.34E+01	2.58E+01
m	22	731.84	1.98E+01	22.93			1.98E+01	2.29E+01
	23	768.44	2.25E+01	27.06			2.25E+01	2.71E+01
	24	795.33	4.56E+01	30.27			4.56E+01	3.03E+01
	25	861.62	5.29E+01	30.93			5.29E+01	3.09E+01
	26	912.08	1.95E+02	38.08	4.21E+00	2.98E+00	1.91E+02	3.82E+01
	27	943.16	2.17E+01	25.38			2.17E+01	2.54E+01
M	28	965.49	1.79E+01	23.32			1.79E+01	2.33E+01
m	29	969.65	1.03E+02	31.03			1.03E+02	3.10E+01
	30	1121.69	1.08E+02	39.52			1.08E+02	3.95E+01
	31	1240.04	2.91E+01	31.62			2.91E+01	3.16E+01
	32	1386.44	1.70E+01	18.63			1.70E+01	1.86E+01
	33	1401.09	1.55E+01	10.99			1.55E+01	1.10E+01
	34	1440.27	6.50E+00	6.96			6.50E+00	6.96E+00
	35	1461.72	7.70E+02	58.25	6.83E+00	2.10E+00	7.63E+02	5.83E+01
	36	1588.90	2.59E+01	16.49			2.59E+01	1.65E+01
	37	1613.15	1.62E+01	10.31			1.62E+01	1.03E+01
	38	1620.91	1.60E+01	10.22			1.60E+01	1.02E+01
	39	1631.59	8.09E+00	11.19			8.09E+00	1.12E+01
	40	1765.37	6.30E+01	15.87	1.66E+00	1.65E+00	6.13E+01	1.60E+01
	41	1772.19	4.50E+00	5.50			4.50E+00	5.50E+00
	42	1939.58	8.00E+00	10.10			8.00E+00	1.01E+01
	43	1977.98	6.70E+00	8.03			6.70E+00	8.03E+00
	44	2054.70	9.00E+00	6.00			9.00E+00	6.00E+00
	45	2103.74	1.33E+01	11.86			1.33E+01	1.19E+01
	46	2204.60	1.14E+01	10.22			1.14E+01	1.02E+01
	47	2459.12	5.00E+00	4.47			5.00E+00	4.47E+00
	48	2575.85	7.00E+00	5.29			7.00E+00	5.29E+00
	49	2615.18	1.07E+02	20.69	4.95E+00	1.35E+00	1.02E+02	2.07E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

Analysis Report for 1606067-10

CP-5014 09-15 QC

AREA CORRECTION REPORT

REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/20/2016 12:17:50PM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038676.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	47.97	2.16E+02	102.21			2.16E+02	1.02E+02
2	63.71	2.31E+02	104.04	1.14E+02	2.81E+01	1.17E+02	1.08E+02
3	76.78	1.10E+03	146.53			1.10E+03	1.47E+02
4	93.14	3.30E+02	97.85	1.29E+02	7.14E+00	2.00E+02	9.81E+01
5	99.66	8.84E+01	55.61	7.10E+00	2.43E+00	8.13E+01	5.57E+01
6	186.45	2.17E+02	86.40	5.81E+01	8.50E+00	1.58E+02	8.68E+01
7	209.88	7.48E+01	53.47			7.48E+01	5.35E+01
8	239.77	1.09E+03	107.57	1.81E+01	5.76E+00	1.08E+03	1.08E+02
9	251.30	4.04E+01	49.17			4.04E+01	4.92E+01
10	271.08	9.25E+01	60.13			9.25E+01	6.01E+01
M	11	295.82	2.70E+02	1.02E+00	5.38E+00	2.69E+02	4.54E+01
m	12	300.58	6.56E+01			6.56E+01	3.74E+01
	13	338.88	1.69E+02	3.86E+00	4.98E+00	1.65E+02	5.39E+01
	14	352.42	3.77E+02	7.25E+00	4.86E+00	3.69E+02	6.61E+01
	15	463.54	5.85E+01			5.85E+01	3.76E+01
	16	511.15	1.83E+02	7.58E+01	5.38E+00	1.07E+02	4.57E+01
	17	533.71	3.27E+01			3.27E+01	3.39E+01
M	18	583.90	2.71E+02	6.11E+00	3.78E+00	2.65E+02	3.80E+01
m	19	587.83	2.05E+01			2.05E+01	2.68E+01
	20	609.92	2.57E+02	6.74E+00	3.64E+00	2.51E+02	4.92E+01
M	21	727.96	7.34E+01			7.34E+01	2.58E+01
m	22	731.84	1.98E+01			1.98E+01	2.29E+01
	23	768.44	2.25E+01			2.25E+01	2.71E+01
	24	795.33	4.56E+01			4.56E+01	3.03E+01
	25	861.62	5.29E+01			5.29E+01	3.09E+01
	26	912.08	1.95E+02	4.21E+00	2.98E+00	1.91E+02	3.82E+01
	27	943.16	2.17E+01			2.17E+01	2.54E+01
M	28	965.49	1.79E+01			1.79E+01	2.33E+01
m	29	969.65	1.03E+02			1.03E+02	3.10E+01
	30	1121.69	1.08E+02			1.08E+02	3.95E+01
	31	1240.04	2.91E+01			2.91E+01	3.16E+01
	32	1386.44	1.70E+01			1.70E+01	1.86E+01
	33	1401.09	1.55E+01			1.55E+01	1.10E+01
	34	1440.27	6.50E+00			6.50E+00	6.96E+00
	35	1461.72	7.70E+02	6.83E+00	2.10E+00	7.63E+02	5.83E+01
	36	1588.90	2.59E+01			2.59E+01	1.65E+01
	37	1613.15	1.62E+01			1.62E+01	1.03E+01
	38	1620.91	1.60E+01			1.60E+01	1.02E+01
	39	1631.59	8.09E+00			8.09E+00	1.12E+01
	40	1765.37	6.30E+01	1.66E+00	1.65E+00	6.13E+01	1.60E+01
	41	1772.19	4.50E+00			4.50E+00	5.50E+00

Analysis Report for 1606067-10

CP-5014 09-15 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
42	1939.58	8.00E+00	10.10			8.00E+00	1.01E+01
43	1977.98	6.70E+00	8.03			6.70E+00	8.03E+00
44	2054.70	9.00E+00	6.00			9.00E+00	6.00E+00
45	2103.74	1.33E+01	11.86			1.33E+01	1.19E+01
46	2204.60	1.14E+01	10.22			1.14E+01	1.02E+01
47	2459.12	5.00E+00	4.47			5.00E+00	4.47E+00
48	2575.85	7.00E+00	5.29			7.00E+00	5.29E+00
49	2615.18	1.07E+02	20.69	4.95E+00	1.35E+00	1.02E+02	2.07E+01

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.875	1460.81 *	10.67	2.84E+01	3.28E+00
GA-67	0.909	93.31 *	35.70	6.29E+00	1.32E+01
		208.95 *	2.24	5.12E+01	9.49E+01
		300.22 *	16.00	7.96E+00	1.69E+01
TL-208	0.830	583.14 *	30.22	1.70E+00	2.88E-01
		860.37	4.48		
BI-212	0.920	2614.66 *	35.85	1.48E+00	3.27E-01
		727.17 *	11.80	1.44E+00	5.21E-01
		1620.62 *	2.75	2.48E+00	1.60E+00
BI-214	0.680	609.31 *	46.30	1.09E+00	2.35E-01
		1120.29	15.10		
		1764.49 *	15.80	1.74E+00	4.74E-01
		2204.22 *	4.98	1.15E+00	1.03E+00
PB-214	0.955	295.21 *	19.19	1.66E+00	3.09E-01
		351.92 *	37.19	1.33E+00	2.61E-01
RA-226	0.991	186.21 *	3.28	4.26E+00	8.15E+00
TH-230	0.918	48.44 *	16.90	1.42E+00	6.88E-01
		62.85 *	4.60	2.01E+00	1.85E+00
		67.67	0.37		

Analysis Report for 1606067-10

CP-5014 09-15 QC

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 12:17:50PM

Peak Locate From Channel : 1

Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
3	76.78	3.06941E-01	6.63		
5	99.66	2.25769E-02	34.24		
8	239.77	2.99027E-01	5.00		
9	251.30	1.12311E-02	60.80		
10	271.08	2.56851E-02	32.52		
13	338.88	4.58258E-02	16.33	Tol.	AC-228
15	463.54	1.62429E-02	32.13	Tol.	SB-125
16	511.15	2.97436E-02	21.33	Sum	
17	533.71	9.07687E-03	51.93		
m 19	587.83	5.69795E-03	65.35		
m 22	731.84	5.49073E-03	58.01		
23	768.44	6.26186E-03	60.02		
24	795.33	1.26667E-02	33.19	Tol.	CS-134
25	861.62	1.46858E-02	29.25		
26	912.08	5.31089E-02	9.99	Tol.	LU-172
27	943.16	6.02914E-03	58.46		
M 28	965.49	4.95863E-03	65.31		
m 29	969.65	2.85791E-02	15.08	Tol.	AC-228
30	1121.69	3.00523E-02	18.27	Tol.	TA-182
31	1240.04	8.07450E-03	54.39		
32	1386.44	4.70997E-03	54.95		
33	1401.09	4.31878E-03	35.34		
34	1440.27	1.80556E-03	53.57		
36	1588.90	7.18403E-03	31.88		
37	1613.15	4.51023E-03	31.74		
39	1631.59	2.24826E-03	69.14		
41	1772.19	1.25000E-03	61.11		
42	1939.58	2.22222E-03	63.12		
43	1977.98	1.86111E-03	59.93		
44	2054.70	2.50000E-03	33.33		
45	2103.74	3.68750E-03	44.68	S-Esc	
47	2459.12	1.38889E-03	44.72		
48	2575.85	1.94444E-03	37.80		

Analysis Report for 1606067-10

CP-5014 09-15 QC

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.87	1460.81	*	10.67	2.84E+01	3.28E+00
GA-67	0.90	93.31	*	35.70	6.29E+00	1.32E+01
		208.95	*	2.24	5.12E+01	9.49E+01
		300.22	*	16.00	7.96E+00	1.69E+01
TL-208	0.83	583.14	*	30.22	1.70E+00	2.88E-01
		860.37		4.48		
		2614.66	*	35.85	1.48E+00	3.27E-01
BI-212	0.92	727.17	*	11.80	1.44E+00	5.21E-01
		1620.62	*	2.75	2.48E+00	1.60E+00
BI-214	0.68	609.31	*	46.30	1.09E+00	2.35E-01
		1120.29		15.10		
		1764.49	*	15.80	1.74E+00	4.74E-01
		2204.22	*	4.98	1.15E+00	1.03E+00
PB-214	0.95	295.21	*	19.19	1.66E+00	3.09E-01
		351.92	*	37.19	1.33E+00	2.61E-01
RA-226	0.99	186.21	*	3.28	4.26E+00	8.15E+00
TH-230	0.91	48.44	*	16.90	1.42E+00	6.88E-01
		62.85	*	4.60	2.01E+00	1.85E+00
		67.67		0.37		

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

Analysis Report for 1606067-10

CP-5014 09-15 QC

INTERFERENCE CORRECTED REPORT

<i>Nuclide Name</i>	<i>Nuclide Id Confidence</i>	<i>Wt mean Activity (pCi/grams)</i>	<i>Wt mean Activity Uncertainty</i>	<i>Comments</i>
K-40	0.875	2.84E+01	3.28E+00	
GA-67	0.909	8.09E+00	1.51E+01	
TL-208	0.830	1.61E+00	2.16E-01	
BI-212	0.920	1.54E+00	4.96E-01	
BI-214	0.680	1.21E+00	2.06E-01	
PB-214	0.955	1.47E+00	1.99E-01	
RA-226	0.991	4.26E+00	8.15E+00	
TH-230	0.918	1.49E+00	6.45E-01	
X TH-234	0.972			

? = nuclide is part of an undetermined solution

X = nuclide rejected by the interference analysis

@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1606067-10

CP-5014 09-15 QC

 UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 12:17:50PM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
3	76.78	3.06941E-01	6.63		
5	99.66	2.25769E-02	34.24		
8	239.77	2.99027E-01	5.00		
9	251.30	1.12311E-02	60.80		
10	271.08	2.56851E-02	32.52		
13	338.88	4.58258E-02	16.33	Tol.	AC-228
15	463.54	1.62429E-02	32.13	Tol.	SB-125
16	511.15	2.97436E-02	21.33	Sum	
17	533.71	9.07687E-03	51.93		
m 19	587.83	5.69795E-03	65.35		
m 22	731.84	5.49073E-03	58.01		
23	768.44	6.26186E-03	60.02		
24	795.33	1.26667E-02	33.19	Tol.	CS-134
25	861.62	1.46858E-02	29.25		
26	912.08	5.31089E-02	9.99	Tol.	LU-172
27	943.16	6.02914E-03	58.46		
M 28	965.49	4.95863E-03	65.31		
m 29	969.65	2.85791E-02	15.08	Tol.	AC-228
30	1121.69	3.00523E-02	18.27	Tol.	TA-182
31	1240.04	8.07450E-03	54.39		
32	1386.44	4.70997E-03	54.95		
33	1401.09	4.31878E-03	35.34		
34	1440.27	1.80556E-03	53.57		
36	1588.90	7.18403E-03	31.88		
37	1613.15	4.51023E-03	31.74		
39	1631.59	2.24826E-03	69.14		
41	1772.19	1.25000E-03	61.11		
42	1939.58	2.22222E-03	63.12		
43	1977.98	1.86111E-03	59.93		
44	2054.70	2.50000E-03	33.33		
45	2103.74	3.68750E-03	44.68	S-Esc	
47	2459.12	1.38889E-03	44.72		
48	2575.85	1.94444E-03	37.80		

Analysis Report for 1606067-10
CP-5014 09-15 QC

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
+	BE-7	477.59	10.42	1.32E-01	9.48E-01	9.48E-01
+	NA-22	1274.54	99.94	3.31E-03	1.08E-01	1.08E-01
+	NA-24	1368.53	99.99	3.88E+03	9.94E+04	1.87E+05
		2754.09	99.86	-3.03E+04		9.94E+04
+	AL-26	1808.65	99.76	1.83E-02	8.28E-02	8.28E-02
+	K-40	1460.81	* 10.67	2.84E+01	1.24E+00	1.24E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-9.42E-03	8.70E-02	8.70E-02
		78.34	96.00	1.69E-01		1.18E-01
+	SC-46	889.25	99.98	-3.99E-02	9.00E-02	9.00E-02
		1120.51	99.99	2.76E-01		1.97E-01
+	V-48	983.52	99.98	5.09E-02	1.70E-01	1.74E-01
		1312.10	97.50	-8.73E-03		1.70E-01
+	CR-51	320.08	9.83	1.33E-01	9.40E-01	9.40E-01
+	MN-54	834.83	99.97	6.74E-02	1.20E-01	1.20E-01
+	CO-56	846.75	99.96	-4.15E-02	1.04E-01	1.04E-01
		1037.75	14.03	-1.83E-01		8.72E-01
		1238.25	67.00	1.61E-01		2.73E-01
		1771.40	15.51	-9.46E-01		4.89E-01
		2598.48	16.90	6.90E-02		3.20E-01
+	CO-57	122.06	85.51	-8.96E-03	7.40E-02	7.40E-02
		136.48	10.60	1.61E-02		6.32E-01
+	CO-58	810.76	99.40	-4.75E-02	1.06E-01	1.06E-01
+	FE-59	1099.22	56.50	4.19E-02	2.48E-01	2.48E-01
		1291.56	43.20	7.35E-02		3.35E-01
+	CO-60	1173.22	100.00	-1.14E-02	9.52E-02	1.17E-01
		1332.49	100.00	-3.39E-02		9.52E-02
+	ZN-65	1115.52	50.75	-3.31E-03	2.15E-01	2.15E-01
+	GA-67	93.31	* 35.70	6.29E+00	4.93E+00	4.93E+00
		208.95	* 2.24	5.12E+01		5.89E+01
		300.22	* 16.00	7.96E+00		1.46E+01
+	SE-75	121.11	16.70	8.15E-02	1.13E-01	3.97E-01

Analysis Report for 1606067-10

CP-5014 09-15 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	5.20E-04	1.13E-01	1.20E-01
		264.65	59.80	-2.36E-02		1.13E-01
		279.53	25.20	1.13E-01		2.90E-01
		400.65	11.40	-1.34E-01		6.67E-01
+	RB-82	776.52	13.00	-2.01E-01	9.84E-01	9.84E-01
+	RB-83	520.41	46.00	2.91E-03	2.05E-01	2.05E-01
		529.64	30.30	2.04E-02		3.24E-01
		552.65	16.40	6.63E-02		5.53E-01
+	KR-85	513.99	0.43	-2.65E+00	2.86E+01	2.86E+01
+	SR-85	513.99	99.27	-1.33E-02	1.43E-01	1.43E-01
+	Y-88	898.02	93.40	3.58E-02	6.04E-02	1.17E-01
		1836.01	99.38	-4.40E-02		6.04E-02
+	NB-93M	16.57	9.43	-4.39E+01	1.01E+02	1.01E+02
+	NB-94	702.63	100.00	-2.48E-02	7.95E-02	1.00E-01
		871.10	100.00	-1.80E-03		7.95E-02
+	NB-95	765.79	99.81	1.61E-02	1.42E-01	1.42E-01
+	NB-95M	235.69	25.00	-4.94E+01	3.91E+00	3.91E+00
+	ZR-95	724.18	43.70	-1.34E-02	2.15E-01	2.39E-01
		756.72	55.30	5.35E-02		2.15E-01
+	MO-99	181.06	6.20	2.33E+00	1.88E+01	2.90E+01
		739.58	12.80	3.19E+00		1.88E+01
		778.00	4.50	-3.60E+01		5.03E+01
+	RU-103	497.08	89.00	-5.38E-02	1.10E-01	1.10E-01
+	RU-106	621.84	9.80	-4.76E-01	7.80E-01	7.80E-01
+	AG-108M	433.93	89.90	3.36E-02	9.02E-02	9.02E-02
		614.37	90.40	2.88E-02		1.01E-01
		722.95	90.50	1.51E-02		9.91E-02
+	CD-109	88.03	3.72	-2.99E+00	2.42E+00	2.42E+00
+	AG-110M	657.75	93.14	-2.42E-02	9.47E-02	9.47E-02
		677.61	10.53	4.52E-01		9.47E-01
		706.67	16.46	1.86E-01		6.33E-01
		763.93	21.98	3.45E-02		4.74E-01
		884.67	71.63	-5.57E-02		1.18E-01
		1384.27	23.94	-5.79E-02		3.98E-01
+	CD-113M	263.70	0.02	-8.77E+01	2.67E+02	2.67E+02
+	SN-113	255.12	1.93	-9.59E-02	1.14E-01	3.72E+00
		391.69	64.90	-2.60E-02		1.14E-01
+	TE123M	159.00	84.10	-2.33E-02	7.95E-02	7.95E-02
+	SB-124	602.71	97.87	1.55E-02	9.92E-02	9.92E-02
		645.85	7.26	-6.51E-01		1.26E+00
		722.78	11.10	1.43E-01		9.39E-01
		1691.02	49.00	4.67E-02		1.46E-01
+	I-125	35.49	6.49	-1.19E+00	3.48E+00	3.48E+00
+	SB-125	176.33	6.89	5.69E-03	2.71E-01	9.40E-01
		427.89	29.33	-9.02E-02		2.71E-01
		463.38	10.35	9.60E-01		9.40E-01
		600.56	17.80	2.03E-01		4.96E-01
		635.90	11.32	-2.22E-01		6.88E-01

Analysis Report for 1606067-10

CP-5014 09-15 QC

	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
+	SB-126	414.70	83.30	-8.39E-02	1.96E-01	2.01E-01
		666.33	99.60	4.75E-02		2.03E-01
		695.00	99.60	-6.96E-02		1.96E-01
		720.50	53.80	-1.89E-02		3.43E-01
+	SN-126	87.57	37.00	-2.95E-01	2.39E-01	2.39E-01
+	SB-127	473.00	25.00	1.27E+00	2.61E+00	3.63E+00
		685.20	35.70	-1.76E+00		2.61E+00
		783.80	14.70	2.50E+00		7.34E+00
+	I-129	29.78	57.00	-4.15E-02	6.60E-01	6.60E-01
		33.60	13.20	-3.22E-01		1.81E+00
		39.58	7.52	-8.89E-02		1.97E+00
+	I-131	284.30	6.05	3.19E-01	2.64E-01	3.25E+00
		364.48	81.20	3.26E-02		2.64E-01
		636.97	7.26	-6.93E-01		3.35E+00
		722.89	1.80	2.35E+00		1.54E+01
+	TE-132	49.72	13.10	2.83E+00	1.26E+00	1.34E+01
		228.16	88.00	1.33E-01		1.26E+00
+	BA-133	81.00	33.00	-1.36E+00	1.30E-01	2.44E-01
		302.84	17.80	2.22E-01		4.27E-01
		356.01	60.00	-5.37E-01		1.30E-01
+	I-133	529.87	86.30	2.29E+02	3.65E+03	3.65E+03
+	XE-133	81.00	38.00	-6.64E+00	1.19E+00	1.19E+00
+	CS-134	563.23	8.38	1.33E-01	8.68E-02	1.06E+00
		569.32	15.43	-3.10E-01		5.41E-01
		604.70	97.60	1.89E-02		8.68E-02
		795.84	85.40	1.06E-01		1.40E-01
		801.93	8.73	1.54E-01		1.15E+00
+	CS-135	268.24	16.00	-1.09E-01	4.58E-01	4.58E-01
+	I-135	1131.51	22.50	3.88E+13	8.33E+13	1.03E+14
		1260.41	28.60	3.80E+13		8.33E+13
		1678.03	9.54	1.44E+13		1.44E+14
+	CS-136	153.22	7.46	-1.96E-01	1.84E-01	1.76E+00
		163.89	4.61	-1.41E-01		2.75E+00
		176.55	13.56	5.72E-03		9.45E-01
		273.65	12.66	-2.99E-01		1.16E+00
		340.57	48.50	8.28E-01		4.18E-01
		818.50	99.70	-3.13E-02		1.84E-01
		1048.07	79.60	4.56E-02		2.65E-01
		1235.34	19.70	5.30E-01		1.64E+00
+	CS-137	661.65	85.12	-3.96E-02	1.09E-01	1.09E-01
+	LA-138	788.74	34.00	2.73E-02	1.16E-01	3.19E-01
		1435.80	66.00	1.49E-03		1.16E-01
+	CE-139	165.85	80.35	3.53E-02	8.57E-02	8.57E-02
+	BA-140	162.64	6.70	1.09E+00	6.73E-01	1.92E+00
		304.84	4.50	6.67E-02		2.93E+00
		423.70	3.20	1.67E+00		5.29E+00
		437.55	2.00	-3.89E+00		7.57E+00
		537.32	25.00	-7.11E-02		6.73E-01
+	LA-140	328.77	20.50	3.69E-01	1.97E-01	7.13E-01

Analysis Report for 1606067-10

CP-5014 09-15 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-140	487.03	45.50	1.67E-01	1.97E-01	3.81E-01
		815.85	23.50	2.15E-01		8.14E-01
		1596.49	95.49	5.29E-03		1.97E-01
+	CE-141	145.44	48.40	-6.01E-02	1.75E-01	1.75E-01
+	CE-143	57.36	11.80	-1.59E+02	1.77E+02	5.64E+02
		293.26	42.00	2.99E+02		1.77E+02
		664.55	5.20	6.98E+02		1.42E+03
+	CE-144	133.54	10.80	5.44E-01	6.52E-01	6.52E-01
+	PM-144	476.78	42.00	-2.44E-02	8.12E-02	2.02E-01
		618.01	98.60	-1.11E-02		8.12E-02
		696.49	99.49	2.18E-03		9.94E-02
+	PM-145	36.85	21.70	-3.38E-02	4.18E-01	7.94E-01
		37.36	39.70	-2.60E-01		4.18E-01
		42.30	15.10	2.92E-01		8.75E-01
		72.40	2.31	-1.86E+01		4.04E+00
+	PM-146	453.90	39.94	6.14E-02	1.97E-01	1.97E-01
		735.90	14.01	7.87E-02		6.21E-01
		747.13	13.10	-1.36E-01		6.43E-01
+	ND-147	91.11	28.90	-6.83E-01	7.13E-01	7.13E-01
		531.02	13.10	-1.17E-02		1.59E+00
+	PM-149	285.90	3.10	2.59E+01	1.25E+02	1.25E+02
+	EU-152	121.78	20.50	-3.62E-02	2.99E-01	2.99E-01
		244.69	5.40	-2.84E-01		1.54E+00
		344.27	19.13	-8.61E-02		3.28E-01
		778.89	9.20	-5.31E-02		9.79E-01
		964.01	10.40	9.55E-02		1.36E+00
		1085.78	7.22	3.30E-01		1.37E+00
		1112.02	9.60	4.25E-01		1.13E+00
		1407.95	14.94	4.84E-01		7.42E-01
+	GD-153	97.43	31.30	-2.22E-01	2.21E-01	2.21E-01
		103.18	22.20	-1.24E-01		2.74E-01
+	EU-154	123.07	40.50	-4.65E-02	1.53E-01	1.53E-01
		723.30	19.70	6.96E-02		4.56E-01
		873.19	11.50	-1.08E-02		6.46E-01
		996.32	10.30	-1.33E-01		9.38E-01
		1004.76	17.90	9.46E-02		5.95E-01
		1274.45	35.50	9.25E-03		3.03E-01
+	EU-155	86.50	30.90	5.05E-01	2.98E-01	2.98E-01
		105.30	20.70	1.13E-01		3.03E-01
+	EU-156	811.77	10.40	-9.99E-01	1.52E+00	1.52E+00
		1153.47	7.20	2.25E+00		3.45E+00
		1230.71	8.90	-7.76E-01		2.81E+00
+	HO-166M	184.41	72.60	1.40E-01	1.19E-01	1.19E-01
		280.45	29.60	-7.06E-02		2.15E-01
		410.94	11.10	-3.03E-01		7.11E-01
		711.69	54.10	-5.64E-02		1.67E-01
+	TM-171	66.72	0.14	2.70E+00	6.30E+01	6.30E+01
+	HF-172	81.75	4.52	-1.66E+00	5.59E-01	1.64E+00
		125.81	11.30	-1.38E-01		5.59E-01

Analysis Report for 1606067-10

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53	20.60	-6.55E-02	7.18E-01	1.23E+00
		810.06	16.63	-5.01E-01		2.22E+00
		912.12	15.25	1.36E+01		5.17E+00
		1093.66	62.50	2.57E-01		7.18E-01
+	LU-173	100.72	5.24	-5.14E-01	3.86E-01	1.23E+00
		272.11	21.20	4.15E-01		3.86E-01
+	HF-175	343.40	84.00	-3.72E-03	8.72E-02	8.72E-02
+	LU-176	88.34	13.30	-6.62E-02	7.10E-02	6.95E-01
		201.83	86.00	4.67E-03		8.34E-02
		306.78	94.00	3.59E-03		7.10E-02
+	TA-182	67.75	41.20	-2.34E-02	2.16E-01	2.16E-01
		1121.30	34.90	7.59E-01		5.55E-01
		1189.05	16.23	-2.01E-01		8.39E-01
		1221.41	26.98	-3.24E-01		4.69E-01
		1231.02	11.44	-3.59E-01		1.30E+00
+	IR-192	308.46	29.68	-6.00E-03	1.95E-01	2.52E-01
		468.07	48.10	1.17E-03		1.95E-01
+	HG-203	279.19	77.30	6.74E-02	1.10E-01	1.10E-01
+	BI-207	569.67	97.72	1.45E-02	8.95E-02	8.95E-02
		1063.62	74.90	3.08E-02		1.50E-01
+	TL-208	583.14	* 30.22	1.70E+00	1.50E-01	4.80E-01
		860.37	4.48	1.64E+00		2.50E+00
		2614.66	* 35.85	1.48E+00		1.50E-01
+	BI-210M	262.00	45.00	-5.84E-02	1.36E-01	1.36E-01
		300.00	23.00	-6.91E-01		3.58E-01
+	PB-210	46.50	4.25	3.88E+00	2.99E+00	2.99E+00
+	PB-211	404.84	2.90	2.53E+00	2.64E+00	2.64E+00
		831.96	2.90	-1.17E-01		3.59E+00
+	BI-212	727.17	* 11.80	1.44E+00	9.65E-01	9.65E-01
		1620.62	* 2.75	2.48E+00		2.04E+00
+	PB-212	238.63	44.60	1.61E+00	3.61E-01	3.61E-01
		300.09	3.41	-4.66E+00		2.41E+00
+	BI-214	609.31	* 46.30	1.09E+00	2.20E-01	2.81E-01
		1120.29	15.10	1.64E+00		1.17E+00
		1764.49	* 15.80	1.74E+00		2.20E-01
		2204.22	* 4.98	1.15E+00		1.54E+00
+	PB-214	295.21	* 19.19	1.66E+00	3.28E-01	7.42E-01
		351.92	* 37.19	1.33E+00		3.28E-01
+	RN-219	401.80	6.50	-7.91E-02	1.11E+00	1.11E+00
+	RA-223	323.87	3.88	-9.32E-01	1.62E+00	1.62E+00
+	RA-224	240.98	3.95	2.46E+01	4.27E+00	4.27E+00
+	RA-225	40.00	31.00	-3.88E-02	8.59E-01	8.59E-01
+	RA-226	186.21	* 3.28	4.26E+00	3.75E+00	3.75E+00
+	TH-227	50.10	8.40	2.68E-01	6.88E-01	1.27E+00
		236.00	11.50	-8.68E+00		6.88E-01
		256.20	6.30	4.67E-01		1.06E+00
+	AC-228	338.32	11.40	2.05E+00	7.38E-01	9.28E-01
		911.07	27.70	1.84E+00		7.38E-01

Analysis Report for 1606067-10
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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11		16.60	1.49E+00	7.38E-01	1.12E+00
+	TH-230	48.44	*	16.90	1.42E+00	1.08E+00	1.08E+00
		62.85	*	4.60	2.01E+00		3.02E+00
		67.67		0.37	-2.41E+00		2.22E+01
+	PA-231	283.67		1.60	2.81E-01	3.30E+00	3.95E+00
		302.67		2.30	1.72E+00		3.30E+00
+	TH-231	25.64		14.70	-5.16E+01	1.22E+00	6.31E+00
		84.21		6.40	-4.24E+00		1.22E+00
+	PA-233	311.98		38.60	-9.32E-02	2.35E-01	2.35E-01
+	PA-234	131.20		20.40	1.55E-01	3.49E-01	3.49E-01
		733.99		8.80	2.51E-01		1.08E+00
		946.00		12.00	-4.75E-01		7.53E-01
+	PA-234M	1001.03		0.92	7.48E+00	1.24E+01	1.24E+01
+	TH-234	63.29	*	3.80	2.43E+00	3.66E+00	3.66E+00
+	U-235	143.76		10.50	2.25E-01	6.21E-01	6.21E-01
		163.35		4.70	-6.94E-02		1.35E+00
		205.31		4.70	-1.22E-01		1.43E+00
+	NP-237	86.50		12.60	1.23E+00	7.27E-01	7.27E-01
+	NP-239	106.10		22.70	4.87E+00	1.30E+01	1.30E+01
		228.18		10.70	3.18E+00		3.02E+01
		277.60		14.10	1.30E+01		2.32E+01
+	AM-241	59.54		35.90	-1.22E-02	2.54E-01	2.54E-01
+	AM-243	74.67		66.00	-6.35E-01	1.70E-01	1.70E-01
+	CM-243	209.75		3.29	1.99E+00	4.95E-01	2.35E+00
		228.14		10.60	6.78E-02		6.45E-01
		277.60		14.00	2.77E-01		4.95E-01

- + = Nuclide identified during the nuclide identification
- * = Energy line found in the spectrum
- > = MDA value not calculated
- @ = Half-life too short to be able to perform the decay correction
- ? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Analysis Report for 1606067-10

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	9.48E-01	9.48E-01	1.32E-01	4.48E-01
NA-22	1274.54	99.94	1.08E-01	1.08E-01	3.31E-03	4.92E-02
NA-24	1368.53	99.99	1.87E+05	9.94E+04	3.88E+03	8.28E+04
	2754.09	99.86	9.94E+04		-3.03E+04	3.52E+04
AL-26	1808.65	99.76	8.28E-02	8.28E-02	1.83E-02	3.52E-02
+ K-40	1460.81	* 10.67	1.24E+00	1.24E+00	2.84E+01	5.69E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	8.70E-02	8.70E-02	-9.42E-03	4.24E-02
	78.34	96.00	1.18E-01		1.69E-01	5.79E-02
SC-46	889.25	99.98	9.00E-02	9.00E-02	-3.99E-02	4.09E-02
	1120.51	99.99	1.97E-01		2.76E-01	9.36E-02
V-48	983.52	99.98	1.74E-01	1.70E-01	5.09E-02	8.00E-02
	1312.10	97.50	1.70E-01		-8.73E-03	7.58E-02
CR-51	320.08	9.83	9.40E-01	9.40E-01	1.33E-01	4.46E-01
MN-54	834.83	99.97	1.20E-01	1.20E-01	6.74E-02	5.65E-02
CO-56	846.75	99.96	1.04E-01	1.04E-01	-4.15E-02	4.81E-02
	1037.75	14.03	8.72E-01		-1.83E-01	4.03E-01
	1238.25	67.00	2.73E-01		1.61E-01	1.28E-01
	1771.40	15.51	4.89E-01		-9.46E-01	2.00E-01
	2598.48	16.90	3.20E-01		6.90E-02	1.14E-01
CO-57	122.06	85.51	7.40E-02	7.40E-02	-8.96E-03	3.58E-02
	136.48	10.60	6.32E-01		1.61E-02	3.06E-01
CO-58	810.76	99.40	1.06E-01	1.06E-01	-4.75E-02	4.92E-02
FE-59	1099.22	56.50	2.48E-01	2.48E-01	4.19E-02	1.14E-01
	1291.56	43.20	3.35E-01		7.35E-02	1.53E-01
CO-60	1173.22	100.00	1.17E-01	9.52E-02	-1.14E-02	5.40E-02
	1332.49	100.00	9.52E-02		-3.39E-02	4.25E-02
ZN-65	1115.52	50.75	2.15E-01	2.15E-01	-3.31E-03	9.88E-02
+ GA-67	93.31	* 35.70	4.93E+00	4.93E+00	6.29E+00	2.42E+00
	208.95	* 2.24	5.89E+01		5.12E+01	2.85E+01
	300.22	* 16.00	1.46E+01		7.96E+00	7.12E+00
SE-75	121.11	16.70	3.97E-01	1.13E-01	8.15E-02	1.92E-01
	136.00	59.20	1.20E-01		5.20E-04	5.80E-02
	264.65	59.80	1.13E-01		-2.36E-02	5.38E-02
	279.53	25.20	2.90E-01		1.13E-01	1.39E-01
	400.65	11.40	6.67E-01		-1.34E-01	3.15E-01
RB-82	776.52	13.00	9.84E-01	9.84E-01	-2.01E-01	4.56E-01
RB-83	520.41	46.00	2.05E-01	2.05E-01	2.91E-03	9.64E-02
	529.64	30.30	3.24E-01		2.04E-02	1.53E-01
	552.65	16.40	5.53E-01		6.63E-02	2.59E-01
KR-85	513.99	0.43	2.86E+01	2.86E+01	-2.65E+00	1.37E+01
SR-85	513.99	99.27	1.43E-01	1.43E-01	-1.33E-02	6.89E-02
Y-88	898.02	93.40	1.17E-01	6.04E-02	3.58E-02	5.44E-02
	1836.01	99.38	6.04E-02		-4.40E-02	2.34E-02
NB-93M	16.57	9.43	1.01E+02	1.01E+02	-4.39E+01	4.69E+01
NB-94	702.63	100.00	1.00E-01	7.95E-02	-2.48E-02	4.70E-02
	871.10	100.00	7.95E-02		-1.80E-03	3.61E-02
NB-95	765.79	99.81	1.42E-01	1.42E-01	1.61E-02	6.69E-02
NB-95M	235.69	25.00	3.91E+00	3.91E+00	-4.94E+01	1.89E+00
ZR-95	724.18	43.70	2.39E-01	2.15E-01	-1.34E-02	1.11E-01
	756.72	55.30	2.15E-01		5.35E-02	1.01E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
MO-99	181.06	6.20	2.90E+01	1.88E+01	2.33E+00	1.40E+01
	739.58	12.80	1.88E+01		3.19E+00	8.71E+00
	778.00	4.50	5.03E+01		-3.60E+01	2.32E+01
RU-103	497.08	89.00	1.10E-01	1.10E-01	-5.38E-02	5.19E-02
RU-106	621.84	9.80	7.80E-01	7.80E-01	-4.76E-01	3.61E-01
AG-108M	433.93	89.90	9.02E-02	9.02E-02	3.36E-02	4.28E-02
	614.37	90.40	1.01E-01		2.88E-02	4.77E-02
	722.95	90.50	9.91E-02		1.51E-02	4.61E-02
CD-109	88.03	3.72	2.42E+00	2.42E+00	-2.99E+00	1.18E+00
AG-110M	657.75	93.14	9.47E-02	9.47E-02	-2.42E-02	4.42E-02
	677.61	10.53	9.47E-01		4.52E-01	4.44E-01
	706.67	16.46	6.33E-01		1.86E-01	2.97E-01
	763.93	21.98	4.74E-01		3.45E-02	2.22E-01
	884.67	71.63	1.18E-01		-5.57E-02	5.37E-02
	1384.27	23.94	3.98E-01		-5.79E-02	1.76E-01
CD-113M	263.70	0.02	2.67E+02	2.67E+02	-8.77E+01	1.27E+02
SN-113	255.12	1.93	3.72E+00	1.14E-01	-9.59E-02	1.78E+00
	391.69	64.90	1.14E-01		-2.60E-02	5.37E-02
TE123M	159.00	84.10	7.95E-02	7.95E-02	-2.33E-02	3.84E-02
SB-124	602.71	97.87	9.92E-02	9.92E-02	1.55E-02	4.64E-02
	645.85	7.26	1.26E+00		-6.51E-01	5.86E-01
	722.78	11.10	9.39E-01		1.43E-01	4.37E-01
	1691.02	49.00	1.46E-01		4.67E-02	5.92E-02
I-125	35.49	6.49	3.48E+00	3.48E+00	-1.19E+00	1.68E+00
SB-125	176.33	6.89	9.40E-01	2.71E-01	5.69E-03	4.53E-01
	427.89	29.33	2.71E-01		-9.02E-02	1.29E-01
	463.38	10.35	9.40E-01		9.60E-01	4.49E-01
	600.56	17.80	4.96E-01		2.03E-01	2.33E-01
	635.90	11.32	6.88E-01		-2.22E-01	3.19E-01
SB-126	414.70	83.30	2.01E-01	1.96E-01	-8.39E-02	9.53E-02
	666.33	99.60	2.03E-01		4.75E-02	9.53E-02
	695.00	99.60	1.96E-01		-6.96E-02	9.18E-02
	720.50	53.80	3.43E-01		-1.89E-02	1.60E-01
SN-126	87.57	37.00	2.39E-01	2.39E-01	-2.95E-01	1.17E-01
SB-127	473.00	25.00	3.63E+00	2.61E+00	1.27E+00	1.72E+00
	685.20	35.70	2.61E+00		-1.76E+00	1.21E+00
	783.80	14.70	7.34E+00		2.50E+00	3.43E+00
I-129	29.78	57.00	6.60E-01	6.60E-01	-4.15E-02	3.19E-01
	33.60	13.20	1.81E+00		-3.22E-01	8.79E-01
	39.58	7.52	1.97E+00		-8.89E-02	9.54E-01
I-131	284.30	6.05	3.25E+00	2.64E-01	3.19E-01	1.55E+00
	364.48	81.20	2.64E-01		3.26E-02	1.25E-01
	636.97	7.26	3.35E+00		-6.93E-01	1.56E+00
	722.89	1.80	1.54E+01		2.35E+00	7.17E+00
TE-132	49.72	13.10	1.34E+01	1.26E+00	2.83E+00	6.54E+00
	228.16	88.00	1.26E+00		1.33E-01	6.06E-01
BA-133	81.00	33.00	2.44E-01	1.30E-01	-1.36E+00	1.19E-01
	302.84	17.80	4.27E-01		2.22E-01	2.04E-01
	356.01	60.00	1.30E-01		-5.37E-01	6.17E-02
I-133	529.87	86.30	3.65E+03	3.65E+03	2.29E+02	1.72E+03
XE-133	81.00	38.00	1.19E+00	1.19E+00	-6.64E+00	5.83E-01
CS-134	563.23	8.38	1.06E+00	8.68E-02	1.33E-01	5.01E-01
	569.32	15.43	5.41E-01		-3.10E-01	2.54E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	604.70	97.60	8.68E-02	8.68E-02	1.89E-02	4.06E-02
	795.84	85.40	1.40E-01		1.06E-01	6.62E-02
	801.93	8.73	1.15E+00		1.54E-01	5.34E-01
CS-135	268.24	16.00	4.58E-01	4.58E-01	-1.09E-01	2.20E-01
I-135	1131.51	22.50	1.03E+14	8.33E+13	3.88E+13	4.73E+13
	1260.41	28.60	8.33E+13		3.80E+13	3.81E+13
	1678.03	9.54	1.44E+14		1.44E+13	5.91E+13
CS-136	153.22	7.46	1.76E+00	1.84E-01	-1.96E-01	8.49E-01
	163.89	4.61	2.75E+00		-1.41E-01	1.33E+00
	176.55	13.56	9.45E-01		5.72E-03	4.55E-01
	273.65	12.66	1.16E+00		-2.99E-01	5.54E-01
	340.57	48.50	4.18E-01		8.28E-01	2.02E-01
	818.50	99.70	1.84E-01		-3.13E-02	8.50E-02
	1048.07	79.60	2.65E-01		4.56E-02	1.22E-01
	1235.34	19.70	1.64E+00		5.30E-01	7.71E-01
CS-137	661.65	85.12	1.09E-01	1.09E-01	-3.96E-02	5.11E-02
LA-138	788.74	34.00	3.19E-01	1.16E-01	2.73E-02	1.50E-01
	1435.80	66.00	1.16E-01		1.49E-03	4.98E-02
CE-139	165.85	80.35	8.57E-02	8.57E-02	3.53E-02	4.13E-02
BA-140	162.64	6.70	1.92E+00	6.73E-01	1.09E+00	9.28E-01
	304.84	4.50	2.93E+00		6.67E-02	1.39E+00
	423.70	3.20	5.29E+00		1.67E+00	2.52E+00
	437.55	2.00	7.57E+00		-3.89E+00	3.57E+00
	537.32	25.00	6.73E-01		-7.11E-02	3.16E-01
LA-140	328.77	20.50	7.13E-01	1.97E-01	3.69E-01	3.39E-01
	487.03	45.50	3.81E-01		1.67E-01	1.80E-01
	815.85	23.50	8.14E-01		2.15E-01	3.77E-01
	1596.49	95.49	1.97E-01		5.29E-03	8.62E-02
CE-141	145.44	48.40	1.75E-01	1.75E-01	-6.01E-02	8.47E-02
CE-143	57.36	11.80	5.64E+02	1.77E+02	-1.59E+02	2.74E+02
	293.26	42.00	1.77E+02		2.99E+02	8.59E+01
	664.55	5.20	1.42E+03		6.98E+02	6.71E+02
CE-144	133.54	10.80	6.52E-01	6.52E-01	5.44E-01	3.16E-01
PM-144	476.78	42.00	2.02E-01	8.12E-02	-2.44E-02	9.56E-02
	618.01	98.60	8.12E-02		-1.11E-02	3.77E-02
	696.49	99.49	9.94E-02		2.18E-03	4.66E-02
PM-145	36.85	21.70	7.94E-01	4.18E-01	-3.38E-02	3.84E-01
	37.36	39.70	4.18E-01		-2.60E-01	2.02E-01
	42.30	15.10	8.75E-01		2.92E-01	4.25E-01
	72.40	2.31	4.04E+00		-1.86E+01	1.98E+00
PM-146	453.90	39.94	1.97E-01	1.97E-01	6.14E-02	9.31E-02
	735.90	14.01	6.21E-01		7.87E-02	2.88E-01
	747.13	13.10	6.43E-01		-1.36E-01	2.97E-01
ND-147	91.11	28.90	7.13E-01	7.13E-01	-6.83E-01	3.49E-01
	531.02	13.10	1.59E+00		-1.17E-02	7.52E-01
PM-149	285.90	3.10	1.25E+02	1.25E+02	2.59E+01	5.92E+01
EU-152	121.78	20.50	2.99E-01	2.99E-01	-3.62E-02	1.45E-01
	244.69	5.40	1.54E+00		-2.84E-01	7.43E-01
	344.27	19.13	3.28E-01		-8.61E-02	1.55E-01
	778.89	9.20	9.79E-01		-5.31E-02	4.53E-01
	964.01	10.40	1.36E+00		9.55E-02	6.41E-01
	1085.78	7.22	1.37E+00		3.30E-01	6.23E-01
	1112.02	9.60	1.13E+00		4.25E-01	5.21E-01

Analysis Report for 1606067-10

CP-5014 09-15 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	1407.95	14.94	7.42E-01	2.99E-01	4.84E-01	3.36E-01
GD-153	97.43	31.30	2.21E-01	2.21E-01	-2.22E-01	1.07E-01
	103.18	22.20	2.74E-01		-1.24E-01	1.33E-01
EU-154	123.07	40.50	1.53E-01	1.53E-01	-4.65E-02	7.39E-02
	723.30	19.70	4.56E-01		6.96E-02	2.12E-01
	873.19	11.50	6.46E-01		-1.08E-02	2.91E-01
	996.32	10.30	9.38E-01		-1.33E-01	4.30E-01
	1004.76	17.90	5.95E-01		9.46E-02	2.75E-01
	1274.45	35.50	3.03E-01		9.25E-03	1.38E-01
EU-155	86.50	30.90	2.98E-01	2.98E-01	5.05E-01	1.46E-01
	105.30	20.70	3.03E-01		1.13E-01	1.47E-01
EU-156	811.77	10.40	1.52E+00	1.52E+00	-9.99E-01	7.02E-01
	1153.47	7.20	3.45E+00		2.25E+00	1.61E+00
	1230.71	8.90	2.81E+00		-7.76E-01	1.31E+00
HO-166M	184.41	72.60	1.19E-01	1.19E-01	1.40E-01	5.78E-02
	280.45	29.60	2.15E-01		-7.06E-02	1.02E-01
	410.94	11.10	7.11E-01		-3.03E-01	3.37E-01
	711.69	54.10	1.67E-01		-5.64E-02	7.80E-02
TM-171	66.72	0.14	6.30E+01	6.30E+01	2.70E+00	3.08E+01
HF-172	81.75	4.52	1.64E+00	5.59E-01	-1.66E+00	8.01E-01
	125.81	11.30	5.59E-01		-1.38E-01	2.71E-01
LU-172	181.53	20.60	1.23E+00	7.18E-01	-6.55E-02	5.95E-01
	810.06	16.63	2.22E+00		-5.01E-01	1.03E+00
	912.12	15.25	5.17E+00		1.36E+01	2.49E+00
	1093.66	62.50	7.18E-01		2.57E-01	3.32E-01
LU-173	100.72	5.24	1.23E+00	3.86E-01	-5.14E-01	5.95E-01
	272.11	21.20	3.86E-01		4.15E-01	1.86E-01
HF-175	343.40	84.00	8.72E-02	8.72E-02	-3.72E-03	4.12E-02
LU-176	88.34	13.30	6.95E-01	7.10E-02	-6.62E-02	3.41E-01
	201.83	86.00	8.34E-02		4.67E-03	4.03E-02
	306.78	94.00	7.10E-02		3.59E-03	3.37E-02
TA-182	67.75	41.20	2.16E-01	2.16E-01	-2.34E-02	1.05E-01
	1121.30	34.90	5.55E-01		7.59E-01	2.64E-01
	1189.05	16.23	8.39E-01		-2.01E-01	3.89E-01
	1221.41	26.98	4.69E-01		-3.24E-01	2.15E-01
	1231.02	11.44	1.30E+00		-3.59E-01	6.07E-01
IR-192	308.46	29.68	2.52E-01	1.95E-01	-6.00E-03	1.20E-01
	468.07	48.10	1.95E-01		1.17E-03	9.21E-02
HG-203	279.19	77.30	1.10E-01	1.10E-01	6.74E-02	5.23E-02
BI-207	569.67	97.72	8.95E-02	8.95E-02	1.45E-02	4.21E-02
	1063.62	74.90	1.50E-01		3.08E-02	6.93E-02
+ TL-208	583.14	*	30.22	4.80E-01	1.50E-01	1.70E+00
	860.37	*	4.48	2.50E+00		1.64E+00
	2614.66	*	35.85	1.50E-01		1.48E+00
BI-210M	262.00		45.00	1.36E-01	1.36E-01	-5.84E-02
	300.00		23.00	3.58E-01		-6.91E-01
PB-210	46.50		4.25	2.99E+00	2.99E+00	3.88E+00
PB-211	404.84		2.90	2.64E+00	2.64E+00	2.53E+00
	831.96		2.90	3.59E+00		-1.17E-01
+ BI-212	727.17	*	11.80	9.65E-01	9.65E-01	1.44E+00
	1620.62	*	2.75	2.04E+00		2.48E+00
PB-212	238.63		44.60	3.61E-01	3.61E-01	1.61E+00
	300.09		3.41	2.41E+00		-4.66E+00

Analysis Report for 1606067-10

CP-5014 09-15 QC

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	BI-214	609.31 *		46.30	2.81E-01	2.20E-01	1.09E+00	1.35E-01
		1120.29		15.10	1.17E+00		1.64E+00	5.56E-01
		1764.49 *		15.80	2.20E-01		1.74E+00	7.16E-02
		2204.22 *		4.98	1.54E+00		1.15E+00	6.33E-01
+	PB-214	295.21 *		19.19	7.42E-01	3.28E-01	1.66E+00	3.62E-01
		351.92 *		37.19	3.28E-01		1.33E+00	1.59E-01
	RN-219	401.80		6.50	1.11E+00	1.11E+00	-7.91E-02	5.23E-01
	RA-223	323.87		3.88	1.62E+00	1.62E+00	-9.32E-01	7.67E-01
	RA-224	240.98		3.95	4.27E+00	4.27E+00	2.46E+01	2.10E+00
	RA-225	40.00		31.00	8.59E-01	8.59E-01	-3.88E-02	4.16E-01
+	RA-226	186.21 *		3.28	3.75E+00	3.75E+00	4.26E+00	1.84E+00
	TH-227	50.10		8.40	1.27E+00	6.88E-01	2.68E-01	6.20E-01
		236.00		11.50	6.88E-01		-8.68E+00	3.32E-01
		256.20		6.30	1.06E+00		4.67E-01	5.08E-01
	AC-228	338.32		11.40	9.28E-01	7.38E-01	2.05E+00	4.49E-01
		911.07		27.70	7.38E-01		1.84E+00	3.55E-01
		969.11		16.60	1.12E+00		1.49E+00	5.38E-01
+	TH-230	48.44 *		16.90	1.08E+00	1.08E+00	1.42E+00	5.30E-01
		62.85 *		4.60	3.02E+00		2.01E+00	1.49E+00
		67.67		0.37	2.22E+01		-2.41E+00	1.08E+01
	PA-231	283.67		1.60	3.95E+00	3.30E+00	2.81E-01	1.88E+00
		302.67		2.30	3.30E+00		1.72E+00	1.58E+00
	TH-231	25.64		14.70	6.31E+00	1.22E+00	-5.16E+01	3.07E+00
		84.21		6.40	1.22E+00		-4.24E+00	5.95E-01
	PA-233	311.98		38.60	2.35E-01	2.35E-01	-9.32E-02	1.12E-01
	PA-234	131.20		20.40	3.49E-01	3.49E-01	1.55E-01	1.69E-01
		733.99		8.80	1.08E+00		2.51E-01	5.03E-01
		946.00		12.00	7.53E-01		-4.75E-01	3.44E-01
	PA-234M	1001.03		0.92	1.24E+01	1.24E+01	7.48E+00	5.78E+00
	TH-234	63.29 *		3.80	3.66E+00	3.66E+00	2.43E+00	1.80E+00
	U-235	143.76		10.50	6.21E-01	6.21E-01	2.25E-01	3.01E-01
		163.35		4.70	1.35E+00		-6.94E-02	6.51E-01
		205.31		4.70	1.43E+00		-1.22E-01	6.87E-01
	NP-237	86.50		12.60	7.27E-01	7.27E-01	1.23E+00	3.56E-01
	NP-239	106.10		22.70	1.30E+01	1.30E+01	4.87E+00	6.32E+00
		228.18		10.70	3.02E+01		3.18E+00	1.45E+01
		277.60		14.10	2.32E+01		1.30E+01	1.11E+01
	AM-241	59.54		35.90	2.54E-01	2.54E-01	-1.22E-02	1.24E-01
	AM-243	74.67		66.00	1.70E-01	1.70E-01	-6.35E-01	8.35E-02
	CM-243	209.75		3.29	2.35E+00	4.95E-01	1.99E+00	1.14E+00
		228.14		10.60	6.45E-01		6.78E-02	3.10E-01
		277.60		14.00	4.95E-01		2.77E-01	2.36E-01

- + = Nuclide identified during the nuclide identification
 * = Energy line found in the spectrum
 > = MDA value not calculated
 @ = Half-life too short to be able to perform the decay correction

Analysis Report for 1606067-10
CP-5014 09-15 QC

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

<i>Creation Date</i>	<i>Comment</i>	<i>User</i>
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No Data Review Comments Entered.

369: 22 12 17 16 13 19 14 14

Sample Title: CP-5014 09-15 QC

Channel	1	2	3	4	5	6	7	8
377:	16	25	16	19	21	17	18	17
385:	23	25	20	24	14	19	25	13
393:	19	16	19	24	19	24	17	22
401:	11	19	26	21	20	21	23	11
409:	10	25	20	18	20	12	16	20
417:	18	15	17	20	13	16	19	20
425:	20	11	25	11	14	11	17	14
433:	20	16	14	16	16	12	16	7
441:	12	18	14	11	18	14	21	15
449:	11	8	8	8	18	15	18	16
457:	15	15	13	10	12	14	37	35
465:	23	15	11	15	11	15	15	12
473:	17	18	18	16	11	16	13	10
481:	19	13	9	10	17	15	17	20
489:	13	13	12	13	19	10	13	11
497:	13	13	11	13	17	12	13	15
505:	8	7	10	16	25	29	45	78
513:	30	24	13	10	10	15	8	10
521:	12	16	15	17	16	16	17	11
529:	16	10	15	17	13	23	19	13
537:	6	11	7	14	14	14	16	8
545:	10	11	17	9	9	10	11	8
553:	16	10	11	12	10	13	13	8
561:	12	13	18	15	16	7	12	10
569:	11	14	15	7	17	10	12	8
577:	6	6	8	15	12	12	52	166
585:	60	23	13	22	7	9	10	13
593:	8	9	10	10	8	9	16	13
601:	8	9	14	10	12	5	11	10
609:	45	177	78	15	11	13	17	6
617:	11	11	11	1	2	5	11	11
625:	12	8	13	9	10	9	9	9
633:	6	9	10	6	7	11	6	8
641:	12	9	5	5	10	7	12	10
649:	7	11	11	12	9	5	8	10
657:	9	11	3	11	12	13	14	11
665:	12	16	16	7	7	9	9	15
673:	6	10	12	13	9	9	10	13
681:	13	9	8	8	11	9	11	8
689:	14	12	10	11	12	9	11	6
697:	8	15	13	14	10	10	10	13
705:	10	14	15	10	9	10	8	11
713:	11	2	13	9	11	7	8	12
721:	5	10	11	7	5	11	13	44
729:	24	11	8	17	8	5	9	10
737:	10	6	7	9	7	11	7	7
745:	4	6	9	6	8	10	7	8
753:	9	6	10	13	16	8	12	11
761:	9	11	12	14	7	6	12	14
769:	20	13	7	10	10	13	3	7
777:	11	6	9	5	5	11	7	9
785:	8	13	17	8	10	12	8	11
793:	13	7	22	29	10	8	5	7

801: 8 6 10 13 14 10 12 14

Sample Title: CP-5014 09-15 QC

Channel	1	2	3	4	5	6	7	8
809:	5	9	7	3	7	9	7	12
817:	3	12	5	10	5	5	10	7
825:	9	11	5	5	9	7	7	9
833:	15	11	8	13	14	14	6	13
841:	14	10	5	4	10	8	6	6
849:	9	7	8	13	6	1	6	6
857:	1	8	6	7	23	23	5	8
865:	6	8	8	3	8	6	4	6
873:	5	2	3	3	2	5	5	6
881:	10	7	5	6	7	3	4	3
889:	3	10	4	7	8	6	8	5
897:	11	13	3	9	5	5	6	11
905:	6	11	6	8	5	7	40	112
913:	54	9	5	6	3	10	6	7
921:	8	6	4	6	7	3	9	6
929:	6	10	2	5	6	12	15	6
937:	4	7	2	5	11	9	8	5
945:	7	5	7	2	5	6	9	8
953:	9	8	4	11	13	6	6	9
961:	7	16	9	13	20	22	11	20
969:	41	53	23	5	9	11	3	6
977:	10	3	6	2	10	4	4	8
985:	6	5	7	5	6	7	6	8
993:	4	3	8	4	4	7	11	5
1001:	7	12	11	6	7	5	2	7
1009:	6	7	6	8	6	2	6	5
1017:	8	9	3	7	9	4	6	4
1025:	8	4	6	6	5	7	3	5
1033:	11	13	4	12	7	9	4	7
1041:	7	3	8	7	9	6	6	6
1049:	6	6	7	3	6	5	6	7
1057:	4	5	9	5	6	4	7	7
1065:	6	15	6	7	4	11	2	5
1073:	6	9	8	3	7	7	9	8
1081:	3	6	3	6	9	4	4	7
1089:	4	5	3	5	17	5	7	4
1097:	11	8	5	8	5	9	3	10
1105:	10	11	3	3	5	11	5	7
1113:	5	5	6	4	6	5	10	29
1121:	41	23	9	9	8	10	7	3
1129:	4	7	9	7	5	9	3	6
1137:	4	8	5	8	7	4	4	4
1145:	9	8	11	7	7	9	8	11
1153:	11	5	16	8	7	3	7	4
1161:	5	3	9	7	7	10	7	5
1169:	4	6	7	9	7	8	6	4
1177:	7	11	11	13	9	7	3	15
1185:	6	3	10	5	7	12	5	12
1193:	7	8	13	8	12	3	9	8
1201:	6	8	8	5	6	5	6	15
1209:	11	8	11	9	11	11	6	10
1217:	5	5	10	6	8	5	3	7
1225:	11	11	5	6	5	4	11	14

1233: 9 13 15 11 9 16 16 11

Sample Title: CP-5014 09-15 QC

Channel	1	2	3	4	5	6	7	8
1241:	10	8	6	1	5	10	7	7
1249:	7	4	4	7	8	2	4	3
1257:	5	3	8	4	7	9	3	3
1265:	4	2	7	6	3	7	5	4
1273:	5	4	4	6	6	1	8	4
1281:	9	2	4	11	4	8	5	6
1289:	6	3	7	5	9	5	2	5
1297:	3	7	2	1	5	6	4	4
1305:	6	3	5	4	2	5	4	5
1313:	1	5	2	3	3	3	4	5
1321:	6	6	6	4	3	3	6	4
1329:	3	4	1	5	5	1	5	5
1337:	4	3	3	4	1	5	4	3
1345:	9	6	3	4	2	2	7	3
1353:	3	2	5	3	5	5	3	3
1361:	3	1	4	3	4	1	3	2
1369:	7	2	2	1	4	3	2	4
1377:	1	5	5	2	0	2	2	4
1385:	2	6	5	4	3	1	2	2
1393:	1	0	3	6	0	1	1	5
1401:	6	5	2	1	1	4	1	10
1409:	9	4	2	2	2	3	4	1
1417:	5	4	2	0	4	1	1	5
1425:	2	3	3	1	1	4	3	3
1433:	4	1	2	2	1	0	3	2
1441:	4	0	1	1	3	2	1	1
1449:	4	1	1	7	1	1	2	3
1457:	4	4	8	84	283	267	97	16
1465:	9	7	2	1	1	2	4	3
1473:	2	4	2	0	2	2	1	4
1481:	4	2	0	3	1	1	5	2
1489:	2	0	1	1	2	3	3	0
1497:	0	6	0	0	1	2	2	0
1505:	1	0	4	3	2	4	1	2
1513:	2	4	1	4	0	2	1	1
1521:	2	1	2	3	1	0	1	0
1529:	2	1	1	1	0	1	2	2
1537:	2	1	1	2	1	1	2	2
1545:	3	2	0	1	1	3	1	3
1553:	2	0	1	3	5	1	2	2
1561:	3	3	1	0	4	2	1	0
1569:	2	1	1	2	1	0	1	2
1577:	2	1	3	4	4	2	1	2
1585:	1	1	6	8	13	7	3	1
1593:	3	6	3	0	1	3	1	2
1601:	3	0	3	1	1	0	1	1
1609:	1	3	1	0	2	5	3	2
1617:	0	0	4	6	2	3	4	1
1625:	1	1	3	1	1	3	5	5
1633:	1	0	1	2	1	2	0	1
1641:	2	0	2	0	0	4	2	1
1649:	1	2	1	1	0	1	0	1
1657:	2	2	1	1	1	2	3	0

1665: 1 0 2 0 1 2 1 2

Sample Title: CP-5014 09-15 QC

Channel	1	2	3	4	5	6	7	8
1673:	2	0	0	1	0	1	2	2
1681:	1	0	1	1	0	1	0	1
1689:	0	0	3	1	1	0	0	0
1697:	0	0	2	0	2	1	1	1
1705:	1	1	0	1	1	2	2	1
1713:	1	1	0	2	0	1	2	0
1721:	0	1	0	1	3	0	2	2
1729:	2	4	3	1	1	1	0	1
1737:	2	1	2	1	2	1	4	1
1745:	0	2	0	2	2	1	0	1
1753:	0	0	1	1	1	2	0	0
1761:	1	2	1	11	27	13	7	1
1769:	0	0	2	2	2	0	1	0
1777:	0	1	3	0	1	0	0	1
1785:	1	1	1	1	2	0	1	1
1793:	2	0	2	1	0	3	1	0
1801:	1	2	0	2	2	0	2	1
1809:	3	1	2	1	1	1	2	0
1817:	2	1	0	1	1	1	0	3
1825:	4	0	1	1	0	2	2	2
1833:	0	0	1	0	1	0	2	1
1841:	2	0	2	0	1	0	2	3
1849:	5	1	1	0	1	1	0	0
1857:	2	1	1	2	0	0	2	0
1865:	2	0	2	0	1	0	2	2
1873:	0	0	1	3	2	0	1	0
1881:	2	1	1	1	0	0	0	0
1889:	1	0	1	1	0	2	0	2
1897:	2	0	2	0	2	0	0	1
1905:	0	1	0	1	1	1	2	0
1913:	1	1	1	2	1	1	2	1
1921:	2	1	0	1	0	0	2	2
1929:	1	0	2	1	1	0	1	0
1937:	0	3	3	3	1	1	1	0
1945:	1	1	0	1	1	0	3	1
1953:	2	2	1	0	1	1	1	1
1961:	1	1	1	0	0	0	1	1
1969:	0	2	0	0	1	1	0	0
1977:	5	2	2	0	0	3	2	0
1985:	1	1	1	0	1	3	1	1
1993:	0	0	1	0	0	1	2	0
2001:	0	1	1	0	1	1	1	1
2009:	1	2	1	1	0	3	0	0
2017:	0	2	2	2	1	1	2	0
2025:	1	0	0	1	1	0	1	1
2033:	0	1	0	1	0	1	0	0
2041:	0	2	3	1	0	2	1	0
2049:	1	0	0	1	1	4	0	3
2057:	0	0	2	1	0	2	1	1
2065:	1	1	1	0	1	1	0	1
2073:	1	0	0	0	1	1	2	0
2081:	3	2	0	0	4	0	0	0
2089:	0	1	2	0	0	2	0	1

2097: 0 1 0 2 2 2 2 4

Sample Title: CP-5014 09-15 QC

Channel	1	2	3	4	5	6	7	8
2105:	6	1	1	1	1	3	0	2
2113:	0	3	1	0	2	0	0	0
2121:	0	1	1	0	0	1	1	0
2129:	0	1	1	1	2	0	0	1
2137:	0	0	0	2	0	0	1	0
2145:	1	1	0	1	1	2	1	1
2153:	2	0	2	0	1	0	0	1
2161:	3	1	0	2	0	1	1	0
2169:	1	1	0	1	0	1	1	2
2177:	0	1	1	0	0	1	2	0
2185:	0	2	0	1	0	0	0	1
2193:	2	1	0	0	2	1	1	0
2201:	1	1	5	3	2	3	0	0
2209:	0	2	0	3	0	1	2	0
2217:	2	0	2	0	1	1	0	0
2225:	0	0	0	1	2	1	2	1
2233:	1	3	0	2	0	1	1	2
2241:	1	1	2	1	1	1	0	3
2249:	1	0	1	1	0	1	1	0
2257:	0	0	4	1	1	1	3	0
2265:	1	1	0	1	1	0	2	1
2273:	2	4	2	0	2	0	2	1
2281:	0	1	2	0	2	0	0	1
2289:	2	0	0	0	1	1	1	0
2297:	3	1	0	0	1	0	2	1
2305:	2	0	0	1	1	0	0	0
2313:	2	1	0	0	1	4	1	0
2321:	0	2	1	0	0	1	0	1
2329:	5	0	1	1	1	2	3	1
2337:	1	0	3	1	2	0	0	2
2345:	0	0	0	0	1	1	2	0
2353:	1	2	1	1	0	2	1	1
2361:	1	0	2	1	1	0	2	0
2369:	2	0	1	0	0	0	0	0
2377:	2	0	3	0	1	1	4	0
2385:	0	0	1	1	3	2	1	0
2393:	2	2	1	2	0	0	2	2
2401:	0	0	0	2	0	0	2	0
2409:	1	1	1	2	0	2	2	1
2417:	0	0	1	2	0	0	0	3
2425:	1	0	1	1	1	1	3	0
2433:	0	0	4	1	0	0	1	0
2441:	0	0	0	1	0	0	3	2
2449:	0	1	1	1	0	0	0	0
2457:	1	0	4	0	0	0	0	1
2465:	0	1	0	0	0	0	0	2
2473:	0	1	2	2	2	0	0	0
2481:	0	0	0	0	0	1	0	0
2489:	0	0	0	0	1	0	0	1
2497:	0	0	0	0	0	0	0	0
2505:	0	0	1	1	0	0	0	0
2513:	2	0	1	0	1	1	0	0
2521:	0	0	2	0	0	1	1	0

2529: 1 0 0 0 0 0 1 0

Sample Title: CP-5014 09-15 QC

Channel	1	2	3	4	5	6	7	8	9
2537:	1	0	0	0	0	0	1	0	
2545:	0	0	0	0	1	0	0	0	
2553:	0	0	0	1	0	1	0	0	
2561:	0	0	0	0	0	1	0	0	
2569:	0	0	0	0	1	0	3	2	
2577:	1	0	0	0	0	0	0	0	
2585:	0	0	0	0	0	0	0	0	
2593:	0	0	0	2	0	0	0	0	
2601:	0	0	0	0	0	1	0	1	
2609:	0	0	0	4	15	28	40	15	
2617:	3	2	0	0	0	0	0	0	
2625:	2	0	0	0	0	2	1	0	
2633:	1	0	0	2	1	0	0	0	
2641:	0	0	0	0	1	0	1	0	
2649:	0	0	0	0	0	0	1	0	
2657:	1	0	0	0	0	0	0	0	
2665:	0	0	0	0	0	0	2	0	
2673:	0	0	0	0	0	0	0	0	
2681:	0	1	1	0	0	0	2	0	
2689:	2	0	0	1	0	0	0	0	
2697:	0	0	0	0	0	0	1	0	
2705:	1	2	0	0	0	0	0	0	
2713:	0	0	1	0	0	0	0	0	
2721:	0	0	1	0	0	0	0	0	
2729:	0	0	0	0	0	0	0	2	
2737:	0	0	0	0	0	0	0	0	
2745:	0	0	1	0	0	1	0	0	
2753:	0	0	1	0	0	0	0	2	
2761:	1	1	0	0	1	0	0	0	
2769:	0	0	0	0	0	0	1	1	
2777:	0	0	0	0	0	0	0	0	
2785:	0	1	0	1	0	0	0	0	
2793:	0	0	0	1	0	0	1	0	
2801:	0	0	0	0	0	0	0	0	
2809:	1	1	0	1	0	0	0	0	
2817:	1	0	0	0	0	0	0	1	
2825:	0	1	1	0	0	1	0	0	
2833:	1	0	0	0	0	1	0	0	
2841:	1	1	0	0	0	0	0	0	
2849:	0	0	0	0	0	1	0	0	
2857:	0	0	0	0	0	1	1	0	
2865:	0	0	0	0	0	0	0	0	
2873:	0	1	2	0	0	0	0	0	
2881:	1	2	0	0	0	0	0	0	
2889:	0	2	0	2	0	1	2	0	
2897:	0	1	0	2	0	0	0	0	
2905:	0	0	1	0	0	0	0	3	
2913:	0	0	0	0	0	0	0	1	
2921:	0	0	1	1	0	0	1	1	
2929:	0	0	0	0	0	0	0	0	
2937:	0	2	1	0	1	0	0	0	
2945:	0	0	0	0	0	0	0	0	
2953:	0	0	0	1	1	0	0	1	

2961: 0 0 0 1 1 0 0 0

Sample Title: CP-5014 09-15 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2969:	0	2	0	2	0	0	1	0
2977:	0	0	0	0	0	1	0	0
2985:	0	2	1	0	0	2	0	0
2993:	0	0	1	0	0	0	0	0
3001:	0	0	0	0	0	0	0	0
3009:	0	0	0	0	0	0	0	0
3017:	0	0	0	0	0	0	0	0
3025:	0	0	1	0	0	2	0	0
3033:	0	0	0	0	1	0	0	0
3041:	0	0	0	0	1	0	0	0
3049:	0	0	0	0	0	0	0	1
3057:	0	0	0	0	0	0	1	0
3065:	0	0	0	0	0	0	0	1
3073:	0	0	0	0	0	0	1	0
3081:	0	0	1	1	0	0	0	0
3089:	0	0	0	0	0	0	0	0
3097:	0	0	1	0	0	0	0	0
3105:	0	0	0	3	0	0	0	0
3113:	0	0	1	0	0	0	0	1
3121:	0	0	0	0	0	0	0	1
3129:	0	1	1	1	0	0	0	1
3137:	0	0	0	0	0	0	0	0
3145:	1	0	0	0	0	0	1	0
3153:	0	0	1	0	0	0	0	0
3161:	0	0	0	1	1	0	0	1
3169:	0	0	0	0	0	0	0	0
3177:	1	1	0	0	0	0	0	0
3185:	0	0	1	0	0	0	0	0
3193:	0	1	0	1	0	0	2	1
3201:	1	0	1	1	0	0	0	0
3209:	0	1	0	0	0	0	1	0
3217:	1	0	0	0	0	0	0	0
3225:	0	0	0	0	1	0	0	0
3233:	1	0	0	0	0	0	0	0
3241:	0	0	0	1	0	0	0	0
3249:	0	1	0	0	0	0	0	0
3257:	0	0	0	0	0	0	0	0
3265:	0	0	2	0	0	0	1	0
3273:	1	0	0	1	0	0	0	0
3281:	0	0	0	0	0	0	0	0
3289:	0	0	0	0	0	1	0	0
3297:	0	0	0	0	1	0	0	0
3305:	0	1	0	0	0	1	0	0
3313:	0	0	0	0	0	0	0	0
3321:	0	0	0	0	0	0	0	0
3329:	0	0	0	0	0	0	0	0
3337:	0	0	0	1	0	1	0	0
3345:	0	0	0	3	0	0	0	0
3353:	0	0	0	0	0	0	0	0
3361:	0	1	0	0	1	0	1	0
3369:	0	0	0	0	0	0	0	0
3377:	0	0	1	2	0	0	0	0
3385:	0	0	0	0	0	0	0	0

3393: 0 1 0 0 0 0 1 0

Sample Title: CP-5014 09-15 QC

Channel	1	2	3	4	5	6	7	8
3401:	0	0	0	0	0	0	1	0
3409:	1	1	0	0	0	0	0	0
3417:	0	0	1	0	0	0	0	1
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	1	0
3449:	0	0	0	0	0	0	0	0
3457:	1	0	1	0	0	1	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	2	0	0
3489:	1	0	0	0	0	0	0	0
3497:	0	1	1	1	1	1	0	0
3505:	0	0	0	0	0	0	0	1
3513:	0	0	1	1	1	0	0	0
3521:	0	0	1	0	0	0	0	0
3529:	0	0	0	1	0	0	0	0
3537:	0	0	0	0	0	0	0	0
3545:	0	0	0	1	0	1	0	0
3553:	1	0	0	1	0	0	0	0
3561:	0	0	0	0	1	0	0	0
3569:	0	0	0	0	0	1	0	0
3577:	0	0	0	1	0	1	0	0
3585:	0	1	0	0	0	0	0	0
3593:	0	0	1	0	0	0	0	0
3601:	0	0	0	0	0	0	0	0
3609:	0	0	0	1	0	0	0	0
3617:	0	0	0	0	0	1	0	0
3625:	0	0	0	0	0	0	0	0
3633:	0	0	0	1	1	0	0	0
3641:	0	0	0	0	0	0	1	0
3649:	0	0	0	0	0	0	0	0
3657:	0	1	0	1	0	0	1	0
3665:	0	0	0	1	1	1	0	0
3673:	0	0	0	0	0	0	0	2
3681:	0	0	0	0	0	0	0	0
3689:	0	0	0	0	0	0	0	1
3697:	0	0	0	0	0	0	0	0
3705:	0	0	0	0	0	0	0	0
3713:	1	0	0	0	0	0	0	1
3721:	0	1	0	0	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	0	0	0	0	1	0
3745:	1	0	0	0	0	0	0	0
3753:	0	0	0	1	1	1	0	0
3761:	0	0	0	1	0	0	0	1
3769:	1	0	1	0	0	0	0	0
3777:	0	0	1	0	1	0	0	1
3785:	0	0	0	1	0	0	0	0
3793:	1	0	0	0	0	0	1	0
3801:	1	0	0	0	0	0	0	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	1	0

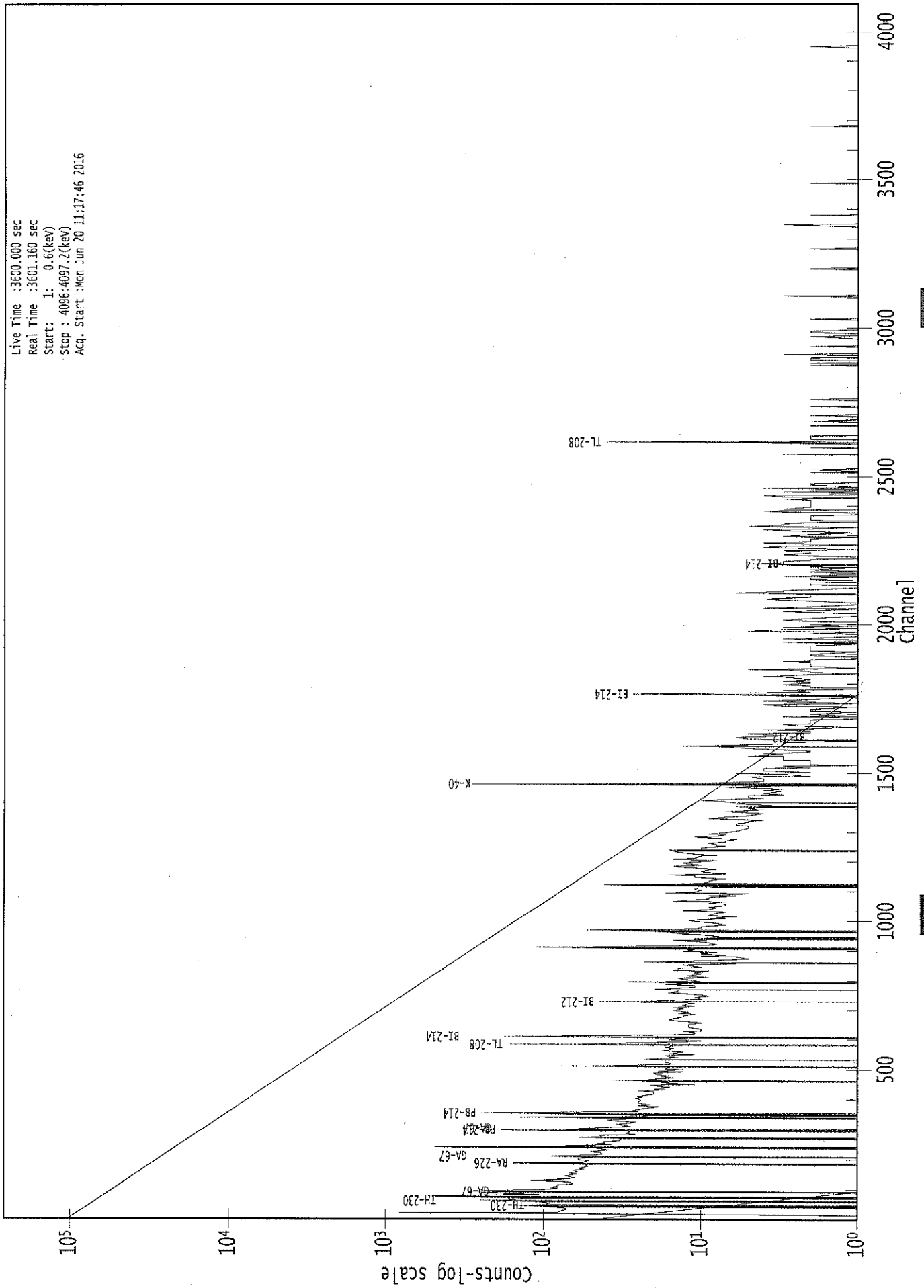
3825: 0 0 1 0 0 0 0 0

Sample Title: CP-5014 09-15 QC

Channel	1	2	3	4	5	6	7	8
3833:	0	0	1	0	0	1	0	1
3841:	0	0	0	0	1	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	1	0	0	1	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	1	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	1	0	0	1
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	1	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	0	1	0	0
3929:	0	0	0	0	0	1	0	1
3937:	1	0	0	0	0	0	0	1
3945:	1	0	0	0	0	2	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	1	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	0	0	1	0
3985:	0	0	0	0	1	1	0	0
3993:	0	0	0	0	1	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	1	0	0	0	0
4017:	0	0	1	0	0	0	0	0
4025:	1	1	0	0	0	0	0	0
4033:	0	1	0	0	0	0	0	1
4041:	0	0	0	0	0	0	0	0
4049:	0	0	1	0	0	1	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	1	0	0	0	0	0	0
4073:	1	0	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000039153.CNF

Live Time :3600.000 sec
Real Time :3601.160 sec
Start : 1: 0.6(kev)
Stop : 4096:4097.2(kev)
Acq. Start :Mon Jun 20 11:17:46 2016



ROI Type: 1
ROI Type: 2

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6/20/16Analysis Report for 1606067-11
CP-5017 00-02 QC

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606067-11
Sample Description : CP-5017 00-02 QC
Sample Type : SOIL

Sample Size : 6.333E+02 grams
Facility : Countroom

Sample Taken On : 6/8/2016 9:17:27AM
Acquisition Started : 6/20/2016 11:17:54AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE2
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.5 seconds

Dead Time : 0.04 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 7 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 11/2/2014
Efficiency Calibration Used Done On : 4/6/2016
Efficiency Calibration Description :

Sample Number : 39154

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/20/16

Analysis Report for 1606067-11
 CP-5017 00-02 QC

PEAK LOCATE REPORT

Peak Locate Performed on : 6/20/2016 12:18:10PM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096
 Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	12.88	13.00	0.0000	0.00
2	63.45	63.55	0.0000	0.00
3	76.20	76.28	0.0000	0.00
4	88.29	88.37	0.0000	0.00
5	93.30	93.37	0.0000	0.00
6	186.33	186.35	0.0000	0.00
7	209.42	209.43	0.0000	0.00
8	239.68	239.67	0.0000	0.00
9	269.76	269.74	0.0000	0.00
10	276.84	276.82	0.0000	0.00
11	295.24	295.21	0.0000	0.00
12	327.54	327.49	0.0000	0.00
13	338.44	338.39	0.0000	0.00
14	352.00	351.94	0.0000	0.00
15	401.25	401.16	0.0000	0.00
16	463.21	463.09	0.0000	0.00
17	466.28	466.16	0.0000	0.00
18	510.83	510.68	0.0000	0.00
19	561.90	561.73	0.0000	0.00
20	583.23	583.05	0.0000	0.00
21	609.41	609.22	0.0000	0.00
22	727.61	727.36	0.0000	0.00
23	767.39	767.13	0.0000	0.00
24	831.95	831.66	0.0000	0.00
25	836.11	835.82	0.0000	0.00
26	911.49	911.17	0.0000	0.00
27	969.11	968.76	0.0000	0.00
28	1001.10	1000.74	0.0000	0.00
29	1095.98	1095.58	0.0000	0.00
30	1120.62	1120.21	0.0000	0.00
31	1124.62	1124.21	0.0000	0.00
32	1166.97	1166.54	0.0000	0.00
33	1363.01	1362.52	0.0000	0.00
34	1377.99	1377.49	0.0000	0.00
35	1385.30	1384.81	0.0000	0.00
36	1408.35	1407.85	0.0000	0.00
37	1434.02	1433.50	0.0000	0.00
38	1461.01	1460.49	0.0000	0.00
39	1510.36	1509.82	0.0000	0.00
40	1621.89	1621.32	0.0000	0.00
41	1727.98	1727.38	0.0000	0.00
42	1764.71	1764.11	0.0000	0.00

Analysis Report for 1606067-11
CP-5017 00-02 QC

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1792.03	1791.42	0.0000	0.00
44	1871.27	1870.64	0.0000	0.00
45	1878.74	1878.11	0.0000	0.00
46	1890.49	1889.86	0.0000	0.00
47	2105.04	2104.36	0.0000	0.00
48	2204.32	2203.63	0.0000	0.00
49	2221.42	2220.73	0.0000	0.00
50	2388.38	2387.66	0.0000	0.00
51	2447.32	2446.59	0.0000	0.00
52	2614.60	2613.86	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606067-11

CP-5017 00-02 QC

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 12:18:10PM

Peak Analysis From Channel : 1
 Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
1	12.88	12 -	15	13.00	1.92E+03	119.11	1.45E+03	1.01
2	63.45	60 -	67	63.55	1.50E+02	100.88	1.60E+03	1.87
3	76.20	72 -	80	76.28	8.94E+02	125.48	1.85E+03	3.23
4	88.29	86 -	91	88.37	2.23E+02	81.39	1.14E+03	3.79
5	93.30	91 -	96	93.37	1.60E+02	79.80	1.10E+03	1.26
6	186.33	183 -	190	186.35	2.13E+02	71.61	7.13E+02	1.43
7	209.42	206 -	212	209.43	8.85E+01	60.56	5.91E+02	1.81
8	239.68	235 -	251	239.67	9.26E+02	122.57	1.00E+03	1.41
9	269.76	266 -	273	269.74	7.91E+01	53.29	4.14E+02	1.59
10	276.84	274 -	279	276.82	6.27E+01	41.75	3.01E+02	1.82
11	295.24	291 -	297	295.21	1.49E+02	56.26	5.69E+02	1.20
12	327.54	324 -	331	327.49	6.04E+01	47.58	3.39E+02	1.41
13	338.44	336 -	342	338.39	1.42E+02	45.33	2.72E+02	1.81
14	352.00	348 -	355	351.94	4.10E+02	58.21	2.91E+02	1.24
15	401.25	397 -	404	401.16	4.54E+01	38.94	2.19E+02	1.42
M	463.21	461 -	469	463.09	7.38E+01	26.47	1.09E+02	1.71
m	466.28	461 -	469	466.16	2.57E+01	24.51	1.03E+02	1.72
18	510.83	506 -	514	510.68	1.50E+02	45.08	2.20E+02	2.06
19	561.90	558 -	565	561.73	2.66E+01	31.94	1.53E+02	1.96
20	583.23	578 -	587	583.05	2.29E+02	49.18	2.15E+02	1.48
21	609.41	605 -	613	609.22	2.64E+02	48.40	1.97E+02	1.65
22	727.61	722 -	732	727.36	4.68E+01	41.32	2.00E+02	1.81
23	767.39	761 -	771	767.13	3.34E+01	36.46	1.59E+02	2.42
M	831.95	830 -	838	831.66	1.47E+01	14.42	3.91E+01	3.30
m	836.11	830 -	838	835.82	1.49E+01	21.85	7.69E+01	2.49
26	911.49	906 -	915	911.17	1.64E+02	38.20	1.15E+02	1.92
27	969.11	966 -	973	968.76	6.92E+01	32.56	1.20E+02	1.79
28	1001.10	997 -	1005	1000.74	3.35E+01	21.42	5.09E+01	1.44
29	1095.98	1093 -	1099	1095.58	1.88E+01	18.09	4.63E+01	3.69
M	1120.62	1115 -	1132	1120.21	9.53E+01	26.47	6.76E+01	2.31
m	1124.62	1115 -	1132	1124.21	1.92E+01	22.11	6.07E+01	2.31
32	1166.97	1163 -	1169	1166.54	1.94E+01	19.07	5.12E+01	3.82
33	1363.01	1358 -	1368	1362.52	2.00E+01	16.71	2.40E+01	1.85
34	1377.99	1374 -	1381	1377.49	2.18E+01	12.65	1.23E+01	1.99
35	1385.30	1382 -	1389	1384.81	1.84E+01	10.77	5.24E+00	3.19
36	1408.35	1405 -	1410	1407.85	1.64E+01	10.54	9.14E+00	1.40
37	1434.02	1431 -	1435	1433.50	8.67E+00	9.55	1.27E+01	1.15
38	1461.01	1454 -	1465	1460.49	6.77E+02	53.85	2.40E+01	2.13
39	1510.36	1505 -	1514	1509.82	1.60E+01	11.58	1.00E+01	1.45
40	1621.89	1618 -	1625	1621.32	1.64E+01	9.38	3.17E+00	2.92

Analysis Report for 1606067-11

CP-5017 00-02 QC

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1727.98	1723 -	1730	1727.38	8.00E+00	10.20	1.20E+01	4.41
42	1764.71	1758 -	1768	1764.11	4.86E+01	17.85	1.68E+01	2.67
43	1792.03	1787 -	1794	1791.42	6.25E+00	6.93	3.50E+00	2.86
44	1871.27	1866 -	1874	1870.64	1.10E+01	6.63	0.00E+00	3.48
45	1878.74	1875 -	1881	1878.11	9.00E+00	6.00	0.00E+00	1.16
46	1890.49	1887 -	1892	1889.86	5.64E+00	6.08	2.71E+00	2.99
47	2105.04	2097 -	2109	2104.36	2.07E+01	18.95	3.26E+01	4.94
48	2204.32	2199 -	2208	2203.63	1.57E+01	12.92	1.46E+01	1.50
49	2221.42	2216 -	2224	2220.73	1.10E+01	6.63	0.00E+00	1.47
50	2388.38	2385 -	2390	2387.66	6.38E+00	6.40	3.25E+00	1.89
51	2447.32	2441 -	2450	2446.59	8.86E+00	8.31	4.27E+00	2.65
52	2614.60	2609 -	2618	2613.86	1.05E+02	20.49	0.00E+00	2.13

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 12:18:10PM

Peak Analysis From Channel : 1
Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	12.88	12 -	15	1.92E+03	119.11	1.45E+03	7.67E+01
2	63.45	60 -	67	1.50E+02	100.88	1.60E+03	8.04E+01
3	76.20	72 -	80	8.94E+02	125.48	1.85E+03	1.44E+02
4	88.29	86 -	91	2.23E+02	81.39	1.14E+03	6.22E+01
5	93.30	91 -	96	1.60E+02	79.80	1.10E+03	6.22E+01
6	186.33	183 -	190	2.13E+02	71.61	7.13E+02	5.37E+01
7	209.42	206 -	212	8.85E+01	60.56	5.91E+02	4.73E+01
8	239.68	235 -	251	9.26E+02	122.57	1.00E+03	2.71E+01
9	269.76	266 -	273	7.91E+01	53.29	4.14E+02	4.13E+01
10	276.84	274 -	279	6.27E+01	41.75	3.01E+02	3.18E+01
11	295.24	291 -	297	1.49E+02	56.26	5.69E+02	5.11E+01
12	327.54	324 -	331	6.04E+01	47.58	3.39E+02	1.79E+01
13	338.44	336 -	342	1.42E+02	45.33	2.72E+02	3.17E+01
14	352.00	348 -	355	4.10E+02	58.21	2.91E+02	3.44E+01
15	401.25	397 -	404	4.54E+01	38.94	2.19E+02	3.00E+01
M 16	463.21	461 -	469	7.38E+01	26.47	1.09E+02	1.72E+01

: 00624

Analysis Report for 1606067-11

CP-5017 00-02 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	17	466.28	461 -	469	2.57E+01	24.51	1.03E+02	1.67E+01
	18	510.83	506 -	514	1.50E+02	45.08	2.20E+02	3.11E+01
	19	561.90	558 -	565	2.66E+01	31.94	1.53E+02	2.48E+01
	20	583.23	578 -	587	2.29E+02	49.18	2.15E+02	3.19E+01
	21	609.41	605 -	613	2.64E+02	48.40	1.97E+02	2.95E+01
	22	727.61	722 -	732	4.68E+01	41.32	2.00E+02	3.20E+01
	23	767.39	761 -	771	3.34E+01	36.46	1.59E+02	2.84E+01
M	24	831.95	830 -	838	1.47E+01	14.42	3.91E+01	1.03E+01
m	25	836.11	830 -	838	1.49E+01	21.85	7.69E+01	1.44E+01
	26	911.49	906 -	915	1.64E+02	38.20	1.15E+02	2.33E+01
	27	969.11	966 -	973	6.92E+01	32.56	1.20E+02	2.30E+01
	28	1001.10	997 -	1005	3.35E+01	21.42	5.09E+01	1.48E+01
	29	1095.98	1093 -	1099	1.88E+01	18.09	4.63E+01	1.30E+01
M	30	1120.62	1115 -	1132	9.53E+01	26.47	6.76E+01	1.35E+01
m	31	1124.62	1115 -	1132	1.92E+01	22.11	6.07E+01	1.28E+01
	32	1166.97	1163 -	1169	1.94E+01	19.07	5.12E+01	1.39E+01
	33	1363.01	1358 -	1368	2.00E+01	16.71	2.40E+01	1.16E+01
	34	1377.99	1374 -	1381	2.18E+01	12.65	1.23E+01	7.01E+00
	35	1385.30	1382 -	1389	1.84E+01	10.77	5.24E+00	5.36E+00
	36	1408.35	1405 -	1410	1.64E+01	10.54	9.14E+00	5.53E+00
	37	1434.02	1431 -	1435	8.67E+00	9.55	1.27E+01	6.18E+00
	38	1461.01	1454 -	1465	6.77E+02	53.85	2.40E+01	1.14E+01
	39	1510.36	1505 -	1514	1.60E+01	11.58	1.00E+01	6.88E+00
	40	1621.89	1618 -	1625	1.64E+01	9.38	3.17E+00	3.88E+00
	41	1727.98	1723 -	1730	8.00E+00	10.20	1.20E+01	6.97E+00
	42	1764.71	1758 -	1768	4.86E+01	17.85	1.68E+01	9.17E+00
	43	1792.03	1787 -	1794	6.25E+00	6.93	3.50E+00	3.94E+00
	44	1871.27	1866 -	1874	1.10E+01	6.63	0.00E+00	0.00E+00
	45	1878.74	1875 -	1881	9.00E+00	6.00	0.00E+00	0.00E+00
	46	1890.49	1887 -	1892	5.64E+00	6.08	2.71E+00	3.12E+00
	47	2105.04	2097 -	2109	2.07E+01	18.95	3.26E+01	1.37E+01
	48	2204.32	2199 -	2208	1.57E+01	12.92	1.46E+01	8.39E+00
	49	2221.42	2216 -	2224	1.10E+01	6.63	0.00E+00	0.00E+00
	50	2388.38	2385 -	2390	6.38E+00	6.40	3.25E+00	3.24E+00
	51	2447.32	2441 -	2450	8.86E+00	8.31	4.27E+00	4.76E+00
	52	2614.60	2609 -	2618	1.05E+02	20.49	0.00E+00	0.00E+00

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

Analysis Report for 1606067-11

CP-5017 00-02 QC

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/20/2016 12:18:10PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide	
1	12.88	12 -	15	13.00	1.92E+03	119.11	1.45E+03	.....
2	63.45	60 -	67	63.55	1.50E+02	100.88	1.60E+03	TH-234 TH-230	
3	76.20	72 -	80	76.28	8.94E+02	125.48	1.85E+03	.....
4	88.29	86 -	91	88.37	2.23E+02	81.39	1.14E+03	LU-176 CD-109 SN-126	
5	93.30	91 -	96	93.37	1.60E+02	79.80	1.10E+03	GA-67	
6	186.33	183 -	190	186.35	2.13E+02	71.61	7.13E+02	RA-226	
7	209.42	206 -	212	209.43	8.85E+01	60.56	5.91E+02	CM-243 GA-67	
8	239.68	235 -	251	239.67	9.26E+02	122.57	1.00E+03	.....
9	269.76	266 -	273	269.74	7.91E+01	53.29	4.14E+02	.....
10	276.84	274 -	279	276.82	6.27E+01	41.75	3.01E+02	CM-243 NP-239	
11	295.24	291 -	297	295.21	1.49E+02	56.26	5.69E+02	PB-214	
12	327.54	324 -	331	327.49	6.04E+01	47.58	3.39E+02	.....
13	338.44	336 -	342	338.39	1.42E+02	45.33	2.72E+02	AC-228	
14	352.00	348 -	355	351.94	4.10E+02	58.21	2.91E+02	PB-214	
15	401.25	397 -	404	401.16	4.54E+01	38.94	2.19E+02	RN-219 SE-75	
M	16	463.21	461 -	469	463.09	7.38E+01	26.47	1.09E+02	SB-125
m	17	466.28	461 -	469	466.16	2.57E+01	24.51	1.03E+02	.....
	18	510.83	506 -	514	510.68	1.50E+02	45.08	2.20E+02	.....
	19	561.90	558 -	565	561.73	2.66E+01	31.94	1.53E+02	.....
	20	583.23	578 -	587	583.05	2.29E+02	49.18	2.15E+02	TL-208
	21	609.41	605 -	613	609.22	2.64E+02	48.40	1.97E+02	BI-214
	22	727.61	722 -	732	727.36	4.68E+01	41.32	2.00E+02	BI-212
	23	767.39	761 -	771	767.13	3.34E+01	36.46	1.59E+02	.....
M	24	831.95	830 -	838	831.66	1.47E+01	14.42	3.91E+01	PB-211
m	25	836.11	830 -	838	835.82	1.49E+01	21.85	7.69E+01	.....
	26	911.49	906 -	915	911.17	1.64E+02	38.20	1.15E+02	AC-228 LU-172
	27	969.11	966 -	973	968.76	6.92E+01	32.56	1.20E+02	AC-228
	28	1001.10	997 -	1005	1000.74	3.35E+01	21.42	5.09E+01	PA-234M
	29	1095.98	1093 -	1099	1095.58	1.88E+01	18.09	4.63E+01	.....
M	30	1120.62	1115 -	1132	1120.21	9.53E+01	26.47	6.76E+01	SC-46 BI-214 TA-182
m	31	1124.62	1115 -	1132	1124.21	1.92E+01	22.11	6.07E+01	.....
	32	1166.97	1163 -	1169	1166.54	1.94E+01	19.07	5.12E+01	.....

: 00626

Analysis Report for 1606067-11

CP-5017 00-02 QC

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
33	1363.01	1358 -	1368	1362.52	2.00E+01	16.71	2.40E+01	.....
34	1377.99	1374 -	1381	1377.49	2.18E+01	12.65	1.23E+01	.....
35	1385.30	1382 -	1389	1384.81	1.84E+01	10.77	5.24E+00	.....
36	1408.35	1405 -	1410	1407.85	1.64E+01	10.54	9.14E+00	EU-152
37	1434.02	1431 -	1435	1433.50	8.67E+00	9.55	1.27E+01	.....
38	1461.01	1454 -	1465	1460.49	6.77E+02	53.85	2.40E+01	K-40
39	1510.36	1505 -	1514	1509.82	1.60E+01	11.58	1.00E+01	.....
40	1621.89	1618 -	1625	1621.32	1.64E+01	9.38	3.17E+00	.....
41	1727.98	1723 -	1730	1727.38	8.00E+00	10.20	1.20E+01	.....
42	1764.71	1758 -	1768	1764.11	4.86E+01	17.85	1.68E+01	BI-214
43	1792.03	1787 -	1794	1791.42	6.25E+00	6.93	3.50E+00	.....
44	1871.27	1866 -	1874	1870.64	1.10E+01	6.63	0.00E+00	.....
45	1878.74	1875 -	1881	1878.11	9.00E+00	6.00	0.00E+00	.....
46	1890.49	1887 -	1892	1889.86	5.64E+00	6.08	2.71E+00	.....
47	2105.04	2097 -	2109	2104.36	2.07E+01	18.95	3.26E+01	.....
48	2204.32	2199 -	2208	2203.63	1.57E+01	12.92	1.46E+01	BI-214
49	2221.42	2216 -	2224	2220.73	1.10E+01	6.63	0.00E+00	.....
50	2388.38	2385 -	2390	2387.66	6.38E+00	6.40	3.25E+00	.....
51	2447.32	2441 -	2450	2446.59	8.86E+00	8.31	4.27E+00	.....
52	2614.60	2609 -	2618	2613.86	1.05E+02	20.49	0.00E+00	TL-208

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/20/2016 12:18:10PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	12.88	1.92E+03	119.11	1.12E-05	1.66E-03
2	63.45	1.50E+02	100.88	2.37E-02	1.74E-03
3	76.20	8.94E+02	125.48	2.56E-02	2.02E-03
4	88.29	2.23E+02	81.39	2.60E-02	2.27E-03
5	93.30	1.60E+02	79.80	2.60E-02	2.27E-03
6	186.33	2.13E+02	71.61	1.99E-02	2.40E-03
7	209.42	8.85E+01	60.56	1.85E-02	2.36E-03
8	239.68	9.26E+02	122.57	1.70E-02	2.31E-03
9	269.76	7.91E+01	53.29	1.57E-02	2.26E-03
10	276.84	6.27E+01	41.75	1.54E-02	2.25E-03

: 00627

Analysis Report for 1606087-11

CP-5017 00-02 QC

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	11	295.24	1.49E+02	56.26	1.47E-02	2.21E-03
	12	327.54	6.04E+01	47.58	1.37E-02	2.16E-03
	13	338.44	1.42E+02	45.33	1.33E-02	2.14E-03
	14	352.00	4.10E+02	58.21	1.30E-02	2.12E-03
	15	401.25	4.54E+01	38.94	1.18E-02	2.00E-03
M	16	463.21	7.38E+01	26.47	1.05E-02	1.68E-03
m	17	466.28	2.57E+01	24.51	1.05E-02	1.66E-03
	18	510.83	1.50E+02	45.08	9.77E-03	1.43E-03
	19	561.90	2.66E+01	31.94	9.06E-03	1.17E-03
	20	583.23	2.29E+02	49.18	8.79E-03	1.06E-03
	21	609.41	2.64E+02	48.40	8.48E-03	9.22E-04
	22	727.61	4.68E+01	41.32	7.34E-03	7.36E-04
	23	767.39	3.34E+01	36.46	7.02E-03	7.88E-04
M	24	831.95	1.47E+01	14.42	6.57E-03	8.71E-04
m	25	836.11	1.49E+01	21.85	6.54E-03	8.76E-04
	26	911.49	1.64E+02	38.20	6.09E-03	9.28E-04
	27	969.11	6.92E+01	32.56	5.79E-03	8.12E-04
	28	1001.10	3.35E+01	21.42	5.64E-03	7.47E-04
	29	1095.98	1.88E+01	18.09	5.24E-03	5.55E-04
M	30	1120.62	9.53E+01	26.47	5.15E-03	5.05E-04
m	31	1124.62	1.92E+01	22.11	5.14E-03	4.97E-04
	32	1166.97	1.94E+01	19.07	4.99E-03	4.11E-04
	33	1363.01	2.00E+01	16.71	4.44E-03	3.65E-04
	34	1377.99	2.18E+01	12.65	4.41E-03	3.66E-04
	35	1385.30	1.84E+01	10.77	4.39E-03	3.67E-04
	36	1408.35	1.64E+01	10.54	4.34E-03	3.68E-04
	37	1434.02	8.67E+00	9.55	4.29E-03	3.70E-04
	38	1461.01	6.77E+02	53.85	4.23E-03	3.72E-04
	39	1510.36	1.60E+01	11.58	4.14E-03	3.76E-04
	40	1621.89	1.64E+01	9.38	3.96E-03	3.85E-04
	41	1727.98	8.00E+00	10.20	3.81E-03	3.93E-04
	42	1764.71	4.86E+01	17.85	3.77E-03	3.96E-04
	43	1792.03	6.25E+00	6.93	3.74E-03	3.98E-04
	44	1871.27	1.10E+01	6.63	3.66E-03	4.01E-04
	45	1878.74	9.00E+00	6.00	3.66E-03	4.01E-04
	46	1890.49	5.64E+00	6.08	3.65E-03	4.01E-04
	47	2105.04	2.07E+01	18.95	3.50E-03	4.01E-04
	48	2204.32	1.57E+01	12.92	3.45E-03	4.01E-04
	49	2221.42	1.10E+01	6.63	3.45E-03	4.01E-04
	50	2388.38	6.38E+00	6.40	3.40E-03	4.01E-04
	51	2447.32	8.86E+00	8.31	3.40E-03	4.01E-04
	52	2614.60	1.05E+02	20.49	3.40E-03	4.01E-04

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000 sigma

Analysis Report for 1606067-11

CP-5017 00-02 QC

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/20/2016 12:18:10PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039128.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	12.88	1.92E+03	119.11			1.92E+03	1.19E+02
2	63.45	1.50E+02	100.88	2.21E+01	9.43E+00	1.28E+02	1.01E+02
3	76.20	8.94E+02	125.48			8.94E+02	1.25E+02
4	88.29	2.23E+02	81.39			2.23E+02	8.14E+01
5	93.30	1.60E+02	79.80	5.53E+01	7.92E+00	1.04E+02	8.02E+01
6	186.33	2.13E+02	71.61	3.09E+01	6.97E+00	1.83E+02	7.19E+01
7	209.42	8.85E+01	60.56			8.85E+01	6.06E+01
8	239.68	9.26E+02	122.57	5.00E+00	6.32E+00	9.21E+02	1.23E+02
9	269.76	7.91E+01	53.29			7.91E+01	5.33E+01
10	276.84	6.27E+01	41.75			6.27E+01	4.17E+01
11	295.24	1.49E+02	56.26	5.52E+00	5.27E+00	1.43E+02	5.65E+01
12	327.54	6.04E+01	47.58			6.04E+01	4.76E+01
13	338.44	1.42E+02	45.33			1.42E+02	4.53E+01
14	352.00	4.10E+02	58.21	4.46E+00	4.93E+00	4.05E+02	5.84E+01
15	401.25	4.54E+01	38.94			4.54E+01	3.89E+01
M	16	463.21	7.38E+01	26.47		7.38E+01	2.65E+01
m	17	466.28	2.57E+01	24.51		2.57E+01	2.45E+01
18	510.83	1.50E+02	45.08	6.55E+01	5.04E+00	8.44E+01	4.54E+01
19	561.90	2.66E+01	31.94			2.66E+01	3.19E+01
20	583.23	2.29E+02	49.18	3.26E+00	3.64E+00	2.25E+02	4.93E+01
21	609.41	2.64E+02	48.40	7.35E+00	3.67E+00	2.57E+02	4.85E+01
22	727.61	4.68E+01	41.32			4.68E+01	4.13E+01
23	767.39	3.34E+01	36.46			3.34E+01	3.65E+01
M	24	831.95	1.47E+01	14.42		1.47E+01	1.44E+01
m	25	836.11	1.49E+01	21.85		1.49E+01	2.18E+01
26	911.49	1.64E+02	38.20	1.08E+00	2.95E+00	1.62E+02	3.83E+01
27	969.11	6.92E+01	32.56	8.92E-03	2.31E+00	6.92E+01	3.26E+01
28	1001.10	3.35E+01	21.42	1.09E+00	2.66E+00	3.24E+01	2.16E+01
29	1095.98	1.88E+01	18.09			1.88E+01	1.81E+01
M	30	1120.62	9.53E+01	26.47		9.53E+01	2.65E+01
m	31	1124.62	1.92E+01	22.11		1.92E+01	2.21E+01
32	1166.97	1.94E+01	19.07			1.94E+01	1.91E+01
33	1363.01	2.00E+01	16.71			2.00E+01	1.67E+01
34	1377.99	2.18E+01	12.65			2.18E+01	1.26E+01
35	1385.30	1.84E+01	10.77			1.84E+01	1.08E+01
36	1408.35	1.64E+01	10.54			1.64E+01	1.05E+01
37	1434.02	8.67E+00	9.55			8.67E+00	9.55E+00
38	1461.01	6.77E+02	53.85	3.11E+00	2.41E+00	6.74E+02	5.39E+01
39	1510.36	1.60E+01	11.58			1.60E+01	1.16E+01
40	1621.89	1.64E+01	9.38			1.64E+01	9.38E+00
41	1727.98	8.00E+00	10.20			8.00E+00	1.02E+01
42	1764.71	4.86E+01	17.85	6.26E-01	1.97E+00	4.80E+01	1.80E+01
43	1792.03	6.25E+00	6.93			6.25E+00	6.93E+00
44	1871.27	1.10E+01	6.63			1.10E+01	6.63E+00

Analysis Report for 1606067-11

CP-5017 00-02 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
45	1878.74	9.00E+00	6.00			9.00E+00	6.00E+00
46	1890.49	5.64E+00	6.08			5.64E+00	6.08E+00
47	2105.04	2.07E+01	18.95			2.07E+01	1.90E+01
48	2204.32	1.57E+01	12.92			1.57E+01	1.29E+01
49	2221.42	1.10E+01	6.63			1.10E+01	6.63E+00
50	2388.38	6.38E+00	6.40			6.38E+00	6.40E+00
51	2447.32	8.86E+00	8.31			8.86E+00	8.31E+00
52	2614.60	1.05E+02	20.49	5.31E+00	1.43E+00	9.97E+01	2.05E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/20/2016 12:18:10PM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039128.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	12.88	1.92E+03	119.11			1.92E+03	1.19E+02
2	63.45	1.50E+02	100.88	2.21E+01	9.43E+00	1.28E+02	1.01E+02
3	76.20	8.94E+02	125.48			8.94E+02	1.25E+02
4	88.29	2.23E+02	81.39			2.23E+02	8.14E+01
5	93.30	1.60E+02	79.80	5.53E+01	7.92E+00	1.04E+02	8.02E+01
6	186.33	2.13E+02	71.61	3.09E+01	6.97E+00	1.83E+02	7.19E+01
7	209.42	8.85E+01	60.56			8.85E+01	6.06E+01
8	239.68	9.26E+02	122.57	5.00E+00	6.32E+00	9.21E+02	1.23E+02
9	269.76	7.91E+01	53.29			7.91E+01	5.33E+01
10	276.84	6.27E+01	41.75			6.27E+01	4.17E+01
11	295.24	1.49E+02	56.26	5.52E+00	5.27E+00	1.43E+02	5.65E+01
12	327.54	6.04E+01	47.58			6.04E+01	4.76E+01
13	338.44	1.42E+02	45.33			1.42E+02	4.53E+01
14	352.00	4.10E+02	58.21	4.46E+00	4.93E+00	4.05E+02	5.84E+01
15	401.25	4.54E+01	38.94			4.54E+01	3.89E+01
M	16	463.21	7.38E+01			7.38E+01	2.65E+01
m	17	466.28	2.57E+01			2.57E+01	2.45E+01
	18	510.83	1.50E+02	6.55E+01	5.04E+00	8.44E+01	4.54E+01
	19	561.90	2.66E+01			2.66E+01	3.19E+01
	20	583.23	2.29E+02	3.26E+00	3.64E+00	2.25E+02	4.93E+01

: 00630

Analysis Report for 1606067-11

CP-5017 00-02 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
21	609.41	2.64E+02	48.40	7.35E+00	3.67E+00	2.57E+02	4.85E+01
22	727.61	4.68E+01	41.32			4.68E+01	4.13E+01
23	767.39	3.34E+01	36.46			3.34E+01	3.65E+01
M 24	831.95	1.47E+01	14.42			1.47E+01	1.44E+01
m 25	836.11	1.49E+01	21.85			1.49E+01	2.18E+01
26	911.49	1.64E+02	38.20	1.08E+00	2.95E+00	1.62E+02	3.83E+01
27	969.11	6.92E+01	32.56	8.92E-03	2.31E+00	6.92E+01	3.26E+01
28	1001.10	3.35E+01	21.42	1.09E+00	2.66E+00	3.24E+01	2.16E+01
29	1095.98	1.88E+01	18.09			1.88E+01	1.81E+01
M 30	1120.62	9.53E+01	26.47			9.53E+01	2.65E+01
m 31	1124.62	1.92E+01	22.11			1.92E+01	2.21E+01
32	1166.97	1.94E+01	19.07			1.94E+01	1.91E+01
33	1363.01	2.00E+01	16.71			2.00E+01	1.67E+01
34	1377.99	2.18E+01	12.65			2.18E+01	1.26E+01
35	1385.30	1.84E+01	10.77			1.84E+01	1.08E+01
36	1408.35	1.64E+01	10.54			1.64E+01	1.05E+01
37	1434.02	8.67E+00	9.55			8.67E+00	9.55E+00
38	1461.01	6.77E+02	53.85	3.11E+00	2.41E+00	6.74E+02	5.39E+01
39	1510.36	1.60E+01	11.58			1.60E+01	1.16E+01
40	1621.89	1.64E+01	9.38			1.64E+01	9.38E+00
41	1727.98	8.00E+00	10.20			8.00E+00	1.02E+01
42	1764.71	4.86E+01	17.85	6.26E-01	1.97E+00	4.80E+01	1.80E+01
43	1792.03	6.25E+00	6.93			6.25E+00	6.93E+00
44	1871.27	1.10E+01	6.63			1.10E+01	6.63E+00
45	1878.74	9.00E+00	6.00			9.00E+00	6.00E+00
46	1890.49	5.64E+00	6.08			5.64E+00	6.08E+00
47	2105.04	2.07E+01	18.95			2.07E+01	1.90E+01
48	2204.32	1.57E+01	12.92			1.57E+01	1.29E+01
49	2221.42	1.10E+01	6.63			1.10E+01	6.63E+00
50	2388.38	6.38E+00	6.40			6.38E+00	6.40E+00
51	2447.32	8.86E+00	8.31			8.86E+00	8.31E+00
52	2614.60	1.05E+02	20.49	5.31E+00	1.43E+00	9.97E+01	2.05E+01

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Analysis Report for 1606067-11
 CP-5017 00-02 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.994	1460.81 *	10.67	1.77E+01	2.14E+00
GA-67	0.571	93.31 *	35.70	1.75E+00	3.64E+00
		208.95 *	2.24	3.31E+01	5.71E+01
		300.22	16.00		
CD-109	0.989	88.03 *	3.72	2.78E+00	1.06E+00
SN-126	0.920	87.57 *	37.00	2.74E-01	1.03E-01
TL-208	0.891	583.14 *	30.22	1.01E+00	2.51E-01
		860.37	4.48		
		2614.66 *	35.85	9.70E-01	2.30E-01
BI-212	0.742	727.17 *	11.80	6.40E-01	5.69E-01
		1620.62	2.75		
BI-214	0.994	609.31 *	46.30	7.76E-01	1.69E-01
		1120.29 *	15.10	1.45E+00	4.28E-01
		1764.49 *	15.80	9.54E-01	3.71E-01
		2204.22 *	4.98	1.08E+00	9.00E-01
PB-214	0.999	295.21 *	19.19	6.01E-01	2.54E-01
		351.92 *	37.19	9.96E-01	2.17E-01
RN-219	0.953	401.80 *	6.50	7.04E-01	6.15E-01
RA-226	0.998	186.21 *	3.28	3.32E+00	6.22E+00
AC-228	0.985	338.32 *	11.40	1.11E+00	3.95E-01
		911.07 *	27.70	1.14E+00	3.20E-01
		969.11 *	16.60	8.54E-01	4.20E-01
PA-234M	0.999	1001.03 *	0.92	7.41E+00	5.03E+00
TH-234	0.996	63.29 *	3.80	1.69E+00	1.34E+00
CM-243	0.327	209.75 *	3.29	1.72E+00	1.20E+00
		228.14	10.60		
		277.60 *	14.00	3.45E-01	2.35E-01

* = Energy line found in the spectrum.
 - = Manually added nuclide.
 ? = Manually edited nuclide.
 Energy Tolerance : 1.000 keV
 Nuclide confidence index threshold = 0.30
 Errors quoted at 2.000sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 12:18:10PM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	12.88	5.33845E-01	3.10		
3	76.20	2.48318E-01	7.02		

Analysis Report for 1606067-11

CP-5017 00-02 QC

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
8	239.68	2.55844E-01	6.66		
9	269.76	2.19697E-02	33.69		
12	327.54	1.67681E-02	39.41		
M 16	463.21	2.05083E-02	17.93	Sum	
m 17	466.28	7.14017E-03	47.68		
18	510.83	2.34463E-02	26.87		
19	561.90	7.38673E-03	60.05	Sum	
23	767.39	9.26745E-03	54.64		
M 24	831.95	4.09675E-03	48.89	Tol.	PB-211
m 25	836.11	4.12596E-03	73.54		
29	1095.98	5.23148E-03	48.03		
m 31	1124.62	5.32393E-03	57.67		
32	1166.97	5.38889E-03	49.16	Sum	
33	1363.01	5.55122E-03	41.81		
34	1377.99	6.06647E-03	28.96		
35	1385.30	5.10582E-03	29.30		
36	1408.35	4.56349E-03	32.07	Tol.	EU-152
37	1434.02	2.40741E-03	55.11		
39	1510.36	4.44444E-03	36.17		
40	1621.89	4.56019E-03	28.57		
41	1727.98	2.22222E-03	63.74	Sum	
43	1792.03	1.73611E-03	55.43		
44	1871.27	3.05556E-03	30.15		
45	1878.74	2.50000E-03	33.33		
46	1890.49	1.56746E-03	53.90		
47	2105.04	5.74324E-03	45.84		
49	2221.42	3.05556E-03	30.15		
50	2388.38	1.77083E-03	50.22		
51	2447.32	2.46212E-03	46.86		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Analysis Report for 1606067-11

CP-5017 00-02 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81 *	10.67	1.77E+01	2.14E+00
GA-67	0.57	93.31 *	35.70	1.75E+00	3.64E+00
		208.95 *	2.24	3.31E+01	5.71E+01
		300.22	16.00		
CD-109	0.98	88.03 *	3.72	2.78E+00	1.06E+00
SN-126	0.92	87.57 *	37.00	2.74E-01	1.03E-01
TL-208	0.89	583.14 *	30.22	1.01E+00	2.51E-01
		860.37	4.48		
		2614.66 *	35.85	9.70E-01	2.30E-01
BI-212	0.74	727.17 *	11.80	6.40E-01	5.69E-01
		1620.62	2.75		
BI-214	0.99	609.31 *	46.30	7.76E-01	1.69E-01
		1120.29 *	15.10	1.45E+00	4.28E-01
		1764.49 *	15.80	9.54E-01	3.71E-01
		2204.22 *	4.98	1.08E+00	9.00E-01
PB-214	0.99	295.21 *	19.19	6.01E-01	2.54E-01
		351.92 *	37.19	9.96E-01	2.17E-01
RN-219	0.95	401.80 *	6.50	7.04E-01	6.15E-01
RA-226	0.99	186.21 *	3.28	3.32E+00	6.22E+00
AC-228	0.98	338.32 *	11.40	1.11E+00	3.95E-01
		911.07 *	27.70	1.14E+00	3.20E-01
		969.11 *	16.60	8.54E-01	4.20E-01
PA-234M	0.99	1001.03 *	0.92	7.41E+00	5.03E+00
TH-234	0.99	63.29 *	3.80	1.69E+00	1.34E+00
CM-243	0.32	209.75 *	3.29	1.72E+00	1.20E+00
		228.14	10.60		
		277.60 *	14.00	3.45E-01	2.35E-01

* = Energy line found in the spectrum.
 - = Manually added nuclide.
 ? = Manually edited nuclide.
 @ = Energy line not used for Weighted Mean Activity
 Energy Tolerance : 1.000 keV
 Nuclide confidence index threshold = 0.30
 Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
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Analysis Report for 1606067-11

CP-5017 00-02 QC

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.994	1.77E+01	2.14E+00	
GA-67	0.571	1.83E+00	3.18E+00	
? CD-109	0.989	2.78E+00	1.06E+00	
? SN-126	0.920	2.74E-01	1.03E-01	
TL-208	0.891	9.86E-01	1.70E-01	
BI-212	0.742	6.40E-01	5.69E-01	
BI-214	0.994	8.86E-01	1.43E-01	
PB-214	0.999	8.29E-01	1.65E-01	
RN-219	0.953	7.04E-01	6.15E-01	
RA-226	0.998	3.32E+00	6.22E+00	
AC-228	0.985	1.06E+00	2.14E-01	
PA-234M	0.999	7.41E+00	5.03E+00	
TH-234	0.996	1.69E+00	1.34E+00	
CM-243	0.327	3.93E-01	2.31E-01	

- ? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1606067-11

CP-5017 00-02 QC

 UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 12:18:10PM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	12.88	5.33845E-01	3.10		
3	76.20	2.48318E-01	7.02		
8	239.68	2.55844E-01	6.66		
9	269.76	2.19697E-02	33.69		
12	327.54	1.67681E-02	39.41		
M	16	463.21	2.05083E-02	17.93	Sum
m	17	466.28	7.14017E-03	47.68	
18	510.83	2.34463E-02	26.87		
19	561.90	7.38673E-03	60.05	Sum	
23	767.39	9.26745E-03	54.64		
M	24	831.95	4.09675E-03	48.89	Tol. PB-211
m	25	836.11	4.12596E-03	73.54	
29	1095.98	5.23148E-03	48.03		
m	31	1124.62	5.32393E-03	57.67	
32	1166.97	5.38889E-03	49.16	Sum	
33	1363.01	5.55122E-03	41.81		
34	1377.99	6.06647E-03	28.96		
35	1385.30	5.10582E-03	29.30		
36	1408.35	4.56349E-03	32.07	Tol.	EU-152
37	1434.02	2.40741E-03	55.11		
39	1510.36	4.44444E-03	36.17		
40	1621.89	4.56019E-03	28.57		
41	1727.98	2.22222E-03	63.74	Sum	
43	1792.03	1.73611E-03	55.43		
44	1871.27	3.05556E-03	30.15		
45	1878.74	2.50000E-03	33.33		
46	1890.49	1.56746E-03	53.90		
47	2105.04	5.74324E-03	45.84		
49	2221.42	3.05556E-03	30.15		
50	2388.38	1.77083E-03	50.22		
51	2447.32	2.46212E-03	46.86		

Analysis Report for 1606067-11
CP-5017 00-02 QC

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-3.28E-02	5.20E-01	5.20E-01
+	NA-22	1274.54	99.94	-3.33E-02	8.15E-02	8.15E-02
+	NA-24	1368.53	99.99	4.40E+03	2.18E+04	3.86E+04
		2754.09	99.86	-7.04E+03		2.18E+04
+	AL-26	1808.65	99.76	7.09E-03	4.50E-02	4.50E-02
+	K-40	1460.81	* 10.67	1.77E+01	6.97E-01	6.97E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-1.41E-02	4.29E-02	4.29E-02
		78.34	96.00	2.39E-01		6.48E-02
+	SC-46	889.25	99.98	1.71E-04	6.54E-02	6.54E-02
		1120.51	99.99	1.77E-01		1.35E-01
+	V-48	983.52	99.98	-2.36E-02	1.11E-01	1.11E-01
		1312.10	97.50	3.37E-02		1.17E-01
+	CR-51	320.08	9.83	6.41E-02	6.41E-01	6.41E-01
+	MN-54	834.83	99.97	-2.75E-02	6.92E-02	6.92E-02
+	CO-56	846.75	99.96	1.95E-02	7.45E-02	7.45E-02
		1037.75	14.03	6.05E-02		5.38E-01
		1238.25	67.00	6.15E-02		1.59E-01
		1771.40	15.51	7.91E-02		3.58E-01
		2598.48	16.90	-6.00E-02		3.24E-01
+	CO-57	122.06	85.51	-3.06E-02	4.98E-02	4.98E-02
		136.48	10.60	2.42E-01		4.28E-01
+	CO-58	810.76	99.40	-1.96E-02	7.63E-02	7.63E-02
+	FE-59	1099.22	56.50	-1.57E-02	1.46E-01	1.46E-01
		1291.56	43.20	4.76E-02		1.99E-01
+	CO-60	1173.22	100.00	1.31E-02	7.21E-02	8.21E-02
		1332.49	100.00	-1.50E-02		7.21E-02
+	ZN-65	1115.52	50.75	2.34E-03	1.62E-01	1.62E-01
+	GA-67	93.31	* 35.70	1.75E+00	2.18E+00	2.18E+00
		208.95	* 2.24	3.31E+01		3.65E+01
		300.22	16.00	2.49E+00		4.21E+00
+	SE-75	121.11	16.70	1.30E-01	7.80E-02	2.67E-01

Analysis Report for 1606067-11

CP-5017 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	-1.56E-02	7.80E-02	7.80E-02
		264.65	59.80	8.32E-03		7.89E-02
		279.53	25.20	2.11E-02		2.04E-01
		400.65	11.40	2.80E-01		4.77E-01
+	RB-82	776.52	13.00	-1.33E-01	6.83E-01	6.83E-01
+	RB-83	520.41	46.00	2.55E-02	1.24E-01	1.24E-01
		529.64	30.30	5.85E-02		1.85E-01
		552.65	16.40	-6.85E-02		3.00E-01
+	KR-85	513.99	0.43	4.22E-01	1.33E+01	1.33E+01
+	SR-85	513.99	99.27	2.10E-03	6.58E-02	6.58E-02
+	Y-88	898.02	93.40	2.83E-02	4.19E-02	7.07E-02
		1836.01	99.38	-1.40E-02		4.19E-02
+	NB-93M	16.57	9.43	4.83E+01	7.60E+01	7.60E+01
+	NB-94	702.63	100.00	-1.08E-02	6.03E-02	6.03E-02
		871.10	100.00	-8.84E-03		6.42E-02
+	NB-95	765.79	99.81	7.14E-02	9.73E-02	9.73E-02
+	NB-95M	235.69	25.00	-1.99E+01	2.75E+00	2.75E+00
+	ZR-95	724.18	43.70	-4.31E-02	1.34E-01	1.96E-01
		756.72	55.30	2.92E-02		1.34E-01
+	MO-99	181.06	6.20	5.10E+00	1.05E+01	1.51E+01
		739.58	12.80	1.35E+00		1.05E+01
		778.00	4.50	-1.04E+01		3.03E+01
+	RU-103	497.08	89.00	1.06E-02	6.40E-02	6.40E-02
+	RU-106	621.84	9.80	-2.81E-01	5.28E-01	5.28E-01
+	AG-108M	433.93	89.90	-1.37E-02	4.78E-02	4.78E-02
		614.37	90.40	2.80E-02		6.86E-02
		722.95	90.50	-3.04E-03		7.68E-02
+	CD-109	88.03	3.72	2.78E+00	1.59E+00	1.59E+00
+	AG-110M	657.75	93.14	9.08E-03	7.27E-02	7.27E-02
		677.61	10.53	3.15E-01		6.31E-01
		706.67	16.46	5.53E-02		3.81E-01
		763.93	21.98	-1.43E-01		3.23E-01
		884.67	71.63	3.85E-02		9.30E-02
		1384.27	23.94	9.73E-02		2.74E-01
+	CD-113M	263.70	0.02	-1.42E+01	1.84E+02	1.84E+02
+	SN-113	255.12	1.93	6.95E-01	7.56E-02	2.45E+00
		391.69	64.90	-5.96E-03		7.56E-02
+	TE123M	159.00	84.10	-3.38E-03	5.29E-02	5.29E-02
+	SB-124	602.71	97.87	1.70E-02	8.20E-02	8.20E-02
		645.85	7.26	-2.02E-01		8.85E-01
		722.78	11.10	-2.85E-02		7.20E-01
		1691.02	49.00	2.52E-02		1.25E-01
+	I-125	35.49	6.49	6.39E-01	1.36E+00	1.36E+00
+	SB-125	176.33	6.89	2.37E-01	1.51E-01	6.83E-01
		427.89	29.33	1.58E-03		1.51E-01
		463.38	10.35	1.34E-01		5.59E-01
		600.56	17.80	1.60E-01		3.87E-01
		635.90	11.32	-1.25E-01		4.63E-01

Analysis Report for 1606067-11

CP-5017 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70	83.30	4.53E-02	1.12E-01	1.12E-01
		666.33	99.60	3.27E-02		1.34E-01
		695.00	99.60	7.81E-02		1.22E-01
		720.50	53.80	-8.68E-02		2.39E-01
+	SN-126	87.57	* 37.00	2.74E-01	1.57E-01	1.57E-01
+	SB-127	473.00	25.00	1.03E+00	1.55E+00	1.73E+00
		685.20	35.70	4.09E-01		1.55E+00
		783.80	14.70	2.28E+00		4.41E+00
+	I-129	29.78	57.00	-8.74E-02	2.49E-01	2.49E-01
		33.60	13.20	9.71E-02		7.06E-01
		39.58	7.52	8.04E-02		8.06E-01
+	I-131	284.30	6.05	1.39E-01	1.54E-01	2.20E+00
		364.48	81.20	1.18E-02		1.54E-01
		636.97	7.26	-5.38E-01		2.02E+00
		722.89	1.80	-4.35E-01		1.10E+01
+	TE-132	49.72	13.10	-3.39E-01	7.09E-01	4.36E+00
		228.16	88.00	1.92E-01		7.09E-01
+	BA-133	81.00	33.00	-1.45E-03	7.29E-02	1.15E-01
		302.84	17.80	-2.18E-01		2.53E-01
		356.01	60.00	-1.04E-03		7.29E-02
+	I-133	529.87	86.30	1.16E+02	9.05E+02	9.05E+02
+	XE-133	81.00	38.00	-6.23E-03	4.93E-01	4.93E-01
+	CS-134	563.23	8.38	2.47E-01	7.35E-02	6.59E-01
		569.32	15.43	-1.52E-01		3.09E-01
		604.70	97.60	-8.54E-03		7.35E-02
		795.84	85.40	5.96E-02		8.69E-02
		801.93	8.73	-4.51E-01		7.42E-01
+	CS-135	268.24	16.00	4.12E-03	3.23E-01	3.23E-01
+	I-135	1131.51	22.50	1.99E+11	4.02E+12	4.86E+12
		1260.41	28.60	-2.43E+12		4.02E+12
		1678.03	9.54	-1.14E+12		7.13E+12
+	CS-136	153.22	7.46	6.54E-01	1.15E-01	1.14E+00
		163.89	4.61	-5.86E-01		1.78E+00
		176.55	13.56	2.52E-01		6.50E-01
		273.65	12.66	-1.42E+00		6.32E-01
		340.57	48.50	-9.69E-02		2.14E-01
		818.50	99.70	-2.65E-02		1.15E-01
		1048.07	79.60	2.36E-02		1.61E-01
		1235.34	19.70	-3.20E-01		8.72E-01
+	CS-137	661.65	85.12	6.15E-03	8.10E-02	8.10E-02
+	LA-138	788.74	34.00	-5.25E-02	1.01E-01	1.98E-01
		1435.80	66.00	-2.10E-03		1.01E-01
+	CE-139	165.85	80.35	3.75E-02	6.03E-02	6.03E-02
+	BA-140	162.64	6.70	-7.21E-01	3.65E-01	1.21E+00
		304.84	4.50	-3.47E-02		1.92E+00
		423.70	3.20	6.64E-01		2.80E+00
		437.55	2.00	-7.26E-01		4.40E+00
		537.32	25.00	6.09E-04		3.65E-01
+	LA-140	328.77	20.50	3.76E-01	1.44E-01	5.05E-01

Analysis Report for 1606067-11

CP-5017 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-140	487.03	45.50	1.24E-01	1.44E-01	1.99E-01
		815.85	23.50	9.05E-02		5.23E-01
		1596.49	95.49	8.31E-02		1.44E-01
+	CE-141	145.44	48.40	2.26E-02	1.16E-01	1.16E-01
+	CE-143	57.36	11.80	9.52E+00	7.18E+01	1.60E+02
		293.26	42.00	2.95E+01		7.18E+01
		664.55	5.20	2.56E+02		6.00E+02
+	CE-144	133.54	10.80	-1.00E-01	4.05E-01	4.05E-01
+	PM-144	476.78	42.00	-7.11E-03	6.03E-02	1.13E-01
		618.01	98.60	2.13E-02		6.03E-02
		696.49	99.49	8.82E-03		6.16E-02
+	PM-145	36.85	21.70	-7.61E-02	1.59E-01	3.00E-01
		37.36	39.70	-4.02E-02		1.59E-01
		42.30	15.10	-7.02E-02		3.54E-01
		72.40	2.31	-6.20E-01		1.81E+00
+	PM-146	453.90	39.94	-3.20E-02	1.13E-01	1.13E-01
		735.90	14.01	-1.17E-01		4.35E-01
		747.13	13.10	-3.52E-02		4.55E-01
+	ND-147	91.11	28.90	-2.69E-01	4.27E-01	4.27E-01
		531.02	13.10	-2.41E-01		7.63E-01
+	PM-149	285.90	3.10	1.57E+01	6.67E+01	6.67E+01
+	EU-152	121.78	20.50	-1.24E-01	2.02E-01	2.02E-01
		244.69	5.40	-1.62E+00		8.37E-01
		344.27	19.13	2.29E-02		2.24E-01
		778.89	9.20	-1.55E-01		7.21E-01
		964.01	10.40	2.83E-01		8.01E-01
		1085.78	7.22	7.36E-01		1.13E+00
		1112.02	9.60	2.86E-01		8.18E-01
		1407.95	14.94	8.63E-02		4.40E-01
+	GD-153	97.43	31.30	6.13E-02	1.39E-01	1.39E-01
		103.18	22.20	-1.65E-01		1.92E-01
+	EU-154	123.07	40.50	4.51E-02	1.05E-01	1.05E-01
		723.30	19.70	-1.40E-02		3.54E-01
		873.19	11.50	3.82E-02		5.72E-01
		996.32	10.30	-3.96E-02		6.00E-01
		1004.76	17.90	-5.14E-02		3.96E-01
		1274.45	35.50	-9.33E-02		2.28E-01
+	EU-155	86.50	30.90	-2.27E-01	1.82E-01	1.82E-01
		105.30	20.70	6.32E-02		2.03E-01
+	EU-156	811.77	10.40	-2.33E-01	1.12E+00	1.12E+00
		1153.47	7.20	3.55E-01		1.85E+00
		1230.71	8.90	4.97E-01		1.74E+00
+	HO-166M	184.41	72.60	6.11E-03	7.55E-02	7.55E-02
		280.45	29.60	1.68E-02		1.63E-01
		410.94	11.10	1.12E-01		4.42E-01
		711.69	54.10	-5.91E-02		1.01E-01
+	TM-171	66.72	0.14	1.17E+01	3.05E+01	3.05E+01
+	HF-172	81.75	4.52	-6.63E-01	3.81E-01	8.64E-01
		125.81	11.30	-5.19E-01		3.81E-01

Analysis Report for 1606067-11

CP-5017 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53	20.60	2.09E-01	4.28E-01	7.38E-01
		810.06	16.63	-3.64E-01		1.42E+00
		912.12	15.25	7.24E+00		3.08E+00
		1093.66	62.50	1.19E-02		4.28E-01
+	LU-173	100.72	5.24	8.29E-02	2.38E-01	8.03E-01
		272.11	21.20	8.18E-02		2.38E-01
+	HF-175	343.40	84.00	4.05E-02	6.01E-02	6.01E-02
+	LU-176	88.34	13.30	8.15E-01	4.82E-02	4.36E-01
		201.83	86.00	-5.68E-02		4.93E-02
		306.78	94.00	5.52E-03		4.82E-02
+	TA-182	67.75	41.20	-3.49E-02	1.06E-01	1.06E-01
		1121.30	34.90	5.48E-01		3.81E-01
		1189.05	16.23	2.81E-01		6.05E-01
		1221.41	26.98	-5.86E-02		3.22E-01
		1231.02	11.44	-8.87E-02		8.29E-01
+	IR-192	308.46	29.68	2.84E-02	1.11E-01	1.74E-01
		468.07	48.10	-1.91E-02		1.11E-01
+	HG-203	279.19	77.30	1.80E-02	8.02E-02	8.02E-02
+	BI-207	569.67	97.72	-2.37E-02	4.83E-02	4.83E-02
		1063.62	74.90	5.08E-02		1.09E-01
+	TL-208	583.14	* 30.22	1.01E+00	1.04E-01	2.99E-01
		860.37	4.48	7.18E-01		1.62E+00
		2614.66	* 35.85	9.70E-01		1.04E-01
+	BI-210M	262.00	45.00	-6.14E-02	9.36E-02	9.36E-02
		300.00	23.00	1.32E-01		2.23E-01
+	PB-210	46.50	4.25	5.79E-01	1.24E+00	1.24E+00
+	PB-211	404.84	2.90	1.37E-01	1.45E+00	1.45E+00
		831.96	2.90	-1.02E+00		2.26E+00
+	BI-212	727.17	* 11.80	6.40E-01	9.15E-01	9.15E-01
		1620.62	2.75	-2.18E-01		2.50E+00
+	PB-212	238.63	44.60	7.41E-01	2.27E-01	2.27E-01
		300.09	3.41	8.92E-01		1.51E+00
+	BI-214	609.31	* 46.30	7.76E-01	1.89E-01	1.89E-01
		1120.29	* 15.10	1.45E+00		1.07E+00
		1764.49	* 15.80	9.54E-01		4.28E-01
		2204.22	* 4.98	1.08E+00		1.34E+00
+	PB-214	295.21	* 19.19	6.01E-01	1.78E-01	4.44E-01
		351.92	* 37.19	9.96E-01		1.78E-01
+	RN-219	401.80	* 6.50	7.04E-01	9.73E-01	9.73E-01
+	RA-223	323.87	3.88	2.91E-01	1.18E+00	1.18E+00
+	RA-224	240.98	3.95	8.21E+00	2.43E+00	2.43E+00
+	RA-225	40.00	31.00	3.36E-02	3.37E-01	3.37E-01
+	RA-226	186.21	* 3.28	3.32E+00	2.04E+00	2.04E+00
+	TH-227	50.10	8.40	-3.99E-02	5.12E-01	5.12E-01
		236.00	11.50	-4.24E+00		5.86E-01
		256.20	6.30	-2.31E-01		6.94E-01
+	AC-228	338.32	* 11.40	1.11E+00	3.50E-01	5.15E-01
		911.07	* 27.70	1.14E+00		3.50E-01

Analysis Report for 1606067-11
 CP-5017 00-02 QC

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	*	16.60	8.54E-01	3.50E-01	6.03E-01
+	TH-230	48.44		16.90	-1.86E-01	2.63E-01	2.63E-01
		62.85		4.60	1.35E+00		1.09E+00
		67.67		0.37	-3.61E+00		1.10E+01
+	PA-231	283.67		1.60	1.84E-01	1.95E+00	2.93E+00
		302.67		2.30	-1.68E+00		1.95E+00
+	TH-231	25.64		14.70	2.52E-01	6.59E-01	1.86E+00
		84.21		6.40	9.04E-01		6.59E-01
+	PA-233	311.98		38.60	-2.69E-02	1.60E-01	1.60E-01
+	PA-234	131.20		20.40	1.82E-01	2.26E-01	2.26E-01
		733.99		8.80	-9.94E-03		7.05E-01
		946.00		12.00	-1.62E-01		5.18E-01
+	PA-234M	1001.03	*	0.92	7.41E+00	7.51E+00	7.51E+00
+	TH-234	63.29	*	3.80	1.69E+00	2.17E+00	2.17E+00
+	U-235	143.76		10.50	2.98E-02	4.13E-01	4.13E-01
		163.35		4.70	-5.34E-01		9.00E-01
		205.31		4.70	-1.22E-03		9.86E-01
+	NP-237	86.50		12.60	-5.53E-01	4.44E-01	4.44E-01
+	NP-239	106.10		22.70	1.21E+00	6.50E+00	6.50E+00
		228.18		10.70	4.23E+00		1.57E+01
		277.60		14.10	4.22E+00		1.27E+01
+	AM-241	59.54		35.90	-1.76E-02	1.18E-01	1.18E-01
+	AM-243	74.67		66.00	-2.61E-01	8.72E-02	8.72E-02
+	CM-243	209.75	*	3.29	1.72E+00	3.65E-01	1.90E+00
		228.14		10.60	1.21E-01		4.49E-01
		277.60	*	14.00	3.45E-01		3.65E-01

- + = Nuclide identified during the nuclide identification
- * = Energy line found in the spectrum
- > = MDA value not calculated
- @ = Half-life too short to be able to perform the decay correction
- ? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Analysis Report for 1606067-11

CP-5017 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	5.20E-01	5.20E-01	-3.28E-02	2.42E-01
NA-22	1274.54	99.94	8.15E-02	8.15E-02	-3.33E-02	3.73E-02
NA-24	1368.53	99.99	3.86E+04	2.18E+04	4.40E+03	1.68E+04
	2754.09	99.86	2.18E+04		-7.04E+03	7.72E+03
AL-26	1808.65	99.76	4.50E-02	4.50E-02	7.09E-03	1.82E-02
+ K-40	1460.81	* 10.67	6.97E-01	6.97E-01	1.77E+01	3.13E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	4.29E-02	4.29E-02	-1.41E-02	2.08E-02
	78.34	96.00	6.48E-02		2.39E-01	3.18E-02
SC-46	889.25	99.98	6.54E-02	6.54E-02	1.71E-04	2.98E-02
	1120.51	99.99	1.35E-01		1.77E-01	6.40E-02
V-48	983.52	99.98	1.11E-01	1.11E-01	-2.36E-02	5.09E-02
	1312.10	97.50	1.17E-01		3.37E-02	5.24E-02
CR-51	320.08	9.83	6.41E-01	6.41E-01	6.41E-02	3.04E-01
MN-54	834.83	99.97	6.92E-02	6.92E-02	-2.75E-02	3.21E-02
CO-56	846.75	99.96	7.45E-02	7.45E-02	1.95E-02	3.45E-02
	1037.75	14.03	5.38E-01		6.05E-02	2.46E-01
	1238.25	67.00	1.59E-01		6.15E-02	7.38E-02
	1771.40	15.51	3.58E-01		7.91E-02	1.49E-01
	2598.48	16.90	3.24E-01		-6.00E-02	1.31E-01
CO-57	122.06	85.51	4.98E-02	4.98E-02	-3.06E-02	2.41E-02
	136.48	10.60	4.28E-01		2.42E-01	2.07E-01
CO-58	810.76	99.40	7.63E-02	7.63E-02	-1.96E-02	3.54E-02
FE-59	1099.22	56.50	1.46E-01	1.46E-01	-1.57E-02	6.66E-02
	1291.56	43.20	1.99E-01		4.76E-02	8.98E-02
CO-60	1173.22	100.00	8.21E-02	7.21E-02	1.31E-02	3.78E-02
	1332.49	100.00	7.21E-02		-1.50E-02	3.25E-02
ZN-65	1115.52	50.75	1.62E-01	1.62E-01	2.34E-03	7.46E-02
+ GA-67	93.31	* 35.70	2.18E+00	2.18E+00	1.75E+00	1.07E+00
	208.95	* 2.24	3.65E+01		3.31E+01	1.77E+01
	300.22	16.00	4.21E+00		2.49E+00	2.01E+00
SE-75	121.11	16.70	2.67E-01	7.80E-02	1.30E-01	1.29E-01
	136.00	59.20	7.80E-02		-1.56E-02	3.78E-02
	264.65	59.80	7.89E-02		8.32E-03	3.76E-02
	279.53	25.20	2.04E-01		2.11E-02	9.77E-02
	400.65	11.40	4.77E-01		2.80E-01	2.26E-01
RB-82	776.52	13.00	6.83E-01	6.83E-01	-1.33E-01	3.17E-01
RB-83	520.41	46.00	1.24E-01	1.24E-01	2.55E-02	5.83E-02
	529.64	30.30	1.85E-01		5.85E-02	8.65E-02
	552.65	16.40	3.00E-01		-6.85E-02	1.38E-01
KR-85	513.99	0.43	1.33E+01	1.33E+01	4.22E-01	6.25E+00
SR-85	513.99	99.27	6.58E-02	6.58E-02	2.10E-03	3.10E-02
Y-88	898.02	93.40	7.07E-02	4.19E-02	2.83E-02	3.23E-02
	1836.01	99.38	4.19E-02		-1.40E-02	1.62E-02
NB-93M	16.57	9.43	7.60E+01	7.60E+01	4.83E+01	3.69E+01
NB-94	702.63	100.00	6.03E-02	6.03E-02	-1.08E-02	2.80E-02
	871.10	100.00	6.42E-02		-8.84E-03	2.96E-02
NB-95	765.79	99.81	9.73E-02	9.73E-02	7.14E-02	4.57E-02
NB-95M	235.69	25.00	2.75E+00	2.75E+00	-1.99E+01	1.34E+00
ZR-95	724.18	43.70	1.96E-01	1.34E-01	-4.31E-02	9.21E-02
	756.72	55.30	1.34E-01		2.92E-02	6.25E-02

Analysis Report for 1606067-11

CP-5017 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
MO-99	181.06	6.20	1.51E+01	1.05E+01	5.10E+00	7.27E+00	
	739.58	12.80	1.05E+01		1.35E+00	4.87E+00	
	778.00	4.50	3.03E+01		-1.04E+01	1.41E+01	
RU-103	497.08	89.00	6.40E-02	6.40E-02	1.06E-02	2.98E-02	
RU-106	621.84	9.80	5.28E-01	5.28E-01	-2.81E-01	2.44E-01	
AG-108M	433.93	89.90	4.78E-02	4.78E-02	-1.37E-02	2.23E-02	
	614.37	90.40	6.86E-02		2.80E-02	3.22E-02	
	722.95	90.50	7.68E-02		-3.04E-03	3.60E-02	
+ CD-109	88.03	* 3.72	1.59E+00	1.59E+00	2.78E+00	7.76E-01	
AG-110M	657.75	93.14	7.27E-02	7.27E-02	9.08E-03	3.41E-02	
	677.61	10.53	6.31E-01		3.15E-01	2.95E-01	
	706.67	16.46	3.81E-01		5.53E-02	1.77E-01	
	763.93	21.98	3.23E-01		-1.43E-01	1.51E-01	
	884.67	71.63	9.30E-02		3.85E-02	4.28E-02	
	1384.27	23.94	2.74E-01		9.73E-02	1.21E-01	
	CD-113M	263.70	0.02	1.84E+02	1.84E+02	-1.42E+01	8.74E+01
SN-113	255.12	1.93	2.45E+00	7.56E-02	6.95E-01	1.17E+00	
	391.69	64.90	7.56E-02		-5.96E-03	3.56E-02	
TE123M	159.00	84.10	5.29E-02	5.29E-02	-3.38E-03	2.55E-02	
SB-124	602.71	97.87	8.20E-02	8.20E-02	1.70E-02	3.88E-02	
	645.85	7.26	8.85E-01		-2.02E-01	4.11E-01	
	722.78	11.10	7.20E-01		-2.85E-02	3.37E-01	
	1691.02	49.00	1.25E-01		2.52E-02	5.30E-02	
	I-125	35.49	6.49	1.36E+00	1.36E+00	6.39E-01	6.51E-01
SB-125	176.33	6.89	6.83E-01	1.51E-01	2.37E-01	3.30E-01	
	427.89	29.33	1.51E-01		1.58E-03	7.08E-02	
	463.38	10.35	5.59E-01		1.34E-01	2.65E-01	
	600.56	17.80	3.87E-01		1.60E-01	1.83E-01	
	635.90	11.32	4.63E-01		-1.25E-01	2.14E-01	
	SB-126	414.70	83.30	1.12E-01	1.12E-01	4.53E-02	5.29E-02
	666.33	99.60	1.34E-01		3.27E-02	6.29E-02	
695.00	99.60	1.22E-01		7.81E-02	5.67E-02		
720.50	53.80	2.39E-01		-8.68E-02	1.12E-01		
+ SN-126	87.57	* 37.00	1.57E-01	1.57E-01	2.74E-01	7.66E-02	
SB-127	473.00	25.00	1.73E+00	1.55E+00	1.03E+00	8.09E-01	
	685.20	35.70	1.55E+00		4.09E-01	7.25E-01	
	783.80	14.70	4.41E+00		2.28E+00	2.07E+00	
I-129	29.78	57.00	2.49E-01	2.49E-01	-8.74E-02	1.19E-01	
	33.60	13.20	7.06E-01		9.71E-02	3.38E-01	
	39.58	7.52	8.06E-01		8.04E-02	3.86E-01	
I-131	284.30	6.05	2.20E+00	1.54E-01	1.39E-01	1.05E+00	
	364.48	81.20	1.54E-01		1.18E-02	7.24E-02	
	636.97	7.26	2.02E+00		-5.38E-01	9.32E-01	
	722.89	1.80	1.10E+01		-4.35E-01	5.14E+00	
TE-132	49.72	13.10	4.36E+00	7.09E-01	-3.39E-01	2.09E+00	
	228.16	88.00	7.09E-01		1.92E-01	3.41E-01	
BA-133	81.00	33.00	1.15E-01	7.29E-02	-1.45E-03	5.55E-02	
	302.84	17.80	2.53E-01		-2.18E-01	1.20E-01	
	356.01	60.00	7.29E-02		-1.04E-03	3.44E-02	
I-133	529.87	86.30	9.05E+02	9.05E+02	1.16E+02	4.21E+02	
XE-133	81.00	38.00	4.93E-01	4.93E-01	-6.23E-03	2.38E-01	
CS-134	563.23	8.38	6.59E-01	7.35E-02	2.47E-01	3.08E-01	
	569.32	15.43	3.09E-01		-1.52E-01	1.43E-01	

Analysis Report for 1606067-11

CP-5017 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)		
CS-134	604.70	97.60	7.35E-02	7.35E-02	-8.54E-03	3.48E-02		
	795.84	85.40	8.69E-02		5.96E-02	4.07E-02		
	801.93	8.73	7.42E-01		-4.51E-01	3.43E-01		
CS-135	268.24	16.00	3.23E-01	3.23E-01	4.12E-03	1.55E-01		
	I-135	1131.51	22.50		4.86E+12	4.02E+12	1.99E+11	2.19E+12
	1260.41	28.60	4.02E+12		-2.43E+12	1.81E+12		
CS-136	1678.03	9.54	7.13E+12	1.15E-01	-1.14E+12	2.83E+12		
	153.22	7.46	1.14E+00		6.54E-01	5.53E-01		
	163.89	4.61	1.78E+00		-5.86E-01	8.61E-01		
	176.55	13.56	6.50E-01		2.52E-01	3.14E-01		
	273.65	12.66	6.32E-01		-1.42E+00	3.01E-01		
	340.57	48.50	2.14E-01		-9.69E-02	1.02E-01		
	818.50	99.70	1.15E-01		-2.65E-02	5.27E-02		
	1048.07	79.60	1.61E-01		2.36E-02	7.33E-02		
1235.34	19.70	8.72E-01	-3.20E-01	4.04E-01				
CS-137	661.65	85.12	8.10E-02	8.10E-02	6.15E-03	3.81E-02		
LA-138	788.74	34.00	1.98E-01	1.01E-01	-5.25E-02	9.23E-02		
	1435.80	66.00	1.01E-01		-2.10E-03	4.47E-02		
CE-139	165.85	80.35	6.03E-02	6.03E-02	3.75E-02	2.92E-02		
BA-140	162.64	6.70	1.21E+00	3.65E-01	-7.21E-01	5.86E-01		
	304.84	4.50	1.92E+00		-3.47E-02	9.10E-01		
	423.70	3.20	2.80E+00		6.64E-01	1.32E+00		
	437.55	2.00	4.40E+00		-7.26E-01	2.06E+00		
	537.32	25.00	3.65E-01		6.09E-04	1.70E-01		
LA-140	328.77	20.50	5.05E-01	1.44E-01	3.76E-01	2.41E-01		
	487.03	45.50	1.99E-01		1.24E-01	9.29E-02		
	815.85	23.50	5.23E-01		9.05E-02	2.42E-01		
CE-141	1596.49	95.49	1.44E-01	1.16E-01	8.31E-02	6.38E-02		
	145.44	48.40	1.16E-01		2.26E-02	5.61E-02		
CE-143	57.36	11.80	1.60E+02	7.18E+01	9.52E+00	7.72E+01		
	293.26	42.00	7.18E+01		2.95E+01	3.48E+01		
	664.55	5.20	6.00E+02		2.56E+02	2.83E+02		
CE-144	133.54	10.80	4.05E-01	4.05E-01	-1.00E-01	1.96E-01		
PM-144	476.78	42.00	1.13E-01	6.03E-02	-7.11E-03	5.25E-02		
	618.01	98.60	6.03E-02		2.13E-02	2.81E-02		
	696.49	99.49	6.16E-02		8.82E-03	2.86E-02		
PM-145	36.85	21.70	3.00E-01	1.59E-01	-7.61E-02	1.43E-01		
	37.36	39.70	1.59E-01		-4.02E-02	7.56E-02		
	42.30	15.10	3.54E-01		-7.02E-02	1.69E-01		
	72.40	2.31	1.81E+00		-6.20E-01	8.80E-01		
PM-146	453.90	39.94	1.13E-01	1.13E-01	-3.20E-02	5.26E-02		
	735.90	14.01	4.35E-01		-1.17E-01	2.02E-01		
	747.13	13.10	4.55E-01		-3.52E-02	2.10E-01		
ND-147	91.11	28.90	4.27E-01	4.27E-01	-2.69E-01	2.09E-01		
	531.02	13.10	7.63E-01		-2.41E-01	3.54E-01		
PM-149	285.90	3.10	6.67E+01	6.67E+01	1.57E+01	3.18E+01		
EU-152	121.78	20.50	2.02E-01	2.02E-01	-1.24E-01	9.76E-02		
	244.69	5.40	8.37E-01		-1.62E+00	4.01E-01		
	344.27	19.13	2.24E-01		2.29E-02	1.06E-01		
	778.89	9.20	7.21E-01		-1.55E-01	3.35E-01		
	964.01	10.40	8.01E-01		2.83E-01	3.74E-01		
	1085.78	7.22	1.13E+00		7.36E-01	5.22E-01		
1112.02	9.60	8.18E-01	2.86E-01	3.76E-01				

Analysis Report for 1606067-11

CP-5017 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
EU-152	1407.95	14.94	4.40E-01	2.02E-01	8.63E-02	1.95E-01	
GD-153	97.43	31.30	1.39E-01	1.39E-01	6.13E-02	6.76E-02	
	103.18	22.20	1.92E-01		-1.65E-01	9.31E-02	
EU-154	123.07	40.50	1.05E-01	1.05E-01	4.51E-02	5.08E-02	
	723.30	19.70	3.54E-01		-1.40E-02	1.66E-01	
	873.19	11.50	5.72E-01		3.82E-02	2.64E-01	
	996.32	10.30	6.00E-01		-3.96E-02	2.72E-01	
	1004.76	17.90	3.96E-01		-5.14E-02	1.82E-01	
	1274.45	35.50	2.28E-01		-9.33E-02	1.04E-01	
EU-155	86.50	30.90	1.82E-01	1.82E-01	-2.27E-01	8.89E-02	
	105.30	20.70	2.03E-01		6.32E-02	9.83E-02	
EU-156	811.77	10.40	1.12E+00	1.12E+00	-2.33E-01	5.19E-01	
	1153.47	7.20	1.85E+00		3.55E-01	8.46E-01	
	1230.71	8.90	1.74E+00		4.97E-01	8.03E-01	
HO-166M	184.41	72.60	7.55E-02	7.55E-02	6.11E-03	3.66E-02	
	280.45	29.60	1.63E-01		1.68E-02	7.77E-02	
	410.94	11.10	4.42E-01		1.12E-01	2.08E-01	
	711.69	54.10	1.01E-01		-5.91E-02	4.68E-02	
TM-171	66.72	0.14	3.05E+01	3.05E+01	1.17E+01	1.48E+01	
HF-172	81.75	4.52	8.64E-01	3.81E-01	-6.63E-01	4.18E-01	
	125.81	11.30	3.81E-01		-5.19E-01	1.85E-01	
LU-172	181.53	20.60	7.38E-01	4.28E-01	2.09E-01	3.56E-01	
	810.06	16.63	1.42E+00		-3.64E-01	6.58E-01	
	912.12	15.25	3.08E+00		7.24E+00	1.48E+00	
	1093.66	62.50	4.28E-01		1.19E-02	1.97E-01	
LU-173	100.72	5.24	8.03E-01	2.38E-01	8.29E-02	3.89E-01	
	272.11	21.20	2.38E-01		8.18E-02	1.14E-01	
HF-175	343.40	84.00	6.01E-02	6.01E-02	4.05E-02	2.84E-02	
LU-176	88.34	13.30	4.36E-01	4.82E-02	8.15E-01	2.14E-01	
	201.83	86.00	4.93E-02		-5.68E-02	2.36E-02	
	306.78	94.00	4.82E-02		5.52E-03	2.29E-02	
TA-182	67.75	41.20	1.06E-01	1.06E-01	-3.49E-02	5.13E-02	
	1121.30	34.90	3.81E-01		5.48E-01	1.81E-01	
	1189.05	16.23	6.05E-01		2.81E-01	2.81E-01	
	1221.41	26.98	3.22E-01		-5.86E-02	1.48E-01	
	1231.02	11.44	8.29E-01		-8.87E-02	3.83E-01	
IR-192	308.46	29.68	1.74E-01	1.11E-01	2.84E-02	8.25E-02	
	468.07	48.10	1.11E-01		-1.91E-02	5.21E-02	
HG-203	279.19	77.30	8.02E-02	8.02E-02	1.80E-02	3.85E-02	
BI-207	569.67	97.72	4.83E-02	4.83E-02	-2.37E-02	2.23E-02	
	1063.62	74.90	1.09E-01		5.08E-02	5.04E-02	
+ TL-208	583.14	*	30.22	2.99E-01	1.04E-01	1.01E+00	1.44E-01
	860.37		4.48	1.62E+00		7.18E-01	7.53E-01
	2614.66	*	35.85	1.04E-01		9.70E-01	3.86E-02
BI-210M	262.00	45.00	9.36E-02	9.36E-02	-6.14E-02	4.45E-02	
	300.00	23.00	2.23E-01		1.32E-01	1.07E-01	
PB-210	46.50	4.25	1.24E+00	1.24E+00	5.79E-01	5.95E-01	
PB-211	404.84	2.90	1.45E+00	1.45E+00	1.37E-01	6.76E-01	
	831.96	2.90	2.26E+00		-1.02E+00	1.04E+00	
+ BI-212	727.17	*	11.80	9.15E-01	9.15E-01	6.40E-01	4.39E-01
	1620.62		2.75	2.50E+00		-2.18E-01	1.10E+00
PB-212	238.63	44.60	2.27E-01	2.27E-01	7.41E-01	1.11E-01	
	300.09	3.41	1.51E+00		8.92E-01	7.21E-01	

Analysis Report for 1606067-11

CP-5017 00-02 QC

Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	BI-214	609.31 *	46.30	1.89E-01	1.89E-01	7.76E-01	9.05E-02
		1120.29 *	15.10	1.07E+00		1.45E+00	5.13E-01
		1764.49 *	15.80	4.28E-01		9.54E-01	1.87E-01
		2204.22 *	4.98	1.34E+00		1.08E+00	5.79E-01
+	PB-214	295.21 *	19.19	4.44E-01	1.78E-01	6.01E-01	2.16E-01
		351.92 *	37.19	1.78E-01		9.96E-01	8.56E-02
+	RN-219	401.80 *	6.50	9.73E-01	9.73E-01	7.04E-01	4.66E-01
	RA-223	323.87	3.88	1.18E+00	1.18E+00	2.91E-01	5.58E-01
	RA-224	240.98	3.95	2.43E+00	2.43E+00	8.21E+00	1.19E+00
	RA-225	40.00	31.00	3.37E-01	3.37E-01	3.36E-02	1.61E-01
+	RA-226	186.21 *	3.28	2.04E+00	2.04E+00	3.32E+00	9.97E-01
	TH-227	50.10	8.40	5.12E-01	5.12E-01	-3.99E-02	2.46E-01
		236.00	11.50	5.86E-01		-4.24E+00	2.85E-01
		256.20	6.30	6.94E-01		-2.31E-01	3.31E-01
+	AC-228	338.32 *	11.40	5.15E-01	3.50E-01	1.11E+00	2.47E-01
		911.07 *	27.70	3.50E-01		1.14E+00	1.65E-01
		969.11 *	16.60	6.03E-01		8.54E-01	2.85E-01
	TH-230	48.44	16.90	2.63E-01	2.63E-01	-1.86E-01	1.26E-01
		62.85	4.60	1.09E+00		1.35E+00	5.29E-01
		67.67	0.37	1.10E+01		-3.61E+00	5.31E+00
	PA-231	283.67	1.60	2.93E+00	1.95E+00	1.84E-01	1.40E+00
		302.67	2.30	1.95E+00		-1.68E+00	9.27E-01
	TH-231	25.64	14.70	1.86E+00	6.59E-01	2.52E-01	8.92E-01
		84.21	6.40	6.59E-01		9.04E-01	3.20E-01
	PA-233	311.98	38.60	1.60E-01	1.60E-01	-2.69E-02	7.61E-02
	PA-234	131.20	20.40	2.26E-01	2.26E-01	1.82E-01	1.10E-01
		733.99	8.80	7.05E-01		-9.94E-03	3.28E-01
		946.00	12.00	5.18E-01		-1.62E-01	2.37E-01
+	PA-234M	1001.03 *	0.92	7.51E+00	7.51E+00	7.41E+00	3.44E+00
+	TH-234	63.29 *	3.80	2.17E+00	2.17E+00	1.69E+00	1.07E+00
	U-235	143.76	10.50	4.13E-01	4.13E-01	2.98E-02	2.00E-01
		163.35	4.70	9.00E-01		-5.34E-01	4.34E-01
		205.31	4.70	9.86E-01		-1.22E-03	4.75E-01
	NP-237	86.50	12.60	4.44E-01	4.44E-01	-5.53E-01	2.17E-01
	NP-239	106.10	22.70	6.50E+00	6.50E+00	1.21E+00	3.15E+00
		228.18	10.70	1.57E+01		4.23E+00	7.53E+00
		277.60	14.10	1.27E+01		4.22E+00	6.11E+00
	AM-241	59.54	35.90	1.18E-01	1.18E-01	-1.76E-02	5.72E-02
	AM-243	74.67	66.00	8.72E-02	8.72E-02	-2.61E-01	4.27E-02
+	CM-243	209.75 *	3.29	1.90E+00	3.65E-01	1.72E+00	9.22E-01
		228.14	10.60	4.49E-01		1.21E-01	2.16E-01
		277.60 *	14.00	3.65E-01		3.45E-01	1.75E-01

- + = Nuclide identified during the nuclide identification
 * = Energy line found in the spectrum
 > = MDA value not calculated
 @ = Half-life too short to be able to perform the decay correction

Analysis Report for 1606067-11
CP-5017 00-02 QC

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

<i>Creation Date</i>	<i>Comment</i>	<i>User</i>
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No Data Review Comments Entered.

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: CP-5017 00-02 QC

Elapsed Live time: 3600

Elapsed Real Time: 3601

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	56	672	
9:	1054	695	344	311	2075	152	111	132	
17:	140	108	105	73	67	66	61	68	
25:	57	70	58	54	58	61	60	74	
33:	64	46	65	46	52	44	46	70	
41:	59	63	57	61	56	71	110	63	
49:	76	58	68	72	80	82	82	76	
57:	87	101	89	97	99	98	170	165	
65:	106	115	102	110	94	120	105	111	
73:	129	128	389	160	467	250	94	92	
81:	110	93	105	140	128	76	184	180	
89:	99	181	72	108	245	137	88	60	
97:	79	77	72	80	71	64	64	63	
105:	82	87	55	65	69	75	62	82	
113:	83	72	72	74	80	49	66	63	
121:	64	65	62	60	78	55	61	72	
129:	107	68	68	64	66	53	64	63	
137:	65	68	66	57	62	60	52	74	
145:	60	55	57	54	72	45	57	64	
153:	61	66	58	56	56	46	42	54	
161:	50	47	42	59	53	63	64	49	
169:	51	52	43	52	49	54	57	55	
177:	63	53	52	47	58	48	40	42	
185:	72	170	91	52	53	50	40	56	
193:	57	44	41	47	47	47	51	41	
201:	38	41	33	42	57	46	52	46	
209:	89	71	46	34	37	41	46	42	
217:	48	38	36	43	53	47	39	37	
225:	39	36	44	50	42	39	38	41	
233:	31	52	29	47	35	251	507	49	
241:	96	121	56	29	27	30	30	27	
249:	40	30	22	26	30	27	28	40	
257:	28	28	37	35	27	22	30	21	
265:	33	28	34	40	31	67	46	23	
273:	17	28	32	28	54	49	22	32	
281:	33	26	31	35	29	30	27	26	
289:	24	25	32	26	20	27	202	103	
297:	23	37	28	50	27	26	28	22	
305:	22	25	26	24	28	25	25	20	
313:	26	26	25	19	28	29	23	26	
321:	19	27	21	17	31	21	30	56	
329:	33	20	22	24	28	21	20	17	
337:	24	101	80	21	19	16	24	16	
345:	28	9	19	20	20	26	82	307	
353:	64	21	15	19	15	22	21	17	
361:	14	23	25	10	18	14	19	21	

369: 16 16 21 15 17 17 14 15

Sample Title: CP-5017 00-02 QC

Channel								
377:	17	23	15	17	12	19	8	22
385:	15	13	24	29	15	18	20	20
393:	13	16	20	14	19	19	17	16
401:	19	34	19	12	11	13	14	11
409:	25	19	18	16	16	21	16	16
417:	18	13	10	13	21	14	24	14
425:	12	16	12	12	19	11	19	10
433:	19	13	10	13	16	15	19	13
441:	19	14	13	22	16	11	17	11
449:	14	17	14	14	22	16	6	8
457:	12	19	20	16	7	14	56	20
465:	11	26	14	12	7	13	19	13
473:	12	12	18	8	11	13	15	16
481:	13	13	6	10	16	10	13	11
489:	15	10	6	9	9	9	9	12
497:	15	10	14	15	9	11	17	12
505:	14	12	10	25	19	57	72	30
513:	25	10	13	13	10	11	16	16
521:	15	14	9	18	10	9	20	15
529:	8	14	10	14	9	9	12	13
537:	11	10	10	10	15	14	14	11
545:	14	10	13	9	10	6	10	12
553:	14	5	10	14	10	8	13	12
561:	12	19	21	10	8	12	8	14
569:	6	10	12	13	19	10	11	9
577:	9	13	13	17	12	32	147	71
585:	9	9	13	8	13	5	13	5
593:	9	12	14	9	11	11	13	18
601:	19	16	13	11	12	16	8	32
609:	167	97	16	5	10	11	16	8
617:	13	10	5	7	9	8	4	10
625:	7	10	7	8	12	11	12	4
633:	13	9	9	5	3	8	4	12
641:	6	11	6	8	9	6	7	7
649:	15	4	17	9	11	10	13	8
657:	9	18	7	11	13	14	7	17
665:	17	12	9	8	13	9	7	10
673:	8	10	10	12	9	10	12	9
681:	6	6	11	6	12	12	10	10
689:	7	10	4	9	4	15	5	7
697:	14	9	5	3	14	8	10	12
705:	7	8	7	8	7	8	3	10
713:	6	5	11	11	7	5	10	15
721:	6	15	9	11	10	10	28	27
729:	5	14	11	7	9	7	7	8
737:	9	10	5	13	6	9	7	10
745:	9	8	7	7	3	7	10	5
753:	8	5	14	7	13	6	8	8
761:	7	8	8	11	9	11	13	18
769:	14	8	6	8	9	11	7	6
777:	2	14	7	9	12	10	10	11
785:	11	13	7	8	6	8	8	8
793:	12	10	17	9	6	10	8	6

801: 4 11 6 12 6 14 12 11

Sample Title: CP-5017 00-02 QC

Channel	1	2	3	4	5	6	7	8
809:	8	6	7	7	7	11	8	5
817:	6	8	6	5	7	5	8	4
825:	11	8	6	7	5	4	17	2
833:	8	7	9	18	7	4	8	11
841:	8	6	6	8	6	5	10	9
849:	9	8	3	7	5	6	3	6
857:	7	3	5	11	17	7	11	9
865:	7	7	8	6	6	5	4	6
873:	8	11	8	6	8	6	5	5
881:	6	9	4	7	7	5	7	2
889:	6	6	9	2	3	5	4	3
897:	7	3	6	8	8	3	4	13
905:	5	7	5	6	10	26	87	62
913:	8	5	5	6	6	6	5	6
921:	5	5	6	7	7	5	6	6
929:	6	10	6	6	7	14	7	7
937:	7	4	7	6	8	2	4	5
945:	7	5	4	7	5	10	6	10
953:	7	9	6	3	5	8	7	5
961:	4	5	7	17	17	7	10	36
969:	49	14	4	4	5	5	5	6
977:	5	8	4	5	5	6	4	5
985:	6	8	3	11	5	4	9	4
993:	6	4	5	2	2	6	8	6
1001:	15	7	6	6	3	4	3	4
1009:	8	7	5	3	5	10	6	3
1017:	6	8	4	3	6	4	5	6
1025:	8	4	5	8	4	4	4	4
1033:	4	5	7	5	8	6	5	2
1041:	7	4	9	4	2	7	6	3
1049:	8	5	6	5	1	5	5	5
1057:	7	4	3	9	10	7	4	8
1065:	7	9	7	6	6	8	7	5
1073:	4	4	4	2	6	6	6	5
1081:	2	5	5	11	8	8	9	6
1089:	4	5	9	3	3	8	10	7
1097:	8	5	1	6	7	1	7	6
1105:	9	8	4	6	6	11	6	7
1113:	5	7	4	6	10	8	17	48
1121:	19	9	6	13	3	7	7	3
1129:	2	4	9	0	8	3	3	7
1137:	5	1	2	6	7	10	3	9
1145:	7	8	5	5	8	5	6	5
1153:	3	5	7	10	5	2	8	8
1161:	7	5	4	4	11	5	10	9
1169:	2	4	7	8	10	6	6	5
1177:	5	7	7	7	4	7	7	4
1185:	9	8	12	8	6	3	10	10
1193:	6	4	5	8	7	3	9	4
1201:	7	5	7	4	7	6	7	8
1209:	4	5	12	14	9	6	9	6
1217:	14	7	8	7	5	7	4	4
1225:	5	5	5	3	10	12	9	4

1233: 8 4 9 10 7 11 7 10

Sample Title: CP-5017 00-02 QC

Channel	1	2	3	4	5	6	7	8	9
1241:	5	8	5	6	3	12	5	4	
1249:	5	8	3	6	4	7	11	5	
1257:	4	6	5	2	3	2	5	3	
1265:	7	7	3	5	9	4	6	6	
1273:	7	7	6	3	4	7	9	8	
1281:	12	5	6	3	6	4	3	8	
1289:	4	2	3	4	2	6	4	2	
1297:	3	4	3	5	4	6	7	7	
1305:	5	4	2	2	2	2	4	3	
1313:	5	6	3	3	3	5	0	4	
1321:	4	0	5	6	4	1	3	9	
1329:	3	1	4	5	4	3	8	3	
1337:	4	3	3	3	2	1	0	1	
1345:	3	3	2	1	1	4	1	3	
1353:	6	3	3	4	3	1	3	6	
1361:	8	2	1	2	2	3	3	1	
1369:	0	3	4	1	1	0	3	1	
1377:	8	10	3	2	1	1	5	5	
1385:	5	2	1	2	0	0	4	2	
1393:	5	2	3	4	6	2	2	0	
1401:	3	4	2	0	1	3	4	4	
1409:	8	1	1	2	4	2	3	3	
1417:	2	1	3	3	3	2	2	5	
1425:	1	0	1	3	1	0	2	1	
1433:	3	8	1	2	4	2	1	3	
1441:	3	2	4	2	2	2	1	1	
1449:	1	1	1	1	1	1	2	2	
1457:	5	8	55	270	275	59	9	1	
1465:	2	0	3	2	2	2	0	1	
1473:	1	1	2	0	2	0	1	2	
1481:	1	2	1	2	2	1	1	1	
1489:	2	1	5	1	1	6	2	6	
1497:	2	2	3	4	1	3	2	1	
1505:	0	1	2	3	3	3	6	1	
1513:	2	0	1	1	0	0	0	1	
1521:	0	0	4	1	2	1	6	3	
1529:	2	0	3	2	3	1	2	4	
1537:	0	3	3	2	1	1	1	1	
1545:	0	3	3	1	0	2	0	0	
1553:	2	2	0	2	2	1	2	1	
1561:	1	0	1	1	1	1	1	1	
1569:	2	0	0	1	0	0	2	0	
1577:	3	3	3	2	1	4	3	4	
1585:	0	2	6	9	4	0	3	2	
1593:	9	2	0	4	1	1	1	1	
1601:	1	0	1	1	2	2	3	2	
1609:	1	1	2	0	0	1	4	1	
1617:	0	1	2	3	6	1	3	2	
1625:	0	0	3	2	0	3	3	2	
1633:	0	2	0	2	0	0	0	2	
1641:	1	2	0	1	0	0	1	0	
1649:	0	3	2	1	1	1	2	0	
1657:	3	0	1	2	3	0	0	1	

1665: 0 0 1 1 1 2 2 0

Sample Title: CP-5017 00-02 QC

Channel	1	2	3	4	5	6	7	8
1673:	0	0	0	1	1	0	2	1
1681:	0	0	1	1	1	2	0	2
1689:	0	2	0	1	2	1	0	1
1697:	0	1	2	0	2	1	0	3
1705:	1	0	1	2	0	0	1	1
1713:	0	1	0	1	1	1	0	1
1721:	2	1	1	0	3	0	3	4
1729:	3	0	1	1	0	3	0	2
1737:	0	2	0	1	2	0	1	0
1745:	1	1	1	0	1	3	3	0
1753:	3	1	1	3	1	1	2	1
1761:	1	2	11	18	17	3	1	0
1769:	1	1	1	1	2	1	0	1
1777:	0	1	1	3	1	0	0	0
1785:	0	0	0	1	0	0	3	1
1793:	3	0	1	1	0	0	1	0
1801:	0	1	1	2	1	1	1	0
1809:	0	0	0	1	0	0	1	0
1817:	0	0	0	1	1	2	0	1
1825:	0	2	3	0	0	2	0	0
1833:	0	1	0	1	0	0	2	2
1841:	1	1	1	1	1	4	2	2
1849:	1	0	2	0	2	0	1	0
1857:	2	0	1	2	1	3	0	2
1865:	0	0	1	0	1	3	2	3
1873:	1	0	0	2	0	4	1	2
1881:	0	0	0	0	1	1	0	1
1889:	2	2	2	0	0	0	2	1
1897:	0	0	0	0	0	0	0	0
1905:	1	0	0	0	1	1	1	0
1913:	0	3	0	2	1	0	0	1
1921:	1	0	2	2	0	2	0	0
1929:	3	0	0	3	0	1	0	1
1937:	0	0	2	0	2	0	2	0
1945:	0	1	1	2	0	1	0	1
1953:	0	0	0	1	1	0	0	2
1961:	0	1	1	0	1	0	2	1
1969:	1	1	0	1	1	1	0	0
1977:	2	0	1	2	1	0	3	2
1985:	2	2	1	0	0	1	2	2
1993:	0	0	1	1	0	2	0	1
2001:	0	0	2	0	0	1	2	1
2009:	0	1	1	1	0	1	1	0
2017:	1	0	0	1	0	3	1	0
2025:	1	0	1	0	0	0	0	1
2033:	1	2	1	2	0	0	0	2
2041:	2	2	0	1	1	1	1	2
2049:	0	0	0	0	1	0	1	1
2057:	1	2	1	1	1	0	1	1
2065:	1	1	0	0	0	1	0	0
2073:	1	0	1	0	1	1	1	0
2081:	0	1	1	2	0	1	2	2
2089:	2	1	0	0	1	1	1	2

2097: 1 1 1 3 2 2 7 7

Sample Title: CP-5017 00-02 QC

Channel	1	2	3	4	5	6	7	8
2105:	2	3	6	2	0	2	1	1
2113:	1	1	1	0	1	5	1	0
2121:	1	1	0	5	0	1	2	0
2129:	1	1	0	3	0	0	0	2
2137:	0	0	0	0	0	1	2	0
2145:	2	0	1	1	2	1	1	1
2153:	3	0	1	1	1	0	3	0
2161:	0	1	1	1	0	0	0	1
2169:	0	1	1	0	1	1	0	0
2177:	1	0	1	0	0	0	1	0
2185:	0	0	1	0	0	0	0	3
2193:	1	2	1	0	0	2	0	2
2201:	0	4	4	8	2	1	2	0
2209:	1	1	1	0	2	0	0	0
2217:	1	1	1	0	4	2	2	0
2225:	0	0	1	0	0	1	0	0
2233:	3	1	2	1	1	1	0	2
2241:	1	0	0	3	3	1	1	0
2249:	1	0	0	1	0	2	0	1
2257:	0	0	1	0	1	1	1	1
2265:	1	2	0	1	0	1	1	0
2273:	1	1	0	2	1	0	0	1
2281:	1	0	0	0	4	0	2	0
2289:	3	1	0	1	4	2	1	1
2297:	0	2	0	0	0	3	0	2
2305:	1	0	1	0	0	3	0	1
2313:	0	1	0	1	2	1	0	0
2321:	3	2	0	0	2	2	2	1
2329:	2	1	4	0	3	0	1	0
2337:	0	1	2	0	2	0	0	0
2345:	2	0	2	0	0	1	3	1
2353:	2	1	1	1	1	0	2	1
2361:	0	0	1	1	0	1	0	1
2369:	2	1	1	0	1	1	1	0
2377:	4	0	2	0	1	1	1	0
2385:	0	0	3	4	1	0	1	0
2393:	1	1	0	1	1	0	0	0
2401:	2	1	1	0	3	0	0	1
2409:	1	0	0	1	0	0	1	0
2417:	0	1	1	1	0	0	2	0
2425:	1	0	2	1	0	1	0	0
2433:	0	0	0	1	0	0	2	0
2441:	0	0	0	1	2	1	4	1
2449:	2	0	1	0	0	0	1	0
2457:	0	2	1	0	2	0	0	1
2465:	1	0	0	0	0	0	0	2
2473:	1	0	0	2	1	0	0	0
2481:	1	0	2	1	0	0	0	0
2489:	0	1	0	0	0	2	0	0
2497:	1	0	2	0	0	0	0	1
2505:	1	2	0	1	1	1	0	1
2513:	0	0	0	1	1	0	1	1
2521:	1	0	0	0	0	0	0	0

2529: 0 1 0 0 0 1 1 1

Sample Title: CP-5017 00-02 QC

Channel	1	2	3	4	5	6	7	8	9
2537:	0	1	0	1	0	0	0	0	0
2545:	1	1	0	0	0	1	0	1	1
2553:	0	0	0	1	1	0	0	0	0
2561:	0	2	1	1	1	0	0	1	1
2569:	0	0	1	0	0	1	1	0	0
2577:	0	0	0	0	0	0	0	1	1
2585:	0	0	0	0	1	1	0	0	0
2593:	0	0	2	0	1	1	0	1	1
2601:	0	1	1	2	2	0	0	0	0
2609:	0	0	5	11	21	39	19	6	6
2617:	4	0	0	2	3	0	0	1	1
2625:	1	0	1	0	1	0	0	0	0
2633:	0	2	0	0	0	0	0	1	1
2641:	0	0	0	1	0	1	0	0	0
2649:	1	0	0	1	2	0	0	0	0
2657:	1	1	0	0	1	0	0	0	0
2665:	0	0	0	0	1	2	0	1	1
2673:	0	0	1	0	0	0	0	0	0
2681:	0	0	0	0	1	0	0	0	0
2689:	2	0	0	0	1	0	0	2	2
2697:	1	0	1	0	0	0	0	0	0
2705:	0	1	1	0	0	0	0	1	1
2713:	0	0	1	0	0	0	0	0	0
2721:	0	0	0	0	0	2	0	1	1
2729:	1	0	0	0	0	0	0	0	0
2737:	1	0	0	0	0	0	0	0	0
2745:	0	1	0	0	0	0	0	2	2
2753:	0	0	0	0	0	2	0	0	0
2761:	0	1	0	0	0	0	1	0	0
2769:	0	0	0	0	0	1	0	0	0
2777:	0	0	1	0	0	0	0	0	0
2785:	0	0	0	1	0	1	1	0	0
2793:	0	1	0	0	1	0	0	0	0
2801:	1	0	0	1	1	0	0	0	0
2809:	1	1	0	0	0	0	0	1	1
2817:	0	0	0	1	0	0	1	0	0
2825:	0	1	0	1	2	1	0	0	0
2833:	0	0	0	0	0	0	0	0	0
2841:	0	0	0	0	1	1	0	0	0
2849:	1	1	0	1	2	0	0	0	0
2857:	1	0	0	0	0	0	0	0	0
2865:	1	1	0	0	0	0	0	0	0
2873:	0	0	0	0	0	0	0	0	0
2881:	0	0	0	0	0	0	1	0	0
2889:	0	0	1	0	1	1	0	1	1
2897:	0	0	0	0	2	0	1	0	0
2905:	1	0	0	0	0	0	0	1	1
2913:	0	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	0	0
2929:	1	0	0	0	0	0	0	1	1
2937:	0	1	0	0	1	0	0	0	0
2945:	0	0	0	0	0	2	1	0	0
2953:	1	0	0	0	0	0	0	0	0

2961: 0 0 1 0 0 0 0 1

Sample Title: CP-5017 00-02 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2969:	0	0	0	0	1	0	1	0
2977:	0	0	0	0	1	0	0	2
2985:	0	1	0	1	0	0	0	0
2993:	0	0	0	0	0	0	0	0
3001:	0	0	0	0	0	0	0	1
3009:	0	0	0	0	0	0	0	1
3017:	0	1	0	0	0	0	0	1
3025:	0	0	0	1	0	1	0	0
3033:	0	0	0	0	0	0	0	0
3041:	0	0	0	0	0	0	0	0
3049:	1	0	0	0	0	0	0	0
3057:	0	0	1	0	2	1	0	0
3065:	0	0	0	0	0	0	0	0
3073:	0	0	0	0	0	0	0	0
3081:	0	0	0	0	1	1	1	0
3089:	0	0	0	0	0	0	0	0
3097:	0	1	0	0	0	0	0	0
3105:	1	0	0	1	1	0	0	0
3113:	0	0	0	0	0	1	0	0
3121:	0	0	1	2	0	2	0	0
3129:	0	0	0	0	0	0	0	0
3137:	0	0	0	0	0	0	0	0
3145:	1	0	0	0	0	0	0	0
3153:	1	0	0	0	0	0	0	0
3161:	1	0	0	0	0	0	0	2
3169:	0	0	0	0	0	0	0	0
3177:	0	0	0	0	0	0	0	0
3185:	1	0	1	0	0	0	0	0
3193:	0	0	0	2	0	0	0	0
3201:	0	0	0	0	0	0	0	0
3209:	1	0	0	0	0	0	0	0
3217:	0	1	0	0	1	0	0	0
3225:	0	0	0	0	0	0	0	0
3233:	0	0	0	0	0	0	0	0
3241:	0	0	0	0	0	0	0	0
3249:	0	0	0	0	0	0	0	0
3257:	0	0	0	0	0	0	0	1
3265:	0	1	1	0	0	0	0	0
3273:	0	0	0	1	0	0	0	0
3281:	0	0	0	0	0	0	0	0
3289:	0	0	0	0	0	0	0	0
3297:	0	0	0	0	0	0	0	0
3305:	0	0	0	0	0	0	0	0
3313:	0	0	0	1	0	0	0	0
3321:	0	0	0	0	0	0	0	0
3329:	0	1	0	0	0	0	0	0
3337:	0	0	0	0	0	0	0	0
3345:	0	0	0	0	0	0	0	0
3353:	0	0	0	0	0	0	1	2
3361:	0	0	0	0	1	0	0	1
3369:	0	1	0	0	0	0	0	0
3377:	0	0	0	0	0	0	0	0
3385:	0	0	0	0	0	0	0	0

3393: 0 0 0 0 0 1 0 0

Sample Title: CP-5017 00-02 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3401:	1	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	1
3449:	0	0	0	0	0	0	0	1
3457:	0	0	1	0	0	0	0	0
3465:	0	0	0	0	1	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	1	0	0	0
3497:	0	0	0	1	0	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	0	0	0	0	0
3521:	0	0	1	1	0	1	0	0
3529:	0	0	0	1	0	0	0	0
3537:	0	0	0	0	0	0	0	0
3545:	0	0	0	0	0	0	0	0
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	0	0	1	0	0	0
3577:	1	0	0	0	0	0	0	0
3585:	0	0	0	0	0	0	0	0
3593:	1	0	1	0	0	0	0	0
3601:	0	0	0	0	0	0	0	0
3609:	0	1	0	1	1	0	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	0	0	0	0	0	0
3633:	0	1	0	0	0	0	0	0
3641:	0	1	0	0	0	1	0	0
3649:	0	0	1	0	0	0	0	0
3657:	0	0	0	0	0	0	0	0
3665:	0	0	1	0	0	0	1	0
3673:	0	0	0	0	0	0	0	0
3681:	1	0	0	0	0	0	0	0
3689:	0	0	0	1	1	0	0	0
3697:	0	0	1	0	1	2	1	0
3705:	0	0	0	0	1	0	0	1
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	1	1	1	0	1	0
3745:	1	1	0	1	0	0	0	0
3753:	0	0	1	0	1	0	0	0
3761:	0	0	0	0	0	0	0	0
3769:	1	0	0	0	0	0	0	0
3777:	0	0	0	0	0	0	2	0
3785:	0	0	0	0	0	0	0	0
3793:	0	0	0	0	0	0	0	0
3801:	0	0	1	0	0	0	0	0
3809:	1	2	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	1

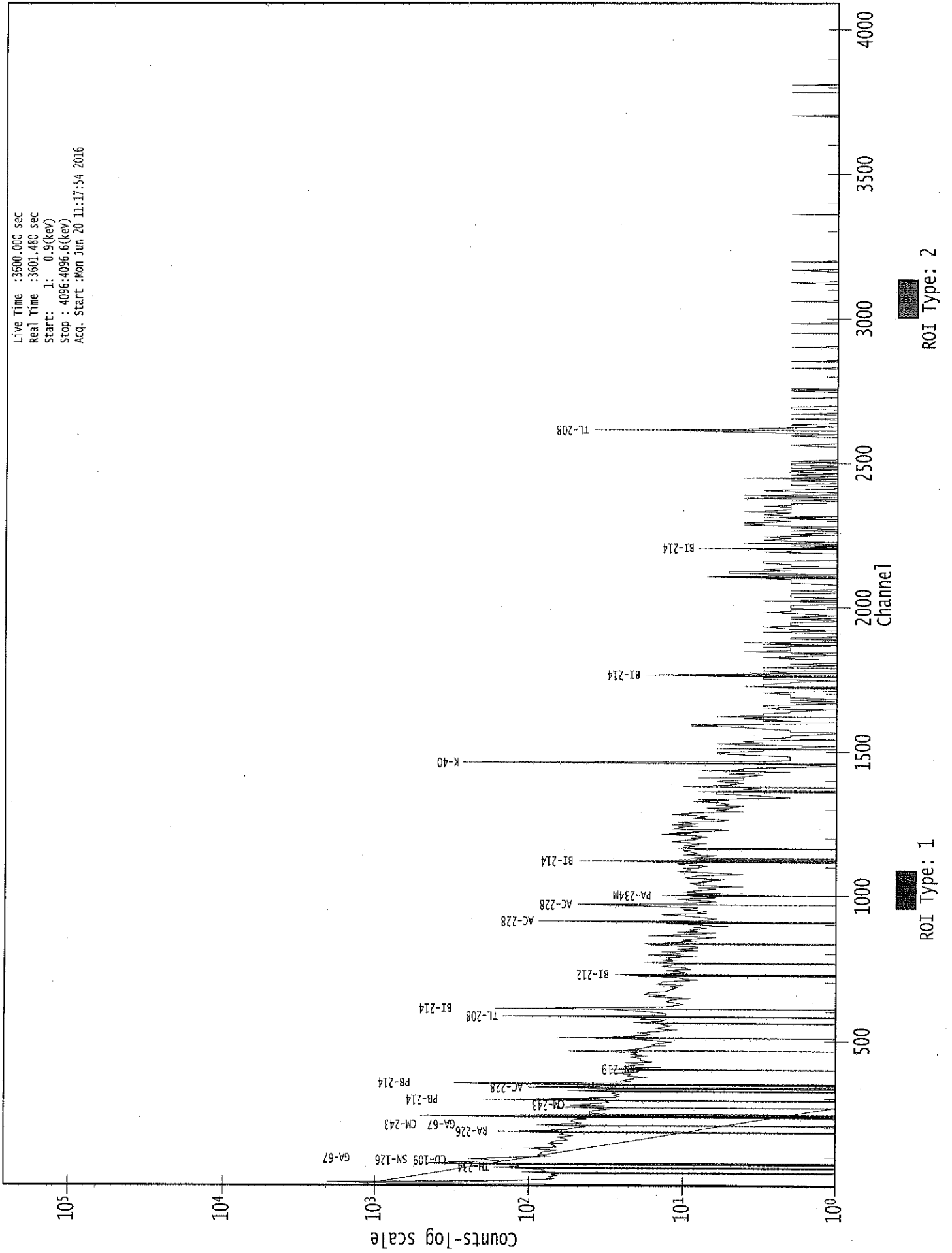
3825: 0 1 0 0 0 0 0 0 0

Sample Title: CP-5017 00-02 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	0	0	0	0
3841:	0	1	0	0	0	0	0	0
3849:	1	0	0	0	0	0	0	0
3857:	1	0	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	1	0	0	0	0	0
3881:	1	1	0	0	0	0	1	0
3889:	1	0	1	0	0	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	1	0	0	0
3921:	0	0	0	0	0	1	0	0
3929:	0	0	0	0	0	1	1	1
3937:	0	0	0	0	0	0	0	0
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	1	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	1	0	0	0	0	0	1	1
3977:	0	0	0	0	0	0	0	0
3985:	1	1	0	0	1	0	0	0
3993:	0	0	0	0	0	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	1
4025:	0	0	0	0	0	0	0	0
4033:	0	0	1	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	1	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	0	0	1	0	1	1
4073:	0	1	0	0	0	0	0	0
4081:	0	0	0	1	0	0	1	0
4089:	0	0	0	0	0	0	1	0

0000039154.CNF

Live Time :3600.000 sec
Real Time :3601.480 sec
Start : 1: 0.9(keV)
Stop : 4096.4096.6(keV)
Acq. Start :Mon Jun 20 11:17:54 2016



CB
6/20/16Analysis Report for 1606067-12
CP-5020 00-02 QC

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606067-12
Sample Description : CP-5020 00-02 QC
Sample Type : SOIL

Sample Size : 5.972E+02 grams
Facility : Countroom

Sample Taken On : 6/9/2016 9:17:51AM
Acquisition Started : 6/20/2016 11:18:03AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE3
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3615.2 seconds

Dead Time : 0.42 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 9 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 10/25/2014
Efficiency Calibration Used Done On : 10/25/2014
Efficiency Calibration Description :

Sample Number : 39155

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/20/16

Analysis Report for 1606067-12

CP-5020 00-02 QC

PEAK LOCATE REPORT

Peak Locate Performed on : 6/20/2016 12:18:38PM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096
 Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	27.66	27.90	0.0000	0.00
2	33.00	33.24	0.0000	0.00
3	46.75	46.98	0.0000	0.00
4	63.31	63.53	0.0000	0.00
5	76.33	76.55	0.0000	0.00
6	87.73	87.93	0.0000	0.00
7	92.96	93.17	0.0000	0.00
8	144.42	144.60	0.0000	0.00
9	164.20	164.37	0.0000	0.00
10	186.35	186.50	0.0000	0.00
11	239.00	239.13	0.0000	0.00
12	242.37	242.50	0.0000	0.00
13	270.24	270.35	0.0000	0.00
14	295.53	295.63	0.0000	0.00
15	300.39	300.49	0.0000	0.00
16	338.63	338.70	0.0000	0.00
17	352.19	352.26	0.0000	0.00
18	409.45	409.49	0.0000	0.00
19	462.77	462.79	0.0000	0.00
20	510.82	510.81	0.0000	0.00
21	538.50	538.47	0.0000	0.00
22	578.32	578.27	0.0000	0.00
23	583.48	583.44	0.0000	0.00
24	609.60	609.54	0.0000	0.00
25	741.99	741.87	0.0000	0.00
26	768.70	768.57	0.0000	0.00
27	776.62	776.48	0.0000	0.00
28	785.91	785.77	0.0000	0.00
29	858.77	858.60	0.0000	0.00
30	911.34	911.15	0.0000	0.00
31	933.77	933.57	0.0000	0.00
32	968.54	968.32	0.0000	0.00
33	1102.05	1101.77	0.0000	0.00
34	1120.59	1120.30	0.0000	0.00
35	1239.13	1238.80	0.0000	0.00
36	1280.51	1280.16	0.0000	0.00
37	1334.31	1333.94	0.0000	0.00
38	1377.63	1377.24	0.0000	0.00
39	1402.19	1401.79	0.0000	0.00
40	1409.19	1408.79	0.0000	0.00
41	1418.29	1417.88	0.0000	0.00
42	1443.27	1442.86	0.0000	0.00

Analysis Report for 1606067-12
CP-5020 00-02 QC

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1461.07	1460.64	0.0000	0.00
44	1631.70	1631.22	0.0000	0.00
45	1660.91	1660.41	0.0000	0.00
46	1729.87	1729.35	0.0000	0.00
47	1764.65	1764.12	0.0000	0.00
48	1787.95	1787.41	0.0000	0.00
49	1793.87	1793.33	0.0000	0.00
50	1836.81	1836.26	0.0000	0.00
51	1846.86	1846.30	0.0000	0.00
52	2029.46	2028.85	0.0000	0.00
53	2119.42	2118.78	0.0000	0.00
54	2204.01	2203.34	0.0000	0.00
55	2424.88	2424.15	0.0000	0.00
56	2447.48	2446.74	0.0000	0.00
57	2615.07	2614.29	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606067-12

CP-5020 00-02 QC

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 12:18:38PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
1	27.66	26 -	30	27.90	9.11E+01	68.24	9.34E+02	2.79
2	33.00	31 -	36	33.24	8.76E+01	75.49	1.08E+03	2.23
3	46.75	44 -	50	46.98	2.82E+02	107.51	1.91E+03	1.36
4	63.31	60 -	67	63.53	2.41E+02	149.83	3.60E+03	1.60
5	76.33	71 -	81	76.55	2.03E+03	204.39	4.49E+03	3.70
6	87.73	86 -	90	87.93	2.02E+02	107.94	2.43E+03	1.35
7	92.96	90 -	96	93.17	6.35E+02	133.97	2.70E+03	1.45
8	144.42	141 -	147	144.60	1.05E+02	97.48	1.64E+03	1.98
9	164.20	161 -	167	164.37	7.49E+01	90.12	1.42E+03	2.47
10	186.35	183 -	190	186.50	6.02E+02	108.02	1.53E+03	1.97
M	11	234 -	251	239.13	7.54E+02	77.36	6.60E+02	1.72
m	12	234 -	251	242.50	4.26E+02	72.28	6.17E+02	1.68
13	270.24	267 -	273	270.35	1.23E+02	65.09	6.78E+02	1.97
M	14	291 -	304	295.63	8.49E+02	73.87	4.56E+02	1.54
m	15	291 -	304	300.49	9.41E+01	63.10	5.94E+02	2.32
16	338.63	336 -	342	338.70	8.14E+01	58.93	5.69E+02	1.47
17	352.19	347 -	357	352.26	1.45E+03	106.48	7.38E+02	1.82
18	409.45	407 -	412	409.49	3.94E+01	42.65	3.31E+02	1.37
19	462.77	459 -	466	462.79	8.50E+01	46.82	3.10E+02	1.96
20	510.82	505 -	515	510.81	1.68E+02	58.57	3.66E+02	2.06
21	538.50	536 -	541	538.47	3.48E+01	31.58	1.72E+02	2.93
M	22	577 -	588	578.27	1.97E+01	15.94	7.23E+01	3.19
m	23	577 -	588	583.44	1.89E+02	43.06	2.22E+02	2.07
24	609.60	605 -	612	609.54	9.85E+02	73.46	2.47E+02	2.01
25	741.99	738 -	744	741.87	3.42E+01	31.48	1.52E+02	1.56
26	768.70	765 -	773	768.57	9.52E+01	41.02	2.06E+02	2.25
27	776.62	774 -	782	776.48	2.91E+01	34.25	1.64E+02	2.36
28	785.91	782 -	790	785.77	4.22E+01	33.11	1.40E+02	3.73
29	858.77	851 -	864	858.60	6.04E+01	48.81	2.37E+02	2.98
30	911.34	908 -	915	911.15	1.10E+02	37.79	1.66E+02	2.04
31	933.77	928 -	939	933.57	9.14E+01	38.37	1.39E+02	1.84
32	968.54	963 -	971	968.32	6.50E+01	41.14	2.20E+02	1.43
33	1102.05	1097 -	1106	1101.77	3.47E+01	32.40	1.31E+02	4.64
34	1120.59	1117 -	1125	1120.30	1.92E+02	41.81	1.55E+02	2.19
35	1239.13	1234 -	1244	1238.80	1.09E+02	36.98	1.17E+02	2.28
36	1280.51	1274 -	1284	1280.16	3.40E+01	32.92	1.26E+02	2.77
37	1334.31	1329 -	1339	1333.94	3.20E+01	24.96	6.60E+01	6.34
38	1377.63	1372 -	1381	1377.24	4.06E+01	29.95	1.05E+02	2.18
M	39	1398 -	1412	1401.79	1.79E+01	18.97	4.40E+01	3.18
m	40	1398 -	1412	1408.79	3.14E+01	19.49	5.22E+01	3.19

Analysis Report for 1606067-12

CP-5020 00-02 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1418.29	1415 -	1421	1417.88	1.34E+01	15.31	2.92E+01	1.85
M	42	1443.27	1439 -	1467	1442.86	1.71E+01	15.43	2.80E+01	4.27
m	43	1461.07	1439 -	1467	1460.64	5.22E+02	47.48	2.80E+01	2.19
	44	1631.70	1627 -	1634	1631.22	1.04E+01	12.65	1.91E+01	1.05
	45	1660.91	1657 -	1664	1660.41	1.69E+01	10.58	6.20E+00	2.49
	46	1729.87	1727 -	1734	1729.35	3.02E+01	15.75	2.36E+01	2.63
	47	1764.65	1759 -	1768	1764.12	1.26E+02	25.38	2.00E+01	2.21
	48	1787.95	1785 -	1790	1787.41	8.85E+00	7.00	2.30E+00	1.67
	49	1793.87	1791 -	1795	1793.33	6.00E+00	4.90	0.00E+00	1.92
	50	1836.81	1832 -	1841	1836.26	1.11E+01	10.49	7.87E+00	3.89
	51	1846.86	1842 -	1851	1846.30	3.30E+01	11.49	0.00E+00	5.56
	52	2029.46	2026 -	2031	2028.85	5.75E+00	8.19	8.50E+00	1.60
	53	2119.42	2114 -	2124	2118.78	2.30E+01	11.59	5.96E+00	1.84
	54	2204.01	2198 -	2209	2203.34	3.87E+01	14.28	6.52E+00	2.90
	55	2424.88	2420 -	2427	2424.15	6.00E+00	6.93	4.00E+00	3.33
	56	2447.48	2442 -	2450	2446.74	9.38E+00	11.17	1.33E+01	2.90
	57	2615.07	2609 -	2621	2614.29	6.20E+01	15.75	0.00E+00	3.38

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/20/2016 12:18:38PM

Peak Analysis From Channel : 1
Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	27.66	26 -	30	9.11E+01	68.24	9.34E+02	5.39E+01
	2	33.00	31 -	36	8.76E+01	75.49	1.08E+03	6.01E+01
	3	46.75	44 -	50	2.82E+02	107.51	1.91E+03	8.40E+01
	4	63.31	60 -	67	2.41E+02	149.83	3.60E+03	1.20E+02
	5	76.33	71 -	81	2.03E+03	204.39	4.49E+03	1.51E+02
	6	87.73	86 -	90	2.02E+02	107.94	2.43E+03	8.56E+01
	7	92.96	90 -	96	6.35E+02	133.97	2.70E+03	1.02E+02
	8	144.42	141 -	147	1.05E+02	97.48	1.64E+03	7.83E+01
	9	164.20	161 -	167	7.49E+01	90.12	1.42E+03	7.27E+01
	10	186.35	183 -	190	6.02E+02	108.02	1.53E+03	7.91E+01
M	11	239.00	234 -	251	7.54E+02	77.36	6.60E+02	4.23E+01

: 00664

Analysis Report for 1606067-12

CP-5020 00-02 QC

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	12	242.37	234 -	251	4.26E+02	72.28	6.17E+02	4.08E+01
	13	270.24	267 -	273	1.23E+02	65.09	6.78E+02	5.03E+01
M	14	295.53	291 -	304	8.49E+02	73.87	4.56E+02	3.51E+01
m	15	300.39	291 -	304	9.41E+01	63.10	5.94E+02	4.01E+01
	16	338.63	336 -	342	8.14E+01	58.93	5.69E+02	4.61E+01
	17	352.19	347 -	357	1.45E+03	106.48	7.38E+02	6.11E+01
	18	409.45	407 -	412	3.94E+01	42.65	3.31E+02	3.35E+01
	19	462.77	459 -	466	8.50E+01	46.82	3.10E+02	3.54E+01
	20	510.82	505 -	515	1.68E+02	58.57	3.66E+02	4.32E+01
	21	538.50	536 -	541	3.48E+01	31.58	1.72E+02	2.41E+01
M	22	578.32	577 -	588	1.97E+01	15.94	7.23E+01	1.40E+01
m	23	583.48	577 -	588	1.89E+02	43.06	2.22E+02	2.45E+01
	24	609.60	605 -	612	9.85E+02	73.46	2.47E+02	3.13E+01
	25	741.99	738 -	744	3.42E+01	31.48	1.52E+02	2.40E+01
	26	768.70	765 -	773	9.52E+01	41.02	2.06E+02	4.23E+01
	27	776.62	774 -	782	2.91E+01	34.25	1.64E+02	2.67E+01
	28	785.91	782 -	790	4.22E+01	33.11	1.40E+02	2.50E+01
	29	858.77	851 -	864	6.04E+01	48.81	2.37E+02	3.80E+01
	30	911.34	908 -	915	1.10E+02	37.79	1.66E+02	2.58E+01
	31	933.77	928 -	939	9.14E+01	38.37	1.39E+02	2.73E+01
	32	968.54	963 -	971	6.50E+01	41.14	2.20E+02	3.11E+01
	33	1102.05	1097 -	1106	3.47E+01	32.40	1.31E+02	2.48E+01
	34	1120.59	1117 -	1125	1.92E+02	41.81	1.55E+02	2.57E+01
	35	1239.13	1234 -	1244	1.09E+02	36.98	1.17E+02	2.51E+01
	36	1280.51	1274 -	1284	3.40E+01	32.92	1.26E+02	2.53E+01
	37	1334.31	1329 -	1339	3.20E+01	24.96	6.60E+01	1.83E+01
	38	1377.63	1372 -	1381	4.06E+01	29.95	1.05E+02	2.23E+01
M	39	1402.19	1398 -	1412	1.79E+01	18.97	4.40E+01	1.09E+01
m	40	1409.19	1398 -	1412	3.14E+01	19.49	5.22E+01	1.19E+01
	41	1418.29	1415 -	1421	1.34E+01	15.31	2.92E+01	1.11E+01
M	42	1443.27	1439 -	1467	1.71E+01	15.43	2.80E+01	8.70E+00
m	43	1461.07	1439 -	1467	5.22E+02	47.48	2.80E+01	8.70E+00
	44	1631.70	1627 -	1634	1.04E+01	12.65	1.91E+01	8.94E+00
	45	1660.91	1657 -	1664	1.69E+01	10.58	6.20E+00	5.48E+00
	46	1729.87	1727 -	1734	3.02E+01	15.75	2.36E+01	9.27E+00
	47	1764.65	1759 -	1768	1.26E+02	25.38	2.00E+01	9.73E+00
	48	1787.95	1785 -	1790	8.85E+00	7.00	2.30E+00	3.03E+00
	49	1793.87	1791 -	1795	6.00E+00	4.90	0.00E+00	0.00E+00
	50	1836.81	1832 -	1841	1.11E+01	10.49	7.87E+00	6.66E+00
	51	1846.86	1842 -	1851	3.30E+01	11.49	0.00E+00	0.00E+00
	52	2029.46	2026 -	2031	5.75E+00	8.19	8.50E+00	5.45E+00
	53	2119.42	2114 -	2124	2.30E+01	11.59	5.96E+00	5.34E+00
	54	2204.01	2198 -	2209	3.87E+01	14.28	6.52E+00	5.76E+00
	55	2424.88	2420 -	2427	6.00E+00	6.93	4.00E+00	4.03E+00
	56	2447.48	2442 -	2450	9.38E+00	11.17	1.33E+01	7.68E+00
	57	2615.07	2609 -	2621	6.20E+01	15.75	0.00E+00	0.00E+00

Analysis Report for 1606067-12

CP-5020 00-02 QC

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/20/2016 12:18:38PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	27.66	26 -	30	27.90	9.11E+01	68.24	9.34E+02	.....
2	33.00	31 -	36	33.24	8.76E+01	75.49	1.08E+03	I-129
3	46.75	44 -	50	46.98	2.82E+02	107.51	1.91E+03	PB-210
4	63.31	60 -	67	63.53	2.41E+02	149.83	3.60E+03	TH-234 TH-230
5	76.33	71 -	81	76.55	2.03E+03	204.39	4.49E+03	.....
6	87.73	86 -	90	87.93	2.02E+02	107.94	2.43E+03	SN-126 CD-109 LU-176
7	92.96	90 -	96	93.17	6.35E+02	133.97	2.70E+03	GA-67
8	144.42	141 -	147	144.60	1.05E+02	97.48	1.64E+03	U-235
9	164.20	161 -	167	164.37	7.49E+01	90.12	1.42E+03	CS-136 U-235
10	186.35	183 -	190	186.50	6.02E+02	108.02	1.53E+03	RA-226
M 11	239.00	234 -	251	239.13	7.54E+02	77.36	6.60E+02	PB-212
m 12	242.37	234 -	251	242.50	4.26E+02	72.28	6.17E+02	.....
13	270.24	267 -	273	270.35	1.23E+02	65.09	6.78E+02	.....
M 14	295.53	291 -	304	295.63	8.49E+02	73.87	4.56E+02	PB-214
m 15	300.39	291 -	304	300.49	9.41E+01	63.10	5.94E+02	GA-67 PB-212 BI-210M
16	338.63	336 -	342	338.70	8.14E+01	58.93	5.69E+02	AC-228
17	352.19	347 -	357	352.26	1.45E+03	106.48	7.38E+02	PB-214
18	409.45	407 -	412	409.49	3.94E+01	42.65	3.31E+02	.....
19	462.77	459 -	466	462.79	8.50E+01	46.82	3.10E+02	SB-125
20	510.82	505 -	515	510.81	1.68E+02	58.57	3.66E+02	.....
21	538.50	536 -	541	538.47	3.48E+01	31.58	1.72E+02	.....
M 22	578.32	577 -	588	578.27	1.97E+01	15.94	7.23E+01	.....
m 23	583.48	577 -	588	583.44	1.89E+02	43.06	2.22E+02	TL-208
24	609.60	605 -	612	609.54	9.85E+02	73.46	2.47E+02	BI-214

: 00666

Analysis Report for 1606067-12

CP-5020 00-02 QC

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide	
25	741.99	738 -	744	741.87	3.42E+01	31.48	1.52E+02	.....
26	768.70	765 -	773	768.57	9.52E+01	41.02	2.06E+02	.....
27	776.62	774 -	782	776.48	2.91E+01	34.25	1.64E+02	RB-82	
28	785.91	782 -	790	785.77	4.22E+01	33.11	1.40E+02	.....
29	858.77	851 -	864	858.60	6.04E+01	48.81	2.37E+02	.....
30	911.34	908 -	915	911.15	1.10E+02	37.79	1.66E+02	AC-228 LU-172	
31	933.77	928 -	939	933.57	9.14E+01	38.37	1.39E+02	.....
32	968.54	963 -	971	968.32	6.50E+01	41.14	2.20E+02	AC-228	
33	1102.05	1097 -	1106	1101.77	3.47E+01	32.40	1.31E+02	.....
34	1120.59	1117 -	1125	1120.30	1.92E+02	41.81	1.55E+02	SC-46 BI-214 TA-182	
35	1239.13	1234 -	1244	1238.80	1.09E+02	36.98	1.17E+02	CO-56	
36	1280.51	1274 -	1284	1280.16	3.40E+01	32.92	1.26E+02	.....
37	1334.31	1329 -	1339	1333.94	3.20E+01	24.96	6.60E+01	.....
38	1377.63	1372 -	1381	1377.24	4.06E+01	29.95	1.05E+02	.....
M	39	1402.19	1398 -	1412	1401.79	1.79E+01	18.97	4.40E+01
m	40	1409.19	1398 -	1412	1408.79	3.14E+01	19.49	5.22E+01
41	1418.29	1415 -	1421	1417.88	1.34E+01	15.31	2.92E+01	.....
M	42	1443.27	1439 -	1467	1442.86	1.71E+01	15.43	2.80E+01
m	43	1461.07	1439 -	1467	1460.64	5.22E+02	47.48	2.80E+01	K-40
44	1631.70	1627 -	1634	1631.22	1.04E+01	12.65	1.91E+01	.....
45	1660.91	1657 -	1664	1660.41	1.69E+01	10.58	6.20E+00	.....
46	1729.87	1727 -	1734	1729.35	3.02E+01	15.75	2.36E+01	.....
47	1764.65	1759 -	1768	1764.12	1.26E+02	25.38	2.00E+01	BI-214	
48	1787.95	1785 -	1790	1787.41	8.85E+00	7.00	2.30E+00	.....
49	1793.87	1791 -	1795	1793.33	6.00E+00	4.90	0.00E+00	.....
50	1836.81	1832 -	1841	1836.26	1.11E+01	10.49	7.87E+00	Y-88	
51	1846.86	1842 -	1851	1846.30	3.30E+01	11.49	0.00E+00	.....
52	2029.46	2026 -	2031	2028.85	5.75E+00	8.19	8.50E+00	.....
53	2119.42	2114 -	2124	2118.78	2.30E+01	11.59	5.96E+00	.....
54	2204.01	2198 -	2209	2203.34	3.87E+01	14.28	6.52E+00	BI-214	
55	2424.88	2420 -	2427	2424.15	6.00E+00	6.93	4.00E+00	.....
56	2447.48	2442 -	2450	2446.74	9.38E+00	11.17	1.33E+01	.....
57	2615.07	2609 -	2621	2614.29	6.20E+01	15.75	0.00E+00	TL-208	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/20/2016 12:18:38PM

: 00667

Analysis Report for 1606067-12

CP-5020 00-02 QC

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	27.66	9.11E+01	68.24	3.52E-03	1.58E-03
	2	33.00	8.76E+01	75.49	6.67E-03	1.58E-03
	3	46.75	2.82E+02	107.51	1.51E-02	1.58E-03
	4	63.31	2.41E+02	149.83	2.16E-02	1.71E-03
	5	76.33	2.03E+03	204.39	2.38E-02	2.14E-03
	6	87.73	2.02E+02	107.94	2.44E-02	2.51E-03
	7	92.96	6.35E+02	133.97	2.44E-02	2.41E-03
	8	144.42	1.05E+02	97.48	2.13E-02	1.62E-03
	9	164.20	7.49E+01	90.12	1.98E-02	1.52E-03
	10	186.35	6.02E+02	108.02	1.83E-02	1.42E-03
M	11	239.00	7.54E+02	77.36	1.52E-02	1.18E-03
m	12	242.37	4.26E+02	72.28	1.50E-02	1.16E-03
	13	270.24	1.23E+02	65.09	1.38E-02	1.04E-03
M	14	295.53	8.49E+02	73.87	1.28E-02	9.74E-04
m	15	300.39	9.41E+01	63.10	1.26E-02	9.67E-04
	16	338.63	8.14E+01	58.93	1.14E-02	9.12E-04
	17	352.19	1.45E+03	106.48	1.11E-02	8.93E-04
	18	409.45	3.94E+01	42.65	9.71E-03	8.20E-04
	19	462.77	8.50E+01	46.82	8.73E-03	7.66E-04
	20	510.82	1.68E+02	58.57	8.01E-03	7.18E-04
	21	538.50	3.48E+01	31.58	7.65E-03	6.91E-04
M	22	578.32	1.97E+01	15.94	7.19E-03	6.51E-04
m	23	583.48	1.89E+02	43.06	7.14E-03	6.46E-04
	24	609.60	9.85E+02	73.46	6.87E-03	6.20E-04
	25	741.99	3.42E+01	31.48	5.79E-03	5.02E-04
	26	768.70	9.52E+01	41.02	5.62E-03	4.80E-04
	27	776.62	2.91E+01	34.25	5.57E-03	4.74E-04
	28	785.91	4.22E+01	33.11	5.51E-03	4.66E-04
	29	858.77	6.04E+01	48.81	5.10E-03	4.07E-04
	30	911.34	1.10E+02	37.79	4.85E-03	3.72E-04
	31	933.77	9.14E+01	38.37	4.75E-03	3.68E-04
	32	968.54	6.50E+01	41.14	4.61E-03	3.62E-04
	33	1102.05	3.47E+01	32.40	4.13E-03	3.37E-04
	34	1120.59	1.92E+02	41.81	4.08E-03	3.33E-04
	35	1239.13	1.09E+02	36.98	3.75E-03	3.09E-04
	36	1280.51	3.40E+01	32.92	3.65E-03	3.00E-04
	37	1334.31	3.20E+01	24.96	3.54E-03	2.88E-04
	38	1377.63	4.06E+01	29.95	3.45E-03	2.82E-04
M	39	1402.19	1.79E+01	18.97	3.40E-03	2.78E-04
m	40	1409.19	3.14E+01	19.49	3.39E-03	2.77E-04
	41	1418.29	1.34E+01	15.31	3.37E-03	2.76E-04
M	42	1443.27	1.71E+01	15.43	3.32E-03	2.72E-04
m	43	1461.07	5.22E+02	47.48	3.29E-03	2.69E-04
	44	1631.70	1.04E+01	12.65	3.03E-03	2.44E-04
	45	1660.91	1.69E+01	10.58	2.99E-03	2.39E-04
	46	1729.87	3.02E+01	15.75	2.90E-03	2.29E-04
	47	1764.65	1.26E+02	25.38	2.86E-03	2.24E-04
	48	1787.95	8.85E+00	7.00	2.83E-03	2.20E-04
	49	1793.87	6.00E+00	4.90	2.82E-03	2.19E-04
	50	1836.81	1.11E+01	10.49	2.78E-03	2.13E-04

Analysis Report for 1606067-12

CP-5020 00-02 QC

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
51	1846.86	3.30E+01	11.49	2.77E-03	2.13E-04
52	2029.46	5.75E+00	8.19	2.60E-03	2.13E-04
53	2119.42	2.30E+01	11.59	2.52E-03	2.13E-04
54	2204.01	3.87E+01	14.28	2.46E-03	2.13E-04
55	2424.88	6.00E+00	6.93	2.33E-03	2.13E-04
56	2447.48	9.38E+00	11.17	2.32E-03	2.13E-04
57	2615.07	6.20E+01	15.75	2.24E-03	2.13E-04

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000 sigma

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/20/2016 12:18:38PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039129.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	27.66	9.11E+01	68.24			9.11E+01	6.82E+01
2	33.00	8.76E+01	75.49			8.76E+01	7.55E+01
3	46.75	2.82E+02	107.51	4.51E+01	7.97E+00	2.37E+02	1.08E+02
4	63.31	2.41E+02	149.83	4.97E+01	4.03E+00	1.92E+02	1.50E+02
5	76.33	2.03E+03	204.39	6.39E+00	4.68E+00	2.02E+03	2.04E+02
6	87.73	2.02E+02	107.94	7.58E+00	2.36E+00	1.94E+02	1.08E+02
7	92.96	6.35E+02	133.97	8.11E+01	4.75E+00	5.54E+02	1.34E+02
8	144.42	1.05E+02	97.48	8.77E+00	2.74E+01	9.60E+01	1.01E+02
9	164.20	7.49E+01	90.12			7.49E+01	9.01E+01
10	186.35	6.02E+02	108.02	3.42E+01	6.46E+00	5.68E+02	1.08E+02
M 11	239.00	7.54E+02	77.36	1.33E+01	5.60E+00	7.41E+02	7.76E+01
m 12	242.37	4.26E+02	72.28			4.26E+02	7.23E+01
13	270.24	1.23E+02	65.09			1.23E+02	6.51E+01
M 14	295.53	8.49E+02	73.87	4.79E-01	4.81E+00	8.49E+02	7.40E+01
m 15	300.39	9.41E+01	63.10			9.41E+01	6.31E+01
16	338.63	8.14E+01	58.93			8.14E+01	5.89E+01
17	352.19	1.45E+03	106.48	2.25E+00	3.58E+00	1.45E+03	1.07E+02
18	409.45	3.94E+01	42.65			3.94E+01	4.26E+01
19	462.77	8.50E+01	46.82			8.50E+01	4.68E+01
20	510.82	1.68E+02	58.57	5.80E+01	4.89E+00	1.10E+02	5.88E+01
21	538.50	3.48E+01	31.58			3.48E+01	3.16E+01
M 22	578.32	1.97E+01	15.94			1.97E+01	1.59E+01
m 23	583.48	1.89E+02	43.06	1.49E+00	2.92E+00	1.87E+02	4.32E+01

Analysis Report for 1606067-12

CP-5020 00-02 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
24	609.60	9.85E+02	73.46	6.79E+00	3.66E+00	9.79E+02	7.35E+01
25	741.99	3.42E+01	31.48			3.42E+01	3.15E+01
26	768.70	9.52E+01	41.02			9.52E+01	4.10E+01
27	776.62	2.91E+01	34.25			2.91E+01	3.42E+01
28	785.91	4.22E+01	33.11			4.22E+01	3.31E+01
29	858.77	6.04E+01	48.81			6.04E+01	4.88E+01
30	911.34	1.10E+02	37.79	2.46E+00	2.65E+00	1.08E+02	3.79E+01
31	933.77	9.14E+01	38.37			9.14E+01	3.84E+01
32	968.54	6.50E+01	41.14			6.50E+01	4.11E+01
33	1102.05	3.47E+01	32.40			3.47E+01	3.24E+01
34	1120.59	1.92E+02	41.81			1.92E+02	4.18E+01
35	1239.13	1.09E+02	36.98			1.09E+02	3.70E+01
36	1280.51	3.40E+01	32.92			3.40E+01	3.29E+01
37	1334.31	3.20E+01	24.96			3.20E+01	2.50E+01
38	1377.63	4.06E+01	29.95			4.06E+01	2.99E+01
M 39	1402.19	1.79E+01	18.97			1.79E+01	1.90E+01
m 40	1409.19	3.14E+01	19.49			3.14E+01	1.95E+01
41	1418.29	1.34E+01	15.31			1.34E+01	1.53E+01
M 42	1443.27	1.71E+01	15.43			1.71E+01	1.54E+01
m 43	1461.07	5.22E+02	47.48	1.76E+00	1.91E+00	5.20E+02	4.75E+01
44	1631.70	1.04E+01	12.65			1.04E+01	1.26E+01
45	1660.91	1.69E+01	10.58			1.69E+01	1.06E+01
46	1729.87	3.02E+01	15.75			3.02E+01	1.57E+01
47	1764.65	1.26E+02	25.38			1.26E+02	2.54E+01
48	1787.95	8.85E+00	7.00			8.85E+00	7.00E+00
49	1793.87	6.00E+00	4.90			6.00E+00	4.90E+00
50	1836.81	1.11E+01	10.49			1.11E+01	1.05E+01
51	1846.86	3.30E+01	11.49			3.30E+01	1.15E+01
52	2029.46	5.75E+00	8.19			5.75E+00	8.19E+00
53	2119.42	2.30E+01	11.59			2.30E+01	1.16E+01
54	2204.01	3.87E+01	14.28			3.87E+01	1.43E+01
55	2424.88	6.00E+00	6.93			6.00E+00	6.93E+00
56	2447.48	9.38E+00	11.17			9.38E+00	1.12E+01
57	2615.07	6.20E+01	15.75	2.72E+00	1.24E+00	5.93E+01	1.58E+01

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

Analysis Report for 1606067-12

CP-5020 00-02 QC

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/20/2016 12:18:38PM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000039129.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	27.66	9.11E+01	68.24			9.11E+01	6.82E+01
2	33.00	8.76E+01	75.49			8.76E+01	7.55E+01
3	46.75	2.82E+02	107.51	4.51E+01	7.97E+00	2.37E+02	1.08E+02
4	63.31	2.41E+02	149.83	4.97E+01	4.03E+00	1.92E+02	1.50E+02
5	76.33	2.03E+03	204.39	6.39E+00	4.68E+00	2.02E+03	2.04E+02
6	87.73	2.02E+02	107.94	7.58E+00	2.36E+00	1.94E+02	1.08E+02
7	92.96	6.35E+02	133.97	8.11E+01	4.75E+00	5.54E+02	1.34E+02
8	144.42	1.05E+02	97.48	8.77E+00	2.74E+01	9.60E+01	1.01E+02
9	164.20	7.49E+01	90.12			7.49E+01	9.01E+01
10	186.35	6.02E+02	108.02	3.42E+01	6.46E+00	5.68E+02	1.08E+02
M 11	239.00	7.54E+02	77.36	1.33E+01	5.60E+00	7.41E+02	7.76E+01
m 12	242.37	4.26E+02	72.28			4.26E+02	7.23E+01
13	270.24	1.23E+02	65.09			1.23E+02	6.51E+01
M 14	295.53	8.49E+02	73.87	4.79E-01	4.81E+00	8.49E+02	7.40E+01
m 15	300.39	9.41E+01	63.10			9.41E+01	6.31E+01
16	338.63	8.14E+01	58.93			8.14E+01	5.89E+01
17	352.19	1.45E+03	106.48	2.25E+00	3.58E+00	1.45E+03	1.07E+02
18	409.45	3.94E+01	42.65			3.94E+01	4.26E+01
19	462.77	8.50E+01	46.82			8.50E+01	4.68E+01
20	510.82	1.68E+02	58.57	5.80E+01	4.89E+00	1.10E+02	5.88E+01
21	538.50	3.48E+01	31.58			3.48E+01	3.16E+01
M 22	578.32	1.97E+01	15.94			1.97E+01	1.59E+01
m 23	583.48	1.89E+02	43.06	1.49E+00	2.92E+00	1.87E+02	4.32E+01
24	609.60	9.85E+02	73.46	6.79E+00	3.66E+00	9.79E+02	7.35E+01
25	741.99	3.42E+01	31.48			3.42E+01	3.15E+01
26	768.70	9.52E+01	41.02			9.52E+01	4.10E+01
27	776.62	2.91E+01	34.25			2.91E+01	3.42E+01
28	785.91	4.22E+01	33.11			4.22E+01	3.31E+01
29	858.77	6.04E+01	48.81			6.04E+01	4.88E+01
30	911.34	1.10E+02	37.79	2.46E+00	2.65E+00	1.08E+02	3.79E+01
31	933.77	9.14E+01	38.37			9.14E+01	3.84E+01
32	968.54	6.50E+01	41.14			6.50E+01	4.11E+01
33	1102.05	3.47E+01	32.40			3.47E+01	3.24E+01
34	1120.59	1.92E+02	41.81			1.92E+02	4.18E+01
35	1239.13	1.09E+02	36.98			1.09E+02	3.70E+01
36	1280.51	3.40E+01	32.92			3.40E+01	3.29E+01
37	1334.31	3.20E+01	24.96			3.20E+01	2.50E+01
38	1377.63	4.06E+01	29.95			4.06E+01	2.99E+01
M 39	1402.19	1.79E+01	18.97			1.79E+01	1.90E+01
m 40	1409.19	3.14E+01	19.49			3.14E+01	1.95E+01
41	1418.29	1.34E+01	15.31			1.34E+01	1.53E+01

Analysis Report for 1606067-12

CP-5020 00-02 QC

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M 42	1443.27	1.71E+01	15.43			1.71E+01	1.54E+01
m 43	1461.07	5.22E+02	47.48	1.76E+00	1.91E+00	5.20E+02	4.75E+01
44	1631.70	1.04E+01	12.65			1.04E+01	1.26E+01
45	1660.91	1.69E+01	10.58			1.69E+01	1.06E+01
46	1729.87	3.02E+01	15.75			3.02E+01	1.57E+01
47	1764.65	1.26E+02	25.38			1.26E+02	2.54E+01
48	1787.95	8.85E+00	7.00			8.85E+00	7.00E+00
49	1793.87	6.00E+00	4.90			6.00E+00	4.90E+00
50	1836.81	1.11E+01	10.49			1.11E+01	1.05E+01
51	1846.86	3.30E+01	11.49			3.30E+01	1.15E+01
52	2029.46	5.75E+00	8.19			5.75E+00	8.19E+00
53	2119.42	2.30E+01	11.59			2.30E+01	1.16E+01
54	2204.01	3.87E+01	14.28			3.87E+01	1.43E+01
55	2424.88	6.00E+00	6.93			6.00E+00	6.93E+00
56	2447.48	9.38E+00	11.17			9.38E+00	1.12E+01
57	2615.07	6.20E+01	15.75	2.72E+00	1.24E+00	5.93E+01	1.58E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.990	1460.81 *	10.67	1.86E+01	2.32E+00
GA-67	0.873	93.31 *	35.70	8.47E+00	1.56E+01
		208.95	2.24		
		300.22 *	16.00	6.20E+00	1.21E+01
RB-82	0.998	776.52 *	13.00	6.83E-01	8.06E-01
CD-109	0.985	88.03 *	3.72	2.73E+00	1.55E+00
SN-126	0.996	87.57 *	37.00	2.70E-01	1.53E-01
TL-208	0.867	583.14 *	30.22	1.09E+00	2.70E-01
		860.37	4.48		
		2614.66 *	35.85	9.28E-01	2.63E-01
PB-210	0.990	46.50 *	4.25	4.62E+00	2.16E+00
PB-212	0.979	238.63 *	44.60	1.37E+00	1.79E-01
		300.09 *	3.41	2.74E+00	1.85E+00
BI-214	0.989	609.31 *	46.30	3.87E+00	4.54E-01
		1120.29 *	15.10	3.93E+00	9.12E-01

: 00672

Analysis Report for 1606067-12
 CP-5020 00-02 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.989	1764.49 *	15.80	3.51E+00	7.58E-01
		2204.22 *	4.98	3.97E+00	1.50E+00
PB-214	0.987	295.21 *	19.19	4.34E+00	5.02E-01
		351.92 *	37.19	4.43E+00	4.84E-01
RA-226	0.997	186.21 *	3.28	1.19E+01	2.19E+01
AC-228	0.976	338.32 *	11.40	7.86E-01	5.72E-01
		911.07 *	27.70	1.01E+00	3.63E-01
		969.11 *	16.60	1.07E+00	6.81E-01
		63.29 *	3.80	2.94E+00	2.31E+00
TH-234	1.000	63.29 *	3.80	2.94E+00	2.31E+00
U-235	0.589	143.76 *	10.50	5.39E-01	5.75E-01
		163.35 *	4.70	1.01E+00	1.23E+00
		205.31	4.70		

* = Energy line found in the spectrum.
 - = Manually added nuclide.
 ? = Manually edited nuclide.
 Energy Tolerance : 1.000 keV
 Nuclide confidence index threshold = 0.30
 Errors quoted at 2.000sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 12:18:38PM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	27.66	2.53017E-02	37.46		
2	33.00	2.43360E-02	43.08	Tol.	I-129
5	76.33	5.61099E-01	5.06		
m 12	242.37	1.18419E-01	8.48		
13	270.24	3.41634E-02	26.46		
18	409.45	1.09383E-02	54.15		
19	462.77	2.36134E-02	27.54	Tol.	SB-125
20	510.82	3.05283E-02	26.74		
21	538.50	9.67172E-03	45.34	Sum	
M 22	578.32	5.48389E-03	40.36	Sum	
25	741.99	9.50126E-03	46.02	D-Esc	
26	768.70	2.64401E-02	21.55		
28	785.91	1.17287E-02	39.20		
29	858.77	1.67691E-02	40.42		
31	933.77	2.53796E-02	21.00		
33	1102.05	9.63611E-03	46.70		
35	1239.13	3.03695E-02	16.91	Tol.	CO-56

Analysis Report for 1606067-12

CP-5020 00-02 QC

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
36	1280.51	9.44588E-03	48.40		
37	1334.31	8.88889E-03	39.00		
38	1377.63	1.12769E-02	36.89		
M 39	1402.19	4.97168E-03	53.00		
m 40	1409.19	8.71484E-03	31.07		
41	1418.29	3.72024E-03	57.17		
M 42	1443.27	4.75069E-03	45.10		
44	1631.70	2.90278E-03	60.52		
45	1660.91	4.69445E-03	31.31		
46	1729.87	8.38294E-03	26.09	Sum	
48	1787.95	2.45833E-03	39.55		
49	1793.87	1.66667E-03	40.82		
50	1836.81	3.07407E-03	47.39		
51	1846.86	9.16667E-03	17.41		
52	2029.46	1.59722E-03	71.18		
53	2119.42	6.39423E-03	25.17		
55	2424.88	1.66667E-03	57.74		
56	2447.48	2.60417E-03	59.57		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE IDENTIFICATION REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81 *	10.67	1.86E+01	2.32E+00
GA-67	0.87	93.31 *	35.70	8.47E+00	1.56E+01
		208.95	2.24		
		300.22 *	16.00	6.20E+00	1.21E+01
RB-82	0.99	776.52 *	13.00	6.83E-01	8.06E-01
CD-109	0.98	88.03 *	3.72	2.73E+00	1.55E+00
SN-126	0.99	87.57 *	37.00	2.70E-01	1.53E-01
TL-208	0.86	583.14 *	30.22	1.09E+00	2.70E-01
		860.37	4.48		
		2614.66 *	35.85	9.28E-01	2.63E-01

: 00674

Analysis Report for 1606067-12

CP-5020 00-02 QC

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-210	0.99	46.50 *	4.25	4.62E+00	2.16E+00
PB-212	0.97	238.63 *	44.60	1.37E+00	1.79E-01
		300.09 *	3.41	2.74E+00	1.85E+00
BI-214	0.98	609.31 *	46.30	3.87E+00	4.54E-01
		1120.29 *	15.10	3.93E+00	9.12E-01
		1764.49 *	15.80	3.51E+00	7.58E-01
		2204.22 *	4.98	3.97E+00	1.50E+00
PB-214	0.98	295.21 *	19.19	4.34E+00	5.02E-01
		351.92 *	37.19	4.43E+00	4.84E-01
RA-226	0.99	186.21 *	3.28	1.19E+01	2.19E+01
AC-228	0.97	338.32 *	11.40	7.86E-01	5.72E-01
		911.07 *	27.70	1.01E+00	3.63E-01
		969.11 *	16.60	1.07E+00	6.81E-01
TH-234	1.00	63.29 *	3.80	2.94E+00	2.31E+00
U-235	0.58	143.76 *	10.50	5.39E-01	5.75E-01
		163.35 *	4.70	1.01E+00	1.23E+00
		205.31 *	4.70		

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.990	1.86E+01	2.32E+00	
GA-67	0.873	7.30E+00	1.07E+01	
RB-82	0.998	6.83E-01	8.06E-01	
? CD-109	0.985	2.73E+00	1.55E+00	
? SN-126	0.996	2.70E-01	1.53E-01	
TL-208	0.867	1.01E+00	1.88E-01	
PB-210	0.990	4.62E+00	2.16E+00	
PB-212	0.979	1.36E+00	1.78E-01	
BI-214	0.989	3.81E+00	3.49E-01	
PB-214	0.987	4.39E+00	3.49E-01	

Analysis Report for 1606067-12

CP-5020 00-02 QC

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
RA-226	0.997	1.19E+01	2.19E+01	
AC-228	0.976	9.64E-01	2.79E-01	
TH-234	1.000	2.94E+00	2.31E+00	
U-235	0.589	6.23E-01	5.21E-01	

- ? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

Analysis Report for 1606067-12

CP-5020 00-02 QC

 UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/20/2016 12:18:38PM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	27.66	2.53017E-02	37.46		
2	33.00	2.43360E-02	43.08	Tol.	I-129
5	76.33	5.61099E-01	5.06		
m 12	242.37	1.18419E-01	8.48		
13	270.24	3.41634E-02	26.46		
18	409.45	1.09383E-02	54.15		
19	462.77	2.36134E-02	27.54	Tol.	SB-125
20	510.82	3.05283E-02	26.74		
21	538.50	9.67172E-03	45.34	Sum	
M 22	578.32	5.48389E-03	40.36	Sum	
25	741.99	9.50126E-03	46.02	D-Esc	
26	768.70	2.64401E-02	21.55		
28	785.91	1.17287E-02	39.20		
29	858.77	1.67691E-02	40.42		
31	933.77	2.53796E-02	21.00		
33	1102.05	9.63611E-03	46.70		
35	1239.13	3.03695E-02	16.91	Tol.	CO-56
36	1280.51	9.44588E-03	48.40		
37	1334.31	8.88889E-03	39.00		
38	1377.63	1.12769E-02	36.89		
M 39	1402.19	4.97168E-03	53.00		
m 40	1409.19	8.71484E-03	31.07		
41	1418.29	3.72024E-03	57.17		
M 42	1443.27	4.75069E-03	45.10		
44	1631.70	2.90278E-03	60.52		
45	1660.91	4.69445E-03	31.31		
46	1729.87	8.38294E-03	26.09	Sum	
48	1787.95	2.45833E-03	39.55		
49	1793.87	1.66667E-03	40.82		
50	1836.81	3.07407E-03	47.39		
51	1846.86	9.16667E-03	17.41		
52	2029.46	1.59722E-03	71.18		
53	2119.42	6.39423E-03	25.17		
55	2424.88	1.66667E-03	57.74		
56	2447.48	2.60417E-03	59.57		

Analysis Report for 1606067-12
CP-5020 00-02 QC

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
+	BE-7	477.59	10.42	-8.20E-02	9.97E-01	9.97E-01
+	NA-22	1274.54	99.94	-1.54E-03	1.34E-01	1.34E-01
+	NA-24	1368.53	99.99	-9.79E+03	9.46E+03	2.69E+04
		2754.09	99.86	-2.57E+03		9.46E+03
+	AL-26	1808.65	99.76	1.35E-02	8.14E-02	8.14E-02
+	K-40	1460.81	* 10.67	1.86E+01	2.56E+00	2.56E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	2.41E-02	9.31E-02	9.31E-02
		78.34	96.00	4.32E-01		1.21E-01
+	SC-46	889.25	99.98	4.04E-02	1.23E-01	1.23E-01
		1120.51	99.99	6.39E-01		2.59E-01
+	V-48	983.52	99.98	-9.50E-04	1.81E-01	1.81E-01
		1312.10	97.50	9.50E-02		2.15E-01
+	CR-51	320.08	9.83	-1.06E-02	1.17E+00	1.17E+00
+	MN-54	834.83	99.97	-2.00E-02	1.13E-01	1.13E-01
+	CO-56	846.75	99.96	-6.33E-02	1.06E-01	1.06E-01
		1037.75	14.03	1.73E-01		9.01E-01
		1238.25	67.00	4.15E-01		3.17E-01
		1771.40	15.51	-1.99E-01		4.42E-01
		2598.48	16.90	-6.09E-02		2.69E-01
+	CO-57	122.06	85.51	2.62E-02	7.86E-02	7.86E-02
		136.48	10.60	4.18E-02		6.52E-01
+	CO-58	810.76	99.40	-4.35E-02	1.04E-01	1.04E-01
+	FE-59	1099.22	56.50	3.18E-02	2.59E-01	2.59E-01
		1291.56	43.20	-8.92E-02		3.58E-01
+	CO-60	1173.22	100.00	-1.77E-02	1.30E-01	1.32E-01
		1332.49	100.00	1.97E-02		1.30E-01
+	ZN-65	1115.52	50.75	1.75E-02	2.31E-01	2.31E-01
+	GA-67	93.31	* 35.70	8.47E+00	3.20E+00	3.20E+00
		208.95	2.24	1.29E+01		4.14E+01
		300.22	* 16.00	6.20E+00		1.10E+01
+	SE-75	121.11	16.70	1.15E-01	1.20E-01	4.16E-01

Analysis Report for 1606067-12

CP-5020 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	-1.13E-02	1.20E-01	1.20E-01
		264.65	59.80	2.30E-02		1.54E-01
		279.53	25.20	1.18E-01		3.66E-01
		400.65	11.40	2.47E-01		8.78E-01
+	RB-82	776.52	* 13.00	6.83E-01	1.32E+00	1.32E+00
+	RB-83	520.41	46.00	3.68E-02	2.06E-01	2.06E-01
		529.64	30.30	-9.03E-02		3.12E-01
		552.65	16.40	-3.50E-01		5.19E-01
+	KR-85	513.99	0.43	-1.27E+00	2.59E+01	2.59E+01
+	SR-85	513.99	99.27	-6.26E-03	1.27E-01	1.27E-01
+	Y-88	898.02	93.40	-4.06E-03	1.04E-01	1.19E-01
		1836.01	99.38	5.04E-02		1.04E-01
+	NB-93M	16.57	9.43	8.55E+01	1.00E+02	1.00E+02
+	NB-94	702.63	100.00	7.13E-02	1.12E-01	1.18E-01
		871.10	100.00	6.81E-02		1.12E-01
+	NB-95	765.79	99.81	3.06E-02	1.82E-01	1.82E-01
+	NB-95M	235.69	25.00	8.54E+00	4.28E+00	4.28E+00
+	ZR-95	724.18	43.70	1.81E-01	2.11E-01	2.85E-01
		756.72	55.30	-5.05E-02		2.11E-01
+	MO-99	181.06	6.20	-8.68E+00	1.38E+01	1.85E+01
		739.58	12.80	-1.47E+00		1.38E+01
		778.00	4.50	2.40E+01		3.93E+01
+	RU-103	497.08	89.00	-1.53E-02	1.23E-01	1.23E-01
+	RU-106	621.84	9.80	1.83E-02	9.60E-01	9.60E-01
+	AG-108M	433.93	89.90	-5.56E-02	1.01E-01	1.01E-01
		614.37	90.40	-1.34E-01		1.26E-01
		722.95	90.50	-1.13E-01		1.10E-01
+	CD-109	88.03	* 3.72	2.73E+00	2.45E+00	2.45E+00
+	AG-110M	657.75	93.14	3.31E-02	1.13E-01	1.13E-01
		677.61	10.53	9.30E-02		9.06E-01
		706.67	16.46	9.08E-02		6.92E-01
		763.93	21.98	1.42E-01		5.40E-01
		884.67	71.63	-1.47E-02		1.56E-01
		1384.27	23.94	3.00E-01		5.62E-01
+	CD-113M	263.70	0.02	2.36E+01	3.72E+02	3.72E+02
+	SN-113	255.12	1.93	2.69E+00	1.57E-01	4.91E+00
		391.69	64.90	4.60E-02		1.57E-01
+	TE123M	159.00	84.10	1.84E-02	8.71E-02	8.71E-02
+	SB-124	602.71	97.87	1.83E-02	1.10E-01	1.10E-01
		645.85	7.26	-4.60E-01		1.34E+00
		722.78	11.10	-1.05E+00		1.02E+00
		1691.02	49.00	2.51E-02		1.93E-01
+	I-125	35.49	6.49	-1.05E+00	2.87E+00	2.87E+00
+	SB-125	176.33	6.89	8.14E-01	3.35E-01	1.05E+00
		427.89	29.33	1.26E-01		3.35E-01
		463.38	10.35	1.00E+00		1.03E+00
		600.56	17.80	-2.35E-02		5.29E-01
		635.90	11.32	8.15E-02		8.78E-01

Analysis Report for 1606067-12

CP-5020 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70	83.30	4.63E-02	1.90E-01	2.03E-01
		666.33	99.60	8.26E-03		2.04E-01
		695.00	99.60	-1.18E-01		1.90E-01
		720.50	53.80	-1.05E-01		3.23E-01
+	SN-126	87.57	* 37.00	2.70E-01	2.43E-01	2.43E-01
+	SB-127	473.00	25.00	1.01E+00	2.01E+00	2.78E+00
		685.20	35.70	4.64E-01		2.01E+00
		783.80	14.70	2.59E+00		5.52E+00
+	I-129	29.78	57.00	-4.32E-01	5.10E-01	5.10E-01
		33.60	13.20	1.31E+00		1.50E+00
		39.58	7.52	9.43E-01		1.80E+00
+	I-131	284.30	6.05	-1.62E+00	2.72E-01	3.63E+00
		364.48	81.20	1.89E-01		2.72E-01
		636.97	7.26	1.28E+00		3.57E+00
		722.89	1.80	-1.48E+01		1.45E+01
+	TE-132	49.72	13.10	-3.35E+00	1.06E+00	7.99E+00
		228.16	88.00	1.63E-04		1.06E+00
+	BA-133	81.00	33.00	-1.55E-01	2.44E-01	2.44E-01
		302.84	17.80	8.02E-02		5.20E-01
		356.01	60.00	1.22E-02		2.53E-01
+	I-133	529.87	86.30	-2.09E+02	7.22E+02	7.22E+02
+	XE-133	81.00	38.00	-5.83E-01	9.19E-01	9.19E-01
+	CS-134	563.23	8.38	1.57E-01	1.24E-01	1.15E+00
		569.32	15.43	3.17E-02		6.11E-01
		604.70	97.60	7.40E-03		1.24E-01
		795.84	85.40	2.09E-02		1.24E-01
		801.93	8.73	-4.74E-01		1.20E+00
+	CS-135	268.24	16.00	8.38E-02	5.95E-01	5.95E-01
+	I-135	1131.51	22.50	-4.43E+10	6.01E+11	6.87E+11
		1260.41	28.60	-3.99E+11		6.01E+11
		1678.03	9.54	-1.22E+11		1.30E+12
+	CS-136	153.22	7.46	1.32E+00	1.84E-01	1.81E+00
		163.89	4.61	2.16E+00		2.87E+00
		176.55	13.56	1.86E-01		9.28E-01
		273.65	12.66	1.97E-02		1.29E+00
		340.57	48.50	7.91E-03		3.77E-01
		818.50	99.70	5.74E-02		1.84E-01
		1048.07	79.60	-7.77E-02		2.64E-01
		1235.34	19.70	-9.89E-02		1.59E+00
+	CS-137	661.65	85.12	-6.93E-03	1.28E-01	1.28E-01
+	LA-138	788.74	34.00	-3.66E-02	1.58E-01	2.88E-01
		1435.80	66.00	-5.64E-02		1.58E-01
+	CE-139	165.85	80.35	6.36E-02	9.66E-02	9.66E-02
+	BA-140	162.64	6.70	4.72E-01	7.05E-01	1.95E+00
		304.84	4.50	-5.22E-01		3.34E+00
		423.70	3.20	-1.41E-01		5.36E+00
		437.55	2.00	2.69E+00		8.53E+00
		537.32	25.00	5.48E-02		7.05E-01
+	LA-140	328.77	20.50	-2.13E-01	2.48E-01	8.31E-01

Analysis Report for 1606067-12

CP-5020 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-140	487.03	45.50	-1.52E-01	2.48E-01	3.62E-01
		815.85	23.50	-5.22E-01		7.04E-01
		1596.49	95.49	1.63E-01		2.48E-01
+	CE-141	145.44	48.40	2.82E-02	1.90E-01	1.90E-01
+	CE-143	57.36	11.80	-1.40E+02	9.97E+01	2.08E+02
		293.26	42.00	4.44E+02		9.97E+01
		664.55	5.20	3.78E+02		5.95E+02
+	CE-144	133.54	10.80	7.93E-02	6.39E-01	6.39E-01
+	PM-144	476.78	42.00	-8.28E-02	8.94E-02	2.17E-01
		618.01	98.60	-4.29E-03		8.94E-02
		696.49	99.49	-4.02E-02		1.08E-01
+	PM-145	36.85	21.70	2.31E-01	3.68E-01	7.00E-01
		37.36	39.70	-9.33E-02		3.68E-01
		42.30	15.10	2.42E-01		7.93E-01
		72.40	2.31	-1.21E+01		4.34E+00
+	PM-146	453.90	39.94	2.95E-02	2.09E-01	2.09E-01
		735.90	14.01	5.67E-02		7.57E-01
		747.13	13.10	-5.30E-01		7.06E-01
+	ND-147	91.11	28.90	2.60E-02	6.65E-01	6.65E-01
		531.02	13.10	2.15E-01		1.36E+00
+	PM-149	285.90	3.10	-3.40E+00	8.94E+01	8.94E+01
+	EU-152	121.78	20.50	1.06E-01	3.19E-01	3.19E-01
		244.69	5.40	3.22E+00		2.06E+00
		344.27	19.13	7.41E-03		4.51E-01
		778.89	9.20	3.10E-01		1.12E+00
		964.01	10.40	-2.09E-01		1.21E+00
		1085.78	7.22	-4.80E-01		1.58E+00
		1112.02	9.60	4.95E-01		1.30E+00
		1407.95	14.94	1.54E-01		9.26E-01
+	GD-153	97.43	31.30	-1.04E-03	2.19E-01	2.19E-01
		103.18	22.20	-1.64E-01		2.97E-01
+	EU-154	123.07	40.50	1.20E-02	1.60E-01	1.60E-01
		723.30	19.70	-5.20E-01		5.09E-01
		873.19	11.50	-7.88E-01		8.44E-01
		996.32	10.30	-6.84E-01		1.13E+00
		1004.76	17.90	-1.05E-01		6.65E-01
		1274.45	35.50	-4.30E-03		3.75E-01
+	EU-155	86.50	30.90	2.13E-01	2.94E-01	2.94E-01
		105.30	20.70	9.79E-02		3.16E-01
+	EU-156	811.77	10.40	-3.43E-01	1.47E+00	1.47E+00
		1153.47	7.20	1.17E+00		3.34E+00
		1230.71	8.90	1.54E+00		2.80E+00
+	HO-166M	184.41	72.60	5.21E-01	1.46E-01	1.46E-01
		280.45	29.60	8.95E-02		2.92E-01
		410.94	11.10	-1.04E-02		8.71E-01
		711.69	54.10	3.87E-02		1.87E-01
+	TM-171	66.72	0.14	3.26E+01	6.51E+01	6.51E+01
+	HF-172	81.75	4.52	6.01E-01	5.80E-01	1.82E+00
		125.81	11.30	-1.63E-01		5.80E-01

Analysis Report for 1606067-12

CP-5020 00-02 QC

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53	20.60	-4.67E-02	6.00E-01	1.10E+00
		810.06	16.63	2.73E-01		1.90E+00
		912.12	15.25	5.80E+00		3.48E+00
		1093.66	62.50	1.12E-01		6.00E-01
+	LU-173	100.72	5.24	4.87E-01	4.53E-01	1.28E+00
		272.11	21.20	2.44E-02		4.53E-01
+	HF-175	343.40	84.00	1.88E-03	1.15E-01	1.15E-01
+	LU-176	88.34	13.30	-7.29E-01	8.81E-02	6.99E-01
		201.83	86.00	2.92E-02		1.02E-01
		306.78	94.00	-1.58E-02		8.81E-02
+	TA-182	67.75	41.20	5.91E-02	2.28E-01	2.28E-01
		1121.30	34.90	1.82E+00		7.27E-01
		1189.05	16.23	3.74E-02		8.65E-01
		1221.41	26.98	7.88E-02		5.61E-01
		1231.02	11.44	8.37E-01		1.39E+00
+	IR-192	308.46	29.68	-6.04E-02	2.08E-01	3.16E-01
		468.07	48.10	6.06E-02		2.08E-01
+	HG-203	279.19	77.30	2.57E-02	1.33E-01	1.33E-01
+	BI-207	569.67	97.72	1.71E-02	9.67E-02	9.67E-02
		1063.62	74.90	-1.36E-02		1.54E-01
+	TL-208	583.14	* 30.22	1.09E+00	1.33E-01	5.52E-01
		860.37	4.48	2.91E+00		2.87E+00
		2614.66	* 35.85	9.28E-01		1.33E-01
+	BI-210M	262.00	45.00	2.33E-02	1.95E-01	1.95E-01
		300.00	23.00	-3.83E+00		4.35E-01
+	PB-210	46.50	* 4.25	4.62E+00	3.38E+00	3.38E+00
+	PB-211	404.84	2.90	6.04E-01	3.29E+00	3.29E+00
		831.96	2.90	-4.76E-01		3.81E+00
+	BI-212	727.17	11.80	7.71E-01	9.67E-01	9.67E-01
		1620.62	2.75	9.51E-01		3.29E+00
+	PB-212	238.63	* 44.60	1.37E+00	4.61E-01	4.61E-01
		300.09	* 3.41	2.74E+00		4.88E+00
+	BI-214	609.31	* 46.30	3.87E+00	2.62E-01	2.62E-01
		1120.29	* 15.10	3.93E+00		1.11E+00
		1764.49	* 15.80	3.51E+00		6.17E-01
		2204.22	* 4.98	3.97E+00		1.46E+00
+	PB-214	295.21	* 19.19	4.34E+00	3.83E-01	8.45E-01
		351.92	* 37.19	4.43E+00		3.83E-01
+	RN-219	401.80	6.50	8.72E-01	1.48E+00	1.48E+00
+	RA-223	323.87	3.88	-1.38E+00	2.32E+00	2.32E+00
+	RA-224	240.98	3.95	2.35E+01	3.94E+00	3.94E+00
+	RA-225	40.00	31.00	3.76E-01	7.18E-01	7.18E-01
+	RA-226	186.21	* 3.28	1.19E+01	3.41E+00	3.41E+00
+	TH-227	50.10	8.40	-4.87E-01	1.10E+00	1.16E+00
		236.00	11.50	2.20E+00		1.10E+00
		256.20	6.30	4.67E-01		1.41E+00
+	AC-228	338.32	* 11.40	7.86E-01	5.13E-01	9.17E-01
		911.07	* 27.70	1.01E+00		5.13E-01

Analysis Report for 1606067-12

CP-5020 00-02 QC

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	*	16.60	1.07E+00	5.13E-01	1.07E+00
+	TH-230	48.44		16.90	8.05E-01	6.78E-01	6.78E-01
		62.85		4.60	3.74E+00		2.23E+00
		67.67		0.37	6.15E+00		2.38E+01
+	PA-231	283.67		1.60	-2.34E+00	4.01E+00	5.26E+00
		302.67		2.30	6.19E-01		4.01E+00
+	TH-231	25.64		14.70	-6.28E-01	1.28E+00	3.87E+00
		84.21		6.40	1.78E-01		1.28E+00
+	PA-233	311.98		38.60	2.44E-01	3.04E-01	3.04E-01
+	PA-234	131.20		20.40	8.05E-02	3.30E-01	3.30E-01
		733.99		8.80	4.17E-01		1.16E+00
		946.00		12.00	-8.92E-02		8.64E-01
+	PA-234M	1001.03		0.92	1.07E+01	1.43E+01	1.43E+01
+	TH-234	63.29	*	3.80	2.94E+00	3.76E+00	3.76E+00
+	U-235	143.76	*	10.50	5.39E-01	9.32E-01	9.32E-01
		163.35	*	4.70	1.01E+00		2.00E+00
		205.31		4.70	-1.77E+00		1.83E+00
+	NP-237	86.50		12.60	5.20E-01	7.18E-01	7.18E-01
+	NP-239	106.10		22.70	1.56E+00	7.44E+00	7.44E+00
		228.18		10.70	3.32E-03		2.15E+01
		277.60		14.10	6.87E+00		1.63E+01
+	AM-241	59.54		35.90	-5.02E-02	2.55E-01	2.55E-01
+	AM-243	74.67		66.00	4.22E-01	1.85E-01	1.85E-01
+	CM-243	209.75		3.29	1.49E+00	6.26E-01	2.67E+00
		228.14		10.60	1.28E-04		8.27E-01
		277.60		14.00	2.64E-01		6.26E-01

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

NUCLIDE MDA REPORT

Nuclide Library Used : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB

: 00603

Analysis Report for 1606067-12

CP-5020 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	9.97E-01	9.97E-01	-8.20E-02	4.76E-01
NA-22	1274.54	99.94	1.34E-01	1.34E-01	-1.54E-03	6.23E-02
NA-24	1368.53	99.99	2.69E+04	9.46E+03	-9.79E+03	1.23E+04
	2754.09	99.86	9.46E+03		-2.57E+03	2.99E+03
AL-26	1808.65	99.76	8.14E-02	8.14E-02	1.35E-02	3.46E-02
+ K-40	1460.81	* 10.67	2.56E+00	2.56E+00	1.86E+01	1.23E+00
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	9.31E-02	9.31E-02	2.41E-02	4.58E-02
	78.34	96.00	1.21E-01		4.32E-01	6.00E-02
SC-46	889.25	99.98	1.23E-01	1.23E-01	4.04E-02	5.75E-02
	1120.51	99.99	2.59E-01		6.39E-01	1.25E-01
V-48	983.52	99.98	1.81E-01	1.81E-01	-9.50E-04	8.46E-02
	1312.10	97.50	2.15E-01		9.50E-02	9.96E-02
CR-51	320.08	9.83	1.17E+00	1.17E+00	-1.06E-02	5.68E-01
MN-54	834.83	99.97	1.13E-01	1.13E-01	-2.00E-02	5.32E-02
CO-56	846.75	99.96	1.06E-01	1.06E-01	-6.33E-02	4.96E-02
	1037.75	14.03	9.01E-01		1.73E-01	4.20E-01
	1238.25	67.00	3.17E-01		4.15E-01	1.51E-01
	1771.40	15.51	4.42E-01		-1.99E-01	1.79E-01
	2598.48	16.90	2.69E-01		-6.09E-02	8.49E-02
CO-57	122.06	85.51	7.86E-02	7.86E-02	2.62E-02	3.84E-02
	136.48	10.60	6.52E-01		4.18E-02	3.19E-01
CO-58	810.76	99.40	1.04E-01	1.04E-01	-4.35E-02	4.85E-02
FE-59	1099.22	56.50	2.59E-01	2.59E-01	3.18E-02	1.21E-01
	1291.56	43.20	3.58E-01		-8.92E-02	1.66E-01
CO-60	1173.22	100.00	1.32E-01	1.30E-01	-1.77E-02	6.17E-02
	1332.49	100.00	1.30E-01		1.97E-02	6.04E-02
ZN-65	1115.52	50.75	2.31E-01	2.31E-01	1.75E-02	1.07E-01
+ GA-67	93.31	* 35.70	3.20E+00	3.20E+00	8.47E+00	1.58E+00
	208.95	2.24	4.14E+01		1.29E+01	2.02E+01
	300.22	* 16.00	1.10E+01		6.20E+00	5.42E+00
SE-75	121.11	16.70	4.16E-01	1.20E-01	1.15E-01	2.04E-01
	136.00	59.20	1.20E-01		-1.13E-02	5.88E-02
	264.65	59.80	1.54E-01		2.30E-02	7.48E-02
	279.53	25.20	3.66E-01		1.18E-01	1.78E-01
	400.65	11.40	8.78E-01		2.47E-01	4.23E-01
+ RB-82	776.52	* 13.00	1.32E+00	1.32E+00	6.83E-01	6.28E-01
RB-83	520.41	46.00	2.06E-01	2.06E-01	3.68E-02	9.78E-02
	529.64	30.30	3.12E-01		-9.03E-02	1.48E-01
	552.65	16.40	5.19E-01		-3.50E-01	2.44E-01
KR-85	513.99	0.43	2.59E+01	2.59E+01	-1.27E+00	1.25E+01
SR-85	513.99	99.27	1.27E-01	1.27E-01	-6.26E-03	6.13E-02
Y-88	898.02	93.40	1.19E-01	1.04E-01	-4.06E-03	5.57E-02
	1836.01	99.38	1.04E-01		5.04E-02	4.55E-02
NB-93M	16.57	9.43	1.00E+02	1.00E+02	8.55E+01	4.91E+01
NB-94	702.63	100.00	1.18E-01	1.12E-01	7.13E-02	5.64E-02
	871.10	100.00	1.12E-01		6.81E-02	5.28E-02
NB-95	765.79	99.81	1.82E-01	1.82E-01	3.06E-02	8.72E-02
NB-95M	235.69	25.00	4.28E+00	4.28E+00	8.54E+00	2.10E+00
ZR-95	724.18	43.70	2.85E-01	2.11E-01	1.81E-01	1.35E-01
	756.72	55.30	2.11E-01		-5.05E-02	9.94E-02

Analysis Report for 1606067-12

CP-5020 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
MO-99	181.06	6.20	1.85E+01	1.38E+01	-8.68E+00	8.98E+00
	739.58	12.80	1.38E+01		-1.47E+00	6.52E+00
	778.00	4.50	3.93E+01		2.40E+01	1.85E+01
RU-103	497.08	89.00	1.23E-01	1.23E-01	-1.53E-02	5.86E-02
RU-106	621.84	9.80	9.60E-01	9.60E-01	1.83E-02	4.54E-01
AG-108M	433.93	89.90	1.01E-01	1.01E-01	-5.56E-02	4.83E-02
	614.37	90.40	1.26E-01		-1.34E-01	6.02E-02
	722.95	90.50	1.10E-01		-1.13E-01	5.21E-02
+ CD-109	88.03	* 3.72	2.45E+00	2.45E+00	2.73E+00	1.21E+00
AG-110M	657.75	93.14	1.13E-01	1.13E-01	3.31E-02	5.36E-02
	677.61	10.53	9.06E-01		9.30E-02	4.27E-01
	706.67	16.46	6.92E-01		9.08E-02	3.28E-01
	763.93	21.98	5.40E-01		1.42E-01	2.56E-01
	884.67	71.63	1.56E-01		-1.47E-02	7.33E-02
	1384.27	23.94	5.62E-01		3.00E-01	2.59E-01
CD-113M	263.70	0.02	3.72E+02	3.72E+02	2.36E+01	1.81E+02
SN-113	255.12	1.93	4.91E+00	1.57E-01	2.69E+00	2.39E+00
	391.69	64.90	1.57E-01		4.60E-02	7.55E-02
TE123M	159.00	84.10	8.71E-02	8.71E-02	1.84E-02	4.25E-02
SB-124	602.71	97.87	1.10E-01	1.10E-01	1.83E-02	5.23E-02
	645.85	7.26	1.34E+00		-4.60E-01	6.31E-01
	722.78	11.10	1.02E+00		-1.05E+00	4.82E-01
	1691.02	49.00	1.93E-01		2.51E-02	8.30E-02
I-125	35.49	6.49	2.87E+00	2.87E+00	-1.05E+00	1.40E+00
SB-125	176.33	6.89	1.05E+00	3.35E-01	8.14E-01	5.12E-01
	427.89	29.33	3.35E-01		1.26E-01	1.61E-01
	463.38	10.35	1.03E+00		1.00E+00	4.94E-01
	600.56	17.80	5.29E-01		-2.35E-02	2.51E-01
	635.90	11.32	8.78E-01		8.15E-02	4.16E-01
	SB-126	414.70	83.30	2.03E-01	1.90E-01	4.63E-02	9.76E-02
SB-126	666.33	99.60	2.04E-01		8.26E-03	9.69E-02
	695.00	99.60	1.90E-01		-1.18E-01	9.00E-02
	720.50	53.80	3.23E-01		-1.05E-01	1.51E-01
	87.57	* 37.00	2.43E-01	2.43E-01	2.70E-01	1.19E-01
+ SN-126	473.00	25.00	2.78E+00	2.01E+00	1.01E+00	1.33E+00
	685.20	35.70	2.01E+00		4.64E-01	9.50E-01
	783.80	14.70	5.52E+00		2.59E+00	2.61E+00
I-129	29.78	57.00	5.10E-01	5.10E-01	-4.32E-01	2.48E-01
	33.60	13.20	1.50E+00		1.31E+00	7.32E-01
	39.58	7.52	1.80E+00		9.43E-01	8.80E-01
I-131	284.30	6.05	3.63E+00	2.72E-01	-1.62E+00	1.76E+00
	364.48	81.20	2.72E-01		1.89E-01	1.31E-01
	636.97	7.26	3.57E+00		1.28E+00	1.69E+00
	722.89	1.80	1.45E+01		-1.48E+01	6.82E+00
TE-132	49.72	13.10	7.99E+00	1.06E+00	-3.35E+00	3.91E+00
	228.16	88.00	1.06E+00		1.63E-04	5.15E-01
BA-133	81.00	33.00	2.44E-01	2.44E-01	-1.55E-01	1.20E-01
	302.84	17.80	5.20E-01		8.02E-02	2.52E-01
	356.01	60.00	2.53E-01		1.22E-02	1.24E-01
I-133	529.87	86.30	7.22E+02	7.22E+02	-2.09E+02	3.43E+02
XE-133	81.00	38.00	9.19E-01	9.19E-01	-5.83E-01	4.52E-01
CS-134	563.23	8.38	1.15E+00	1.24E-01	1.57E-01	5.48E-01
	569.32	15.43	6.11E-01		3.17E-02	2.90E-01

Analysis Report for 1606067-12

CP-5020 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
CS-134	604.70	97.60	1.24E-01	1.24E-01	7.40E-03	5.92E-02	
	795.84	85.40	1.24E-01		2.09E-02	5.82E-02	
	801.93	8.73	1.20E+00		-4.74E-01	5.66E-01	
CS-135	268.24	16.00	5.95E-01	5.95E-01	8.38E-02	2.90E-01	
	1131.51	22.50	6.87E+11		6.01E+11	-4.43E+10	3.18E+11
	1260.41	28.60	6.01E+11		-3.99E+11	2.78E+11	
I-135	1678.03	9.54	1.30E+12	1.84E-01	-1.22E+11	5.67E+11	
	153.22	7.46	1.81E+00		1.32E+00	8.84E-01	
	163.89	4.61	2.87E+00		2.16E+00	1.40E+00	
	176.55	13.56	9.28E-01		1.86E-01	4.52E-01	
	273.65	12.66	1.29E+00		1.97E-02	6.25E-01	
	340.57	48.50	3.77E-01		7.91E-03	1.83E-01	
	818.50	99.70	1.84E-01		5.74E-02	8.63E-02	
CS-136	1048.07	79.60	2.64E-01	1.84E-01	-7.77E-02	1.23E-01	
	1235.34	19.70	1.59E+00		-9.89E-02	7.56E-01	
	661.65	85.12	1.28E-01		1.28E-01	-6.93E-03	6.11E-02
LA-138	788.74	34.00	2.88E-01	1.58E-01	-3.66E-02	1.35E-01	
	1435.80	66.00	1.58E-01		-5.64E-02	7.15E-02	
CE-139	165.85	80.35	9.66E-02	9.66E-02	6.36E-02	4.72E-02	
BA-140	162.64	6.70	1.95E+00	7.05E-01	4.72E-01	9.54E-01	
	304.84	4.50	3.34E+00		-5.22E-01	1.62E+00	
	423.70	3.20	5.36E+00		-1.41E-01	2.58E+00	
	437.55	2.00	8.53E+00		2.69E+00	4.10E+00	
	537.32	25.00	7.05E-01		5.48E-02	3.37E-01	
LA-140	328.77	20.50	8.31E-01	2.48E-01	-2.13E-01	4.03E-01	
	487.03	45.50	3.62E-01		-1.52E-01	1.73E-01	
	815.85	23.50	7.04E-01		-5.22E-01	3.27E-01	
	1596.49	95.49	2.48E-01		1.63E-01	1.14E-01	
CE-141	145.44	48.40	1.90E-01	1.90E-01	2.82E-02	9.27E-02	
CE-143	57.36	11.80	2.08E+02	9.97E+01	-1.40E+02	1.02E+02	
	293.26	42.00	9.97E+01		4.44E+02	4.90E+01	
	664.55	5.20	5.95E+02		3.78E+02	2.84E+02	
CE-144	133.54	10.80	6.39E-01	6.39E-01	7.93E-02	3.12E-01	
PM-144	476.78	42.00	2.17E-01	8.94E-02	-8.28E-02	1.04E-01	
	618.01	98.60	8.94E-02		-4.29E-03	4.21E-02	
	696.49	99.49	1.08E-01		-4.02E-02	5.10E-02	
PM-145	36.85	21.70	7.00E-01	3.68E-01	2.31E-01	3.42E-01	
	37.36	39.70	3.68E-01		-9.33E-02	1.79E-01	
	42.30	15.10	7.93E-01		2.42E-01	3.88E-01	
	72.40	2.31	4.34E+00		-1.21E+01	2.14E+00	
PM-146	453.90	39.94	2.09E-01	2.09E-01	2.95E-02	9.97E-02	
	735.90	14.01	7.57E-01		5.67E-02	3.58E-01	
	747.13	13.10	7.06E-01		-5.30E-01	3.30E-01	
ND-147	91.11	28.90	6.65E-01	6.65E-01	2.60E-02	3.28E-01	
	531.02	13.10	1.36E+00		2.15E-01	6.44E-01	
PM-149	285.90	3.10	8.94E+01	8.94E+01	-3.40E+00	4.33E+01	
EU-152	121.78	20.50	3.19E-01	3.19E-01	1.06E-01	1.56E-01	
	244.69	5.40	2.06E+00		3.22E+00	1.01E+00	
	344.27	19.13	4.51E-01		7.41E-03	2.17E-01	
	778.89	9.20	1.12E+00		3.10E-01	5.29E-01	
	964.01	10.40	1.21E+00		-2.09E-01	5.68E-01	
	1085.78	7.22	1.58E+00		-4.80E-01	7.32E-01	
	1112.02	9.60	1.30E+00		4.95E-01	6.09E-01	

Analysis Report for 1606067-12

CP-5020 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
EU-152	1407.95	14.94	9.26E-01	3.19E-01	1.54E-01	4.29E-01	
GD-153	97.43	31.30	2.19E-01	2.19E-01	-1.04E-03	1.07E-01	
	103.18	22.20	2.97E-01		-1.64E-01	1.45E-01	
EU-154	123.07	40.50	1.60E-01	1.60E-01	1.20E-02	7.82E-02	
	723.30	19.70	5.09E-01		-5.20E-01	2.40E-01	
	873.19	11.50	8.44E-01		-7.88E-01	3.92E-01	
	996.32	10.30	1.13E+00		-6.84E-01	5.29E-01	
	1004.76	17.90	6.65E-01		-1.05E-01	3.11E-01	
	1274.45	35.50	3.75E-01		-4.30E-03	1.74E-01	
EU-155	86.50	30.90	2.94E-01	2.94E-01	2.13E-01	1.45E-01	
	105.30	20.70	3.16E-01		9.79E-02	1.55E-01	
EU-156	811.77	10.40	1.47E+00	1.47E+00	-3.43E-01	6.86E-01	
	1153.47	7.20	3.34E+00		1.17E+00	1.57E+00	
	1230.71	8.90	2.80E+00		1.54E+00	1.32E+00	
HO-166M	184.41	72.60	1.46E-01	1.46E-01	5.21E-01	7.19E-02	
	280.45	29.60	2.92E-01		8.95E-02	1.42E-01	
	410.94	11.10	8.71E-01		-1.04E-02	4.20E-01	
	711.69	54.10	1.87E-01		3.87E-02	8.82E-02	
TM-171	66.72	0.14	6.51E+01	6.51E+01	3.26E+01	3.20E+01	
HF-172	81.75	4.52	1.82E+00	5.80E-01	6.01E-01	8.95E-01	
	125.81	11.30	5.80E-01		-1.63E-01	2.83E-01	
LU-172	181.53	20.60	1.10E+00	6.00E-01	-4.67E-02	5.34E-01	
	810.06	16.63	1.90E+00		2.73E-01	8.89E-01	
	912.12	15.25	3.48E+00		5.80E+00	1.67E+00	
	1093.66	62.50	6.00E-01		1.12E-01	2.79E-01	
LU-173	100.72	5.24	1.28E+00	4.53E-01	4.87E-01	6.24E-01	
	272.11	21.20	4.53E-01		2.44E-02	2.20E-01	
HF-175	343.40	84.00	1.15E-01	1.15E-01	1.88E-03	5.57E-02	
LU-176	88.34	13.30	6.99E-01	8.81E-02	-7.29E-01	3.44E-01	
	201.83	86.00	1.02E-01		2.92E-02	5.00E-02	
	306.78	94.00	8.81E-02		-1.58E-02	4.26E-02	
TA-182	67.75	41.20	2.28E-01	2.28E-01	5.91E-02	1.12E-01	
	1121.30	34.90	7.27E-01		1.82E+00	3.51E-01	
	1189.05	16.23	8.65E-01		3.74E-02	4.03E-01	
	1221.41	26.98	5.61E-01		7.88E-02	2.63E-01	
	1231.02	11.44	1.39E+00		8.37E-01	6.52E-01	
IR-192	308.46	29.68	3.16E-01	2.08E-01	-6.04E-02	1.53E-01	
	468.07	48.10	2.08E-01		6.06E-02	9.96E-02	
HG-203	279.19	77.30	1.33E-01	1.33E-01	2.57E-02	6.45E-02	
BI-207	569.67	97.72	9.67E-02	9.67E-02	1.71E-02	4.60E-02	
	1063.62	74.90	1.54E-01		-1.36E-02	7.17E-02	
+ TL-208	583.14	*	30.22	5.52E-01	1.33E-01	1.09E+00	2.68E-01
	860.37		4.48	2.87E+00		2.91E+00	1.36E+00
	2614.66	*	35.85	1.33E-01		9.28E-01	4.54E-02
BI-210M	262.00	45.00	1.95E-01	1.95E-01	2.33E-02	9.48E-02	
	300.00	23.00	4.35E-01		-3.83E+00	2.12E-01	
+ PB-210	46.50	*	4.25	3.38E+00	3.38E+00	4.62E+00	1.66E+00
PB-211	404.84	2.90	3.29E+00	3.29E+00	6.04E-01	1.58E+00	
	831.96	2.90	3.81E+00		-4.76E-01	1.79E+00	
BI-212	727.17	11.80	9.67E-01	9.67E-01	7.71E-01	4.59E-01	
	1620.62	2.75	3.29E+00		9.51E-01	1.44E+00	
+ PB-212	238.63	*	44.60	4.61E-01	4.61E-01	1.37E+00	2.28E-01
	300.09	*	3.41	4.88E+00		2.74E+00	2.40E+00

: 00687

Analysis Report for 1606067-12
 CP-5020 00-02 QC

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
+ BI-214	609.31 *	46.30	2.62E-01	2.62E-01	3.87E+00	1.26E-01	
	1120.29 *	15.10	1.11E+00		3.93E+00	5.26E-01	
	1764.49 *	15.80	6.17E-01		3.51E+00	2.71E-01	
	2204.22 *	4.98	1.46E+00		3.97E+00	5.90E-01	
+ PB-214	295.21 *	19.19	8.45E-01	3.83E-01	4.34E+00	4.15E-01	
	351.92 *	37.19	3.83E-01		4.43E+00	1.87E-01	
RN-219	401.80	6.50	1.48E+00	1.48E+00	8.72E-01	7.12E-01	
RA-223	323.87	3.88	2.32E+00	2.32E+00	-1.38E+00	1.12E+00	
RA-224	240.98	3.95	3.94E+00	3.94E+00	2.35E+01	1.94E+00	
RA-225	40.00	31.00	7.18E-01	7.18E-01	3.76E-01	3.51E-01	
+ RA-226	186.21 *	3.28	3.41E+00	3.41E+00	1.19E+01	1.68E+00	
	TH-227	50.10	8.40	1.16E+00	1.10E+00	-4.87E-01	5.69E-01
		236.00	11.50	1.10E+00		2.20E+00	5.42E-01
+ AC-228	256.20	6.30	1.41E+00		4.67E-01	6.84E-01	
	338.32 *	11.40	9.17E-01	5.13E-01	7.86E-01	4.45E-01	
TH-230	911.07 *	27.70	5.13E-01		1.01E+00	2.44E-01	
	969.11 *	16.60	1.07E+00		1.07E+00	5.12E-01	
	48.44	16.90	6.78E-01	6.78E-01	8.05E-01	3.33E-01	
PA-231	62.85	4.60	2.23E+00		3.74E+00	1.10E+00	
	67.67	0.37	2.38E+01		6.15E+00	1.17E+01	
	283.67	1.60	5.26E+00	4.01E+00	-2.34E+00	2.55E+00	
TH-231	302.67	2.30	4.01E+00		6.19E-01	1.95E+00	
	25.64	14.70	3.87E+00	1.28E+00	-6.28E-01	1.89E+00	
PA-233	84.21	6.40	1.28E+00		1.78E-01	6.31E-01	
	311.98	38.60	3.04E-01	3.04E-01	2.44E-01	1.47E-01	
PA-234	131.20	20.40	3.30E-01	3.30E-01	8.05E-02	1.61E-01	
	733.99	8.80	1.16E+00		4.17E-01	5.48E-01	
	946.00	12.00	8.64E-01		-8.92E-02	4.02E-01	
PA-234M	1001.03	0.92	1.43E+01	1.43E+01	1.07E+01	6.73E+00	
+ TH-234	63.29 *	3.80	3.76E+00	3.76E+00	2.94E+00	1.86E+00	
+ U-235	143.76 *	10.50	9.32E-01	9.32E-01	5.39E-01	4.58E-01	
	163.35 *	4.70	2.00E+00		1.01E+00	9.81E-01	
	205.31 *	4.70	1.83E+00		-1.77E+00	8.94E-01	
NP-237	86.50	12.60	7.18E-01	7.18E-01	5.20E-01	3.53E-01	
NP-239	106.10	22.70	7.44E+00	7.44E+00	1.56E+00	3.64E+00	
	228.18	10.70	2.15E+01		3.32E-03	1.05E+01	
	277.60	14.10	1.63E+01		6.87E+00	7.92E+00	
AM-241	59.54	35.90	2.55E-01	2.55E-01	-5.02E-02	1.25E-01	
AM-243	74.67	66.00	1.85E-01	1.85E-01	4.22E-01	9.16E-02	
CM-243	209.75	3.29	2.67E+00	6.26E-01	1.49E+00	1.30E+00	
	228.14	10.60	8.27E-01		1.28E-04	4.03E-01	
	277.60	14.00	6.26E-01		2.64E-01	3.04E-01	

- + = Nuclide identified during the nuclide identification
- * = Energy line found in the spectrum
- > = MDA value not calculated
- @ = Half-life too short to be able to perform the decay correction

Analysis Report for 1606067-12
CP-5020 00-02 QC

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

<i>Creation Date</i>	<i>Comment</i>	<i>User</i>
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No Data Review Comments Entered.

 ***** S P E C T R A L D A T A R E P O R T *****

Sample Title: CP-5020 00-02 QC

Elapsed Live time: 3600
 Elapsed Real Time: 3615

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	12	227	185	165	143	135	140	185
17:	153	108	139	116	115	127	134	108
25:	110	113	122	126	115	82	83	112
33:	122	106	106	97	93	111	131	101
41:	128	140	122	126	119	187	334	190
49:	134	146	146	141	179	164	164	152
57:	161	183	197	220	194	199	338	421
65:	228	215	225	251	229	192	204	212
73:	234	311	585	503	747	816	257	201
81:	203	217	188	285	248	190	304	399
89:	236	287	233	228	558	344	189	146
97:	148	135	153	149	148	119	144	110
105:	145	138	150	124	130	122	133	125
113:	137	129	140	146	128	113	123	135
121:	122	133	121	122	118	120	113	135
129:	128	130	129	133	114	114	124	134
137:	117	113	120	124	124	123	124	156
145:	161	121	118	107	132	132	134	134
153:	132	138	136	104	109	122	107	110
161:	89	107	114	125	135	116	101	106
169:	96	96	110	105	89	100	111	88
177:	102	113	75	82	104	104	102	99
185:	125	382	369	117	94	81	100	88
193:	96	111	87	72	96	93	93	101
201:	101	80	97	83	90	91	73	86
209:	82	123	71	80	91	64	70	72
217:	77	73	85	80	59	75	74	78
225:	73	84	75	77	65	89	67	75
233:	76	67	87	91	86	164	500	234
241:	109	250	249	61	51	52	52	55
249:	54	48	44	71	66	62	49	67
257:	82	57	67	63	59	57	66	50
265:	63	61	42	65	56	91	105	59
273:	44	48	62	54	51	59	50	59
281:	49	55	48	49	35	57	49	59
289:	50	51	46	51	56	66	377	484
297:	100	45	57	73	80	45	44	39
305:	44	45	35	37	42	47	50	42
313:	43	52	43	39	32	45	44	47
321:	50	45	37	42	47	49	42	53
329:	60	33	49	42	52	56	43	43
337:	28	74	108	43	32	38	40	35
345:	45	29	37	39	32	49	163	796
353:	530	76	33	34	32	36	31	33
361:	26	32	33	35	32	23	33	37

369: 24 19 36 43 30 31 24 36

Sample Title: CP-5020 00-02 QC

Channel	1	2	3	4	5	6	7	8
377:	31	40	23	26	38	31	26	26
385:	31	30	35	43	47	39	28	30
393:	32	39	35	26	30	27	28	26
401:	43	44	38	28	37	28	29	33
409:	39	54	28	22	32	30	42	25
417:	28	27	30	30	25	33	27	26
425:	32	40	29	31	31	32	30	33
433:	26	21	32	28	18	31	34	29
441:	26	31	22	26	23	27	33	24
449:	14	30	14	20	23	24	19	26
457:	19	24	11	25	27	31	61	50
465:	19	16	26	26	24	25	27	26
473:	24	22	26	24	20	18	22	22
481:	24	27	19	17	20	24	15	26
489:	27	22	23	31	10	23	34	21
497:	16	20	12	19	25	20	15	20
505:	18	19	27	24	33	43	74	46
513:	35	18	14	15	15	14	20	20
521:	20	20	14	18	17	22	18	26
529:	12	14	14	13	22	22	16	11
537:	22	25	29	21	13	17	16	21
545:	16	18	21	19	23	14	7	13
553:	8	13	17	16	16	11	16	17
561:	20	19	29	16	12	18	18	23
569:	22	12	15	14	21	17	18	19
577:	17	28	14	19	21	39	97	88
585:	33	21	17	19	19	21	18	13
593:	17	15	15	10	24	16	12	15
601:	17	16	12	23	16	15	24	77
609:	412	472	83	10	11	19	9	14
617:	15	12	14	13	12	12	11	18
625:	21	18	12	11	22	11	19	16
633:	14	21	14	10	12	18	23	16
641:	11	14	16	10	14	12	13	10
649:	6	11	18	14	12	19	12	19
657:	12	8	17	21	24	14	11	20
665:	22	25	26	15	8	18	16	9
673:	12	11	7	7	13	17	13	15
681:	15	12	12	15	11	13	18	14
689:	7	12	23	15	20	12	17	11
697:	12	15	21	19	16	18	21	27
705:	15	21	15	9	15	15	9	18
713:	10	16	13	10	15	15	7	10
721:	12	11	9	12	17	20	31	26
729:	3	10	10	13	12	13	20	9
737:	16	13	16	17	12	19	25	8
745:	8	10	13	7	15	11	16	15
753:	20	13	19	11	11	14	15	7
761:	9	16	18	18	9	16	25	44
769:	51	22	11	13	7	10	16	20
777:	15	9	13	9	11	8	11	16
785:	20	16	14	12	8	7	6	11
793:	12	14	14	14	7	16	7	13

801: 12 15 12 8 15 20 13 8

Sample Title: CP-5020 00-02 QC

Channel	1	2	3	4	5	6	7	8
809:	10	12	18	7	6	2	7	10
817:	10	10	14	10	15	15	12	4
825:	13	10	14	16	12	14	14	11
833:	12	13	11	13	11	15	11	15
841:	12	17	18	14	11	8	9	7
849:	8	6	8	11	14	12	9	5
857:	7	11	22	20	26	11	16	7
865:	13	13	12	15	19	15	9	10
873:	2	13	7	4	13	11	7	15
881:	16	9	7	12	7	14	10	10
889:	13	11	8	13	10	8	10	11
897:	14	11	6	7	7	12	8	17
905:	20	9	5	14	6	26	62	50
913:	12	11	12	10	11	11	9	12
921:	5	8	8	14	7	6	4	6
929:	8	8	8	13	26	43	17	11
937:	11	6	4	9	7	6	6	7
945:	8	11	7	12	9	17	6	5
953:	14	11	8	6	6	4	8	11
961:	9	12	16	17	17	9	7	28
969:	50	17	14	7	9	4	9	6
977:	24	13	7	7	13	6	7	10
985:	12	11	8	10	14	16	15	10
993:	12	10	5	8	10	11	14	12
1001:	17	15	8	13	6	8	11	11
1009:	7	11	8	14	5	5	9	11
1017:	11	11	7	7	8	10	2	8
1025:	3	11	10	6	10	9	8	7
1033:	9	8	10	10	11	7	6	9
1041:	10	6	9	11	16	10	10	8
1049:	7	6	8	15	8	5	8	6
1057:	8	10	9	8	10	8	10	9
1065:	10	6	10	8	11	11	5	10
1073:	6	16	11	6	10	15	13	9
1081:	8	11	9	8	7	7	11	7
1089:	8	7	13	10	11	6	10	5
1097:	7	9	9	6	15	15	11	8
1105:	13	7	7	10	8	15	8	5
1113:	10	10	11	7	6	5	42	97
1121:	71	27	4	8	10	10	4	5
1129:	7	7	5	6	13	9	10	7
1137:	10	13	8	9	10	7	9	10
1145:	7	10	9	13	14	7	10	9
1153:	9	9	22	20	6	6	12	9
1161:	7	12	8	8	7	2	4	12
1169:	9	12	9	6	15	4	14	8
1177:	9	12	7	9	7	9	9	6
1185:	7	7	13	11	10	9	10	6
1193:	15	7	11	5	8	11	8	1
1201:	10	11	8	16	6	7	9	16
1209:	5	6	8	8	6	13	10	10
1217:	10	8	17	7	11	10	9	12
1225:	13	6	10	16	9	13	19	8

1233: 8 8 7 11 31 41 22 13

Sample Title: CP-5020 00-02 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1241:	14	9	11	1	6	6	11	9
1249:	6	9	4	9	9	11	15	8
1257:	11	8	3	9	4	7	12	11
1265:	11	7	8	6	12	6	8	5
1273:	8	5	6	6	11	5	11	16
1281:	16	10	7	4	6	5	8	5
1289:	7	5	8	8	6	6	3	8
1297:	9	4	6	7	6	10	5	8
1305:	7	6	3	10	6	7	6	5
1313:	7	4	6	3	3	5	6	5
1321:	6	8	4	10	2	5	3	3
1329:	3	6	5	7	11	10	3	5
1337:	3	10	2	4	4	7	8	7
1345:	3	3	2	10	6	6	6	7
1353:	3	4	4	7	2	3	1	6
1361:	5	8	4	4	5	2	5	5
1369:	7	4	6	5	8	2	4	11
1377:	23	25	9	3	3	7	4	4
1385:	9	11	5	4	4	4	3	5
1393:	1	3	2	4	3	2	5	2
1401:	10	5	7	8	3	3	4	16
1409:	9	6	4	2	5	5	3	4
1417:	7	8	2	3	1	1	4	2
1425:	4	4	2	4	6	6	2	2
1433:	3	3	3	5	7	1	3	3
1441:	7	2	9	6	5	2	1	3
1449:	4	3	6	4	3	3	2	5
1457:	5	8	51	164	226	76	9	2
1465:	3	4	0	4	3	2	2	2
1473:	2	3	1	6	3	6	4	4
1481:	4	4	2	2	5	4	2	5
1489:	2	3	1	2	2	5	3	6
1497:	7	2	4	5	7	5	4	5
1505:	3	4	3	6	9	8	5	5
1513:	5	3	7	5	5	4	5	9
1521:	2	3	1	2	3	5	1	2
1529:	2	2	5	4	2	2	8	5
1537:	5	3	3	3	2	2	5	2
1545:	2	3	0	1	3	3	3	2
1553:	0	3	3	0	3	2	3	1
1561:	2	1	3	3	0	2	1	4
1569:	1	3	0	2	0	2	3	2
1577:	4	2	5	1	1	4	6	6
1585:	1	5	10	10	1	2	4	7
1593:	8	5	5	2	1	5	3	3
1601:	3	0	5	2	2	3	1	4
1609:	1	3	2	1	4	1	0	0
1617:	2	1	2	0	5	3	2	2
1625:	2	2	2	0	3	2	8	1
1633:	3	1	0	2	2	2	2	0
1641:	1	0	3	4	2	1	0	2
1649:	2	0	3	3	3	1	2	1
1657:	1	2	3	6	5	2	1	0

1665: 0 3 1 2 1 2 1 2

Sample Title: CP-5020 00-02 QC

Channel	1	2	3	4	5	6	7	8	9
1673:	2	1	4	2	1	1	3	1	
1681:	2	1	2	2	2	0	1	0	
1689:	2	1	2	3	1	3	0	2	
1697:	0	1	2	1	1	1	3	1	
1705:	0	0	0	1	1	1	0	0	
1713:	1	1	1	0	1	1	1	1	
1721:	3	6	3	1	1	1	0	9	
1729:	8	17	4	1	1	2	2	0	
1737:	1	2	1	0	0	0	1	0	
1745:	1	0	0	1	2	5	2	2	
1753:	1	0	4	2	1	1	1	3	
1761:	0	9	20	52	39	11	1	0	
1769:	2	1	0	1	0	0	1	0	
1777:	1	1	0	0	1	3	1	0	
1785:	1	0	5	3	1	0	0	1	
1793:	2	3	0	0	0	0	2	0	
1801:	1	1	0	2	2	0	3	0	
1809:	2	2	0	0	2	0	1	1	
1817:	1	1	2	0	2	2	1	0	
1825:	0	0	2	1	1	1	2	0	
1833:	1	3	3	3	2	1	1	1	
1841:	0	0	4	3	3	7	7	5	
1849:	2	2	0	0	2	1	2	3	
1857:	1	3	2	1	2	4	1	1	
1865:	0	4	0	2	3	2	0	3	
1873:	2	2	2	3	1	3	2	2	
1881:	1	1	0	1	0	2	2	1	
1889:	1	2	0	0	3	1	2	1	
1897:	1	2	3	3	2	2	0	1	
1905:	1	1	3	0	1	3	1	3	
1913:	1	1	1	0	1	1	3	0	
1921:	4	1	1	1	0	1	0	1	
1929:	0	0	2	1	1	1	2	2	
1937:	2	0	2	2	0	2	2	2	
1945:	2	1	1	2	4	1	1	0	
1953:	0	0	1	2	0	2	2	0	
1961:	2	2	0	3	1	0	2	0	
1969:	3	1	0	1	3	2	2	1	
1977:	1	0	1	2	2	1	4	0	
1985:	0	2	0	1	1	1	2	3	
1993:	1	0	1	0	0	0	0	0	
2001:	1	1	0	1	1	1	2	0	
2009:	2	1	0	1	0	1	1	0	
2017:	1	2	1	4	0	1	1	2	
2025:	0	2	1	0	4	3	0	1	
2033:	0	0	2	0	0	2	0	1	
2041:	1	0	1	1	0	0	0	2	
2049:	1	0	2	0	3	2	0	1	
2057:	0	0	2	0	2	0	0	1	
2065:	0	0	3	0	1	1	0	2	
2073:	0	1	0	1	3	3	1	1	
2081:	2	0	1	1	2	0	1	1	
2089:	1	2	0	2	2	2	1	1	

2097: 0 2 0 1 2 0 5 0

Sample Title: CP-5020 00-02 QC

Channel	1	2	3	4	5	6	7	8
2105:	1	1	2	3	1	2	0	1
2113:	0	0	2	1	2	8	5	1
2121:	2	2	2	1	0	0	1	0
2129:	2	2	1	2	2	0	1	1
2137:	0	1	4	1	0	1	1	0
2145:	0	1	2	2	0	0	0	1
2153:	2	0	1	1	0	0	1	2
2161:	2	1	1	0	0	1	1	0
2169:	1	0	0	2	1	1	1	0
2177:	0	0	1	0	0	1	1	1
2185:	1	2	2	0	1	2	1	1
2193:	0	1	3	1	0	0	2	1
2201:	1	5	11	12	7	1	1	1
2209:	0	1	4	1	1	1	1	1
2217:	0	0	1	2	0	2	2	0
2225:	1	1	1	2	0	1	1	0
2233:	0	0	1	0	0	0	1	1
2241:	0	0	3	1	0	0	0	2
2249:	0	0	0	0	2	2	2	3
2257:	1	1	2	1	0	0	1	0
2265:	2	1	0	2	0	1	0	0
2273:	2	2	0	1	0	0	0	1
2281:	2	0	0	1	1	1	1	1
2289:	2	0	0	1	1	0	0	0
2297:	0	2	1	1	0	0	2	0
2305:	1	1	0	1	1	0	1	3
2313:	0	0	0	0	0	0	4	0
2321:	2	3	1	0	0	1	2	1
2329:	1	0	1	1	1	0	0	1
2337:	1	0	0	1	0	0	1	2
2345:	1	0	0	0	0	0	2	1
2353:	0	1	0	0	2	2	0	0
2361:	1	0	1	0	0	0	1	2
2369:	1	2	1	0	0	0	0	2
2377:	0	1	1	1	2	1	3	0
2385:	0	2	0	0	1	0	1	1
2393:	2	0	0	1	0	1	0	1
2401:	0	2	0	0	1	0	0	0
2409:	2	2	1	0	0	1	1	3
2417:	0	0	1	0	0	1	3	0
2425:	3	1	0	0	0	2	1	0
2433:	3	2	1	2	0	1	0	0
2441:	1	0	1	0	2	4	2	6
2449:	1	0	2	1	0	0	0	0
2457:	1	0	0	0	1	0	1	0
2465:	0	1	1	1	0	0	0	2
2473:	0	1	1	1	0	0	0	0
2481:	0	0	0	1	0	1	0	0
2489:	1	0	1	0	1	2	1	0
2497:	0	1	1	0	2	0	0	1
2505:	0	2	1	0	1	0	0	0
2513:	1	0	1	0	0	0	2	0
2521:	0	3	1	0	1	2	3	0

2529: 0 0 0 0 1 1 2 0

Sample Title: CP-5020 00-02 QC

Channel	1	2	3	4	5	6	7	8	9
2537:	1	0	0	0	0	3	0	0	0
2545:	1	1	0	0	0	0	0	0	0
2553:	0	0	1	1	0	0	0	1	1
2561:	0	0	0	0	1	1	0	0	0
2569:	0	0	1	0	0	0	0	0	0
2577:	0	0	0	0	2	0	0	0	0
2585:	0	1	0	0	0	0	1	0	0
2593:	0	0	0	0	0	0	0	0	0
2601:	0	1	0	0	0	0	1	0	0
2609:	0	0	0	6	17	13	17	4	4
2617:	1	2	1	1	0	0	0	2	2
2625:	0	0	0	0	0	0	0	0	0
2633:	0	3	0	0	0	1	0	0	0
2641:	0	1	0	1	0	0	0	0	0
2649:	0	0	1	0	0	0	0	0	0
2657:	1	0	1	0	0	1	1	0	0
2665:	1	0	0	0	0	0	0	0	0
2673:	0	0	0	0	0	0	1	0	0
2681:	0	0	0	0	0	1	0	1	1
2689:	0	0	1	0	1	0	0	0	0
2697:	0	1	0	0	0	0	0	0	0
2705:	0	0	0	0	1	0	0	1	1
2713:	2	0	0	0	0	1	0	0	0
2721:	0	0	0	0	1	0	1	0	0
2729:	0	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	0	1	1
2745:	0	0	1	0	0	0	1	0	0
2753:	0	0	0	0	0	1	0	0	0
2761:	1	0	0	0	0	0	1	0	0
2769:	0	0	0	0	0	1	1	1	1
2777:	0	0	1	0	0	0	0	0	0
2785:	1	0	0	0	1	0	0	0	0
2793:	0	0	0	1	0	0	0	0	0
2801:	1	0	0	0	0	0	0	0	0
2809:	0	0	0	0	0	0	0	1	1
2817:	0	1	0	0	0	0	0	0	0
2825:	0	0	0	1	0	0	1	1	1
2833:	0	0	0	0	0	1	0	0	0
2841:	1	0	2	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0	0
2857:	0	0	1	0	0	0	0	0	0
2865:	0	0	0	0	1	0	0	0	0
2873:	0	0	1	0	0	1	1	0	0
2881:	1	0	1	0	0	0	0	0	0
2889:	0	1	0	0	0	1	0	0	0
2897:	0	0	0	0	0	0	0	0	0
2905:	0	0	0	0	0	0	0	0	0
2913:	0	0	0	0	1	0	0	0	0
2921:	0	0	1	0	0	0	0	0	0
2929:	0	0	0	0	0	0	0	0	0
2937:	1	0	0	0	0	0	1	0	0
2945:	1	0	0	0	1	0	0	0	0
2953:	0	0	0	0	0	0	0	1	1

2961: 0 0 1 0 0 0 0 0

Sample Title: CP-5020 00-02 QC

Channel	1	2	3	4	5	6	7	8
2969:	0	3	0	0	1	0	0	0
2977:	0	0	0	1	0	1	0	0
2985:	0	0	1	1	0	0	0	0
2993:	0	0	1	0	0	0	0	0
3001:	0	0	0	0	0	0	0	0
3009:	0	0	0	0	0	0	0	0
3017:	0	0	0	0	0	0	0	1
3025:	0	1	0	0	0	1	1	0
3033:	1	0	0	0	0	0	1	0
3041:	2	0	0	0	0	0	0	0
3049:	0	0	1	0	0	0	0	1
3057:	0	0	1	0	0	0	0	0
3065:	0	0	0	0	0	0	0	0
3073:	0	0	0	0	0	0	0	0
3081:	0	0	0	0	0	1	0	0
3089:	0	0	1	0	0	0	0	0
3097:	0	0	0	0	0	0	0	0
3105:	0	0	0	0	0	0	0	0
3113:	0	0	0	0	0	0	0	0
3121:	0	0	0	0	0	0	0	0
3129:	0	0	0	0	0	0	0	0
3137:	0	0	0	0	0	0	1	0
3145:	0	1	1	0	0	0	0	0
3153:	1	0	0	0	0	0	0	0
3161:	0	0	0	0	0	0	0	0
3169:	0	0	0	0	0	0	0	1
3177:	0	0	0	0	0	0	0	0
3185:	0	0	0	0	0	0	0	0
3193:	0	0	0	0	1	0	0	0
3201:	1	0	1	0	0	0	0	0
3209:	0	0	0	0	0	0	0	1
3217:	0	0	0	0	1	0	1	1
3225:	0	1	0	0	0	2	0	0
3233:	1	0	0	0	1	0	1	0
3241:	0	0	1	0	0	1	0	0
3249:	2	0	0	0	0	0	0	0
3257:	0	0	0	0	0	0	0	0
3265:	0	0	0	0	2	0	0	0
3273:	0	0	0	0	0	0	0	0
3281:	0	0	1	0	0	0	0	1
3289:	1	0	0	0	0	0	0	0
3297:	0	0	0	1	0	0	0	0
3305:	0	0	0	0	0	0	0	0
3313:	0	0	0	0	0	0	0	0
3321:	0	0	0	0	0	0	0	0
3329:	0	0	0	0	0	0	0	0
3337:	0	0	0	0	0	0	0	0
3345:	0	0	0	0	0	0	0	0
3353:	0	0	0	0	0	0	0	0
3361:	0	0	0	0	0	0	0	1
3369:	0	0	1	0	0	1	0	1
3377:	0	0	0	0	0	0	1	0
3385:	0	0	0	0	1	1	1	1

3393: 1 0 0 0 0 0 0 0

Sample Title: CP-5020 00-02 QC

Channel	1	2	3	4	5	6	7	8
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	1	0	0	0	0	1	0	0
3425:	0	1	0	0	0	0	0	0
3433:	0	0	0	0	1	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	1	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	1	1	0	0	1	0
3473:	0	1	0	1	0	0	0	0
3481:	1	0	0	0	0	0	1	0
3489:	0	1	0	0	0	0	0	1
3497:	0	0	0	0	0	0	0	0
3505:	0	0	0	1	0	0	0	0
3513:	0	0	1	1	1	0	0	0
3521:	1	0	0	0	1	0	2	0
3529:	0	0	0	0	0	0	0	1
3537:	0	0	0	1	0	0	0	0
3545:	0	1	0	0	0	0	0	0
3553:	0	0	0	0	0	0	0	0
3561:	1	0	0	0	1	0	1	0
3569:	0	0	0	0	0	0	0	0
3577:	0	0	1	0	0	0	0	1
3585:	0	0	0	0	0	0	0	0
3593:	0	0	0	0	0	0	0	0
3601:	0	0	1	0	1	0	0	0
3609:	0	0	1	0	0	0	1	0
3617:	0	1	1	0	0	0	0	0
3625:	0	0	0	1	0	0	0	0
3633:	0	0	0	0	0	0	0	0
3641:	0	1	0	0	0	1	0	0
3649:	0	0	0	0	0	0	0	0
3657:	0	0	0	0	0	0	0	0
3665:	0	0	0	0	0	1	0	0
3673:	0	0	0	0	0	0	1	0
3681:	0	1	0	0	0	0	0	1
3689:	0	0	0	0	0	0	0	0
3697:	0	0	0	0	0	0	0	0
3705:	0	0	0	0	1	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	0	0	0	1	0
3729:	0	0	1	0	0	0	0	0
3737:	0	0	0	0	0	0	0	0
3745:	0	0	0	0	0	0	0	0
3753:	0	0	0	0	1	0	2	0
3761:	0	0	0	0	0	0	0	0
3769:	0	0	0	0	0	0	1	0
3777:	0	0	1	2	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	0	1	0	0	0	0	0	0
3801:	0	0	0	0	0	1	0	0
3809:	0	0	0	0	0	0	0	0
3817:	0	1	0	0	0	0	0	2

3825: 0 0 0 0 0 0 0 0 1

Sample Title: CP-5020 00-02 QC

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	0	0	1	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	1	0	0	0
3865:	0	0	1	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	0	1	0	0	0	0	0
3889:	0	0	0	0	0	0	0	1
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	1	0	0	0
3921:	0	1	0	0	0	0	0	0
3929:	0	0	0	0	1	0	0	0
3937:	0	0	1	2	0	1	1	0
3945:	0	0	0	0	0	0	1	0
3953:	0	0	0	0	0	0	0	0
3961:	1	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	1	0	0	0	0	0	0	0
3985:	0	0	0	0	0	0	0	1
3993:	0	0	0	0	1	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	1	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	0
4025:	0	1	0	0	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	1	0	0	1
4089:	0	1	0	0	0	0	0	0


```

*****
*****      G E N I E    Q U A L I T Y    A S S U R A N C E      *****
*****

```

Last Results Report
6/20/16 6:38:27 AM

AC
6/20/16

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000001B.QCK

```

Detector:      GE1
Geometry:     <None>
Certificate:   <None>
Sample ID:    QA Background Ch
Sample Desc:   QA Count
Sample Quantity: 1.0000E+000
Sample Date:   6/20/16 6:23:12 AM
Measurement Date: 6/20/16 6:23:14 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.1 seconds

```

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE1 [SD: 2.2817E+000+/- 1.490]	2.3156E+000	2.2727E-002 < : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

```

Flags Key:  LU = Lower/Upper Bounds Test      (Ab = Above, Be = Below)
             SD = Sample Driven N-Sigma Test  (In = Investigate, Ac = Action)
             UD = User Driven N-Sigma Test    (In = Investigate, Ac = Action)
             BS = Measurement Bias Test       (In = Investigate, Ac = Action)

```

 ***** GENIE QUALITY ASSURANCE *****

Last Results Report
 6/20/16 6:38:37 AM

AG
 6/20/16

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D000000002B.QCK

Detector: GE2
 Geometry: <None>
 Certificate: <None>
 Sample ID: QA Background Ch
 Sample Desc: QA Count
 Sample Quantity: 1.0000E+000
 Sample Date: 6/20/16 6:23:25 AM
 Measurement Date: 6/20/16 6:23:28 AM
 Elapsed Live Time: 900.0 seconds
 Elapsed Real Time: 900.2 seconds

Parameter Description	Value	Deviation/Flags
[Mean +/- Std. Dev.]		< LU : SD : UD : BS >
DAILY BKG CT RATE GE2	3.4911E+000	3.7796E-002
[SD:-2.4306E+035+/-*****]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)

 ***** GENIE QUALITY ASSURANCE *****

Last Results Report
 6/20/16 6:38:52 AM

AC
 6/20/16

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D000000003B.QCK

Detector: GE3
 Geometry: <None>
 Certificate: <None>
 Sample ID: QA Background Ch
 Sample Desc: QA Count
 Sample Quantity: 1.0000E+000
 Sample Date: 6/20/16 6:23:37 AM
 Measurement Date: 6/20/16 6:23:40 AM
 Elapsed Live Time: 900.0 seconds
 Elapsed Real Time: 903.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE3 [SD: 2.2350E+003+/-1364.8]	1.5760E+003	-4.8286E-001 < : : : >

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)


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*****
*****      G E N I E    Q U A L I T Y    A S S U R A N C E      *****
*****

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Last Results Report
6/20/16 6:39:04 AM

AG
6/20/16

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000004B.QCK

Detector: GE4
 Geometry: <None>
 Certificate: <None>
 Sample ID: QA Background Ch
 Sample Desc: QA Count
 Sample Quantity: 1.0000E+000
 Sample Date: 6/20/16 6:23:50 AM
 Measurement Date: 6/20/16 6:23:53 AM
 Elapsed Live Time: 900.0 seconds
 Elapsed Real Time: 900.3 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE4 [SD: 9.5221E+000+/-156.94]	1.6033E+000	-5.0455E-002
Trend Test: The last	9 samples exhibit a bias trend.	< : : : >

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)

GENIE QUALITY ASSURANCE *****

Last Results Report
6/20/16 6:57:02 AM

AG
6/20/16

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000001GAF-14C.QCK

Detector: GE1
Geometry: <None>
Certificate: GAF-14
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/14 12:00:00 AM
Measurement Date: 6/20/16 6:41:30 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 918.4 seconds

Table with 3 columns: Parameter Description, Value, Deviation/Flags. Rows include peak centroid and FWHM for Am-241, Cs-137, Co-60, Y-90, and decay corrected activity.

Decay corrected activity 6.4692E+003
 Boundary Limits: [4.716E-003, 7.075E-003] < : : : >

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
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Decay corrected activity	1.0617E+004	< : : : >
Boundary Limits: [7.572E-003, 1.136E-002]		

Decay corrected activity	1.8313E+004	< : : : >
Boundary Limits: [1.626E-002, 2.440E-002]		

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)

 ***** GENIE QUALITY ASSURANCE *****

Last Results Report
 6/20/16 6:57:29 AM

AG
 6/20/16

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000002GAS-1401C.QC

Detector: GE2
 Geometry: <None>
 Certificate: GAS-1401
 Sample ID: QA Calibration C
 Sample Desc: QA Count
 Sample Quantity: 1.0000E+000
 Sample Date: 10/1/14 12:00:00 AM
 Measurement Date: 6/20/16 6:41:49 AM
 Elapsed Live Time: 900.0 seconds
 Elapsed Real Time: 928.9 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >			
Peak centroid 59.54kev	6.0000E+001				
Boundary Limits: [5.800E+001, 6.100E+001]		<	:	:	>
Peak centroid 661.65 kev	6.6151E+002				
Boundary Limits: [6.600E+002, 6.640E+002]		<	:	:	>
Peak centroid 1332.49 ke	1.3323E+003				
Boundary Limits: [1.331E+003, 1.334E+003]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak centroid 1836.1 kev	1.8356E+003				
Boundary Limits: [1.834E+003, 1.838E+003]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak FWHM Am-241	1.2565E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Peak FWHM Cs-137	2.0727E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Peak FWHM Co-60	1.9881E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Peak FWHM Y-88	2.3902E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Decay corrected activity	1.5244E+005				
Boundary Limits: [1.224E-001, 1.836E-001]		<	:	:	>
Decay corrected activity	6.3721E+004				
Boundary Limits: [4.971E-002, 7.457E-002]		<	:	:	>

Decay corrected activity 1.0029E+005
 Boundary Limits: [7.978E-002, 1.197E-001] < : : : >

Parameter Description	Value	Deviation/Flags
[Mean +/- Std. Dev.]		< LU : SD : UD : BS >

Decay corrected activity	2.0988E+005	
Boundary Limits: [1.714E-001, 2.571E-001]		< : : : >

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
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 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*****
*****      G E N I E    Q U A L I T Y    A S S U R A N C E      *****
*****

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Last Results Report
6/20/16 6:58:22 AM

AG
6/20/16

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000003GAS-1402C.QC

Detector: GE3
 Geometry: <None>
 Certificate: GAS-1402
 Sample ID: QA Calibration C
 Sample Desc: QA Count
 Sample Quantity: 1.0000E+000
 Sample Date: 10/1/14 12:00:00 AM
 Measurement Date: 6/20/16 6:42:08 AM
 Elapsed Live Time: 900.0 seconds
 Elapsed Real Time: 930.2 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >			
Peak centroid 59.54 keV	6.0000E+001	<	:	:	>
Boundary Limits: [5.800E+001, 6.100E+001]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak centroid 661.65 keV	6.6161E+002	<	:	:	>
Boundary Limits: [6.600E+002, 6.640E+002]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak centroid 1332.49 keV	1.3321E+003	<	:	:	>
Boundary Limits: [1.331E+003, 1.334E+003]		<	:	:	>
Peak centroid 1836.1 keV	1.8353E+003	<	:	:	>
Boundary Limits: [1.833E+003, 1.838E+003]		<	:	:	>
Peak FWHM Am-241	1.3994E+000	<	:	:	>
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak FWHM Cs-137	2.0139E+000	<	:	:	>
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak FWHM Co-60	2.1692E+000	<	:	:	>
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Peak FWHM Y-88	2.6297E+000	<	:	:	>
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Decay corrected activity	1.8135E+005	<	:	:	>
Boundary Limits: [1.223E-001, 1.834E-001]		<	:	:	>
Decay corrected activity	6.6211E+004				

Boundary Limits: [4.969E-002, 7.453E-002] < : : : >

Decay corrected activity 1.0118E+005
Boundary Limits: [7.972E-002, 1.120E-001] < : : : >

Parameter Description	Value	Deviation/Flags			
[Mean +/- Std. Dev.]		< LU : SD : UD : BS >			

Decay corrected activity 2.1073E+005
Boundary Limits: [1.713E-001, 2.569E-001] < : : : >

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)

***** GENIE QUALITY ASSURANCE *****

Last Results Report
6/20/16 6:58:45 AM

AG
6/20/16

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000004GAW-14C.QCK

Detector: GE4
Geometry: <None>
Certificate: GAW-14
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/14 12:00:00 AM
Measurement Date: 6/20/16 6:42:24 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 935.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >			
Peak centroid 59.54 keV	5.8905E+001				
Boundary Limits: [5.800E+001, 6.100E+001]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak centroid 661.65 keV	6.6136E+002				
Boundary Limits: [6.600E+002, 6.630E+002]		<	:	:	>
Peak centroid 1332.49 keV	1.3329E+003				
Boundary Limits: [1.331E+003, 1.334E+003]		<	:	:	>
Peak centroid 1836.1 keV	1.8366E+003				
Boundary Limits: [1.834E+003, 1.838E+003]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak FWHM Am-241	2.2276E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak FWHM Cs-137	2.6295E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak FWHM Co-60	2.8792E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Peak FWHM Y-88	3.5106E+000				
Boundary Limits: [5.000E-001, 3.500E+000]		<Ab	:	:	>
Decay corrected activity	1.2632E+005				
Boundary Limits: [1.200E-001, 1.816E-001]		<	:	:	>
Decay corrected activity	6.8324E+004				

Boundary Limits: [4.918E-002, 7.377E-002] < : : >
 Trend Test: The last 9 samples exhibit a bias trend.

Parameter Description	Value	Deviation/Flags
[Mean +/- Std. Dev.]		< LU : SD : UD : BS >

Decay corrected activity	1.0366E+005	
Boundary Limits: [7.892E-002, 1.184E-001]		< : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Decay corrected activity	2.5785E+005	
Boundary Limits: [1.695E-001, 2.543E-001]		<Ab : : >

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)