

AUXIER & ASSOCIATES, INC.

PAP/KAN

**STANDARD LEVEL IV
REPORT OF ANALYSIS**

WORK ORDER #16-06065-OR

August 17, 2016

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

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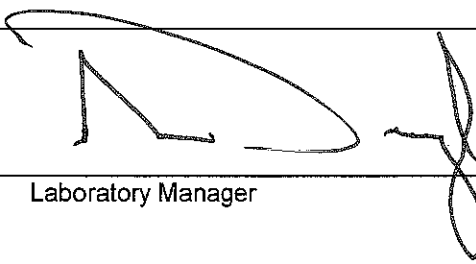
**Eberline Services – Oak Ridge Laboratory
LABORATORY DATA SUPPORT CHECKLIST
MP-001-3**

Eberline Services Work Order # 16-06065

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	JEB	Sample Log-In
		7/1/16	KBS	Data Compilation
		7-11-16	MLT	First Technical Data Review
		7/14/16	llsk	Second Technical Data Review
		8/16/16	J	Data Entry/Electronic Deliverable
		8/16/16	J	Case Narrative
		8/16/16	KBS	Electronic Deliverable Proof
		8/16/16	llsk	Samples Analyzed within Holding Time Yes? <input checked="" type="checkbox"/> No? <input type="checkbox"/>
		8/16/16	llsk	QA/QC Review
		8/16/16	EJT	Client in Possession of Data Electronic or Hard Copy
				Invoiced by Laboratory

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

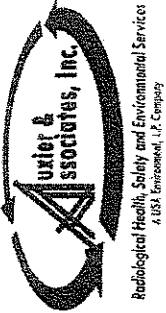
Date package approved by:  8/17/16
 Laboratory Manager Date

Copy No. _____

SECTION I
CHAIN OF CUSTODY

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

16-06065
 REC'D JUN 14 2016



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
CP-5027.00-02	6/2/16	Soil in Plastic Bag	4CP-5013.10-15	6/8/16	Soil in Plastic Bag
CP-5014.00-02	6/7/16	Soil in Plastic Bag	5CP-5011.00-02		Soil in Plastic Bag
CP-5014.02-05		Soil in Plastic Bag	6CP-5011.02-05		Soil in Plastic Bag
CP-5014.05-09		Soil in Plastic Bag	7CP-5011.05-8,5		Soil in Plastic Bag
CP-5014.09-15		Soil in Plastic Bag	8CP-5011.8,5-15		Soil in Plastic Bag
CP-5015.00-02		Soil in Plastic Bag	9CP-5017.00-02		Soil in Plastic Bag
CP-5015.02-05		Soil in Plastic Bag	10CP-5017.02-05		Soil in Plastic Bag
CP-5015.05-09		Soil in Plastic Bag	11CP-5017.05-10		Soil in Plastic Bag
CP-5015.09-15		Soil in Plastic Bag	12CP-5017.10-15		Soil in Plastic Bag
CP-5013.00-02	6/8/16	Soil in Plastic Bag			Soil in Plastic Bag
CP-5013.02-05		Soil in Plastic Bag			Soil in Plastic Bag
CP-5013.05-09		Soil in Plastic Bag			Soil in Plastic Bag

Relinquished By:	Marsha Joseph	Date Shipped:	6/9/16
Method Of Shipment & Tracking #:	8003 3737	Received In Good Condition By:	James E. Bailey
	1796	Date Received:	6-14-16 1100



EBERLINE
SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #

16-06065

Lab Deadline

7/5/2016

Analysis

UISO - Level 4

Sample Matrix

Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location	
REPORT ON DRY WEIGHT BASIS	04	36	F1.1	
	05	41	F1.1	
	06	39	F1.1	
	07	45	F1.1	
	08	53	F1.1	
	09	52	F1.1	
	10	50	F1.1	
	11	57	F1.1	
	12	36	F1.1	

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1208 Key Sci	6-10-16
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	0850 Key Sci	6-17-16
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	850 J. White	6-17-16
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1130 J. White	6-20-16
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	200 J. White	6-20-16 11450
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	200 J. White	6-29-16 0800
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1129 J. White	0800
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1137 WS White	1137
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 #	16-06065
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	36	F1.1	
	05	41	F1.1	
	06	39	F1.1	
	07	45	F1.1	
	08	53	F1.1	
	09	52	F1.1	
	10	50	F1.1	
	11	57	F1.1	
	12	36	F1.1	

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1200 Keyser	6-16-16
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	0850 Keyser	6-17-16
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	850 Pachella	6-17-16
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1130 Pachella	6-20-16
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	9PD	6/20/16 1140
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	224th	6/20/16 0801
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	ICB	6/30/16 1752
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 #	16-06065
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	36	F1.1	
	05	41	F1.1	
	06	39	F1.1	
	07	45	F1.1	
	08	53	F1.1	
	09	52	F1.1	
	10	50	F1.1	
	11	57	F1.1	
	12	36	F1.1	
	REPORT ON DRY WEIGHT BASIS			
	T1-208, Pb 212			

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	King	6-16-16
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	King	6-17-16
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	OB	6-17-16
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	OB	6-17-16
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		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

SECTION II
SAMPLE ACKNOWLEDGEMENT



Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 16-06065

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. Bradley* 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-41115

August 17, 2016

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

CASE NARRATIVE
Work Order # 16-06065-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-5013 10-15	16-06065-04	CP-5017 00-02	16-06065-09
CP-5011 00-02	16-06065-05	CP-5017 02-05	16-06065-10
CP-5011 02-05	16-06065-06	CP-5017 05-10	16-06065-11
CP-5011 05-8 5	16-06065-07	CP-5017 10-15	16-06065-12
CP-5011 8 5-15	16-06065-08		

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 and Uranium-238 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Uranium-235 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. 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 and Thorium-232 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Thorium-230 and Thorium-232 laboratory control sample demonstrated an acceptable percent recovery.

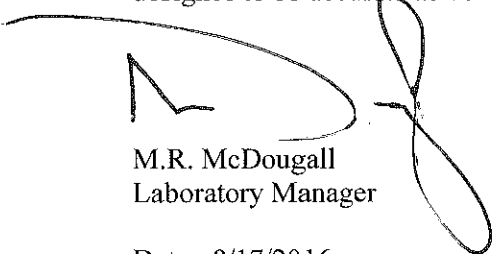
GAMMA SPECTROSCOPY

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

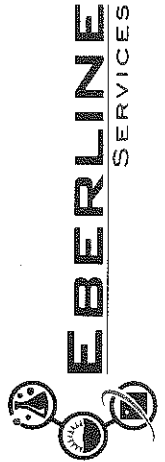
SDG: 16-06065
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

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
16-06065-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/17/2016	16-06065	Cobalt-60	LANL ER-130 Modified	1.37E+02	5.48E+00				pCi/g
16-06065-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/17/2016	16-06065	Cesium-137	LANL ER-130 Modified	8.69E+01	3.48E+00				pCi/g
16-06065-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/17/2016	16-06065	Cobalt-60	LANL ER-130 Modified	1.41E+02	9.74E+00	1.21E+01	1.36E+00	1.48E+00	pCi/g
16-06065-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/17/2016	16-06065	Cesium-137	LANL ER-130 Modified	8.76E+01	8.39E+00	9.52E+00	1.68E+00	8.30E-01	pCi/g
16-06065-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/17/2016	16-06065	Actinium-228	LANL ER-130 Modified	-3.50E-02	1.63E-01	1.63E-01	2.58E-01	1.11E-01	pCi/g
16-06065-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/17/2016	16-06065	Bismuth-214	LANL ER-130 Modified	-1.87E-02	8.63E-02	8.63E-02	1.39E-01	6.21E-02	pCi/g
16-06065-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/17/2016	16-06065	Potassium-40	LANL ER-130 Modified	2.43E-01	3.05E-01	3.05E-01	7.52E-01	3.04E-01	pCi/g
16-06065-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/17/2016	16-06065	Protactinium-231	LANL ER-130 Modified	4.33E-01	1.14E+00	1.14E+00	1.93E+00	8.92E-01	pCi/g
16-06065-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-210	LANL ER-130 Modified	4.48E-02	3.33E-01	3.33E-01	5.25E-01	2.51E-01	pCi/g
16-06065-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-212	LANL ER-130 Modified	-2.68E-02	6.17E-02	6.17E-02	9.37E-02	4.38E-02	pCi/g
16-06065-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-214	LANL ER-130 Modified	8.38E-02	7.34E-02	7.35E-02	1.36E-01	6.28E-02	pCi/g
16-06065-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/17/2016	16-06065	Thallium-208	LANL ER-130 Modified	-4.20E-02	1.24E-01	1.24E-01	1.92E-01	8.55E-02	pCi/g
16-06065-03	DUP	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Actinium-228	LANL ER-130 Modified	1.68E+00	2.24E-01	2.40E-01	3.47E-01	1.64E-01	pCi/g
16-06065-03	DUP	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Bismuth-214	LANL ER-130 Modified	8.84E-01	1.35E-01	1.42E-01	1.54E-01	1.04E-01	pCi/g
16-06065-03	DUP	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Potassium-40	LANL ER-130 Modified	2.34E+01	2.57E+00	2.84E+00	9.84E-01	4.52E-01	pCi/g
16-06065-03	DUP	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Protactinium-231	LANL ER-130 Modified	9.08E-01	1.44E+00	1.44E+00	2.41E+00	1.16E+00	pCi/g
16-06065-03	DUP	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-210	LANL ER-130 Modified	1.51E+00	1.52E+00	1.53E+00	2.53E+00	1.24E+00	pCi/g
16-06065-03	DUP	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-212	LANL ER-130 Modified	1.17E+00	1.63E-01	1.74E-01	2.59E-01	1.27E-01	pCi/g
16-06065-03	DUP	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-214	LANL ER-130 Modified	9.93E-01	1.37E-01	1.47E-01	2.48E-01	1.21E-01	pCi/g
16-06065-03	DUP	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Thallium-208	LANL ER-130 Modified	1.02E+00	1.64E-01	1.72E-01	1.67E-01	1.50E-01	pCi/g
16-06065-04	DO	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Actinium-228	LANL ER-130 Modified	1.59E+00	1.88E-01	2.06E-01	4.49E-01	2.15E-01	pCi/g
16-06065-04	DO	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Bismuth-214	LANL ER-130 Modified	8.34E-01	1.50E-01	1.56E-01	2.03E-01	9.75E-02	pCi/g
16-06065-04	DO	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Potassium-40	LANL ER-130 Modified	2.49E+01	2.71E+00	3.00E+00	1.06E+00	4.97E-01	pCi/g
16-06065-04	DO	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Protactinium-231	LANL ER-130 Modified	1.89E+00	1.44E+00	1.44E+00	2.49E+00	1.20E+00	pCi/g
16-06065-04	DO	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-210	LANL ER-130 Modified	1.07E+00	1.51E+00	1.51E+00	2.03E+00	9.90E-01	pCi/g
16-06065-04	DO	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-212	LANL ER-130 Modified	1.55E+00	1.77E-01	1.94E-01	2.47E-01	1.21E-01	pCi/g
16-06065-04	DO	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-214	LANL ER-130 Modified	9.85E-01	1.37E-01	1.49E-01	2.24E-01	1.09E-01	pCi/g
16-06065-04	DO	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Thallium-208	LANL ER-130 Modified	1.16E+00	1.66E-01	1.77E-01	1.05E-01	1.43E-01	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



EBERLINE ANALYTICAL CORPORATION

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

Eberline Analytical

Final Report of Analysis

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

16-06065
PAP-KAN
ENVIRONMENTAL
SO

Report To:

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
16-06065-05	TRG	CP-5011 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Actinium-228	LANL ER-130 Modified	1.70E+00	3.08E-01	3.20E-01	4.42E-01	2.07E-01	pCi/g
16-06065-05	TRG	CP-5011 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Bismuth-214	LANL ER-130 Modified	1.66E+00	2.15E-01	2.32E-01	2.35E-01	1.12E-01	pCi/g
16-06065-05	TRG	CP-5011 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Potassium-40	LANL ER-130 Modified	2.11E+01	2.66E+00	2.87E+00	1.30E+00	5.98E-01	pCi/g
16-06065-05	TRG	CP-5011 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Protactinium-231	LANL ER-130 Modified	-2.22E+00	2.53E+00	2.53E+00	2.81E+00	1.34E+00	pCi/g
16-06065-05	TRG	CP-5011 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-210	LANL ER-130 Modified	1.98E+00	1.74E+00	1.74E+00	2.88E+00	1.41E+00	pCi/g
16-06065-05	TRG	CP-5011 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-212	LANL ER-130 Modified	1.24E+00	2.13E-01	2.23E-01	2.84E-01	1.29E-01	pCi/g
16-06065-05	TRG	CP-5011 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-214	LANL ER-130 Modified	1.63E+00	2.41E-01	2.55E-01	2.73E-01	1.31E-01	pCi/g
16-06065-05	TRG	CP-5011 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Thallium-208	LANL ER-130 Modified	1.17E+00	2.08E-01	2.16E-01	1.24E-01	1.87E-01	pCi/g
16-06065-06	TRG	CP-5011 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Actinium-228	LANL ER-130 Modified	1.71E+00	2.84E-01	2.97E-01	4.20E-01	1.95E-01	pCi/g
16-06065-06	TRG	CP-5011 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Bismuth-214	LANL ER-130 Modified	1.38E+00	2.12E-01	2.23E-01	9.01E-02	1.50E-01	pCi/g
16-06065-06	TRG	CP-5011 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Potassium-40	LANL ER-130 Modified	2.18E+01	2.72E+00	2.94E+00	1.35E+00	6.16E-01	pCi/g
16-06065-06	TRG	CP-5011 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Protactinium-231	LANL ER-130 Modified	-2.21E-02	9.13E-01	9.13E-01	3.58E+00	1.72E+00	pCi/g
16-06065-06	TRG	CP-5011 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-210	LANL ER-130 Modified	1.62E-01	1.93E+00	1.93E+00	2.47E+00	1.20E+00	pCi/g
16-06065-06	TRG	CP-5011 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-212	LANL ER-130 Modified	1.72E+00	1.92E-01	2.11E-01	2.83E-01	1.38E-01	pCi/g
16-06065-06	TRG	CP-5011 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-214	LANL ER-130 Modified	1.16E+00	1.91E-01	2.00E-01	3.39E-01	1.85E-01	pCi/g
16-06065-06	TRG	CP-5011 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Thallium-208	LANL ER-130 Modified	1.27E+00	2.33E-01	2.42E-01	1.58E-01	2.19E-01	pCi/g
16-06065-07	TRG	CP-5011 05-8 5	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Actinium-228	LANL ER-130 Modified	2.00E+00	6.58E-01	6.65E-01	1.04E+00	4.94E-01	pCi/g
16-06065-07	TRG	CP-5011 05-8 5	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Bismuth-214	LANL ER-130 Modified	1.38E+00	3.68E-01	3.75E-01	2.41E-01	3.00E-01	pCi/g
16-06065-07	TRG	CP-5011 05-8 5	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Potassium-40	LANL ER-130 Modified	2.47E+01	4.39E+00	4.57E+00	2.05E+00	8.71E-01	pCi/g
16-06065-07	TRG	CP-5011 05-8 5	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Protactinium-231	LANL ER-130 Modified	-2.50E-01	1.38E+00	1.38E+00	7.28E+00	3.48E+00	pCi/g
16-06065-07	TRG	CP-5011 05-8 5	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-210	LANL ER-130 Modified	1.53E+00	1.26E+00	1.26E+00	2.01E+00	9.80E-01	pCi/g
16-06065-07	TRG	CP-5011 05-8 5	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-212	LANL ER-130 Modified	2.24E+00	4.15E-01	4.31E-01	4.82E-01	2.35E-01	pCi/g
16-06065-07	TRG	CP-5011 05-8 5	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-214	LANL ER-130 Modified	1.59E+00	3.83E-01	3.92E-01	6.91E-01	3.34E-01	pCi/g
16-06065-07	TRG	CP-5011 05-8 5	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Thallium-208	LANL ER-130 Modified	1.88E+00	4.96E-01	5.05E-01	1.42E-01	5.03E-01	pCi/g
16-06065-08	TRG	CP-5011 8 5-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Actinium-228	LANL ER-130 Modified	1.84E+00	3.04E-01	3.18E-01	4.85E-01	2.28E-01	pCi/g
16-06065-08	TRG	CP-5011 8 5-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Bismuth-214	LANL ER-130 Modified	9.35E-01	1.83E-01	1.90E-01	2.75E-01	1.43E-01	pCi/g
16-06065-08	TRG	CP-5011 8 5-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Potassium-40	LANL ER-130 Modified	2.51E+01	3.05E+00	3.31E+00	1.42E+00	6.99E-01	pCi/g
16-06065-08	TRG	CP-5011 8 5-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Protactinium-231	LANL ER-130 Modified	-1.04E+00	2.38E+00	2.38E+00	2.85E+00	1.36E+00	pCi/g
16-06065-08	TRG	CP-5011 8 5-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-210	LANL ER-130 Modified	1.97E+00	1.71E+00	1.71E+00	2.83E+00	1.38E+00	pCi/g
16-06065-08	TRG	CP-5011 8 5-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-212	LANL ER-130 Modified	1.53E+00	2.52E-01	2.64E-01	2.45E-01	1.19E-01	pCi/g
16-06065-08	TRG	CP-5011 8 5-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-214	LANL ER-130 Modified	1.04E+00	1.87E-01	1.95E-01	2.68E-01	1.29E-01	pCi/g
16-06065-08	TRG	CP-5011 8 5-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Thallium-208	LANL ER-130 Modified	1.26E+00	2.18E-01	2.28E-01	1.27E-01	1.93E-01	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 CORPORATION

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Eberline Analytical

Final Report of Analysis

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

Report To:

16-06065

PAP-KAN

ENVIRONMENTAL

SO

Work Order Details:

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
16-06065-09	TRG	CP-5017 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Actinium-228	LANL ER-130 Modified	1.19E+00	2.42E-01	2.50E-01	4.01E-01	1.87E-01	pCi/g
16-06065-09	TRG	CP-5017 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Bismuth-214	LANL ER-130 Modified	9.77E-01	1.66E-01	1.74E-01	2.00E-01	9.43E-02	pCi/g
16-06065-09	TRG	CP-5017 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Potassium-40	LANL ER-130 Modified	1.84E+01	2.33E+00	2.51E+00	1.32E+00	6.08E-01	pCi/g
16-06065-09	TRG	CP-5017 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Protactinium-231	LANL ER-130 Modified	8.65E-01	1.70E+00	1.70E+00	2.96E+00	1.42E+00	pCi/g
16-06065-09	TRG	CP-5017 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-210	LANL ER-130 Modified	2.46E+00	1.65E+00	1.65E+00	2.69E+00	1.32E+00	pCi/g
16-06065-09	TRG	CP-5017 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-212	LANL ER-130 Modified	1.29E+00	1.58E-01	1.71E-01	3.47E-01	1.71E-01	pCi/g
16-06065-09	TRG	CP-5017 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-214	LANL ER-130 Modified	9.89E-01	1.47E-01	1.55E-01	2.00E-01	9.57E-02	pCi/g
16-06065-09	TRG	CP-5017 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Thallium-208	LANL ER-130 Modified	8.56E-01	1.84E-01	1.89E-01	2.12E-01	1.82E-01	pCi/g
16-06065-10	TRG	CP-5017 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Actinium-228	LANL ER-130 Modified	1.47E+00	2.02E-01	2.16E-01	3.49E-01	1.65E-01	pCi/g
16-06065-10	TRG	CP-5017 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Bismuth-214	LANL ER-130 Modified	1.00E+00	1.41E-01	1.50E-01	1.66E-01	7.90E-02	pCi/g
16-06065-10	TRG	CP-5017 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Potassium-40	LANL ER-130 Modified	1.89E+01	2.18E+00	2.39E+00	9.91E-01	4.61E-01	pCi/g
16-06065-10	TRG	CP-5017 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Protactinium-231	LANL ER-130 Modified	1.11E+00	1.31E+00	1.31E+00	2.21E+00	1.06E+00	pCi/g
16-06065-10	TRG	CP-5017 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-210	LANL ER-130 Modified	1.67E+00	1.42E+00	1.43E+00	2.35E+00	1.15E+00	pCi/g
16-06065-10	TRG	CP-5017 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-212	LANL ER-130 Modified	1.24E+00	1.55E-01	1.67E-01	2.58E-01	1.27E-01	pCi/g
16-06065-10	TRG	CP-5017 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-214	LANL ER-130 Modified	1.05E+00	1.49E-01	1.58E-01	2.32E-01	1.12E-01	pCi/g
16-06065-10	TRG	CP-5017 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Thallium-208	LANL ER-130 Modified	1.11E+00	1.54E-01	1.64E-01	1.43E-01	1.32E-01	pCi/g
16-06065-11	TRG	CP-5017 05-10	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Actinium-228	LANL ER-130 Modified	2.30E+00	4.53E-01	4.68E-01	7.03E-01	3.28E-01	pCi/g
16-06065-11	TRG	CP-5017 05-10	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Bismuth-214	LANL ER-130 Modified	1.27E+00	2.59E-01	2.68E-01	5.22E-01	2.51E-01	pCi/g
16-06065-11	TRG	CP-5017 05-10	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Potassium-40	LANL ER-130 Modified	7.22E+00	3.57E+00	3.83E+00	1.75E+00	7.87E-01	pCi/g
16-06065-11	TRG	CP-5017 05-10	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Protactinium-231	LANL ER-130 Modified	2.35E+00	3.16E+00	3.19E+00	5.45E+00	2.62E+00	pCi/g
16-06065-11	TRG	CP-5017 05-10	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-210	LANL ER-130 Modified	2.45E+00	2.28E+00	2.29E+00	3.79E+00	1.84E+00	pCi/g
16-06065-11	TRG	CP-5017 05-10	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-212	LANL ER-130 Modified	2.45E+00	2.81E-01	3.08E-01	3.11E-01	1.51E-01	pCi/g
16-06065-11	TRG	CP-5017 05-10	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-214	LANL ER-130 Modified	1.46E+00	2.69E-01	2.80E-01	4.73E-01	2.29E-01	pCi/g
16-06065-11	TRG	CP-5017 05-10	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Thallium-208	LANL ER-130 Modified	1.63E+00	3.18E-01	3.29E-01	2.43E-01	2.99E-01	pCi/g
16-06065-12	TRG	CP-5017 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Actinium-228	LANL ER-130 Modified	2.14E+00	3.07E-01	3.26E-01	5.27E-01	2.49E-01	pCi/g
16-06065-12	TRG	CP-5017 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Bismuth-214	LANL ER-130 Modified	1.37E+00	2.22E-01	2.33E-01	3.03E-01	1.45E-01	pCi/g
16-06065-12	TRG	CP-5017 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Potassium-40	LANL ER-130 Modified	3.00E+01	3.46E+00	3.79E+00	1.58E+00	7.34E-01	pCi/g
16-06065-12	TRG	CP-5017 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Protactinium-231	LANL ER-130 Modified	3.29E+00	2.03E+00	2.04E+00	3.60E+00	1.72E+00	pCi/g
16-06065-12	TRG	CP-5017 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-210	LANL ER-130 Modified	1.99E+00	2.18E+00	2.19E+00	3.64E+00	1.78E+00	pCi/g
16-06065-12	TRG	CP-5017 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-212	LANL ER-130 Modified	1.70E+00	2.44E-01	2.59E-01	3.92E-01	1.92E-01	pCi/g
16-06065-12	TRG	CP-5017 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Lead-214	LANL ER-130 Modified	1.35E+00	2.22E-01	2.32E-01	3.59E-01	1.74E-01	pCi/g
16-06065-12	TRG	CP-5017 10-15	06/08/16 00:00	6/14/2016	6/17/2016	16-06065	Thallium-208	LANL ER-130 Modified	1.70E+00	2.57E-01	2.72E-01	2.64E-01	2.07E-01	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

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SDG: 16-06065
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

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
16-06065-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-230	EML Th-01 Modified	5.37E+00	1.45E-01	1.26E+00	8.10E-02	7.04E-02	pCi/g
16-06065-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-230	EML Th-01 Modified	6.43E+00	9.78E-01	1.26E+00	8.10E-02	7.04E-02	pCi/g
16-06065-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-230	EML Th-01 Modified	2.23E-02	3.35E-02	3.36E-02	5.43E-02	5.67E-02	pCi/g
16-06065-03	DUP	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-230	EML Th-01 Modified	1.39E+00	2.93E-01	3.40E-01	4.29E-02	4.46E-02	pCi/g
16-06065-04	DO	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-230	EML Th-01 Modified	1.39E+00	3.14E-01	3.58E-01	4.71E-02	5.13E-02	pCi/g
16-06065-05	TRG	CP-5011 00-02	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-230	EML Th-01 Modified	1.73E+00	3.71E-01	4.28E-01	7.13E-02	6.60E-02	pCi/g
16-06065-06	TRG	CP-5011 02-05	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-230	EML Th-01 Modified	1.40E+00	3.15E-01	3.60E-01	3.78E-02	4.96E-02	pCi/g
16-06065-07	TRG	CP-5011 05-8-5	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-230	EML Th-01 Modified	1.32E+00	3.19E-01	3.59E-01	6.44E-02	6.25E-02	pCi/g
16-06065-08	TRG	CP-5011 8 5-15	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-230	EML Th-01 Modified	1.27E+00	2.99E-01	3.37E-01	4.87E-02	5.30E-02	pCi/g
16-06065-09	TRG	CP-5017 00-02	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-230	EML Th-01 Modified	1.44E+00	3.45E-01	3.88E-01	5.26E-02	5.73E-02	pCi/g
16-06065-10	TRG	CP-5017 02-05	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-230	EML Th-01 Modified	1.19E+00	2.78E-01	3.14E-01	4.19E-02	4.88E-02	pCi/g
16-06065-11	TRG	CP-5017 05-10	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-230	EML Th-01 Modified	1.50E+00	3.69E-01	4.13E-01	5.64E-02	6.15E-02	pCi/g
16-06065-12	TRG	CP-5017 10-15	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-230	EML Th-01 Modified	1.40E+00	3.09E-01	3.54E-01	6.09E-02	5.71E-02	pCi/g
16-06065-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-232	EML Th-01 Modified	4.71E+00	1.69E-01				pCi/g
16-06065-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-232	EML Th-01 Modified	5.51E+00	8.62E-01	9.89E-01	6.45E-02	5.71E-03	pCi/g
16-06065-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-232	EML Th-01 Modified	2.58E-02	3.32E-02	3.33E-02	4.59E-02	4.07E-03	pCi/g
16-06065-03	DUP	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-232	EML Th-01 Modified	1.18E+00	2.58E-01	2.79E-01	3.63E-02	3.20E-03	pCi/g
16-06065-04	DO	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-232	EML Th-01 Modified	1.15E+00	2.74E-01	2.92E-01	3.74E-02	2.27E-03	pCi/g
16-06065-05	TRG	CP-5011 00-02	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-232	EML Th-01 Modified	9.97E-01	2.45E-01	2.60E-01	5.72E-02	1.11E-02	pCi/g
16-06065-06	TRG	CP-5011 02-05	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-232	EML Th-01 Modified	1.50E+00	3.32E-01	3.58E-01	5.10E-02	6.89E-03	pCi/g
16-06065-07	TRG	CP-5011 05-8-5	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-232	EML Th-01 Modified	1.28E+00	3.13E-01	3.33E-01	8.55E-02	2.90E-02	pCi/g
16-06065-08	TRG	CP-5011 8 5-15	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-232	EML Th-01 Modified	1.27E+00	3.00E-01	3.20E-01	4.43E-02	3.92E-03	pCi/g
16-06065-09	TRG	CP-5017 00-02	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-232	EML Th-01 Modified	1.19E+00	2.99E-01	3.17E-01	6.31E-02	1.10E-02	pCi/g
16-06065-10	TRG	CP-5017 02-05	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-232	EML Th-01 Modified	1.12E+00	2.66E-01	2.84E-01	5.24E-02	8.19E-03	pCi/g
16-06065-11	TRG	CP-5017 05-10	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-232	EML Th-01 Modified	1.07E+00	2.89E-01	3.04E-01	9.95E-02	3.74E-02	pCi/g
16-06065-12	TRG	CP-5017 10-15	06/08/16 00:00	6/14/2016	6/30/2016	16-06065	Thorium-232	EML Th-01 Modified	1.11E+00	2.61E-01	2.79E-01	7.10E-02	2.31E-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



EBERLINE
 SERVICES

EBERLINE ANALYTICAL CORPORATION

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

000020

Eberline Analytical

Final Report of Analysis

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

SDG: 16-06065
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
16-06065-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-234	EML U-02 Modified	8.05E+00	2.90E-01	9.70E-01	5.74E-02	1.15E-02	pCi/g
16-06065-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-234	EML U-02 Modified	6.43E+00	8.54E-01	9.70E-01	5.74E-02	1.15E-02	pCi/g
16-06065-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-234	EML U-02 Modified	7.00E-02	5.27E-02	5.29E-02	4.91E-02	1.05E-02	pCi/g
16-06065-03	DUP	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-234	EML U-02 Modified	1.06E+00	2.18E-01	2.31E-01	6.41E-02	2.10E-02	pCi/g
16-06065-04	DO	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-234	EML U-02 Modified	9.48E-01	2.22E-01	2.32E-01	6.11E-02	6.31E-03	pCi/g
16-06065-05	TRG	CP-5011 00-02	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-234	EML U-02 Modified	1.14E+00	2.31E-01	2.45E-01	3.66E-02	6.88E-03	pCi/g
16-06065-06	TRG	CP-5011 02-05	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-234	EML U-02 Modified	9.13E-01	2.28E-01	2.34E-01	4.80E-02	8.67E-03	pCi/g
16-06065-07	TRG	CP-5011 05-8.5	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-234	EML U-02 Modified	6.98E-01	1.78E-01	1.85E-01	7.04E-02	2.30E-02	pCi/g
16-06065-08	TRG	CP-5011 8.5-15	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-234	EML U-02 Modified	8.90E-01	2.79E-01	2.86E-01	9.25E-02	1.98E-02	pCi/g
16-06065-09	TRG	CP-5017 00-02	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-234	EML U-02 Modified	7.93E-01	1.92E-01	2.01E-01	6.91E-02	2.17E-02	pCi/g
16-06065-10	TRG	CP-5017 02-05	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-234	EML U-02 Modified	8.65E-01	1.93E-01	2.03E-01	3.62E-02	6.83E-03	pCi/g
16-06065-11	TRG	CP-5017 05-10	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-234	EML U-02 Modified	8.67E-01	2.43E-01	2.51E-01	1.06E-01	3.61E-02	pCi/g
16-06065-12	TRG	CP-5017 10-15	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-234	EML U-02 Modified	9.45E-01	2.58E-01	2.64E-01	7.89E-02	1.76E-02	pCi/g
16-06065-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-235	EML U-02 Modified	4.54E-01	1.68E-01	1.71E-01	7.08E-02	5.65E-03	pCi/g
16-06065-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-235	EML U-02 Modified	2.11E-02	3.23E-02	3.23E-02	4.81E-02	2.81E-03	pCi/g
16-06065-03	DUP	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-235	EML U-02 Modified	5.38E-02	5.11E-02	5.12E-02	6.26E-02	8.27E-03	pCi/g
16-06065-04	DO	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-235	EML U-02 Modified	1.49E-01	8.72E-02	8.78E-02	5.25E-02	3.07E-03	pCi/g
16-06065-05	TRG	CP-5011 00-02	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-235	EML U-02 Modified	6.48E-02	5.68E-02	5.67E-02	6.48E-02	1.14E-03	pCi/g
16-06065-06	TRG	CP-5011 02-05	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-235	EML U-02 Modified	1.09E-01	8.10E-02	8.14E-02	8.16E-02	1.44E-03	pCi/g
16-06065-07	TRG	CP-5011 05-8.5	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-235	EML U-02 Modified	1.12E-02	3.31E-02	3.31E-02	7.22E-02	1.06E-02	pCi/g
16-06065-08	TRG	CP-5011 8.5-15	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-235	EML U-02 Modified	7.96E-02	8.67E-02	8.69E-02	1.04E-01	8.28E-03	pCi/g
16-06065-09	TRG	CP-5017 00-02	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-235	EML U-02 Modified	1.01E-01	6.94E-02	6.97E-02	5.55E-02	4.41E-03	pCi/g
16-06065-10	TRG	CP-5017 02-05	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-235	EML U-02 Modified	6.57E-02	5.64E-02	5.66E-02	6.40E-02	8.50E-03	pCi/g
16-06065-11	TRG	CP-5017 05-10	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-235	EML U-02 Modified	7.51E-02	7.48E-02	7.47E-02	8.78E-02	8.69E-03	pCi/g
16-06065-12	TRG	CP-5017 10-15	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-235	EML U-02 Modified	8.38E-02	8.26E-02	8.28E-02	1.06E-01	1.56E-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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601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Eberline Analytical

Final Report of Analysis

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

SDG: 16-06065
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

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
16-06065-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-238	EML U-02 Modified	7.79E+00	2.81E-01	1.03E+00	6.27E-02	1.36E-02	pCi/g
16-06065-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-238	EML U-02 Modified	6.94E+00	9.07E-01	1.03E+00	6.27E-02	1.36E-02	pCi/g
16-06065-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-238	EML U-02 Modified	3.71E-02	4.17E-02	4.18E-02	5.87E-02	1.54E-02	pCi/g
16-06065-03	DUP	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-238	EML U-02 Modified	9.58E-01	2.04E-01	2.15E-01	5.78E-02	1.67E-02	pCi/g
16-06065-04	DO	CP-5013 10-15	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-238	EML U-02 Modified	1.11E+00	2.43E-01	2.65E-01	4.24E-02	8.12E-03	pCi/g
16-06065-05	TRG	CP-5011 00-02	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-238	EML U-02 Modified	1.10E+00	2.26E-01	2.40E-01	4.92E-02	1.14E-02	pCi/g
16-06065-06	TRG	CP-5011 02-05	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-238	EML U-02 Modified	9.79E-01	2.38E-01	2.45E-01	6.57E-02	1.62E-02	pCi/g
16-06065-07	TRG	CP-5011 05-8.5	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-238	EML U-02 Modified	6.38E-01	1.67E-01	1.74E-01	5.83E-02	1.52E-02	pCi/g
16-06065-08	TRG	CP-5011 8.5-15	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-238	EML U-02 Modified	7.90E-01	2.60E-01	2.66E-01	1.05E-01	1.10E-02	pCi/g
16-06065-09	TRG	CP-5017 00-02	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-238	EML U-02 Modified	8.29E-01	1.96E-01	2.05E-01	4.92E-02	1.06E-02	pCi/g
16-06065-10	TRG	CP-5017 02-05	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-238	EML U-02 Modified	8.50E-01	1.91E-01	2.00E-01	4.53E-02	9.84E-03	pCi/g
16-06065-11	TRG	CP-5017 05-10	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-238	EML U-02 Modified	7.98E-01	2.29E-01	2.38E-01	8.50E-02	2.23E-02	pCi/g
16-06065-12	TRG	CP-5017 10-15	06/08/16 00:00	6/14/2016	6/29/2016	16-06065	Uranium-238	EML U-02 Modified	1.04E+00	2.89E-01	2.79E-01	7.86E-02	1.77E-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 CORPORATION

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

SECTION V
ANALYTICAL STANDARD

U-8

QA/QC REVIEWED
Date 1/16/95 Initials [initials]

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: +3.0%
b. Random uncertainty in assay: +0.0%
c. Random uncertainty in weighing(s): +2.0%
d. Total uncertainty at the 99% confidence level: +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 7/11/1995 0:00
Certified Activity 8.016E+00 μCi
Certified Concentration $\mu\text{Ci per gram}$

Ampoule /Solution Gross 97.6400 Weight, Grams
Empty Ampoule 32.5020 Weight, Grams
Solution Net 65.1380 Weight, Grams
Total Activity in Ampoule 8.0160 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 234, 235, 238 U | Half Life, Years 4.468E+09 | Half Life, Days 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 Activity Concentration: 7.1182E+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.

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 [Signature]

Date: 7/11/2016 0:00

QC Approval [Signature]

Date: 7/19/16

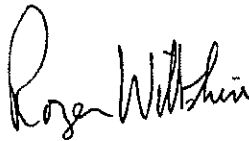
RECORD COPY

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 HNO3 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/G7 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 $\mu\text{Ci per gram}$

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 [Signature] Date: 10/27/2015 0:00
QC Approval [Signature] 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 92/232/87

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

Principal Radionuclide

Half Life, Years

Half Life, Days

²³²U

7.200E+01

2.630E+04

Radionuclide of Interest

²³²U

Reference Date

3/1/2000 0:00

Parent Solution Conc. 2.167E+03 dpm/ml

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:	±3.0%
b. Random uncertainty in assay:	±0.0%
c. Random uncertainty in weighing(s):	±2.0%
d. Total uncertainty at the 99% confidence level:	±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
Burbank, California 91504
(818) 843 - 7000

Arma 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
Principal Radionuclide		Half Life, Years	Solution #	Th-8b
228 & 232 Th		1.405E+10	Half Life, Days	5.132E+12
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(NO ₃) ₄ in 1% HNO ₃				

Dilution Instructions: Dilution Solvent Used 1% Nitric Acid

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 500.0000 ml
Total Activity: 1.0355E+05 dpm
Final Volume: 1000.00 ml
Final Activity Concentration: 1.0355E+02 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: August 25, 2016

Verified & Approved By 

Date: 9/29/2015 0:00

QC Approval 

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
Half Life: $(7.54 \pm 0.03) \times 10^4$ years
Catalog No.: 7230
Source No.: 388-116

Customer: TMA EBERLINE
P.O.No.: TT4944
Reference Date: November 1 1991 12:00 PST.
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
 1800 No. Keystone Street.,
 Burbank, California 91504
 (818) 843 - 7000

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

Radionuclide	²³⁰ Thorium	Reference Date	11/1/1991 0:00
Certified Activity	1.036E+00 μ Ci		
Certified Concentration	μ Ci per gram		

Ampoule /Solution Gross	9.2660	Weight, Grams
Empty Ampoule	4.6218	Weight, Grams
Solution Net	4.6442	Weight, Grams
Total Activity in Ampoule	1.0360	μ Ci

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 μ Ci 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 [Signature]

Date: 3/5/2016 0:00

QC Approval [Signature]

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

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 

Date: 3/5/2016 0:00

QC Approval 

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.

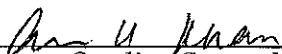
Peak energy used for integration:	193.5 keV
Branching ratio used:	0.0441 gammas per decay

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 μ Ci
Certified Concentration μ 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	μ Ci


Chemical Composition of Standard Solution
²²⁹Th(NO₃)₄ in 0.1M HNO₃

Dilution Instructions: **Dilution Solvent Used** 0.1 M HNO₃
Dilute to a volume of 1000.00 **milliliters**

Certified Total Activity of 1.0130 μ Ci **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	Half Life, Years	Half Life, Days		
²²⁸ Th	7.340E+03	2.681E+06		

Radionuclide of Interest	²²⁸ Th	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 HNO ₃
------------------------	-----------------------	-----------------------

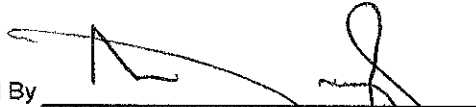
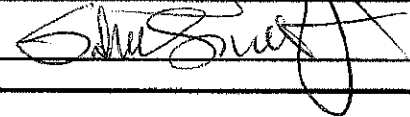
SECONDARY VOLUMETRIC DILUTION

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

Date: 9/29/2015 0:00
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)

ANA Form 005 Rev. 11/04



SECTION VI
QUALITY CONTROL SAMPLE RESULTS SUMMARY

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06065	UUISO	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	79.92%	15.08%	100.00%	3.60%	8.05E+00	2.90E-01	6.43E+00	9.70E-01	U-8a	3.20E+01	3.60E+00	5.58E-01
U-238	89.02%	14.90%	100.00%	3.60%	7.79E+00	2.81E-01	6.94E+00	1.03E+00	U-8a	3.10E+01	3.60E+00	5.58E-01

Matrix Spike

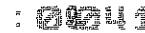
Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)

Replicate Sample

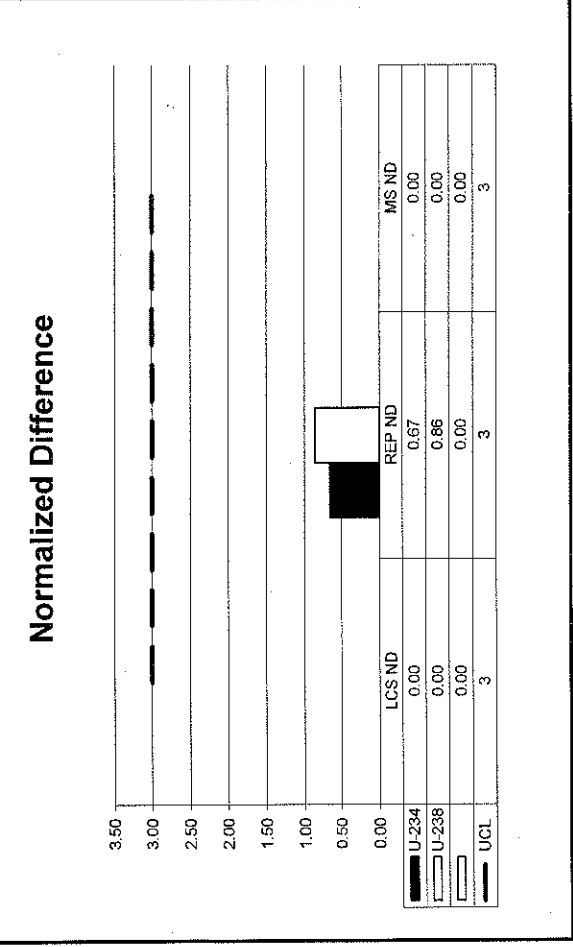
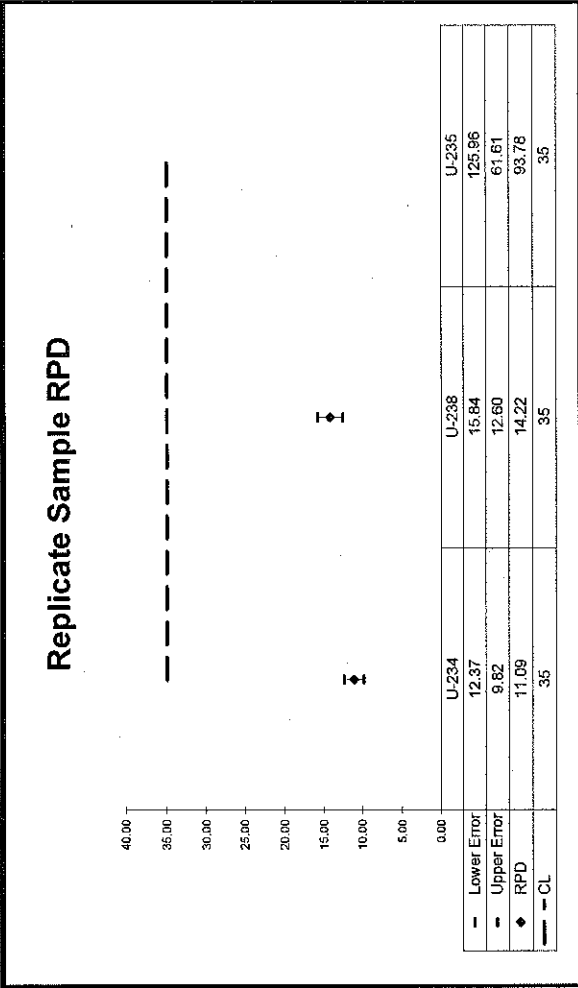
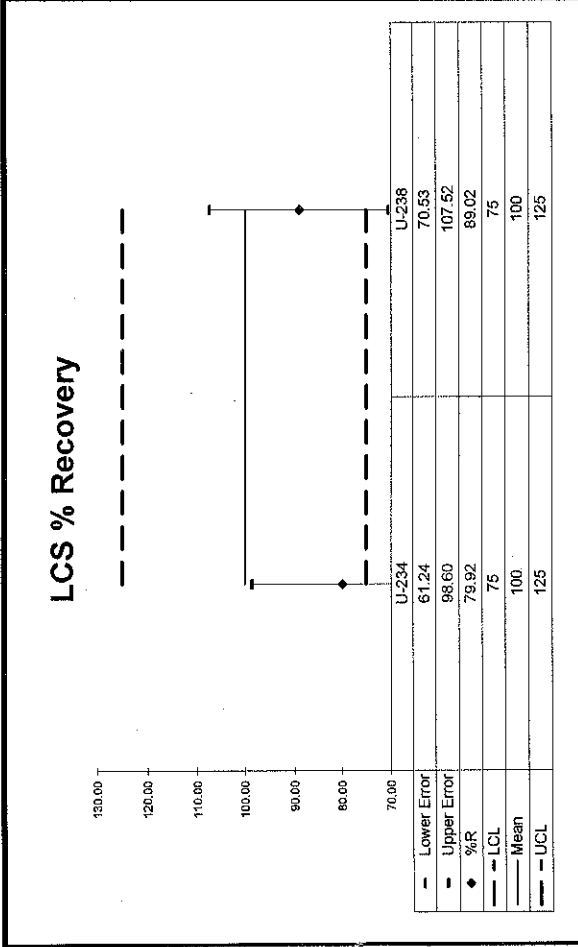
Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
U-234	0.67	11.09	9.48E-01	2.32E-01	1.06E+00	2.31E-01	0.80	OK			OK	OK
U-238	0.86	14.22	1.11E+00	2.55E-01	9.58E-01	2.15E-01	0.89	OK			OK	OK
U-235	1.83	93.78	1.49E-01	8.78E-02	5.38E-02	5.12E-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	0.67	11.09	9.48E-01	2.32E-01	1.06E+00	2.31E-01	0.80	OK			OK	OK
U-238	0.86	14.22	1.11E+00	2.55E-01	9.58E-01	2.15E-01	0.89	OK			OK	OK
U-235	1.83	93.78	1.49E-01	8.78E-02	5.38E-02	5.12E-02		OK			NA	OK



WO	Analysis	Run	Activity Units	Allquot Units	Client Name
16-06065	UUIISO	1	pCi	g	Auxier & Associates, Inc.



No Matrix Spike

2105050042

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06065	ThISO	1	pCi	g	Auxier & Associates, Inc.

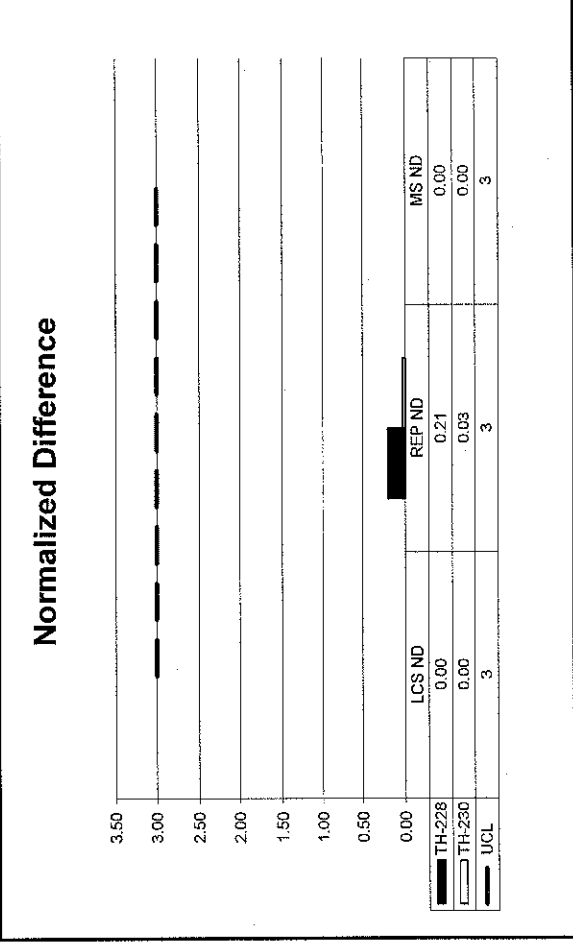
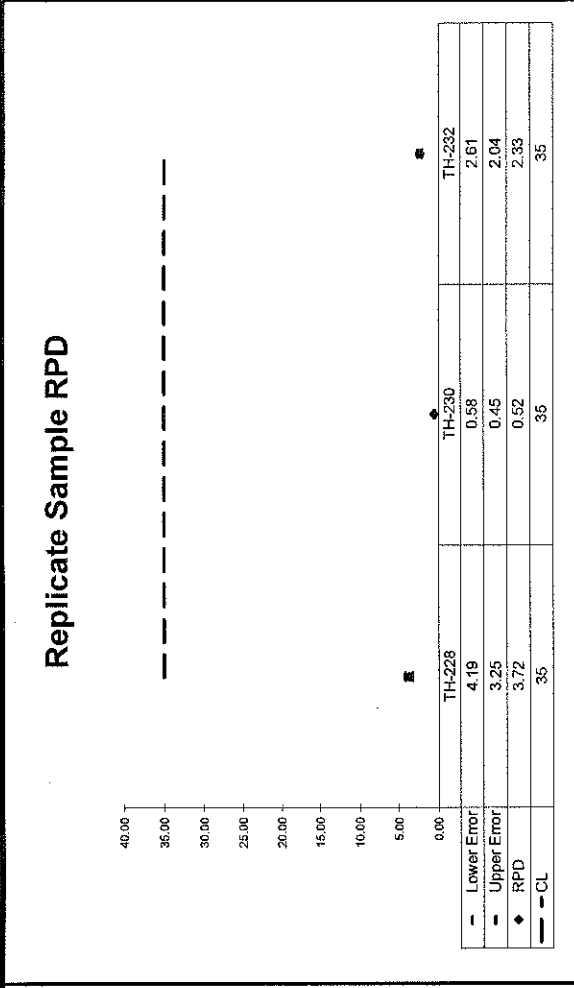
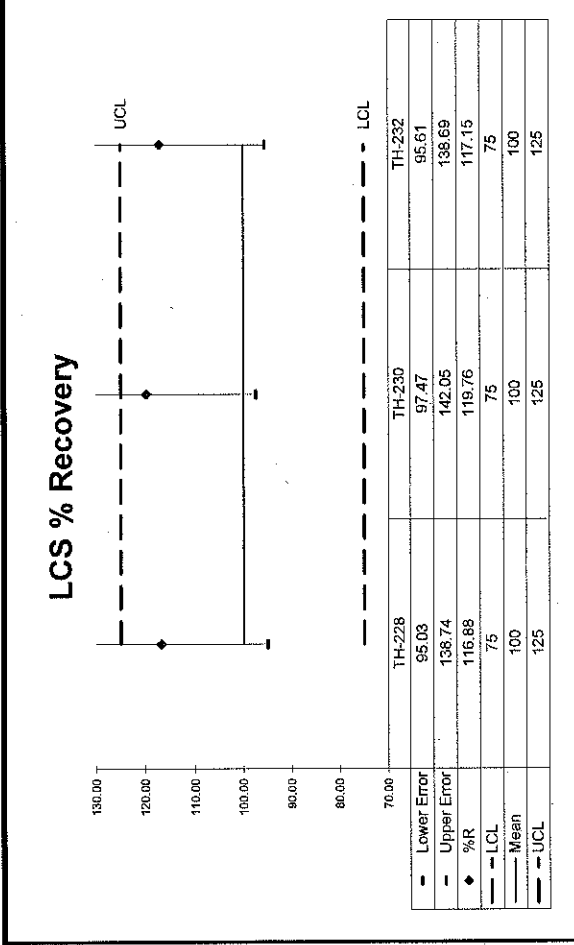
Laboratory Control Sample												
Analyte	LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
TH-228	116.88%	18.25%	100.00%	3.60%	4.71E+00	1.69E-01	5.50E+00	1.00E+00	Th-8b	1.04E+02	3.60E+00	1.01E-01
TH-230	119.76%	19.59%	100.00%	2.70%	5.37E+00	1.45E-01	6.43E+00	1.26E+00	Th-1b	2.35E+01	2.70E+00	5.07E-01
TH-232	117.15%	17.94%	100.00%	3.60%	4.71E+00	1.69E-01	5.51E+00	9.89E-01	Th-8b	1.04E+02	3.60E+00	1.01E-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											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	0.21	3.72	1.11E+00	2.87E-01	1.15E+00	2.77E-01	1.17	OK			OK	OK		
TH-230	0.03	0.52	1.39E+00	3.58E-01	1.39E+00	3.40E-01	1.20	OK			OK	OK		
TH-232	0.13	2.33	1.15E+00	2.92E-01	1.18E+00	2.79E-01	1.17	OK			OK	OK		

00043
 7/1/16
 Version

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06065	ThISO	1	pCi	g	Auxier & Associates, Inc.



No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06065	Gamma	1	pCi	g	Auxier & Associates, Inc.

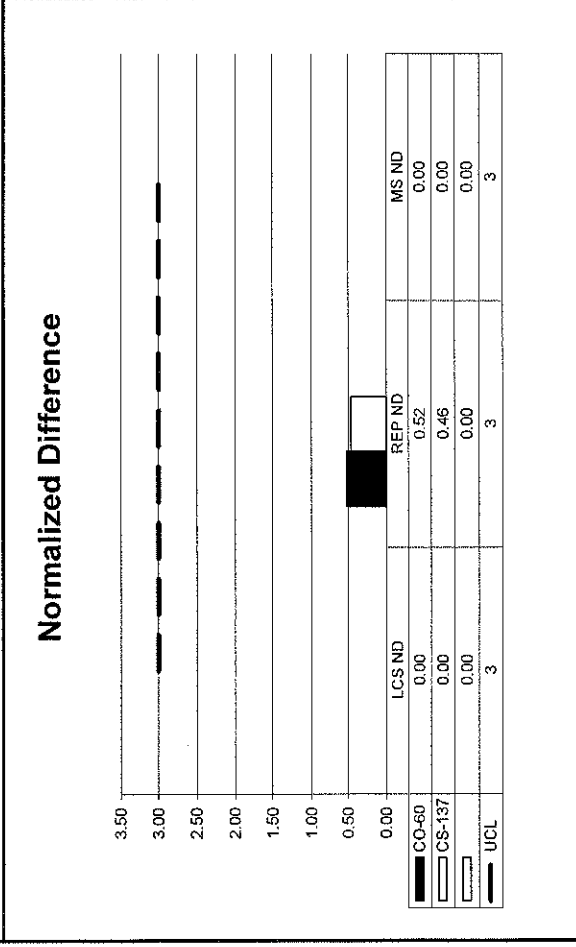
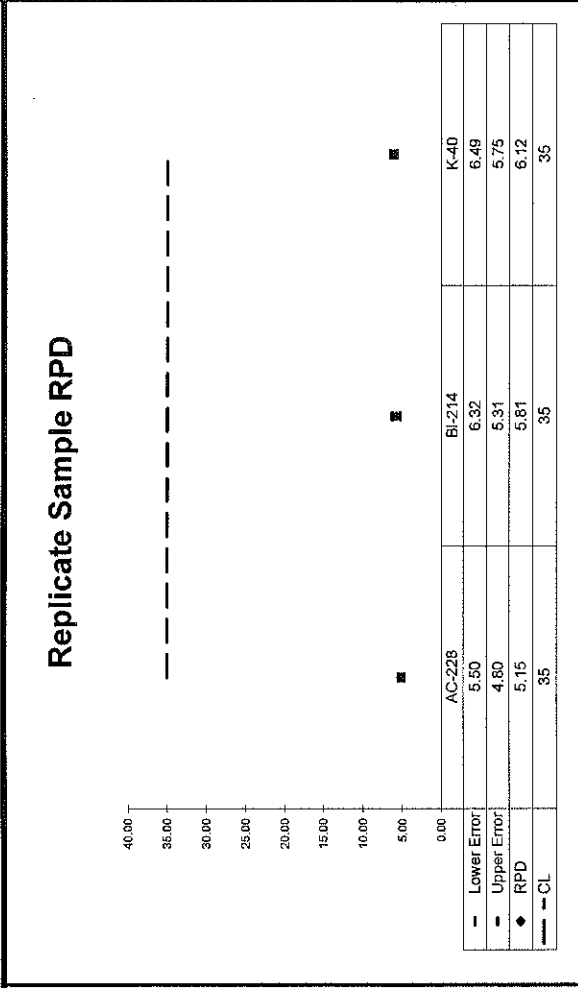
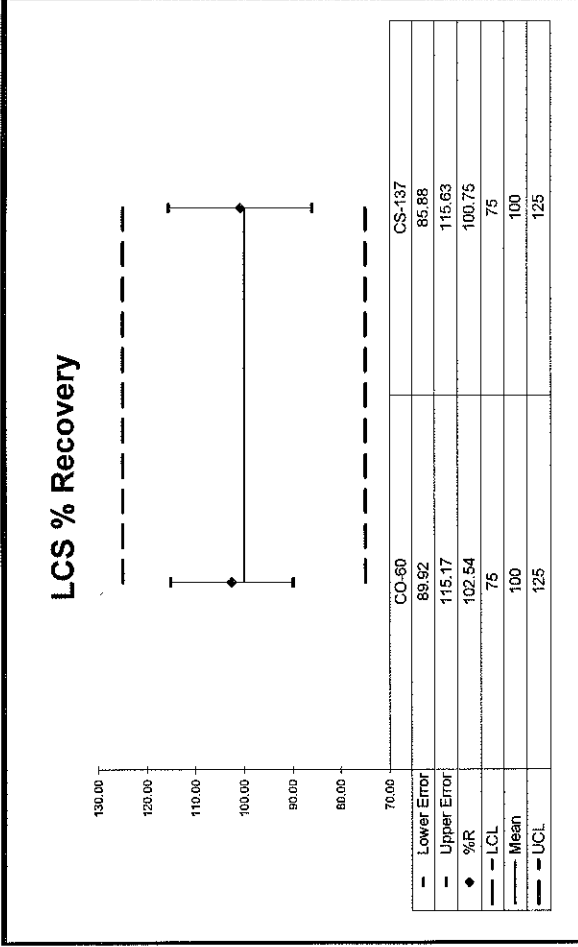
Laboratory Control Sample												
Analyte	LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
CO-60	102.54%	8.63%	100.00%	4.00%	1.37E+02	5.48E+00	1.41E+02	1.21E+01	GAS-1302	1.37E+02	5.48E+00	7.36E+02
CS-137	100.75%	10.87%	100.00%	4.00%	8.69E+01	3.48E+00	8.76E+01	9.52E+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										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	0.52	5.15	1.59E+00	2.05E-01	1.68E+00	2.40E-01	1.03	OK	<CS-137	AC-228>	OK	OK	
BI-214	0.46	5.81	8.34E-01	1.56E-01	8.84E-01	1.42E-01	1.01	OK	<CO-60	BI-214>	OK	OK	
K-40	0.70	6.12	2.49E+01	3.00E+00	2.34E+01	2.84E+00				K-40>	OK	OK	

00045 Eyr 6/16/16

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06065	Gamma	1	pCi	g	Auxier & Associates, Inc.



No Matrix Spike


SECTION VII
LABORATORY TECHNICIAN'S NOTES
& RUN LOGS

ISO U NOTES

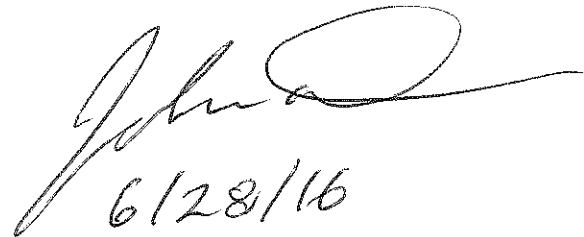
 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	16-06065
		Analysis Code	UUISO
		Run Number	1


#	Date	Dept	User	Notes
1	06/17/16 09:57	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested with HF till dry. Samples were further digested in a mixed acid digestion till dry. Samples were submitted to separations.

6-17-16 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	16-06065
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	06/17/16 09:57	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested with HF till dry. Samples were further digested in a mixed acid digestion till dry. Samples were submitted to separations.
2	06/28/16 16:21	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.


 6/28/16

 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	16-06065
		Analysis Code	UISO
		Run Number	1

#	Date	Dept	User	Notes
1	06/17/16 09:57	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested with HF till dry. Samples were further digested in a mixed acid digestion till dry. Samples were submitted to separations.
2	06/28/16 16:21	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.
3	06/29/16 05:01	CHEM	TSMITH	Followed steps 12.1.7 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Uranium)

*6-29-16
TSM*



Reagents Used in an Analysis

Internal Work Order

16-06065

Analysis Code

Run

UUISO


1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
017559P	Hydrofluoric Acid	Reagent Grade	JPACHELLA	6/17/2016
017533P	Nitric Acid	Reagent Grade	JPACHELLA	6/17/2016
017589P	Perchloric Acid	Reagent Grade	JPACHELLA	6/17/2016
017243P	Sulfuric Acid	Reagent Grade	JPACHELLA	6/17/2016
017344P	Anion Exchange Resin	Reagent Grade	JDEMELAS	6/28/2016
017741S	HCl - HF	6.5N - 0.04N	JDEMELAS	6/28/2016
017518D05	Hydrochloric Acid	0.5N	JDEMELAS	6/28/2016
017728S	Hydrochloric Acid	6.5N	JDEMELAS	6/28/2016
017518P	Hydrochloric Acid	Reagent Grade	JDEMELAS	6/28/2016
017756S	Hydrochloric Acid	8N	JDEMELAS	6/28/2016
017758S	HCl - NH4I	8N - 0.1M	JDEMELAS	6/28/2016
017559P	Hydrofluoric Acid	Reagent Grade	TSMITH	6/29/2016
017340S	Neodymium Carrier	1 mg/ml	TSMITH	6/29/2016
017649P	Reagent Alcohol	Reagent Grade	TSMITH	6/29/2016
016606P	Titanous Chloride	Reagent Grade	TSMITH	6/29/2016
017737S	Carbon substrate	Solution	TSMITH	6/29/2016

Alphabet 3

Date	Sample #	Client	Machine	CT time	Sample	Test
6/27/16	1606103A(1-7)	USA	1806	2hrs 50-	Roll	KB
6/27/16	1606068A(1-4)	UCOR	1803	2hrs 50-	Roll	KB
6/27/16	1606069A(1-4)	UCOR	1804	2hrs 50-	Roll	KB
6/22	Daily Pulse	USA	0821	1-	MT	-
6/22	1606164A(8-14)	USA	0835	2.5-	Th 750	-
6/22	1606103A(1-7)	USA	0836	2.5-	Th 750	-
6/22	1606069A(1-4)	UCOR	0836	2.5-	Am 241	-
6/22	1606069A(1-4)	UCOR	0837	2.5-	Am 243	-
6/22	1606075B(1-4)	UCOR	0837	2.5-	Am 247	-
6/22	1606069A(1-4)	UCOR	0838	2.5-	P 750	-
6/28/16	1606069A(2-4,9)	UCOR	1140	2hrs 50-	ISO-PH	KB
6/28/16	1606069A(1-4)	UCOR	1141	2hrs 50-	NO	KB
6/28/16	1606069A(1-4)	UCOR	1141	2hrs 50-	ISO-TH	KB
6/28/16	1606069A(1-4)	UCOR	1142	2hrs 50-	Pu 242	KB
6/28/16	Reagent 32RA(1)	Lab	1142	2hrs 50-	PENT	KB
6/28/16	1606068A(1-4)	UCOR	1143	2hrs 50-	Th 249	KB
6/28/16	1606064A(8-13)	Anxii	1144	2hrs 50-	UU	KB
6/28/16	1606064A(14-15)	Anxii	1144	2hrs 50-	UU	KB
6/29	Daily Pulse	USA	0822	1-	MT	-
6/29	1606129A(4-5)	MCL	0818	2.5-	Pu 750	-
6/29	1606069A(1-4)	UCOR	0819	2.5-	Am 750	-
6/29	1606069A(1-4)	UCOR	0819	2.5-	Am 750	-
6/29	1606069A(1-4)	UCOR	0820	2.5-	Th 750	-
6/29	1606065A(1-12)	Anxii	0821	2.5-	Am 750	-
6/29	1606077A(1-4)	USA	0821	2.5-	Am 750	-

ISO-TH NOTES

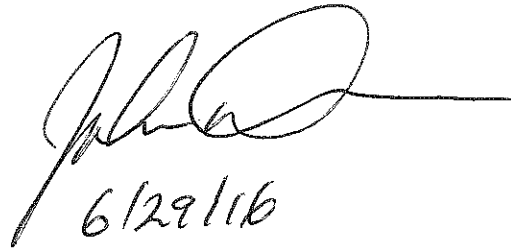
 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	16-06065
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	06/17/16 09:57	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested with HF till dry. Samples were further digested in a mixed acid digestion till dry. Samples were submitted to separations.

6-17-16 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	16-06065
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	06/17/16 09:57	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested with HF till dry. Samples were further digested in a mixed acid digestion till dry. Samples were submitted to separations.
2	06/29/16 13:54	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.


 6/29/16

 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	16-06065
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	06/17/16 09:57	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested with HF till dry. Samples were further digested in a mixed acid digestion till dry. Samples were submitted to separations.
2	06/29/16 13:54	CHEM	JDEMEIAS	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	06/30/16 05:16	CHEM	TSMITH	Followed steps 12.2.5 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Thorium)

*6/30/16
TSM*



Reagents Used in an Analysis

Internal Work Order

16-06065

Analysis Code

Run

ThISO

1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
017559P	Hydrofluoric Acid	Reagent Grade	JPACHELLA	6/17/2016
017533P	Nitric Acid	Reagent Grade	JPACHELLA	6/17/2016
017589P	Perchloric Acid	Reagent Grade	JPACHELLA	6/17/2016
017243P	Sulfuric Acid	Reagent Grade	JPACHELLA	6/17/2016
017230P	Anion Exchange Resin	Reagent Grade	JDEMELAS	6/29/2016
017756S	Hydrochloric Acid	8N	JDEMELAS	6/29/2016
017518P	Hydrochloric Acid	Reagent Grade	JDEMELAS	6/29/2016
017757S	Nitric Acid	8N	JDEMELAS	6/29/2016
017534P	Nitric Acid	Reagent Grade	JDEMELAS	6/29/2016
017737S	Carbon substrate	Solution	TSMITH	6/30/2016
017730S	Cerrium Carrier	0.1mg/ml	TSMITH	6/30/2016
017559P	Hydrofluoric Acid	Reagent Grade	TSMITH	6/30/2016
017649P	Reagent Alcohol	Reagent Grade	TSMITH	6/30/2016

Alpha 3

Date	Amplitude	Client	Location	Station	Analysis	Tool
6/17	1606066A(8-11)	Auxei	0825	2h50	Un750	-
6/17	1606118A(1-6)	TWPC	0828	2h5	Th750	-
6/17	1606113A(1-7,9,12)	USA	0828	2h5	Th750	-
6/17	1606118A(1-6)	TWPC	0828	2h5	Putso	-
6/17	1606118A(1-6)	TWPC	0830	2h5	Un750	-
6/30/16	1606066A(12-13)	Auxei	1124	2h50	Un	103
6/30/16	1606066A(1-12)	Auxei	1125	2h50	ISO-TH	103
6/30/16	1606123A(1-13)	TexCom	1427	2h50	Raw	103
6/30/16	1606124A(1-11)	TexCom	1502	2h50	Raw	103
6/30/16	1606066A(1-2)	Auxei	1500	2h50	ISO-TH	103

GAMMA NOTES

GE 1

91

DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
6/17	CAF14	LAB	0524	15	✓	✓
6/17	Dalyr	LAB	0512	15	✓	✓
6/17	CAF14	LAB	0611	15	✓	✓
6/17	1606064-13	Aurier	0714	2L	✓	✓
6/17	1606065-07	Aurier	0857	2L	✓	✓
6/17	1606065-04	Aurier	1009	2L	✓	✓
6/17	1606065-10	Aurier	1110	2L	✓	✓
6/17	1606065-12	Aurier	1211	2L	✓	✓

GE 2

15

DATE	SAMPLE #	Client	LoadTime	CT:Time	Analysis	Tech
6/16/16	1606072-03	Indust. + Env.	1811	4 hrs	✓	ICB
6/17	ETS 1401	LWS	0524	15	✓	Σ
6/17	Dadly R	LWS	0522	15	✓	Σ
6/17	1606069-01	UCON	0617	30	✓	Σ
6/17	1606069-03	UCON	0646	20	✓	Σ
6/17	1606065-05	Aurier	0857	12	✓	U
6/17	1606065-08	Aurier	1009	12	✓	U

DATE	SAMPLE #	CLIENT	Load Time	CT-Time	Analysis	Tech
6/11/16	1606041-05	Aurier	0716	2L	✓	C
6/11/16	1606041-08	Aurier	0827	2L	✓	C
6/11/16	1606041-12	Aurier	0925	2L	✓	C
6/11/16	1606041-15	Aurier	1026	2L	✓	C
6/11/16	1606041-08	Aurier	1127	15	Be	-
6/11/16	1606041-13	Taxaa	1146	15	Be	-
6/11/16	1606043-07	Aurier	1204	1h	✓	KB
6/11/16	1606043-08	Aurier	1253	2L	✓	C
6/11/16	1606043-10	Aurier	1304	2L	✓	C
6/11/16	1606043-13	Aurier	1400	1h	✓	KB
6/11/16	1606064-03	Aurier	1507	1h	✓	KB
6/11/16	1606064-04	Aurier	1608	1h	✓	KB
6/11/16	1606064-10	Aurier	1710	1h	✓	KB
6/11/16	1606068-03	UCOR	1811	8hr	✓	KB
6/11/17	ETS 1402	URS	0524	15	✓	C
6/11/17	DalyR	URS	0552	15	✓	C
6/11/17	1606064-11	Aurier	0614	2L	✓	-
6/11/17	1606064-14	Aurier	0717	2L	✓	-
6/11/17	1606065-00	Aurier	0857	2L	✓	-
6/11/17	1606065-09	Aurier	1009	2L	✓	-
6/11/17	1606065-11	Aurier	1110	2L	✓	C

DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
6/16	1606047-05	Auxie	1151	2L	✓	C
6/16/16	1606043-01	Auxie	1354	30mins	✓	KB
6/16/16	1606043-02	Auxie	1426	1hr	✓	KB
6/16/16	1606064-02	Auxie	1527	1hr	✓	KB
6/16/16	1606064-01	Auxie	1627	30mins	✓	KB
6/16/16	1606064-08	Auxie	1659	1hr	✓	KB
6/16/16	1606072-02	Indust. & Env.	1803	6 hr	✓	KB
6/17	Chuy	IAS	0524	15	✓	
6/17	Daily R	IAS	0552	15	✓	
6/17	FAW 14	IAS	0611	15	✓	
6/17	1606064-12	Auxie	0704	2L	✓	
6/17	1606064-15	Auxie	0808	2L	✓	
6/17	1606065-07	Auxie	0910	2L	✓	
6/17	1606065-01	Auxie	1011	3L	✓	
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	Auxie	1146	2L	✓	C

SECTION VIII
ANALYTICAL DATA (ISOTOPIC URANIUM)

Work Order	16-06065
Analysis Code	UUISO
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-5013 10-15	36	06/08/16 00:00	1.5195E+00
04	DO	CP-5013 10-15	36	06/08/16 00:00	1.5051E+00
05	TRG	CP-5011 00-02	41	06/08/16 00:00	1.5419E+00
06	TRG	CP-5011 02-05	39	06/08/16 00:00	1.5243E+00
07	TRG	CP-5011 05-8 5	45	06/08/16 00:00	1.5415E+00
08	TRG	CP-5011 8 5-15	53	06/08/16 00:00	1.5276E+00
09	TRG	CP-5017 00-02	52	06/08/16 00:00	1.5416E+00
10	TRG	CP-5017 02-05	50	06/08/16 00:00	1.5031E+00
11	TRG	CP-5017 05-10	57	06/08/16 00:00	1.5087E+00
12	TRG	CP-5017 10-15	36	06/08/16 00:00	1.5288E+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 (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	0.6603	12.2		0.00								
02	MBL	0.6562	12.2		0.00								
03	DUP	0.6561	12.2		0.00								
04	DO	0.6565	12.2		0.00								
05	TRG	0.6559	12.1		0.00								
06	TRG	0.6562	12.2		0.00								
07	TRG	0.6559	12.1		0.00								
08	TRG	0.6567	12.2		0.00								
09	TRG	0.6564	12.2		0.00								
10	TRG	0.6567	12.2		0.00								
11	TRG	0.6575	12.2		0.00								
12	TRG	0.6583	12.2		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 t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS			06/17/16 10:48	JPACHELLA				
02	MBL			06/17/16 10:48	JPACHELLA				
03	DUP			06/17/16 10:48	JPACHELLA				
04	DO	06/17/16 07:03	KSALLINGS	06/17/16 10:48	JPACHELLA				
05	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:48	JPACHELLA				
06	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:48	JPACHELLA				
07	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:48	JPACHELLA				
08	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:48	JPACHELLA				
09	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:48	JPACHELLA				
10	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:48	JPACHELLA				
11	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:48	JPACHELLA				
12	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:48	JPACHELLA				

* 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.



	1
Run	UJISO
Eberline Analytical Work Order	16-06065
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	U-234	LCS	06/14/16 00:00	1.00E+00	118.61	0.00	0.00			
02	U-234	MBL	06/14/16 00:00	1.50E+00	110.72	0.00	0.00			
03	U-234	DUP	06/08/16 00:00	1.52E+00	114.26	0.00	0.00			
04	U-234	DO	06/08/16 00:00	1.51E+00	101.46	0.00	0.00			
05	U-234	TRG	06/08/16 00:00	1.54E+00	111.84	0.00	0.00			
06	U-234	TRG	06/08/16 00:00	1.52E+00	104.57	0.00	0.00			
07	U-234	TRG	06/08/16 00:00	1.54E+00	126.51	0.00	0.00			
08	U-234	TRG	06/08/16 00:00	1.53E+00	57.00	0.00	0.00			
09	U-234	TRG	06/08/16 00:00	1.54E+00	120.77	0.00	0.00			
10	U-234	TRG	06/08/16 00:00	1.50E+00	149.57	0.00	0.00			
11	U-234	TRG	06/08/16 00:00	1.51E+00	79.90	0.00	0.00			
12	U-234	TRG	06/08/16 00:00	1.53E+00	77.35	0.00	0.00			

Client	Auxier & Associates, Inc.
Eberline Analytical Work Order	16-06065
Analysis Code	UUISO
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	U-238	LCS	LCS	pCi/g	6.94E+00	9.07E-01	6.27E-02	7.79E+00	89.02	OK		OK	
02	U-238	MBL	BLANK	pCi/g	3.71E-02	4.17E-02	5.87E-02					OK	OK
03	U-238	DUP	CP-5013 10-15	pCi/g	9.68E-01	2.04E-01	5.78E-02				OK	OK	
04	U-238	DO	CP-5013 10-15	pCi/g	1.11E+00	2.43E-01	4.24E-02					OK	
05	U-238	TRG	CP-5011 00-02	pCi/g	1.10E+00	2.26E-01	4.92E-02					OK	
06	U-238	TRG	CP-5011 02-05	pCi/g	9.79E-01	2.35E-01	6.57E-02					OK	
07	U-238	TRG	CP-5011 05-8 5	pCi/g	6.38E-01	1.67E-01	5.83E-02					OK	
08	U-238	TRG	CP-5011 8 5-15	pCi/g	7.90E-01	2.60E-01	1.05E-01					OK	
09	U-238	TRG	CP-5017 00-02	pCi/g	8.29E-01	1.96E-01	4.92E-02					OK	
10	U-238	TRG	CP-5017 02-05	pCi/g	8.50E-01	1.91E-01	4.53E-02					OK	
11	U-238	TRG	CP-5017 05-10	pCi/g	7.96E-01	2.29E-01	8.50E-02					OK	
12	U-238	TRG	CP-5017 10-15	pCi/g	1.04E+00	2.69E-01	7.66E-02					OK	

21020

	Run	1
	Analysis Code	UUISO
	Eberline Analytical Work Order	16-06065
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	U-238	LCS	06/14/16 00:00	1.00E+00	118.61	0.00	0.00			
02	U-238	MBL	06/14/16 00:00	1.50E+00	110.72	0.00	0.00			
03	U-238	DUP	06/08/16 00:00	1.52E+00	114.26	0.00	0.00			
04	U-238	DO	06/08/16 00:00	1.51E+00	101.46	0.00	0.00			
05	U-238	TRG	06/08/16 00:00	1.54E+00	111.84	0.00	0.00			
06	U-238	TRG	06/08/16 00:00	1.52E+00	104.57	0.00	0.00			
07	U-238	TRG	06/08/16 00:00	1.54E+00	126.51	0.00	0.00			
08	U-238	TRG	06/08/16 00:00	1.53E+00	57.00	0.00	0.00			
09	U-238	TRG	06/08/16 00:00	1.54E+00	120.77	0.00	0.00			
10	U-238	TRG	06/08/16 00:00	1.50E+00	149.57	0.00	0.00			
11	U-238	TRG	06/08/16 00:00	1.51E+00	79.90	0.00	0.00			
12	U-238	TRG	06/08/16 00:00	1.53E+00	77.35	0.00	0.00			

070002

Client	Auxier & Associates, Inc.
Eberline Analytical Work Order	16-06065
Analysis Code	UUISO
Run	1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-238	LCS	06/29/16 08:21		A_Spec	Alpha_044	170	5.80 E+02	3.00 E-03	18.6
02	U-238	MBL	06/29/16 08:21		A_Spec	Alpha_045	170	3.98 E+00	6.00 E-03	17.1
03	U-238	DUP	06/29/16 08:21		A_Spec	Alpha_046	170	1.14 E+02	8.00 E-03	18.1
04	U-238	DO	06/29/16 08:21		A_Spec	Alpha_047	170	1.09 E+02	1.00 E-03	17
05	U-238	TRG	06/29/16 08:21		A_Spec	Alpha_048	170	1.26 E+02	4.00 E-03	17.6
06	U-238	TRG	06/29/16 08:21		A_Spec	Alpha_049	170	8.92 E+01	5.00 E-03	15.1
07	U-238	TRG	06/29/16 08:21		A_Spec	Alpha_050	170	6.90 E+01	6.00 E-03	14.7
08	U-238	TRG	06/29/16 08:21		A_Spec	Alpha_052	170	4.50 E+01	0.00 E+00	17.3
09	U-238	TRG	06/29/16 08:21		A_Spec	Alpha_053	170	8.85 E+01	3.00 E-03	15.2
10	U-238	TRG	06/29/16 08:21		A_Spec	Alpha_054	170	9.85 E+01	3.00 E-03	13.6
11	U-238	TRG	06/29/16 08:21		A_Spec	Alpha_055	170	5.90 E+01	6.00 E-03	16.2
12	U-238	TRG	06/29/16 08:21		A_Spec	Alpha_056	170	7.63 E+01	4.00 E-03	16.5



	Client	Auxier & Associates, Inc.
	Eberline Analytical Work Order	16-06065
	Analysis Code	UJISO
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	U-235	LCS	LCS	pCi/g	4.54E-01	1.68E-01	7.08E-02					OK	
02	U-235	MBL	BLANK	pCi/g	2.11E-02	3.23E-02	4.81E-02					OK	OK
03	U-235	DUP	CP-5013 10-15	pCi/g	5.38E-02	5.11E-02	6.26E-02				NA	OK	
04	U-235	DO	CP-5013 10-15	pCi/g	1.49E-01	8.72E-02	5.25E-02					OK	
05	U-235	TRG	CP-5011 00-02	pCi/g	6.49E-02	5.65E-02	6.48E-02					OK	
06	U-235	TRG	CP-5011 02-05	pCi/g	1.09E-01	8.10E-02	8.16E-02					OK	
07	U-235	TRG	CP-5011 05-8 5	pCi/g	1.12E-02	3.31E-02	7.22E-02					OK	
08	U-235	TRG	CP-5011 8 5-15	pCi/g	7.96E-02	8.67E-02	1.04E-01					OK	
09	U-235	TRG	CP-5017 00-02	pCi/g	1.01E-01	6.94E-02	5.55E-02					OK	
10	U-235	TRG	CP-5017 02-05	pCi/g	6.57E-02	5.64E-02	6.40E-02					OK	
11	U-235	TRG	CP-5017 05-10	pCi/g	7.51E-02	7.46E-02	8.78E-02					OK	
12	U-235	TRG	CP-5017 10-15	pCi/g	8.38E-02	8.26E-02	1.06E-01					OK	

Count Room Report
 Client: Auxier Associates, Inc.
 16-06065-UUISO-1 (pCi/g) in SO
 Tracer ID: U-10a

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	0.6603	12.2288		0.00		
02	MBL	BLANK	06/14/16 00:00	1.5000	0.6562	12.1528		0.00		
03	DUP	CP-5013 10-15	06/08/16 00:00	1.5195	0.6561	12.1510		0.00		
04	DO	CP-5013 10-15	06/08/16 00:00	1.5051	0.6565	12.1584		0.00		
05	TRG	CP-5011 00-02	06/08/16 00:00	1.5419	0.6559	12.1473		0.00		
06	TRG	CP-5011 02-05	06/08/16 00:00	1.5243	0.6562	12.1528		0.00		
07	TRG	CP-5011 05-8 5	06/08/16 00:00	1.5415	0.6559	12.1473		0.00		
08	TRG	CP-5011 8 5-15	06/08/16 00:00	1.5276	0.6567	12.1621		0.00		
09	TRG	CP-5017 00-02	06/08/16 00:00	1.5416	0.6564	12.1565		0.00		
10	TRG	CP-5017 02-05	06/08/16 00:00	1.5031	0.6567	12.1621		0.00		
11	TRG	CP-5017 05-10	06/08/16 00:00	1.5087	0.6575	12.1769		0.00		
12	TRG	CP-5017 10-15	06/08/16 00:00	1.5288	0.6583	12.1917		0.00		

Handwritten notes and markings at the bottom of the page, including "0.00", "12.1528", and "12.1917".

Internal Work Order		Run	Analysis Code		Date		Technician		Technician Initials		Witness Initials		
16-06065		1	UUISO		6/17/2016 10:43		JPACHELLA						
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)	LCS Known pCi	MS Added pCi	LCS Known pCi	MSD Added pCi	Error Estimate
U-234	U-8a	32.000	6/17/2016	0.550	0.5582				8.05	0.290	0.00	0.00	0.000
U-238	U-8a	31.000	6/17/2016	0.550	0.5582				7.79	0.281	0.00	0.00	0.000
1c-99 MS 1c-2a 22043.636 7/5/2014 0.1 Tracers													
fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition	Tracer						LCS
01	U-232	U-10a	18.520	6/17/2016	0.6503	0.6500							
02	U-232	U-10a	18.520	6/17/2016	0.6562	0.6500							
03	U-232	U-10a	18.520	6/17/2016	0.6561	0.6500							
04	U-232	U-10a	18.520	6/17/2016	0.6565	0.6500							
05	U-232	U-10a	18.520	6/17/2016	0.6559	0.6500							
06	U-232	U-10a	18.520	6/17/2016	0.6562	0.6500							
07	U-232	U-10a	18.520	6/17/2016	0.6559	0.6500							
08	U-232	U-10a	18.520	6/17/2016	0.6567	0.6500							
09	U-232	U-10a	18.520	6/17/2016	0.6564	0.6500							
10	U-232	U-10a	18.520	6/17/2016	0.6567	0.6500							
11	U-232	U-10a	18.520	6/17/2016	0.6575	0.6500							
12	U-232	U-10a	18.520	6/17/2016	0.6583	0.6500							
Matrix Spike													

Aliquot Worksheet

Work Order		Run	Analysis Code	Rpt Units	Lab Deadline	Technician	
16-06065		1	UUISO	grams	7/5/2016	JPACHELLA	

Lab Fraction	Auxier & Associates, Inc.		Sample Type	Muffle Data		Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
	Client ID			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-5013 10-15		DUP						1.5195E+00	1.5195E+00				
04	CP-5013 10-15		DO						1.5051E+00	1.5051E+00				
05	CP-5011 00-02		TRG						1.5419E+00	1.5419E+00				
06	CP-5011 02-05		TRG						1.5243E+00	1.5243E+00				
07	CP-5011 05-8 5		TRG						1.5415E+00	1.5415E+00				
08	CP-5011 8 5-15		TRG						1.5276E+00	1.5276E+00				
09	CP-5017 00-02		TRG						1.5416E+00	1.5416E+00				
10	CP-5017 02-05		TRG						1.5031E+00	1.5031E+00				
11	CP-5017 05-10		TRG						1.5087E+00	1.5087E+00				
12	CP-5017 10-15		TRG						1.5288E+00	1.5288E+00				

Comments	
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Technician: J. Pachella Date: 6/17/16



**Rough Sample Preparation
 Log Book**

Work Order		Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
16-06065		7/5/2016	6/16/2016	6/17/2016	6/18/2016	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-5013 10-15	14.6300	635.9100	821.9000	621.2800	807.2700	621.2800	23.04%	76.96%	0.0000	0.0000	
05	CP-5011 00-02	14.6100	514.7400	611.2800	500.1300	596.6700	500.1300	16.18%	83.82%	0.0000	0.0000	
06	CP-5011 02-05	14.5000	581.1900	701.5700	566.6900	687.0700	566.6900	17.52%	82.48%	0.0000	0.0000	
07	CP-5011 05-8 5	14.4800	444.7800	546.0500	430.3000	531.5700	430.3000	19.05%	80.95%	0.0000	0.0000	
08	CP-5011 8 5-15	14.5000	517.9600	661.9600	503.4600	647.4800	503.4600	22.24%	77.76%	0.0000	0.0000	
09	CP-5017 00-02	14.5600	661.8900	785.7400	647.3300	771.1800	647.3300	16.06%	83.94%	0.0000	0.0000	
10	CP-5017 02-05	14.4800	862.1200	1058.0200	847.6400	1043.5400	847.6400	18.77%	81.23%	0.0000	0.0000	
11	CP-5017 05-10	14.4900	394.1800	490.7400	379.6900	476.2500	379.6900	20.28%	79.72%	0.0000	0.0000	
12	CP-5017 10-15	14.4700	412.0000	521.8300	397.5300	507.3600	397.5300	21.65%	78.35%	0.0000	0.0000	

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

1000001

ICB
6/29/14

Apex-Alpha™

Sample Description: SPIKE
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
 Batch Identification: 1606065A-UU
 Sample Identification: 01
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_044
 Chamber Serial Number: 04026481B
 Detector Serial Number: 84168
 Env. Background: System Bkgd 157590
 Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/29/2016 6:05:53 AM
 Acquisition Date/Time: 6/29/2016 8:21:14 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.660 mL
 Effective Efficiency: 0.2212 +/- 0.0115
 Counting Efficiency: 0.1864 +/- 0.0033 on 12/11/2015 8:21:07 AM
 Chem. Recovery Factor: 1.1861 +/- 0.0653

Control Certificate Name: NatU_U-8A
 Chem. Recov. of Control: U-238 0.783174 +/- 0.057273
 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	456.49	9.18	0.51	0.00E+000	29.3
U-234	4.730	535.66	8.47	0.34	0.00E+000	25.6
U-235	4.365	30.66	35.63	0.34	0.00E+000	3.7
U-238	4.151	580.49	8.14	0.51	0.00E+000	7.8

T = Tracer Peak used for Effective Efficiency

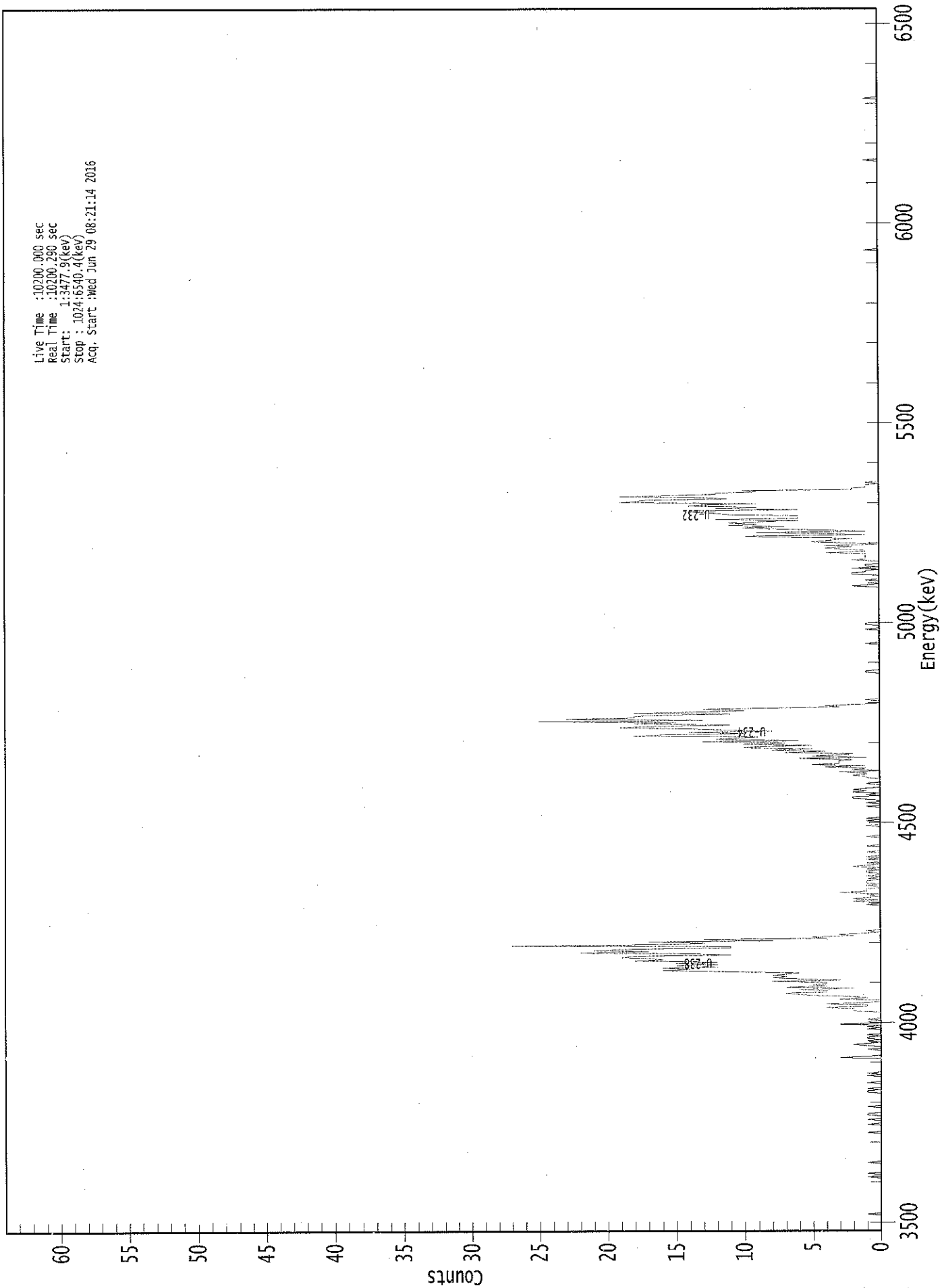
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	5.48E+000 +/- 5.61E-001	6.30E-002 +/- 6.44E-003
U-234	0.993	4761.50*	6.43E+000 +/- 8.54E-001	5.74E-002 +/- 5.87E-003
U-235	0.997	4385.50*	4.54E-001 +/- 1.68E-001	7.08E-002 +/- 7.24E-003
U-238	0.992	4184.40*	6.94E+000 +/- 9.07E-001	6.27E-002 +/- 6.42E-003

AG
6/29/16

0000155735.CNF

Live Time : 10200.000 sec
Real Time : 10200.290 sec
Start : 1:3477.9(kev)
Stop : 1024:6540.4(kev)
Acq. Start : Wed Jun 29 08:21:14 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: 10200

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												
	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	3	1	1	0	1	2	0	4	4	6	11	15	14	15	3	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	1	0	0						
	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	1	1	0	2	0	2	4	6	16	12	22	13	1	0	0	0	1	0	1	0	2	0	1	0	0	0	1	0	1	2							
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	1	1	2	14	16	21	8	1	0	0	0	0	2	3	1	1	0	1	0	0	0	1	0	0	2									
	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	1	2	7	8	16	17	18	13	0	0	0	0	2	1	1	1	1	0	0	0	0	0	0	0	0								
	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5	4	7	12	19	11	4	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	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	6	5	8	15	18	11	5	0	0	0	0	0	2	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	7	8	12	18	11	8	0	0	0	0	0	0	0	0	1	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	7	8	12	18	11	8	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	7	8	12	18	11	8	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	7	8	12	18	11	8	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	7	8	12	18	11	8	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	7	8	12	18	11	8	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	7	8	12	18	11	8	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	7	8	12	18	11	8	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	7	8	12	18	11	8	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	7	8	12	18	11	8	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	7	8	12	18	11	8	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

369: 1 2 1 0 0 0 1 0

Sample Title: 01

Channel	1	2	1	0	0	0	1	0
377:	0	0	0	1	1	2	1	1
385:	3	0	2	1	4	1	5	3
393:	3	3	2	6	1	5	3	2
401:	7	4	8	5	10	9	5	10
409:	7	13	6	12	11	9	18	16
417:	10	14	8	12	14	19	17	11
425:	18	15	25	13	23	18	18	17
433:	11	18	12	10	13	9	3	4
441:	2	0	0	0	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	1	1	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	1	0	0	0	0
497:	0	0	0	0	0	0	0	1
505:	0	0	0	1	1	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0
529:	0	0	0	0	0	0	0	0
537:	0	0	0	2	1	0	0	0
545:	1	0	0	0	0	2	2	1
553:	1	0	2	0	1	1	0	0
561:	0	2	1	1	1	1	1	4
569:	1	1	3	4	2	4	0	2
577:	5	4	3	2	8	10	1	4
585:	9	1	4	8	10	7	11	9
593:	11	9	6	12	6	6	6	11
601:	12	14	14	6	12	9	14	13
609:	9	19	18	17	11	13	19	15
617:	12	12	9	10	2	2	1	1
625:	1	0	1	0	0	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	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 0

Sample Title: 01

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	1	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	1
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	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

VB
6/29/16

Sample Description: BLANK
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
 Batch Identification: 1606065A-UU
 Sample Identification: 02
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_045
 Chamber Serial Number: 04026482A
 Detector Serial Number: 91131
 Env. Background: System Bkgd 157591
 Reagent Blank: <not performed>

Sample Size: 1.500E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/29/2016 6:05:53 AM
 Acquisition Date/Time: 6/29/2016 8:21:15 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.656 mL
 Effective Efficiency: 0.1893 +/- 0.0106
 Counting Efficiency: 0.1710 +/- 0.0030 on 12/11/2015 8:21:05 AM
 Chem. Recovery Factor: 1.1072 +/- 0.0648

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 5.267	388.32	9.96	0.68	0.00E+000	26.2
U-234	4.718	7.49	74.41	0.51	0.00E+000	3.0
U-235	4.369	1.83	152.56	0.17	0.00E+000	3.0
U-238	4.093	3.98	112.01	1.02	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

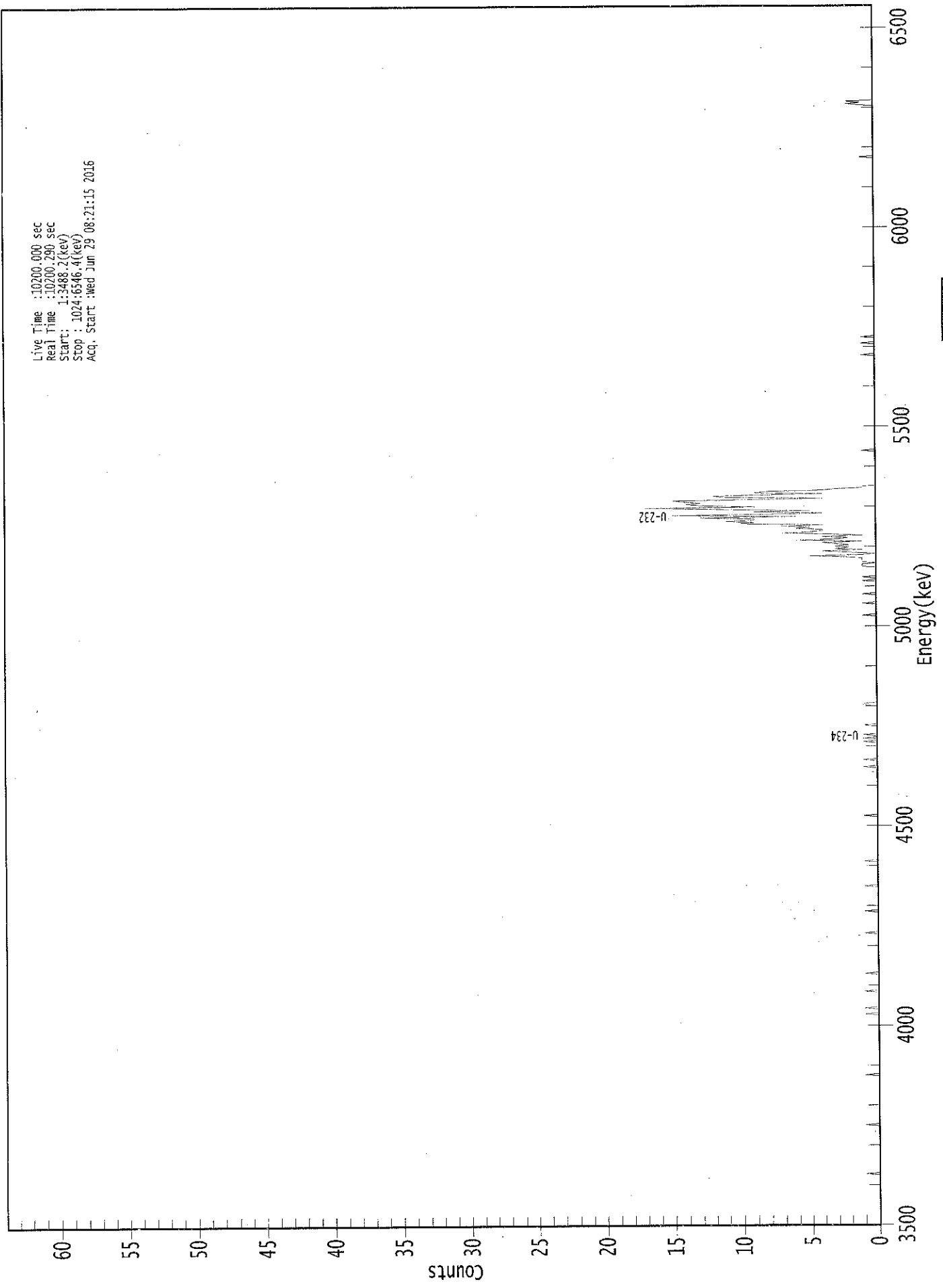
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.991	5302.50*	3.63E+000 +/- 3.97E-001	5.27E-002 +/- 5.77E-003
U-234	0.986	4761.50*	7.00E-002 +/- 5.27E-002	4.91E-002 +/- 5.36E-003
U-235	0.998	4385.50*	2.11E-002 +/- 3.23E-002	4.81E-002 +/- 5.26E-003
U-238	0.942	4184.40*	3.71E-002 +/- 4.17E-002	5.87E-002 +/- 6.41E-003

AG
6/29/16

0000155736.CNF

Live Time : 10200.000 sec
Real Time : 10200.290 sec
Start : 1:2488.2(kev)
Stop : 1024:6546.4(kev)
Acq. Start : Wed Jun 29 08:21:15 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: 02

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	1	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	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	1	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	0	0
177:	0	1	0	0	0	0	1	0	0
185:	0	0	0	0	0	0	0	0	0
193:	0	0	0	0	1	0	0	0	0
201:	0	0	0	0	0	0	0	0	0
209:	0	0	0	1	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	1	0	0	0
249:	0	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0	1
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	1	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	1	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	1
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

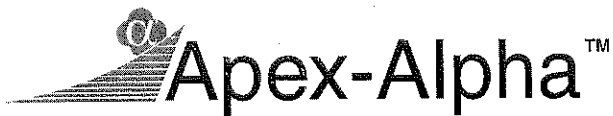
Sample Title: 02

Channel	1	2	3	4	5	6	7	8	9
377:	0	0	0	0	0	0	0	0	0
385:	1	0	0	0	0	0	0	1	0
393:	0	0	0	0	0	0	0	0	0
401:	0	0	0	0	0	0	1	0	0
409:	1	0	0	1	0	0	0	0	0
417:	0	0	0	1	0	0	0	0	0
425:	0	0	0	0	0	0	0	0	0
433:	0	0	0	0	1	1	0	0	0
441:	0	0	0	0	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	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	0	0	0
505:	0	0	0	0	0	0	0	0	1
513:	0	0	0	0	0	0	0	0	0
521:	0	1	0	0	0	0	0	0	0
529:	0	1	0	0	0	0	0	0	0
537:	0	0	0	0	1	0	0	0	1
545:	0	0	0	0	0	0	0	0	0
553:	1	1	1	0	1	1	1	1	1
561:	2	5	1	0	2	4	1	3	3
569:	2	3	2	3	4	1	6	3	3
577:	2	4	1	3	7	5	4	4	4
585:	6	5	7	4	10	9	11	9	9
593:	9	13	6	15	8	4	9	5	5
601:	12	17	9	13	14	13	14	15	15
609:	10	4	11	12	9	4	9	8	8
617:	4	3	1	1	0	0	0	0	0
625:	0	0	0	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	1	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	1	0	0	0	0	0	0	0
737:	0	0	0	1	0	0	0	0	0
745:	1	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 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	1
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	1	2	1	2	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
6/29/16

Sample Description: CP-5013 10-15-DUP
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
 Batch Identification: 1606065A-UU
 Sample Identification: 03
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_046
 Chamber Serial Number: 04026482B
 Detector Serial Number: 58762
 Env. Background: System Bkgd 157592
 Reagent Blank: <not performed>

Sample Size: 1.520E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:05:53 AM
 Acquisition Date/Time: 6/29/2016 8:21:18 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.656 mL
 Effective Efficiency: 0.2063 +/- 0.0111
 Counting Efficiency: 0.1806 +/- 0.0032 on 12/11/2015 8:21:03 AM
 Chem. Recovery Factor: 1.1426 +/- 0.0648

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 5.260	423.13	9.55	1.87	0.00E+000	13.8
U-234	4.716	125.13	17.67	1.87	0.00E+000	15.4
U-235	4.364	5.15	94.34	0.85	0.00E+000	3.0
U-238	4.131	113.64	18.51	1.36	0.00E+000	13.8

T = Tracer Peak used for Effective Efficiency

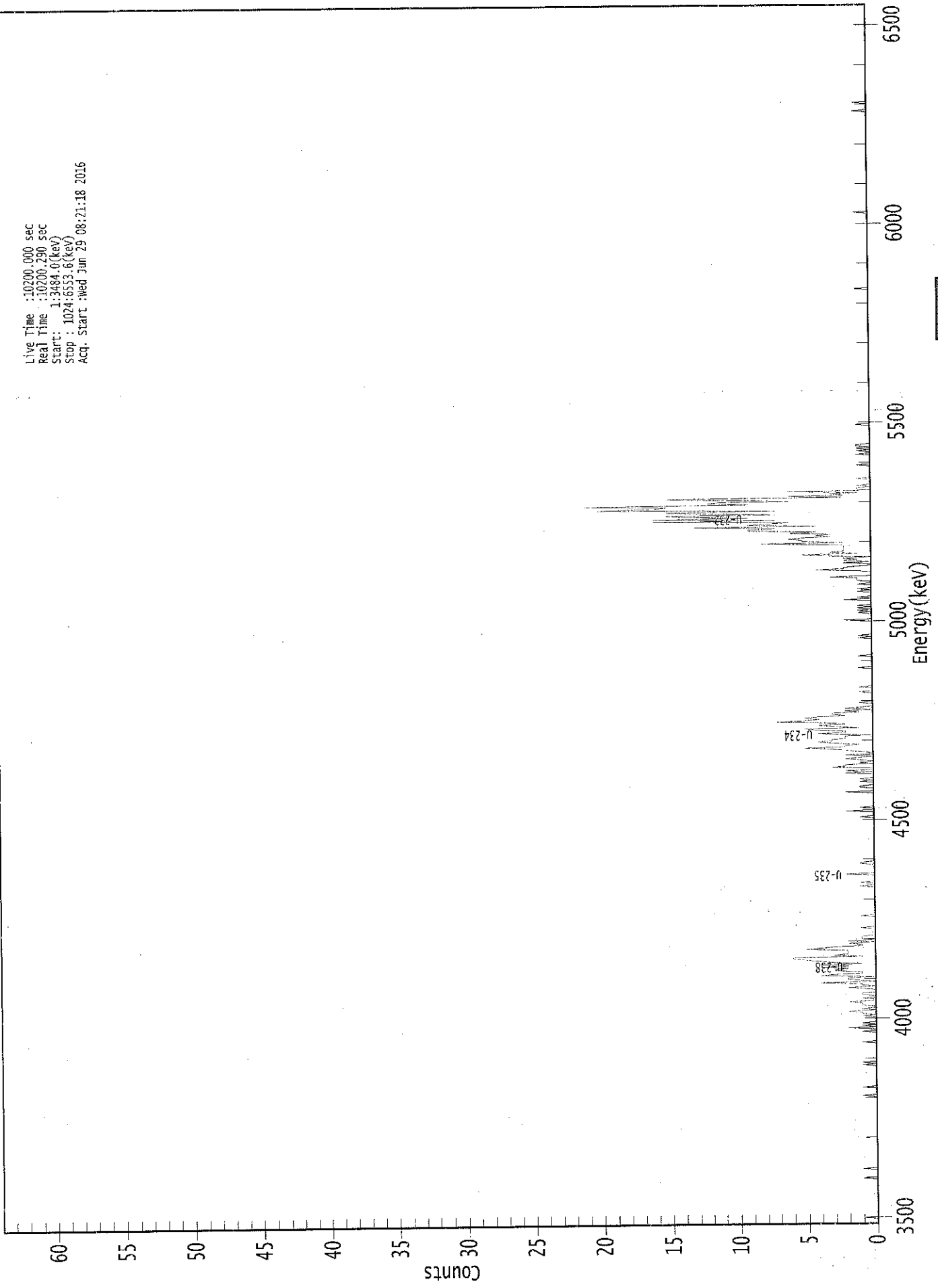
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.987	5302.50*	3.59E+000 +/- 3.79E-001	6.42E-002 +/- 6.78E-003
U-234	0.985	4761.50*	1.06E+000 +/- 2.18E-001	6.41E-002 +/- 6.78E-003
U-235	0.997	4385.50*	5.38E-002 +/- 5.11E-002	6.26E-002 +/- 6.61E-003
U-238	0.980	4184.40*	9.58E-001 +/- 2.04E-001	5.78E-002 +/- 6.11E-003

AG
6/29/16

0000155737.CNF

Live Time : 10200.000 sec
Real Time : 10200.290 sec
Start : 1:3484.0 (kev)
Stop : 1024:6553.6 (kev)
Acq. Start : Wed Jun 29 08:21:18 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	1	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	1	0	0
41:	0	0	0	0	0	0	1	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	1	0	0	0	0	0
113:	0	0	1	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	1	0	0	1
137:	0	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0	0
153:	1	0	0	0	0	0	0	0	0
161:	0	1	0	0	2	0	1	0	0
169:	1	0	0	0	0	0	1	0	0
177:	1	1	2	0	1	0	0	0	1
185:	1	1	2	0	0	1	0	0	0
193:	1	1	0	0	0	1	2	0	0
201:	1	1	4	0	1	2	2	0	0
209:	4	3	1	1	3	3	2	4	4
217:	2	4	1	3	4	5	6	6	6
225:	1	3	2	2	2	2	5	4	4
233:	3	1	1	2	0	2	0	1	1
241:	1	1	0	0	0	0	0	0	0
249:	1	0	0	0	0	0	0	0	0
257:	0	0	1	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	1	0	0	1	0	0
289:	0	0	0	0	0	2	0	0	0
297:	0	0	0	0	0	0	1	1	1
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	1	0	0	0
345:	0	0	2	0	0	1	0	0	0
353:	0	0	0	0	0	0	0	0	0
361:	0	0	2	0	0	0	1	1	1

369: 0 0 0 1 0 1 0 0

Sample Title: 03

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	2	0	2	0	0	3
385:	2	2	0	1	0	1	2	1
393:	0	2	0	0	1	2	3	5
401:	2	2	1	3	4	3	3	2
409:	2	2	0	4	2	2	4	5
417:	1	3	4	2	3	7	5	4
425:	5	4	2	3	3	1	2	0
433:	2	1	0	0	0	1	0	0
441:	0	0	0	0	0	0	1	0
449:	0	0	1	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	1	0	0	0	0	0
473:	0	0	0	0	1	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	1	0	1	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	2	0	0	0	0	0
513:	1	0	1	0	1	0	1	0
521:	0	0	0	2	0	1	0	0
529:	0	0	1	0	1	0	0	0
537:	1	0	0	1	1	1	3	0
545:	0	0	0	1	4	2	2	1
553:	0	0	2	0	2	1	2	0
561:	4	5	1	3	2	2	2	2
569:	2	2	8	2	5	5	6	5
577:	3	4	3	6	4	9	9	7
585:	13	4	9	8	6	16	7	16
593:	9	13	15	7	13	15	7	20
601:	16	15	21	9	12	11	6	12
609:	15	2	6	2	3	1	6	0
617:	1	1	0	1	0	0	0	0
625:	0	1	0	0	0	0	0	0
633:	0	0	0	0	1	0	0	0
641:	0	0	0	0	0	1	0	0
649:	1	0	1	0	1	1	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	1	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:	1	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 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:	1	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	1	0	0
937:	0	0	0	0	1	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



ICS
6/29/16

Sample Description: CP-5013 10-15
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
 Batch Identification: 1606065A-UU
 Sample Identification: 04
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_047
 Chamber Serial Number: 02030596A
 Detector Serial Number: 91086
 Env. Background: System Bkgd 157593
 Reagent Blank: <not performed>

Sample Size: 1.505E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:05:53 AM
 Acquisition Date/Time: 6/29/2016 8:21:20 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.656 mL
 Effective Efficiency: 0.1730 +/- 0.0100
 Counting Efficiency: 0.1705 +/- 0.0030 on 12/11/2015 8:21:02 AM
 Chem. Recovery Factor: 1.0146 +/- 0.0614

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 5.251	355.00	10.42	0.00	0.00E+000	11.4
U-234	4.701	93.00	20.43	0.00	0.00E+000	5.9
U-235	4.439	11.83	57.46	0.17	0.00E+000	3.0
U-238	4.114	108.83	18.81	0.17	0.00E+000	6.9

T = Tracer Peak used for Effective Efficiency

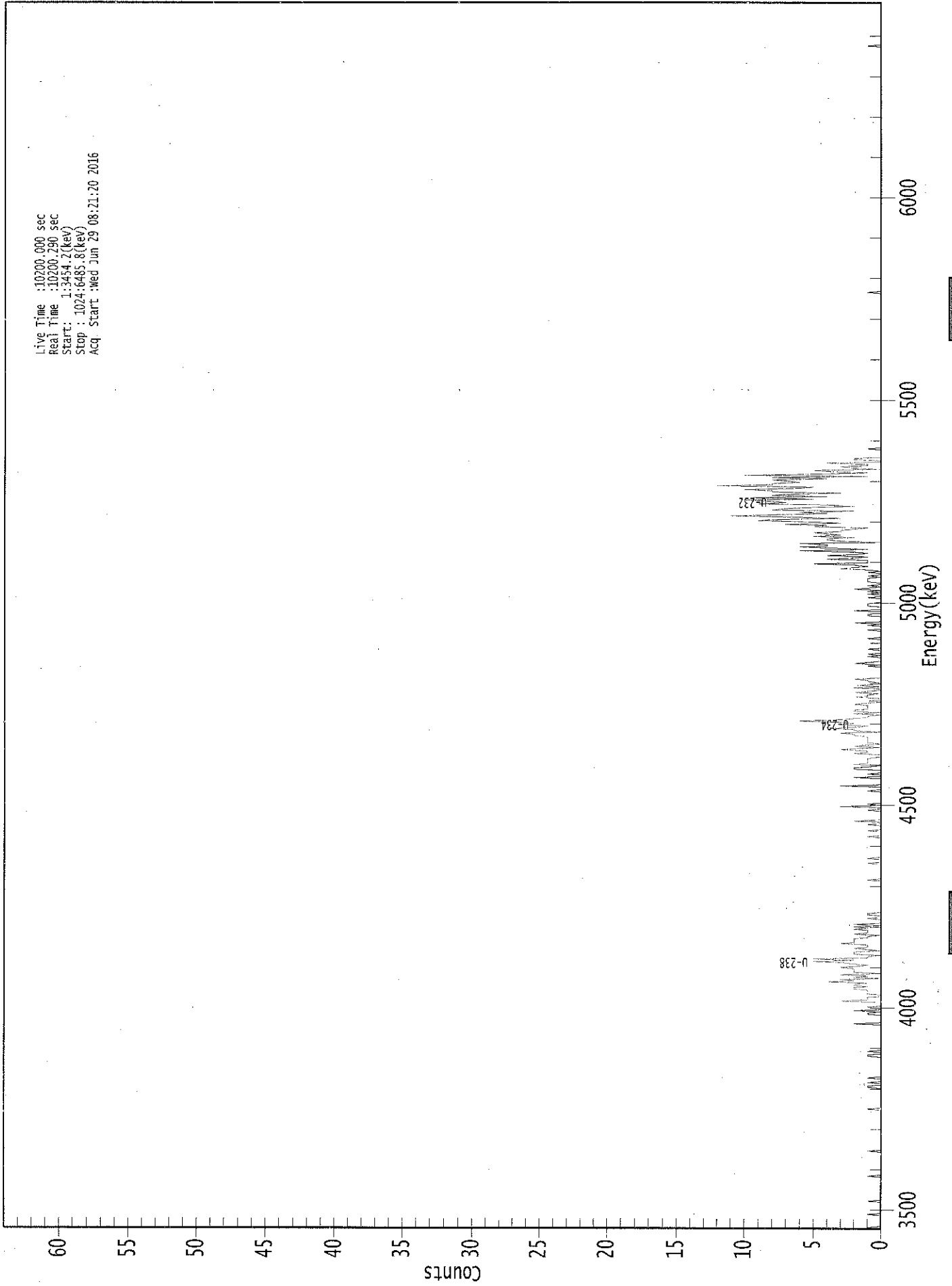
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.981	5302.50*	3.62E+000 +/- 4.11E-001	6.12E-002 +/- 6.95E-003
U-234	0.975	4761.50*	9.48E-001 +/- 2.22E-001	6.11E-002 +/- 6.94E-003
U-235	0.980	4385.50*	1.49E-001 +/- 8.72E-002	5.25E-002 +/- 5.96E-003
U-238	0.965	4184.40*	1.11E+000 +/- 2.43E-001	4.24E-002 +/- 4.81E-003

AG
6/29/16

0000155739.CNF

Live Time :10200.000 sec
Real Time :10200.290 sec
Start : 1:3454.2(kev)
Stop : 1024:6485.8(kev)
Acq. Start :Wed Jun 29 08:21:20 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	1	2	3	4	5	6	7	8	9
1:	0	1	0	0	0	0	0	0	0
9:	0	0	0	0	1	0	0	0	0
17:	0	0	0	0	0	0	0	0	1
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	1	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	1	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	1	0	0	0	0
105:	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	1	1	1
121:	0	0	1	0	0	0	1	0	0
129:	0	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0	0
145:	1	1	0	0	1	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	2	0	0	0	0	0
177:	0	0	0	1	1	0	2	0	0
185:	0	1	0	0	0	0	3	1	1
193:	1	1	0	0	1	1	1	1	1
201:	2	2	1	2	2	1	4	2	2
209:	3	0	2	1	3	0	2	2	2
217:	2	2	3	2	1	2	3	5	5
225:	2	5	1	1	0	2	2	2	2
233:	0	1	2	1	1	1	3	2	2
241:	2	2	2	1	1	0	2	1	1
249:	1	1	2	1	2	0	2	0	0
257:	0	0	0	1	0	0	1	1	1
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	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	1
329:	0	0	0	0	1	0	0	0	0
337:	0	1	0	0	2	0	0	0	0
345:	0	0	0	0	0	1	0	0	0
353:	3	0	1	0	0	0	0	0	0
361:	0	0	0	0	0	1	0	0	0

369: 0 3 0 0 0 0 0 0 0

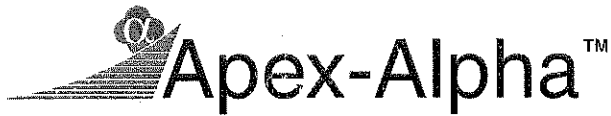
Sample Title: 04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	2	0	0	1	0	0	0	2
385:	2	1	0	2	1	1	1	1
393:	1	0	0	0	2	1	1	3
401:	2	0	2	1	0	1	1	1
409:	1	1	1	2	2	3	0	2
417:	2	4	2	1	3	2	3	6
425:	3	2	1	1	0	2	0	2
433:	2	1	1	1	1	2	1	0
441:	1	0	0	2	1	1	0	2
449:	1	0	0	2	0	2	0	0
457:	1	1	2	0	0	0	0	0
465:	0	0	0	0	0	1	0	2
473:	1	0	0	0	0	1	0	1
481:	0	0	0	1	0	0	0	0
489:	0	0	0	0	1	0	0	0
497:	0	0	0	1	0	0	0	1
505:	0	2	0	0	0	0	0	1
513:	1	0	0	2	0	0	0	1
521:	1	1	0	0	0	0	1	0
529:	0	1	0	1	0	2	1	0
537:	1	0	0	1	1	1	1	0
545:	1	0	0	1	0	1	3	2
553:	1	2	5	1	1	1	4	2
561:	1	4	2	1	2	6	1	3
569:	6	4	4	6	0	3	4	4
577:	2	5	3	4	5	3	3	2
585:	1	5	4	7	3	5	9	8
593:	3	6	11	8	4	6	2	8
601:	7	5	2	4	9	7	8	10
609:	5	10	4	8	7	3	8	8
617:	10	6	5	12	8	8	6	7
625:	8	4	8	1	10	4	1	4
633:	5	0	2	3	1	1	4	0
641:	0	2	2	0	0	0	0	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	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	1	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: 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	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	1	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



10
6/29/16

Sample Description: CP-5011 00-02
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
 Batch Identification: 1606065A-UU
 Sample Identification: 05
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_048
 Chamber Serial Number: 02030596B
 Detector Serial Number: 83111
 Env. Background: System Bkgd 157594
 Reagent Blank: <not performed>

Sample Size: 1.542E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:05:53 AM
 Acquisition Date/Time: 6/29/2016 8:21:22 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.656 mL
 Effective Efficiency: 0.1965 +/- 0.0108
 Counting Efficiency: 0.1756 +/- 0.0031 on 12/11/2015 8:21:00 AM
 Chem. Recovery Factor: 1.1184 +/- 0.0645

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	402.81	9.78	1.19	0.00E+000	12.7
U-234	4.725	129.83	17.21	0.17	0.00E+000	8.2
U-235	4.392	6.00	86.43	0.00	0.00E+000	3.0
U-238	4.148	126.32	17.49	0.68	0.00E+000	5.2

T = Tracer Peak used for Effective Efficiency

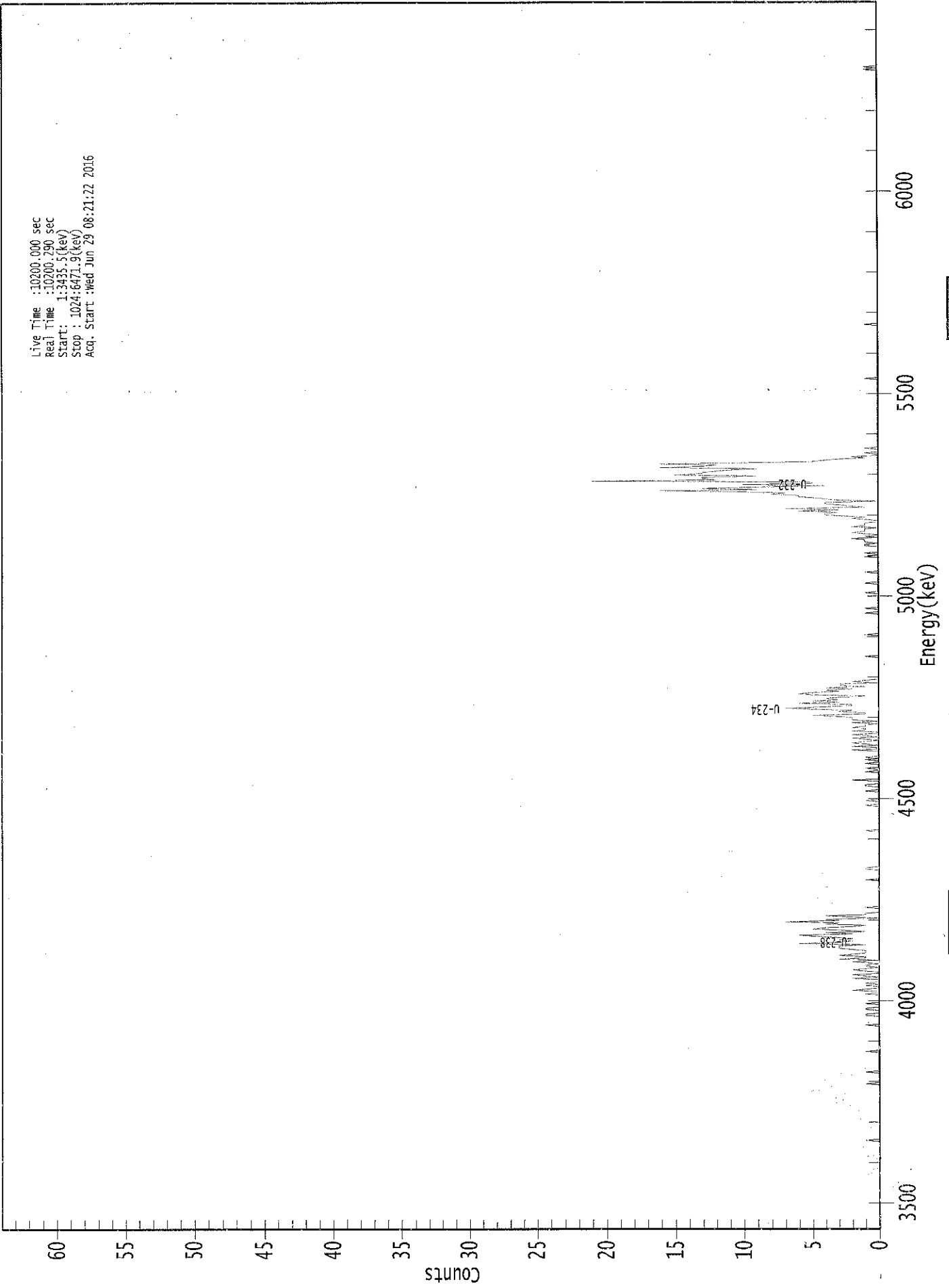
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	3.53E+000 +/- 3.81E-001	5.78E-002 +/- 6.22E-003
U-234	0.990	4761.50*	1.14E+000 +/- 2.31E-001	3.66E-002 +/- 3.94E-003
U-235	1.000	4385.50*	6.49E-002 +/- 5.65E-002	6.48E-002 +/- 6.98E-003
U-238	0.991	4184.40*	1.10E+000 +/- 2.26E-001	4.92E-002 +/- 5.30E-003

AG
 6/29/16

0000155738.CNF

Live Time : 10200.000 sec
Real Time : 10200.290 sec
Start : 1:3435.5(keV)
Stop : 1024:6471.9(keV)
Acq. Start : wed Jun 29 08:21:22 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	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	1	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	1	0	0	0	0	0	0	0
129:	0	0	0	1	0	0	0	0	0
137:	0	0	0	0	0	0	0	0	0
145:	0	0	0	0	1	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	1	0	0	0	0	0	0
177:	0	0	1	1	0	0	0	0	1
185:	1	0	0	0	1	0	0	0	0
193:	0	0	0	0	1	0	0	0	2
201:	1	0	0	1	0	1	0	0	0
209:	0	2	0	1	2	0	0	0	1
217:	2	1	0	1	1	0	1	2	2
225:	0	3	1	1	3	2	1	1	1
233:	1	2	3	3	3	1	6	3	3
241:	2	3	2	3	5	6	2	4	4
249:	1	3	5	4	2	1	4	3	3
257:	7	3	4	0	2	4	1	1	1
265:	0	0	0	0	1	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	1	1	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	1	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	1	0	0	0	1	0	0	0
361:	0	0	0	0	0	1	0	0	0

369: 0 1 1 0 0 0 2 0

Sample Title: 05

Channel	1	2	3	4	5	6	7	8
377:	0	0	0	0	0	1	0	0
385:	1	0	0	0	1	0	0	1
393:	0	1	0	0	0	0	0	2
401:	0	0	2	0	1	2	1	0
409:	1	2	0	1	2	0	0	2
417:	1	1	2	1	1	0	2	0
425:	2	2	2	3	5	1	1	3
433:	2	5	7	4	2	2	6	3
441:	5	3	4	3	1	5	6	5
449:	3	4	2	4	1	3	3	0
457:	2	1	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	1	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	1
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	1	0	0	0	1	0	0
521:	0	0	0	0	0	0	0	0
529:	0	0	1	0	0	0	0	0
537:	0	0	1	0	0	0	0	0
545:	0	0	0	1	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	1	0	0	1	0	0	0	0
569:	0	1	1	0	1	1	1	2
577:	0	1	0	1	2	1	1	1
585:	0	2	1	1	1	0	0	1
593:	2	1	3	4	4	3	6	3
601:	7	1	2	3	4	4	0	3
609:	4	5	6	6	8	7	10	16
617:	9	13	9	4	10	5	5	21
625:	12	13	13	9	15	13	13	12
633:	11	9	16	13	12	16	9	5
641:	4	3	1	2	0	0	1	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	1	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	1	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: 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	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	1	0
969:	1	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
6/29/16*

Sample Description: CP-5011 02-05
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
 Batch Identification: 1606065A-UU
 Sample Identification: 06
 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: 1.524E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:05:53 AM
 Acquisition Date/Time: 6/29/2016 8:21:23 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.656 mL
 Effective Efficiency: 0.1579 +/- 0.0095
 Counting Efficiency: 0.1510 +/- 0.0027 on 12/11/2015 11:36:41 AM
 Chem. Recovery Factor: 1.0457 +/- 0.0657

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 5.271	324.00	10.91	0.00	0.00E+000	4.8
U-234	4.713	82.83	21.56	0.17	0.00E+000	4.0
U-235	4.411	8.00	73.50	0.00	0.00E+000	3.0
U-238	4.144	89.15	20.87	0.85	0.00E+000	4.1

T = Tracer Peak used for Effective Efficiency

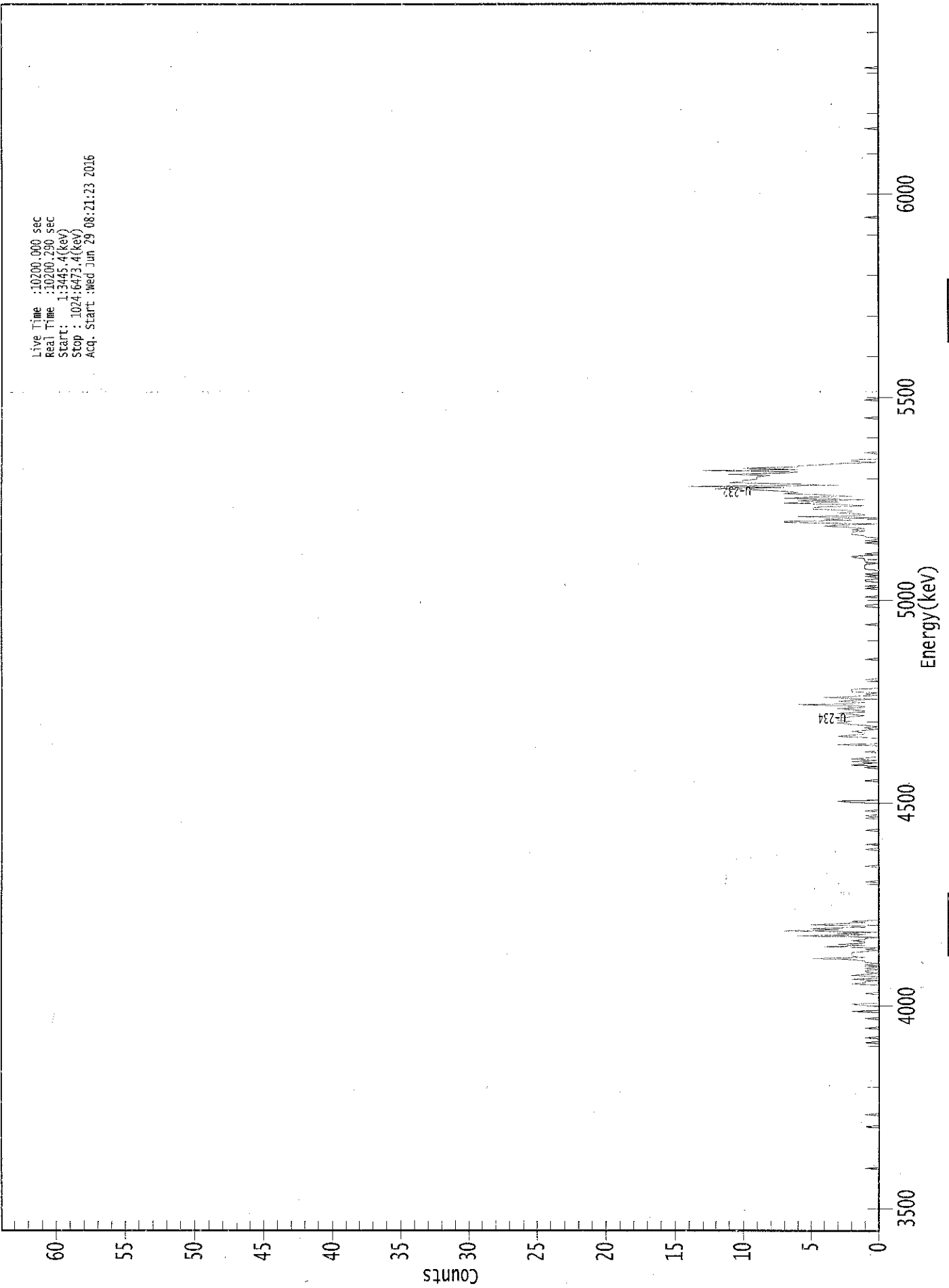
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	3.58E+000 +/- 4.22E-001	6.62E-002 +/- 7.81E-003
U-234	0.983	4761.50*	9.13E-001 +/- 2.25E-001	4.60E-002 +/- 5.43E-003
U-235	0.995	4385.50*	1.09E-001 +/- 8.10E-002	8.16E-002 +/- 9.63E-003
U-238	0.988	4184.40*	9.79E-001 +/- 2.35E-001	6.57E-002 +/- 7.76E-003

*AG
6/29/16*

0000155740.CNF

Live Time :10200.000 sec
Real Time :10200.290 sec
Start : 1:3445.4(keV)
Stop : 1024:6473.4(keV)
Acq. Start :Wed Jun 29 08:21:23 2016



ROI Type: 3

ROI Type: 1

80100

 ***** 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	0	0	1	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	1
89:	0	0	0	0	0	0	0	0	0
97:	0	1	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	1	0	0	0
161:	0	1	0	0	0	0	0	0	0
169:	0	1	0	0	0	0	0	0	0
177:	0	1	0	0	0	0	0	0	2
185:	0	0	0	0	1	2	0	0	0
193:	0	0	0	0	0	0	1	0	0
201:	0	0	0	0	0	0	2	1	0
209:	1	0	2	0	0	2	1	0	0
217:	1	1	0	1	0	1	1	0	0
225:	1	1	2	5	1	2	2	2	2
233:	2	1	0	1	0	4	1	3	0
241:	1	1	2	1	1	0	6	1	0
249:	3	0	7	3	5	1	1	5	0
257:	3	1	2	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:	1	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	1	0	0
321:	0	0	1	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:	1	0	1	0	0	0	1	0	0
353:	0	0	0	0	0	2	3	0	0
361:	0	0	0	0	0	0	0	0	0

369: 0 0 0 0 0 0 0 0 1

Sample Title: 06

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	0	0	0	0	0	0
385:	0	0	1	0	2	1	0	2
393:	0	2	1	0	0	0	0	1
401:	0	0	0	0	0	3	0	0
409:	0	0	0	1	3	2	1	1
417:	2	1	0	1	0	1	2	3
425:	2	3	3	3	2	1	2	3
433:	1	1	2	3	1	1	6	2
441:	1	3	2	0	4	2	0	1
449:	0	2	2	2	0	0	0	0
457:	0	0	0	1	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	1	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	1	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	1	1	0	0	0	0	0	0
529:	1	0	0	0	0	0	0	1
537:	0	1	0	0	0	1	1	0
545:	0	1	0	1	0	0	0	1
553:	1	1	1	1	0	1	1	1
561:	1	2	2	0	1	0	0	0
569:	0	0	0	0	0	1	0	1
577:	0	0	1	1	2	2	2	1
585:	2	1	2	4	3	0	7	7
593:	2	4	0	6	1	1	3	2
601:	2	5	5	4	1	3	7	3
609:	6	1	7	5	2	4	7	6
617:	7	9	12	7	14	3	6	11
625:	10	10	9	9	9	8	11	7
633:	6	13	6	10	6	6	4	3
641:	0	2	2	0	0	0	0	0
649:	1	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	1	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	1	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 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	1	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	1	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	1	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™

KB
6/29/16

Sample Description: CP-5011 05-8 5
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
 Batch Identification: 1606065A-UU
 Sample Identification: 07
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_050
 Chamber Serial Number: 10006121B
 Detector Serial Number: 50
 Env. Background: System Bkgd 157596
 Reagent Blank: <not performed>

Sample Size: 1.541E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:05:53 AM
 Acquisition Date/Time: 6/29/2016 8:21:26 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.656 mL
 Effective Efficiency: 0.1854 +/- 0.0104
 Counting Efficiency: 0.1465 +/- 0.0026 on 12/11/2015 11:36:39 AM
 Chem. Recovery Factor: 1.2651 +/- 0.0748

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	5.264	380.13	10.08	1.87	0.00E+000	7.6
U-234	4.723	75.13	22.94	1.87	0.00E+000	4.9
U-235	4.341	0.98	294.85	1.02	0.00E+000	3.0
U-238	4.145	68.98	23.80	1.02	0.00E+000	4.0

T = Tracer Peak used for Effective Efficiency

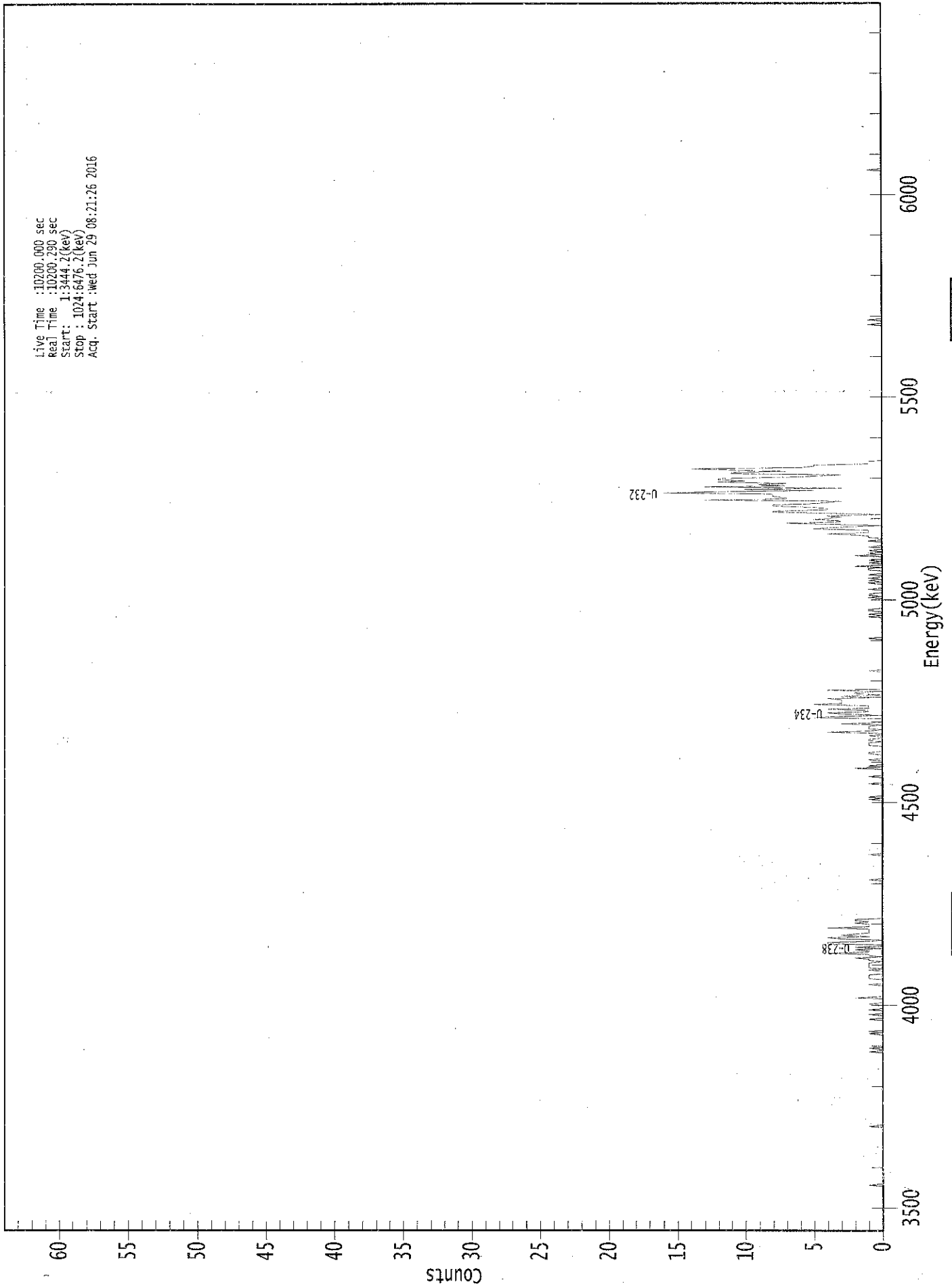
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.990	5302.50*	3.53E+000 +/- 3.90E-001	7.04E-002 +/- 7.77E-003
U-234	0.989	4761.50*	6.98E-001 +/- 1.78E-001	7.04E-002 +/- 7.77E-003
U-235	0.986	4385.50*	1.12E-002 +/- 3.31E-002	7.22E-002 +/- 7.98E-003
U-238	0.989	4184.40*	6.38E-001 +/- 1.67E-001	5.83E-002 +/- 6.44E-003

AG
6/29/16

0000155741.CNF

Live Time : 10200.000 sec
Real Time : 10200.290 sec
Start : 1:3444.2(keV)
Stop : 1024:6476.2(keV)
Acq. Start : Wed Jun 29 08:21:26 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:	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	1	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	1
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	1	0	0
153:	1	0	0	0	0	0	0	0
161:	0	0	0	0	1	0	1	0
169:	0	0	0	0	0	0	0	0
177:	1	0	0	0	1	0	0	0
185:	1	0	0	0	0	1	0	0
193:	0	0	2	0	0	0	0	0
201:	0	0	0	0	0	1	0	0
209:	0	0	1	1	1	1	0	0
217:	0	1	0	1	1	1	1	1
225:	0	1	1	2	0	1	1	4
233:	1	1	2	0	2	0	0	4
241:	4	1	0	3	4	1	3	2
249:	1	1	1	1	4	1	1	1
257:	2	1	2	2	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	1	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	1	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	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	1
361:	0	1	0	0	0	0	0	0

369: 0 0 0 0 1 0 0 0

Sample Title: 07

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	1	0	0	0	0	0
385:	0	2	0	1	0	0	0	0
393:	1	0	0	0	0	1	1	0
401:	0	0	0	0	1	1	1	0
409:	1	1	0	0	1	0	0	4
417:	1	0	1	1	1	0	3	0
425:	0	0	0	5	3	0	3	4
433:	1	1	4	1	1	1	5	3
441:	3	3	3	4	0	3	0	2
449:	2	0	4	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	1	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	1	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	1
513:	0	1	0	0	1	1	0	0
521:	0	0	0	0	0	0	0	1
529:	0	1	1	0	0	0	1	0
537:	0	0	0	1	0	1	0	1
545:	0	0	1	0	0	0	1	1
553:	0	2	0	0	1	0	1	0
561:	0	0	2	0	1	0	1	0
569:	0	1	0	0	0	0	1	0
577:	0	1	1	2	4	1	1	1
585:	5	4	2	0	4	7	3	3
593:	5	4	3	4	0	3	8	8
601:	4	4	5	8	8	5	4	3
609:	13	7	7	8	8	8	16	12
617:	5	10	3	13	7	9	7	12
625:	10	12	12	7	5	3	11	11
633:	7	11	14	6	5	5	1	1
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	1	0	0	0	1	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 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	1	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



165
6/29/16

Sample Description: CP-5011 8 5-15
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
 Batch Identification: 1606065A-UU
 Sample Identification: 08
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_052
 Chamber Serial Number: 10006123B
 Detector Serial Number: 52
 Env. Background: System Bkgd 157597
 Reagent Blank: <not performed>

Sample Size: 1.528E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:05:53 AM
 Acquisition Date/Time: 6/29/2016 8:21:28 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.657 mL
 Effective Efficiency: 0.0986 +/- 0.0073
 Counting Efficiency: 0.1729 +/- 0.0030 on 12/11/2015 11:36:36 AM
 Chem. Recovery Factor: 0.5700 +/- 0.0434

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	202.32	13.81	0.68	0.00E+000	4.9
U-234	4.715	50.49	27.75	0.51	0.00E+000	5.9
U-235	4.391	3.66	107.87	0.34	0.00E+000	3.0
U-238	4.136	45.00	29.54	0.00	0.00E+000	3.5

T = Tracer Peak used for Effective Efficiency

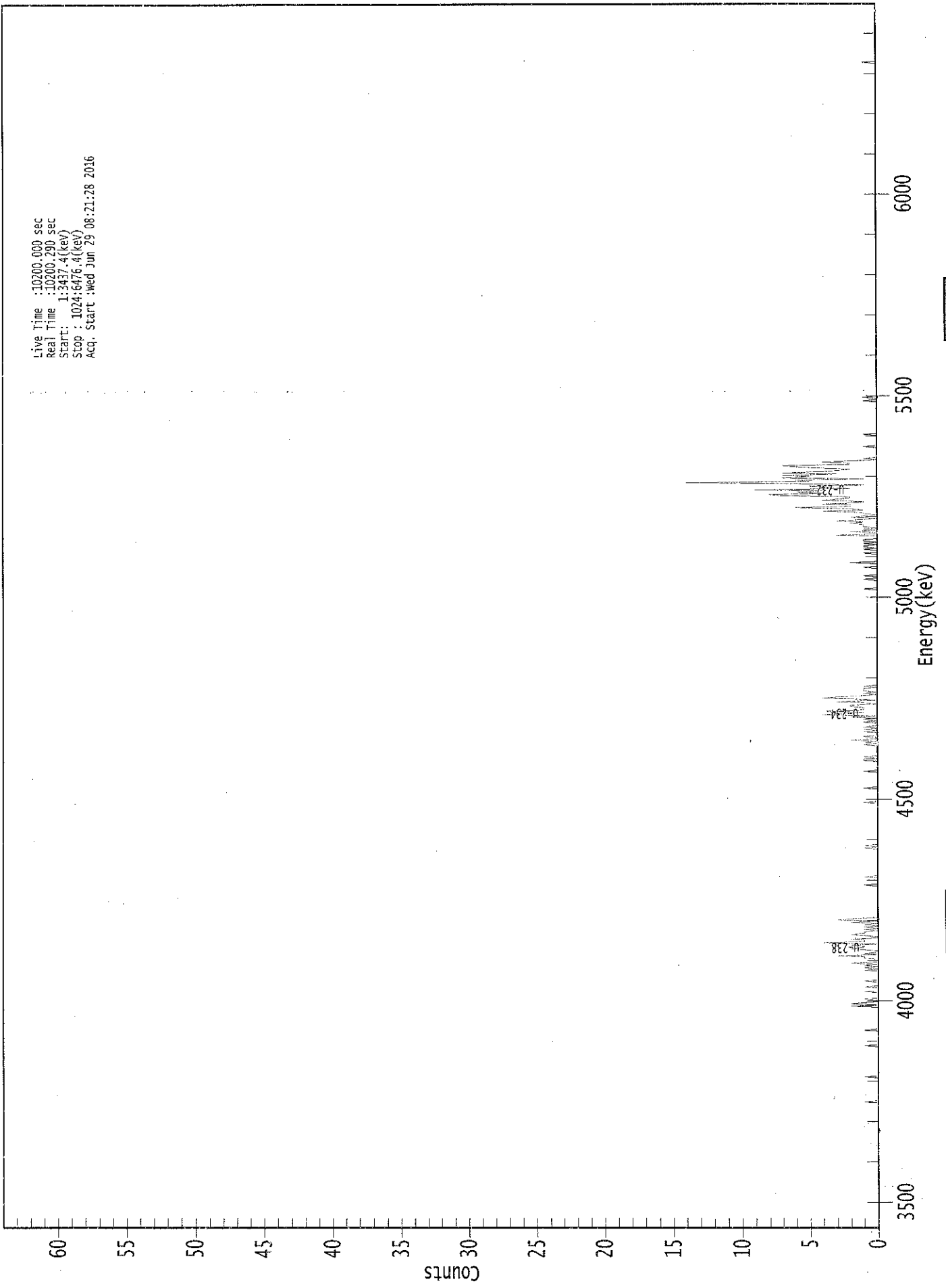
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	3.57E+000 +/- 5.19E-001	9.95E-002 +/- 1.45E-002
U-234	0.985	4761.50*	8.90E-001 +/- 2.79E-001	9.25E-002 +/- 1.34E-002
U-235	1.000	4385.50*	7.96E-002 +/- 8.67E-002	1.04E-001 +/- 1.51E-002
U-238	0.983	4184.40*	7.90E-001 +/- 2.60E-001	1.05E-001 +/- 1.53E-002

AG
6/29/16

0000155747.CNF

Live Time : 10200.000 sec
Real Time : 10200.290 sec
Start : 1:3437.4(keV)
Stop : 1024:6476.4(keV)
Acq. Start : Wed Jun 29 08:21:28 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:	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	0	0	0	0
105:	0	1	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	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	0	0
153:	1	0	0	0	0	0	0	0
161:	0	0	0	0	0	1	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	2	0	2	1	0	0	1
193:	0	0	0	0	0	1	0	0
201:	0	1	0	0	0	0	1	0
209:	0	0	0	0	0	0	0	1
217:	0	1	0	1	0	2	0	0
225:	0	1	1	3	0	1	0	0
233:	1	2	1	1	2	0	4	1
241:	1	2	0	0	1	2	1	1
249:	0	1	0	1	0	1	0	2
257:	0	3	2	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	1	0
289:	0	0	0	0	0	1	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	1	0	1
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	0	1	0	0	0	0
361:	0	0	0	0	0	0	0	1

369: 0 0 0 0 0 0 0 0 0

Sample Title: 08

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	0	0	0	1	0	0
385:	0	0	0	0	0	0	1	1
393:	0	1	0	0	0	0	0	0
401:	0	0	0	1	0	1	0	2
409:	0	0	1	0	0	0	1	0
417:	1	0	1	0	0	0	1	0
425:	1	0	2	0	4	3	1	4
433:	1	1	1	2	2	0	1	3
441:	0	1	4	3	1	0	1	0
449:	1	1	1	0	1	0	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	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	0	0	0	1	0	0
537:	0	0	0	0	0	1	0	0
545:	1	0	0	0	0	0	0	1
553:	0	0	0	2	0	0	0	0
561:	0	0	0	1	0	0	1	0
569:	1	1	0	1	0	1	1	0
577:	0	0	3	0	0	2	0	1
585:	0	1	1	1	2	1	3	1
593:	0	2	1	0	1	1	4	1
601:	2	6	2	2	4	1	1	4
609:	3	2	2	7	8	4	6	4
617:	9	2	4	5	1	6	14	5
625:	6	1	7	5	7	3	7	4
633:	3	2	4	6	7	2	2	4
641:	2	0	1	0	0	0	0	0
649:	0	0	0	0	1	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	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	1	0	0	1	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 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	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
6/29/16

Sample Description: CP-5017 00-02
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
 Batch Identification: 1606065A-UU
 Sample Identification: 09
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_053
 Chamber Serial Number: 10006122A
 Detector Serial Number: 53
 Env. Background: System Bkgd 157598
 Reagent Blank: <not performed>

Sample Size: 1.542E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:05:53 AM
 Acquisition Date/Time: 6/29/2016 8:21:29 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.656 mL
 Effective Efficiency: 0.1831 +/- 0.0103
 Counting Efficiency: 0.1516 +/- 0.0027 on 12/11/2015 11:36:34 AM
 Chem. Recovery Factor: 1.2077 +/- 0.0716

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 5.268	375.66	10.12	0.34	0.00E+000	13.7
U-234	4.713	84.30	21.60	1.70	0.00E+000	4.4
U-235	4.373	8.66	68.12	0.34	0.00E+000	3.0
U-238	4.132	88.49	20.91	0.51	0.00E+000	4.5

T = Tracer Peak used for Effective Efficiency

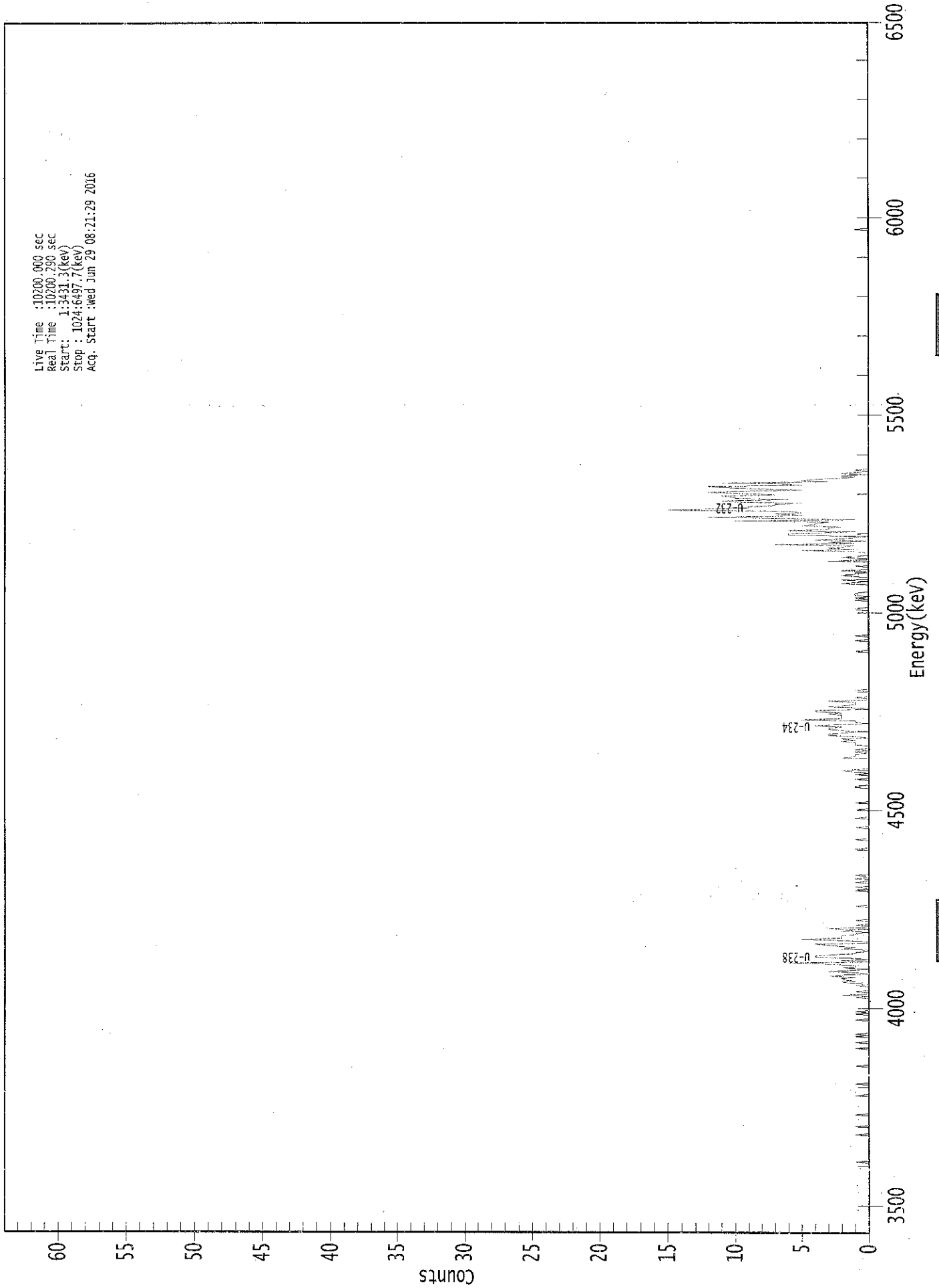
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	3.54E+000 +/- 3.92E-001	4.50E-002 +/- 4.99E-003
U-234	0.984	4761.50*	7.93E-001 +/- 1.92E-001	6.91E-002 +/- 7.66E-003
U-235	0.999	4385.50*	1.01E-001 +/- 6.94E-002	5.55E-002 +/- 6.15E-003
U-238	0.981	4184.40*	8.29E-001 +/- 1.96E-001	4.92E-002 +/- 5.45E-003

AG
6/29/16

0000155743.CNF

Live Time : 10200.000 sec
Real Time : 10200.290 sec
Start : 1:3431.3(keV)
Stop : 1024.6497.7(keV)
Acq. Start : Wed Jun 29 08:21:29 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: 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	1	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	1	0	0	0	0	0	0
97:	0	0	0	0	1	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	1	0	0
129:	0	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	1	0	0	0
145:	0	0	0	0	0	0	0	0	0
153:	0	0	0	0	1	0	0	0	0
161:	0	1	0	0	0	0	1	0	0
169:	1	0	0	0	0	0	0	0	0
177:	0	0	0	0	1	0	0	0	0
185:	0	1	0	1	0	0	0	0	0
193:	0	0	0	0	0	0	0	0	1
201:	0	2	0	0	1	0	0	0	0
209:	0	1	0	1	2	1	2	2	2
217:	1	3	2	0	1	3	1	0	0
225:	2	1	1	3	6	0	2	0	0
233:	1	4	4	3	1	1	0	0	0
241:	2	1	2	3	4	0	0	2	2
249:	5	2	2	2	1	1	0	2	2
257:	1	3	0	0	1	0	0	0	0
265:	1	0	0	0	0	0	0	0	0
273:	0	0	0	0	1	0	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	0	1	0	0	1	0	0	0	0
297:	1	0	0	1	0	0	1	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	1	0	0	0	0
329:	0	0	0	0	1	0	0	0	0
337:	0	0	0	0	0	0	1	0	0
345:	0	0	0	0	0	0	1	0	0
353:	0	0	0	0	0	1	0	0	0
361:	0	0	0	1	0	0	0	0	0

369: 0 0 0 0 0 0 0 0 0

Sample Title: 09

Channel	1	2	3	4	5	6	7	8	9
377:	1	1	0	0	0	0	0	0	1
385:	0	0	0	1	0	1	2	1	1
393:	0	0	0	0	0	0	0	0	0
401:	0	2	1	1	1	0	1	0	0
409:	1	0	0	0	1	1	1	2	2
417:	1	2	0	1	3	3	2	1	1
425:	2	3	3	2	4	2	0	1	1
433:	1	5	2	2	2	2	3	2	2
441:	4	4	0	0	3	2	1	1	1
449:	1	3	0	0	1	0	0	0	0
457:	0	0	1	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	1	0	0	0	0	0
497:	0	0	0	0	1	0	0	0	0
505:	1	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	1	1	1
529:	0	0	0	0	0	0	1	0	0
537:	1	0	1	1	1	0	0	0	0
545:	0	0	0	0	2	1	0	2	2
553:	0	0	1	2	1	1	0	2	2
561:	0	0	0	1	0	0	0	3	3
569:	0	0	2	1	0	0	0	1	1
577:	5	1	3	2	1	7	1	3	3
585:	0	4	2	1	0	6	6	4	4
593:	1	6	3	3	2	5	4	4	4
601:	3	10	1	6	12	7	5	7	7
609:	5	6	15	12	9	9	7	7	7
617:	5	10	11	6	10	10	11	7	7
625:	9	12	10	5	8	11	12	5	5
633:	6	11	3	5	4	2	1	2	2
641:	0	2	1	0	1	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	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 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	1
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
6/29/16

Apex-Alpha™

Sample Description: CP-5017 02-05
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
 Batch Identification: 1606065A-UU
 Sample Identification: 10
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_054
 Chamber Serial Number: 10006122B
 Detector Serial Number: 54
 Env. Background: System Bkgd 157599
 Reagent Blank: <not performed>

Sample Size: 1.503E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:05:53 AM
 Acquisition Date/Time: 6/29/2016 8:21:31 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.657 mL
 Effective Efficiency: 0.2039 +/- 0.0110
 Counting Efficiency: 0.1363 +/- 0.0025 on 12/11/2015 11:36:32 AM
 Chem. Recovery Factor: 1.4957 +/- 0.0853

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 5.275	418.49	9.59	0.51	0.00E+000	34.7
U-234	4.728	99.83	19.64	0.17	0.00E+000	7.2
U-235	4.372	6.15	85.19	0.85	0.00E+000	3.0
U-238	4.151	98.49	19.81	0.51	0.00E+000	6.3

T = Tracer Peak used for Effective Efficiency

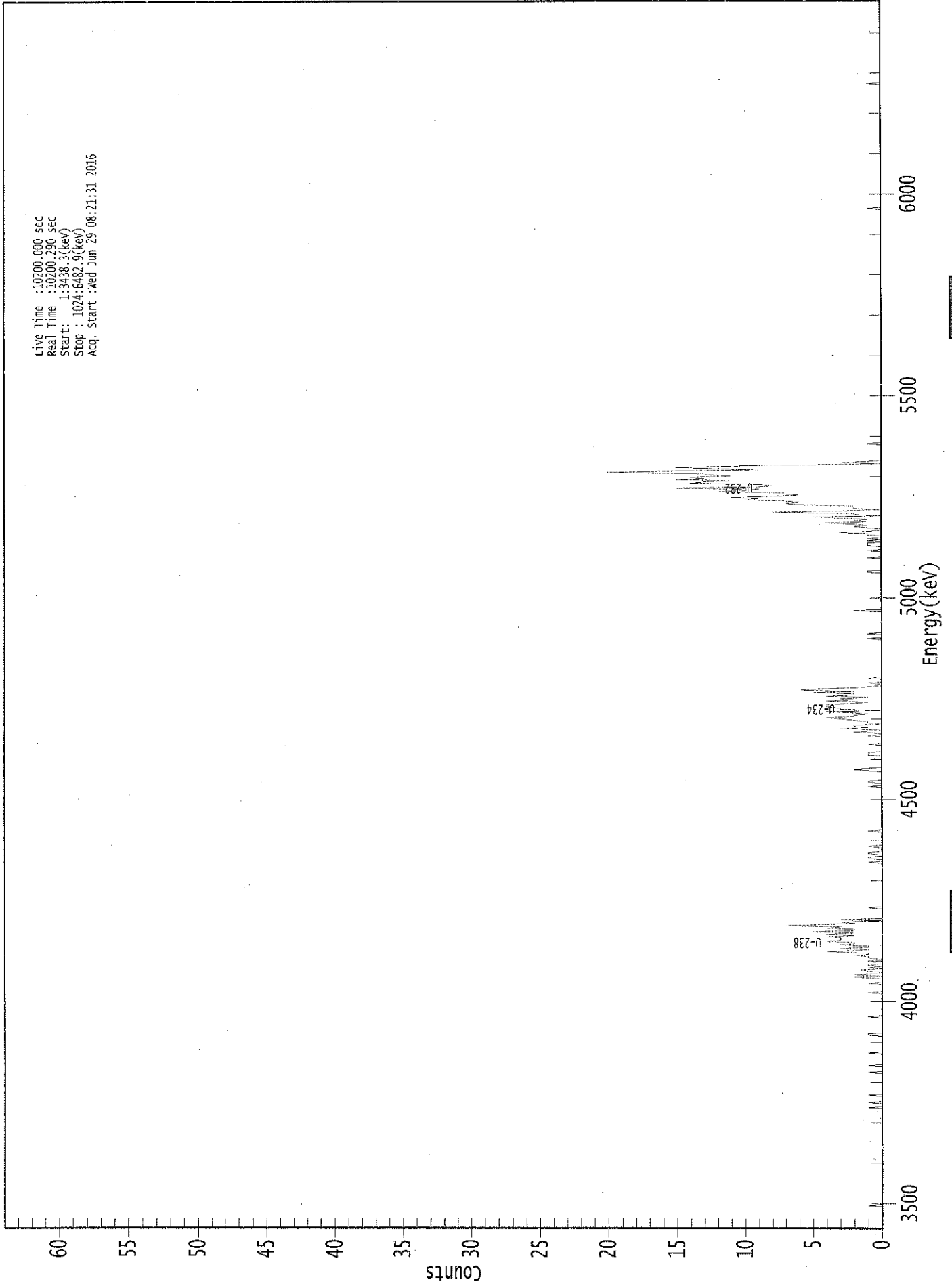
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	3.63E+000 +/- 3.84E-001	4.55E-002 +/- 4.82E-003
U-234	0.992	4761.50*	8.65E-001 +/- 1.93E-001	3.62E-002 +/- 3.83E-003
U-235	0.999	4385.50*	6.57E-002 +/- 5.64E-002	6.40E-002 +/- 6.78E-003
U-238	0.992	4184.40*	8.50E-001 +/- 1.91E-001	4.53E-002 +/- 4.80E-003

AG
6/29/16

0000155750.CNF

Live Time : 10200.000 sec
Real Time : 10200.290 sec
Start : 1:34:38.3(keV)
Stop : 1024:6482.9(keV)
Acq. Start : Wed Jun 29 08:21:31 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:	0	0	0	0	0	0	0	0
9:	0	0	0	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	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	0	1	0	0
105:	0	1	0	0	0	0	0	1
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	1	0	0	0	0	0
137:	1	0	0	0	0	0	0	0
145:	0	0	1	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	1	1	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	1	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	1	0	0	0
209:	0	2	0	2	0	0	1	2
217:	0	1	0	1	0	0	1	1
225:	0	1	1	2	1	1	4	2
233:	1	3	1	1	3	2	2	4
241:	3	3	3	4	2	4	2	5
249:	2	2	4	3	7	4	2	3
257:	0	3	0	0	0	0	0	0
265:	0	0	0	1	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	1	0	0	1	1	0	0
313:	1	1	0	0	0	0	1	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	1	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	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369: 1 0 0 1 1 0 0 0

Sample Title: 10

Channel	1	2	3	4	5	6	7	8	9
377:	0	0	0	0	0	1	2	1	
385:	0	0	0	0	0	0	0	0	
393:	0	0	1	1	1	0	0	0	
401:	0	0	0	1	0	0	0	0	
409:	0	0	1	0	0	2	1	0	
417:	3	1	2	2	0	1	1	2	
425:	3	4	2	2	1	2	4	0	
433:	3	3	4	4	4	2	1	4	
441:	2	3	1	4	2	2	5	2	
449:	6	5	2	1	0	0	1	0	
457:	0	0	1	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	1	0	0	0	1	
497:	0	0	0	0	0	0	0	0	
505:	0	0	0	0	0	0	0	0	
513:	0	0	2	0	0	0	0	0	
521:	0	0	0	0	0	0	0	0	
529:	0	0	0	0	0	0	0	0	
537:	0	0	0	0	0	0	0	0	
545:	0	0	1	1	0	0	0	0	
553:	0	0	0	0	0	0	1	0	
561:	0	0	0	0	1	0	0	0	
569:	1	1	1	0	1	0	1	0	
577:	0	1	1	3	1	0	0	1	
585:	2	1	2	4	1	2	1	3	
593:	5	0	2	2	8	3	0	2	
601:	2	2	6	7	6	7	10	9	
609:	11	8	6	7	7	12	10	9	
617:	15	9	8	9	14	13	11	15	
625:	13	14	11	13	13	20	17	9	
633:	12	15	12	8	0	3	1	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	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: 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	1	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	1	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



Apex-Alpha™

*UB
6/29/16*

Sample Description: CP-5017 05-10
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
 Batch Identification: 1606065A-UU
 Sample Identification: 11
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_055
 Chamber Serial Number: 10006124A
 Detector Serial Number: 55
 Env. Background: System Bkgd 157600
 Reagent Blank: <not performed>

Sample Size: 1.509E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:05:53 AM
 Acquisition Date/Time: 6/29/2016 8:21:33 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.658 mL
 Effective Efficiency: 0.1298 +/- 0.0085
 Counting Efficiency: 0.1625 +/- 0.0029 on 12/11/2015 11:36:31 AM
 Chem. Recovery Factor: 0.7990 +/- 0.0543

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	266.81	12.03	1.19	0.00E+000	19.9
U-234	4.741	63.96	24.96	2.04	0.00E+000	9.9
U-235	4.423	4.49	98.45	0.51	0.00E+000	3.0
U-238	4.152	58.98	25.78	1.02	0.00E+000	11.9

T = Tracer Peak used for Effective Efficiency

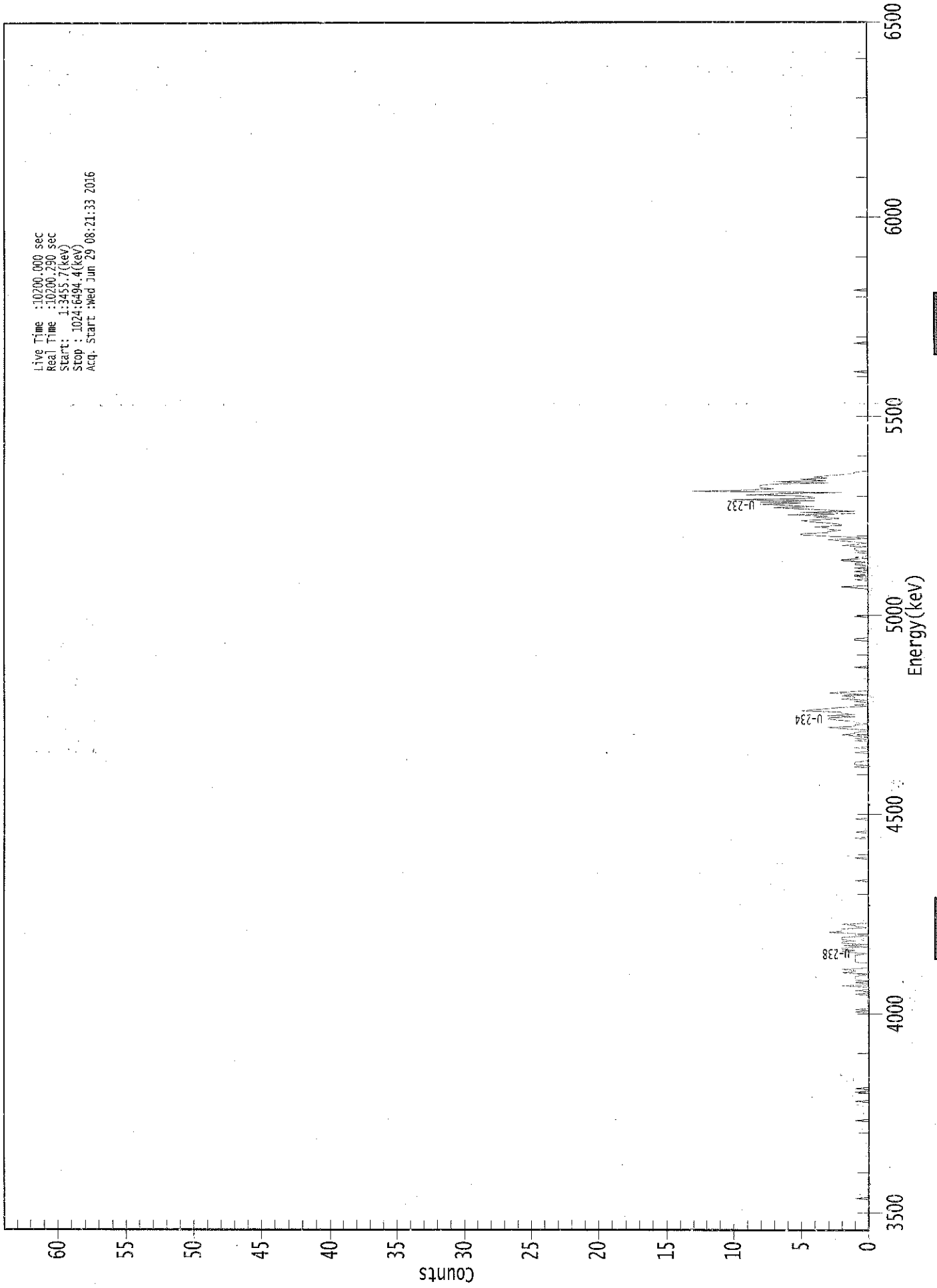
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	3.62E+000 +/- 4.65E-001	8.94E-002 +/- 1.15E-002
U-234	0.997	4761.50*	8.67E-001 +/- 2.43E-001	1.06E-001 +/- 1.36E-002
U-235	0.990	4385.50*	7.51E-002 +/- 7.46E-002	8.78E-002 +/- 1.13E-002
U-238	0.993	4184.40*	7.96E-001 +/- 2.29E-001	8.50E-002 +/- 1.09E-002

*AG
6/29/16*

0000155748.CNF

Live Time : 10200.000 sec
Real Time : 10200.290 sec
Start : 1:34:55.7 (keV)
Stop : 1024:6494.4 (keV)
Acq. Start : Wed Jun 29 08:21:33 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	0	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	1	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	1	0	0	0
97:	0	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	1	0	0	0
113:	0	0	0	0	0	1	0	0	0
121:	1	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	0	0
177:	0	0	0	0	0	0	0	0	0
185:	0	1	0	1	0	0	0	0	0
193:	0	0	0	0	0	0	0	0	0
201:	1	0	0	1	0	0	0	0	2
209:	0	0	1	0	1	1	1	1	1
217:	0	0	2	1	1	2	0	0	0
225:	0	0	0	1	1	1	1	1	1
233:	1	1	0	1	2	1	2	2	2
241:	0	2	0	2	2	1	2	2	2
249:	2	0	1	1	3	2	2	2	2
257:	0	1	1	2	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:	1	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	1	0	0	0	0
337:	0	1	0	0	0	0	0	0	0
345:	0	0	0	0	1	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: 11

Channel	1	2	3	4	5	6	7	8	9
377:	0	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	0	0
393:	1	0	1	1	1	0	0	0	0
401:	0	0	0	0	1	0	0	0	0
409:	1	0	0	0	0	0	1	0	0
417:	1	0	1	2	1	1	0	0	0
425:	2	3	1	1	0	1	1	2	2
433:	3	3	1	3	1	2	2	5	5
441:	4	3	2	0	1	0	0	1	1
449:	0	2	1	1	2	0	3	2	2
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	1	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	1	1	0	0	0	0
505:	0	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	1	1
521:	0	0	0	0	0	0	0	0	0
529:	0	0	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	0	1	1
545:	2	0	0	0	0	0	1	0	0
553:	0	1	1	0	0	1	0	0	0
561:	1	0	0	1	1	0	2	2	2
569:	0	1	0	0	0	1	0	1	1
577:	1	1	0	2	1	0	1	2	2
585:	3	0	1	3	5	5	3	3	3
593:	2	3	3	4	2	2	3	4	4
601:	5	3	2	4	3	6	1	5	5
609:	1	3	5	7	4	6	8	5	5
617:	8	4	10	4	4	5	9	6	6
625:	2	13	9	7	8	8	8	7	7
633:	3	7	3	5	3	4	3	2	2
641:	1	1	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	1	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	1	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	1	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	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



100
6/29/16

Sample Description: CP-5017 10-15
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
 Batch Identification: 1606065A-UU
 Sample Identification: 12
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_056
 Chamber Serial Number: 10006124B
 Detector Serial Number: 56
 Env. Background: System Bkgd 157601
 Reagent Blank: <not performed>

Sample Size: 1.529E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:05:53 AM
 Acquisition Date/Time: 6/29/2016 8:21:35 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.658 mL
 Effective Efficiency: 0.1274 +/- 0.0084
 Counting Efficiency: 0.1647 +/- 0.0029 on 12/11/2015 11:36:29 AM
 Chem. Recovery Factor: 0.7735 +/- 0.0529

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 5.264	262.15	12.13	0.85	0.00E+000	10.1
U-234	4.725	69.32	23.68	0.68	0.00E+000	5.2
U-235	4.377	4.98	97.79	1.02	0.00E+000	3.0
U-238	4.138	76.32	22.55	0.68	0.00E+000	3.5

T = Tracer Peak used for Effective Efficiency

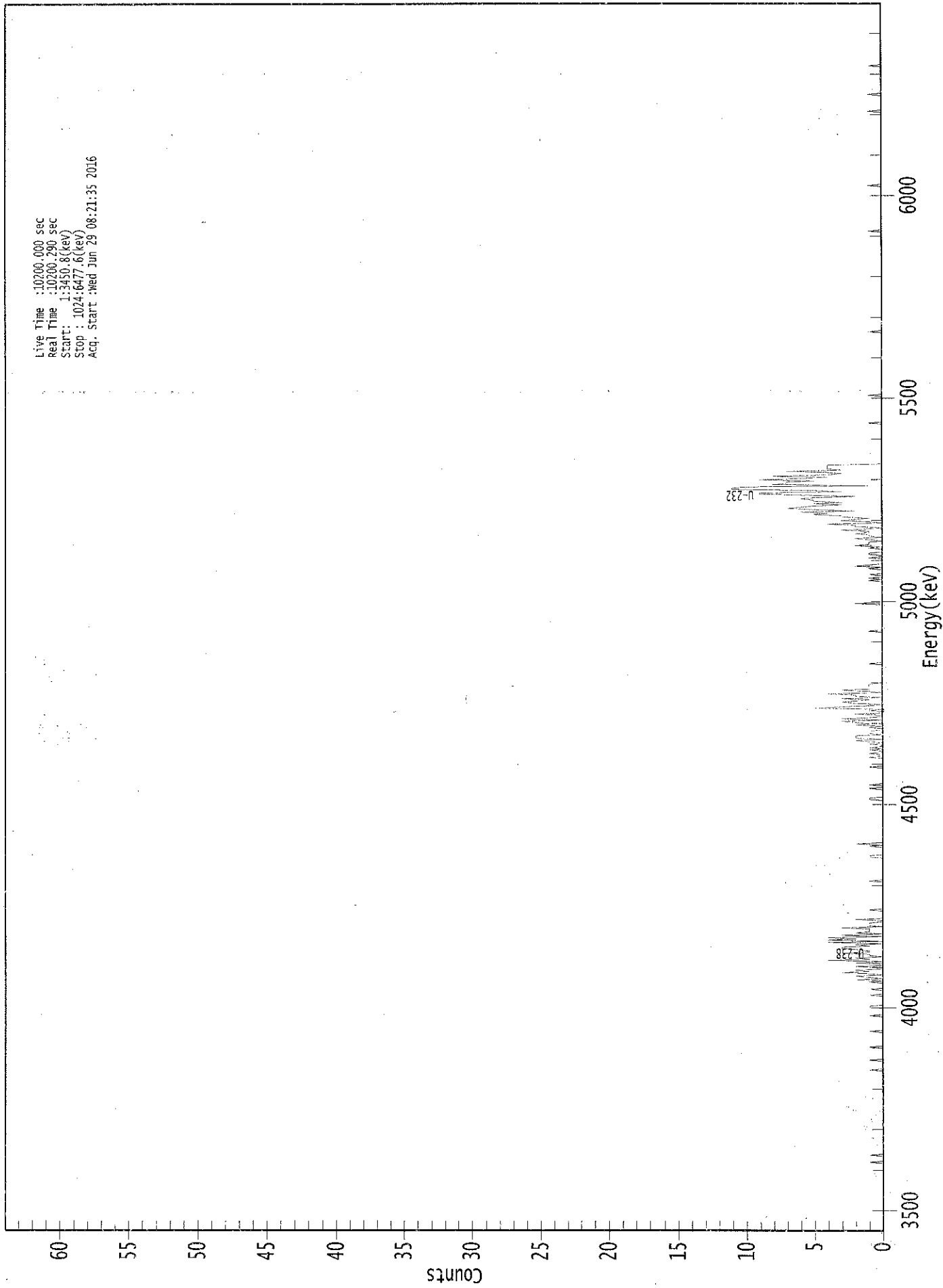
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.989	5302.50*	3.58E+000 +/- 4.63E-001	8.17E-002 +/- 1.06E-002
U-234	0.990	4761.50*	9.45E-001 +/- 2.55E-001	7.69E-002 +/- 9.95E-003
U-235	0.999	4385.50*	8.38E-002 +/- 8.26E-002	1.06E-001 +/- 1.37E-002
U-238	0.985	4184.40*	1.04E+000 +/- 2.69E-001	7.66E-002 +/- 9.91E-003

AG
6/29/16

0000155749.CNF

Live Time : 10200.000 sec
Real Time : 10200.290 sec
Start : 1:3439.8(keV)
Stop : 1024:6477.6(keV)
Acq. Start : Wed Jun 29 08:21:35 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: 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	1	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	1	0
137:	0	0	0	0	0	0	0	1	0
145:	0	0	0	0	0	0	0	0	0
153:	0	1	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	1	0	0	0	0	0
185:	0	0	1	1	0	0	0	0	0
193:	0	0	0	0	1	0	0	0	0
201:	0	1	0	0	0	0	0	0	1
209:	0	2	0	1	2	0	0	1	3
217:	1	2	0	0	2	0	0	0	2
225:	0	4	1	2	0	1	1	1	3
233:	1	1	2	3	3	1	2	2	0
241:	4	0	4	2	4	0	3	0	0
249:	2	1	1	1	3	0	1	1	1
257:	1	0	0	2	0	0	0	0	0
265:	0	0	0	1	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	1
313:	1	0	0	0	0	0	0	0	0
321:	1	0	2	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	1
361:	1	0	0	0	0	0	0	0	0

369: 1 0 0 1 0 0 0 0

Sample Title: 12

Channel	1	2	3	4	5	6	7	8	9
377:	0	0	0	0	0	0	0	0	0
385:	0	0	1	0	0	0	0	0	0
393:	0	0	1	0	0	1	0	0	0
401:	1	0	1	0	0	1	0	1	1
409:	2	0	2	2	2	0	1	1	1
417:	1	0	0	1	0	2	1	2	2
425:	3	0	3	1	0	0	2	0	0
433:	0	1	0	5	3	1	0	2	2
441:	3	2	1	3	0	2	2	4	4
449:	0	1	3	1	1	1	1	1	1
457:	0	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0	0
473:	1	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	1	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0	0
521:	0	0	2	0	0	0	0	0	0
529:	0	0	0	0	0	0	0	0	0
537:	0	0	0	0	0	1	0	1	1
545:	0	0	1	0	0	0	0	1	1
553:	0	2	1	0	0	0	0	0	0
561:	1	0	0	1	1	0	0	0	0
569:	1	0	2	1	1	1	0	1	1
577:	2	0	1	1	2	1	1	3	3
585:	1	0	2	2	4	0	1	3	3
593:	2	1	3	3	5	4	6	2	2
601:	5	7	6	5	3	5	3	5	5
609:	5	6	5	2	5	9	9	3	3
617:	5	11	11	10	1	8	7	7	7
625:	5	9	6	4	8	4	3	4	4
633:	7	3	4	4	4	4	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:	1	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	1	1
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: 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:	1	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:	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	1	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	1	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



QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 6/29/2016
Time : 6:27:16 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 001	21f	ALL	Not Done	
Alpha 002	21f	ALL	Not Done	
Alpha 003	21f	ALL	Passed	6/29/2016 5:32:35 AM
Alpha 004	21f	ALL	Passed	6/29/2016 5:32:36 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	6/29/2016 5:32:37 AM
Alpha 011	21f	ALL	Passed	6/29/2016 5:32:38 AM
Alpha 012	21f	ALL	Passed	6/29/2016 5:32:38 AM
Alpha 013	21f	ALL	Not Done	
Alpha 014	21f	ALL	Passed	6/29/2016 5:32:39 AM
Alpha 015	21f	Peak Energy	Action	6/29/2016 5:32:40 AM
Alpha 016	21f	ALL	Not Done	
Alpha 033	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:41 AM
Alpha 034	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:42 AM
Alpha 035	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:44 AM
Alpha 036	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:45 AM
Alpha 037	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:47 AM
Alpha 038	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:48 AM
Alpha 039	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:49 AM
Alpha 040	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:51 AM
Alpha 041	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:52 AM
Alpha 042	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:54 AM
Alpha 043	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:55 AM
Alpha 044	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:57 AM
Alpha 045	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:58 AM
Alpha 046	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:32:59 AM
Alpha 047	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:33:01 AM
Alpha 048	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:33:03 AM
Alpha 049	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:33:04 AM
Alpha 050	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:33:06 AM
Alpha 051	Alpha Analyst100DC	ALL	Not Done	
Alpha 052	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:33:07 AM
Alpha 053	Alpha Analyst100DC	Peak FWHM	Action	6/29/2016 5:33:09 AM
Alpha 054	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:33:11 AM
Alpha 055	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:33:13 AM
Alpha 056	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:33:14 AM
Alpha 057	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:33:16 AM
Alpha 058	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:33:18 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 059	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:33:20 AM
Alpha 060	Alpha Analyst100DC	ALL	Passed	6/29/2016 5:33:22 AM

APPROVED BY: _____

APPROVAL DATE: 6/29/16

 ***** 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	16-06065
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 Soft#	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-5013 10-15	36	06/08/16 00:00	1.5059E+00
04	DO	CP-5013 10-15	36	06/08/16 00:00	1.5103E+00
05	TRG	CP-5011 00-02	41	06/08/16 00:00	1.5263E+00
06	TRG	CP-5011 02-05	39	06/08/16 00:00	1.5055E+00
07	TRG	CP-5011 05-8 5	45	06/08/16 00:00	1.5706E+00
08	TRG	CP-5011 8 5-15	53	06/08/16 00:00	1.5024E+00
09	TRG	CP-5017 00-02	52	06/08/16 00:00	1.5594E+00
10	TRG	CP-5017 02-05	50	06/08/16 00:00	1.5105E+00
11	TRG	CP-5017 05-10	57	06/08/16 00:00	1.5976E+00
12	TRG	CP-5017 10-15	36	06/08/16 00:00	1.5637E+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 (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	0.4530	10.2		0.00								
02	MBL	0.2244	5.0		0.00								
03	DUP	0.2249	5.1		0.00								
04	DO	0.2290	5.1		0.00								
05	TRG	0.2245	5.0		0.00								
06	TRG	0.2352	5.3		0.00								
07	TRG	0.2240	5.0		0.00								
08	TRG	0.2246	5.0		0.00								
09	TRG	0.2239	5.0		0.00								
10	TRG	0.2241	5.0		0.00								
11	TRG	0.2240	5.0		0.00								
12	TRG	0.2242	5.0		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			06/17/16 10:41	JPACHELLA				
02	MBL			06/17/16 10:41	JPACHELLA				
03	DUP			06/17/16 10:41	JPACHELLA				
04	DO	06/17/16 07:03	KSALLINGS	06/17/16 10:41	JPACHELLA				
05	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:41	JPACHELLA				
06	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:41	JPACHELLA				
07	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:41	JPACHELLA				
08	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:41	JPACHELLA				
09	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:41	JPACHELLA				
10	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:41	JPACHELLA				
11	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:41	JPACHELLA				
12	TRG	06/17/16 07:03	KSALLINGS	06/17/16 10:41	JPACHELLA				

* 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

16-06065

THISO

Analysis Code

Run



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	5.50E+00	8.60E-01	7.08E-02	4.71E+00	116.88	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	3.17E-02	4.37E-02	7.08E-02					OK	OK
03	TH-228	DUP	CP-5013 10-15	pCi/g	1.15E+00	2.55E-01	5.12E-02				OK	OK	
04	TH-228	DO	CP-5013 10-15	pCi/g	1.11E+00	2.68E-01	6.29E-02					OK	
05	TH-228	TRG	CP-5011 00-02	pCi/g	1.37E+00	3.13E-01	8.23E-02					OK	
06	TH-228	TRG	CP-5011 02-05	pCi/g	1.42E+00	3.20E-01	6.79E-02					OK	
07	TH-228	TRG	CP-5011 05-8 5	pCi/g	1.44E+00	3.43E-01	6.58E-02					OK	
08	TH-228	TRG	CP-5011 8 5-15	pCi/g	1.32E+00	3.11E-01	6.49E-02					OK	
09	TH-228	TRG	CP-5017 00-02	pCi/g	1.19E+00	3.01E-01	5.77E-02					OK	
10	TH-228	TRG	CP-5017 02-05	pCi/g	1.09E+00	2.63E-01	5.36E-02					OK	
11	TH-228	TRG	CP-5017 05-10	pCi/g	1.49E+00	3.69E-01	8.07E-02					OK	
12	TH-228	TRG	CP-5017 10-15	pCi/g	1.23E+00	2.83E-01	7.10E-02					OK	

01100

		<p>Run 1</p>
<p>Analysis Code</p>	<p>THISO</p>	
<p>Eberline Analytical Work Order</p>	<p>16-06065</p>	
<p>Client</p>	<p>Auxier & Associates, Inc.</p>	

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-228	LCS	06/30/16 14:59		A_Spec	Alpha_059	170	4.07 E+02	3.00 E-03	17.2
02	TH-228	MBL	06/30/16 14:59		A_Spec	Alpha_060	170	3.30 E+00	1.00 E-02	15.2
03	TH-228	DUP	06/30/16 11:25		A_Spec	Alpha_037	170	1.48 E+02	7.00 E-03	16.5
04	TH-228	DO	06/30/16 11:25		A_Spec	Alpha_038	170	1.21 E+02	8.00 E-03	16
05	TH-228	TRG	06/30/16 11:25		A_Spec	Alpha_039	170	1.55 E+02	2.00 E-02	18.6
06	TH-228	TRG	06/30/16 11:25		A_Spec	Alpha_040	170	1.53 E+02	1.00 E-02	18.5
07	TH-228	TRG	06/30/16 11:25		A_Spec	Alpha_041	170	1.44 E+02	7.00 E-03	19
08	TH-228	TRG	06/30/16 11:25		A_Spec	Alpha_042	170	1.40 E+02	8.00 E-03	17.9
09	TH-228	TRG	06/30/16 11:25		A_Spec	Alpha_043	170	1.16 E+02	4.00 E-03	18.9
10	TH-228	TRG	06/30/16 11:25		A_Spec	Alpha_044	170	1.22 E+02	5.00 E-03	18.6
11	TH-228	TRG	06/30/16 11:25		A_Spec	Alpha_045	170	1.35 E+02	1.00 E-02	17.1
12	TH-228	TRG	06/30/16 11:26		A_Spec	Alpha_046	170	1.45 E+02	1.50 E-02	18.1

151047

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	6.43E+00	9.78E-01	8.10E-02	5.37E+00	119.76	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	2.23E-02	3.35E-02	5.43E-02					OK	OK
03	TH-230	DUP	CP-5013 10-15	pCi/g	1.39E+00	2.93E-01	4.29E-02				OK	OK	
04	TH-230	DO	CP-5013 10-15	pCi/g	1.39E+00	3.14E-01	4.71E-02					OK	
05	TH-230	TRG	CP-5011 00-02	pCi/g	1.73E+00	3.71E-01	7.13E-02					OK	
06	TH-230	TRG	CP-5011 02-05	pCi/g	1.40E+00	3.15E-01	3.78E-02					OK	
07	TH-230	TRG	CP-5011 05-8 5	pCi/g	1.32E+00	3.19E-01	6.44E-02					OK	
08	TH-230	TRG	CP-5011 8 5-15	pCi/g	1.27E+00	2.99E-01	4.87E-02					OK	
09	TH-230	TRG	CP-5017 00-02	pCi/g	1.44E+00	3.45E-01	5.26E-02					OK	
10	TH-230	TRG	CP-5017 02-05	pCi/g	1.19E+00	2.78E-01	4.19E-02					OK	
11	TH-230	TRG	CP-5017 05-10	pCi/g	1.50E+00	3.69E-01	5.64E-02					OK	
12	TH-230	TRG	CP-5017 10-15	pCi/g	1.40E+00	3.09E-01	6.09E-02					OK	

Auxier & Associates, Inc.

Eberline Analytical Work Order

16-06065

THISO

1

Run



Client

	Run	1
	Analysis Code	THISO
Eberline Analytical Work Order	16-06065	
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	114.19	0.00	0.00			
02	TH-230	MBL	06/14/16 00:00	1.50E+00	120.76	0.00	0.00			
03	TH-230	DUP	06/08/16 00:00	1.51E+00	140.88	0.00	0.00			
04	TH-230	DO	06/08/16 00:00	1.51E+00	122.29	0.00	0.00			
05	TH-230	TRG	06/08/16 00:00	1.53E+00	107.43	0.00	0.00			
06	TH-230	TRG	06/08/16 00:00	1.51E+00	105.40	0.00	0.00			
07	TH-230	TRG	06/08/16 00:00	1.57E+00	90.97	0.00	0.00			
08	TH-230	TRG	06/08/16 00:00	1.50E+00	106.47	0.00	0.00			
09	TH-230	TRG	06/08/16 00:00	1.56E+00	89.82	0.00	0.00			
10	TH-230	TRG	06/08/16 00:00	1.51E+00	107.50	0.00	0.00			
11	TH-230	TRG	06/08/16 00:00	1.60E+00	90.38	0.00	0.00			
12	TH-230	TRG	06/08/16 00:00	1.56E+00	113.42	0.00	0.00			

05100

	Client	Auxier & Associates, Inc.
Run	Analysis Code	THISO
1		16-06065

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	5.51E+00	8.62E-01	6.45E-02	4.71E+00	117.15	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	2.56E-02	3.32E-02	4.59E-02					OK	OK
03	TH-232	DUP	CP-5013 10-15	pCi/g	1.18E+00	2.58E-01	3.63E-02				OK	OK	
04	TH-232	DO	CP-5013 10-15	pCi/g	1.15E+00	2.74E-01	3.74E-02					OK	
05	TH-232	TRG	CP-5011 00-02	pCi/g	9.97E-01	2.45E-01	5.72E-02					OK	
06	TH-232	TRG	CP-5011 02-05	pCi/g	1.50E+00	3.32E-01	5.10E-02					OK	
07	TH-232	TRG	CP-5011 05-8 5	pCi/g	1.28E+00	3.13E-01	8.55E-02					OK	
08	TH-232	TRG	CP-5011 8 5-15	pCi/g	1.27E+00	3.00E-01	4.43E-02					OK	
09	TH-232	TRG	CP-5017 00-02	pCi/g	1.19E+00	2.99E-01	6.31E-02					OK	
10	TH-232	TRG	CP-5017 02-05	pCi/g	1.12E+00	2.66E-01	5.24E-02					OK	
11	TH-232	TRG	CP-5017 05-10	pCi/g	1.07E+00	2.89E-01	9.95E-02					OK	
12	TH-232	TRG	CP-5017 10-15	pCi/g	1.11E+00	2.61E-01	7.10E-02					OK	

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	0.4530	10.1744		0.00		
02	MBL	BLANK	06/14/16 00:00	1.5000	0.2244	5.0400		0.00		
03	DUP	CP-5013 10-15	06/08/16 00:00	1.5059	0.2249	5.0513		0.00		
04	DO	CP-5013 10-15	06/08/16 00:00	1.5103	0.2290	5.1433		0.00		
05	TRG	CP-5011 00-02	06/08/16 00:00	1.5263	0.2245	5.0423		0.00		
06	TRG	CP-5011 02-05	06/08/16 00:00	1.5055	0.2352	5.2826		0.00		
07	TRG	CP-5011 05-8 5	06/08/16 00:00	1.5706	0.2240	5.0310		0.00		
08	TRG	CP-5011 8 5-15	06/08/16 00:00	1.5024	0.2246	5.0445		0.00		
09	TRG	CP-5017 00-02	06/08/16 00:00	1.5594	0.2239	5.0288		0.00		
10	TRG	CP-5017 02-05	06/08/16 00:00	1.5105	0.2241	5.0333		0.00		
11	TRG	CP-5017 05-10	06/08/16 00:00	1.5976	0.2240	5.0310		0.00		
12	TRG	CP-5017 10-15	06/08/16 00:00	1.5637	0.2242	5.0355		0.00		

97-501

50150

Internal Work Order		Run	Analysis Code		Date		Technician		Technician Initials		Witness Initials	
16-06065		1	ThISO		6/17/2016 10:35		JPACHELLA		<i>JPM</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)	LCS Known pCi	MS Added pCi	LCS Error Estimate	MSD Error Estimate
Th-228	Th-8b	103.560	6/17/2016	0.100	0.1009		4.71		4.71	0.00	0.000	0.00
Th-230	Th-1b	23.520	6/17/2016	0.500	0.5071		5.37		5.37	0.00	0.000	0.00
Th-232	Th-8b	103.560	6/17/2016	0.100	0.1009		4.71		4.71	0.00	0.000	0.00
TC-99 MS	C-2a	22043.636	7/5/2014	0.1								

Balance Printer Tapes												
Tracers												
fraction	isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition	Tracer					LCS
01	Th-229	Th-18a	22.460	6/17/2016	0.4530	0.2200						
02	Th-229	Th-18a	22.460	6/17/2016	0.2244	0.2200						
03	Th-229	Th-18a	22.460	6/17/2016	0.2249	0.2200						
04	Th-229	Th-18a	22.460	6/17/2016	0.2290	0.2200						
05	Th-229	Th-18a	22.460	6/17/2016	0.2245	0.2200						
06	Th-229	Th-18a	22.460	6/17/2016	0.2352	0.2200						
07	Th-229	Th-18a	22.460	6/17/2016	0.2240	0.2200						
08	Th-229	Th-18a	22.460	6/17/2016	0.2246	0.2200						
09	Th-229	Th-18a	22.460	6/17/2016	0.2239	0.2200						
10	Th-229	Th-18a	22.460	6/17/2016	0.2241	0.2200						
11	Th-229	Th-18a	22.460	6/17/2016	0.2240	0.2200						
12	Th-229	Th-18a	22.460	6/17/2016	0.2242	0.2200						
Matrix Spike												

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
16-06065	1	THISO	grams	7/5/2016	JPACHELLA

Lab Fraction	Auxier & Associates, Inc.		Muffle Data		Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
	Client ID	Sample Type	Ratio Post/Pre	No of Dilis	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Aliq	
01	LCS	LCS					1.000E+00	1.000E+00					
02	BLANK	MBL					1.500E+00	1.500E+00					
03	CP-5013 10-15	DUP					1.5059E+00	1.5069E+00					
04	CP-5013 10-15	DO					1.5103E+00	1.5103E+00					
05	CP-5011 00-02	TRG					1.5263E+00	1.5263E+00					
06	CP-5011 02-05	TRG					1.5055E+00	1.5055E+00					
07	CP-5011 05-8 5	TRG					1.5706E+00	1.5706E+00					
08	CP-5011 8 5-15	TRG					1.5024E+00	1.5024E+00					
09	CP-5017 00-02	TRG					1.5594E+00	1.5594E+00					
10	CP-5017 02-05	TRG					1.5105E+00	1.5105E+00					
11	CP-5017 05-10	TRG					1.5976E+00	1.5976E+00					
12	CP-5017 10-15	TRG					1.5637E+00	1.5637E+00					

Comments

Technician: JPachella Date: 6/17/16

**Rough Sample Preparation
 Log Book**

Work Order	16-06065	Lab Deadline	7/5/2016	Date Received in Prep	6/16/2016	Date Sealed	6/17/2016	Date Returned	6/18/2016	Technician	KSALLINGS
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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-5013 10-15	14.6300	635.9100	821.9000	635.9100	807.2700	621.2800	23.04%	76.96%	0.0000	0.0000	
05	CP-5011 00-02	14.6100	514.7400	611.2800	514.7400	596.6700	500.1300	16.18%	83.82%	0.0000	0.0000	
06	CP-5011 02-05	14.5000	581.1900	701.5700	581.1900	687.0700	566.6900	17.52%	82.48%	0.0000	0.0000	
07	CP-5011 05-8 5	14.4800	444.7800	546.0500	444.7800	531.5700	430.3000	19.05%	80.95%	0.0000	0.0000	
08	CP-5011 8 5-15	14.5000	517.9600	661.9600	517.9600	647.4600	503.4600	22.24%	77.76%	0.0000	0.0000	
09	CP-5017 00-02	14.5600	661.8900	785.7400	661.8900	771.1800	647.3300	16.06%	83.94%	0.0000	0.0000	
10	CP-5017 02-05	14.4800	862.1200	1058.0200	862.1200	1043.5400	847.6400	18.77%	81.23%	0.0000	0.0000	
11	CP-5017 05-10	14.4900	394.1800	490.7400	394.1800	476.2500	379.6900	20.28%	79.72%	0.0000	0.0000	
12	CP-5017 10-15	14.4700	412.0000	521.8300	412.0000	507.3600	397.5300	21.65%	78.35%	0.0000	0.0000	

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

Technician: *Kerry See*

60101



Sample Description: SPIKE
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001559
 Batch Identification: 1606065A-TH
 Sample Identification: 01
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_059
 Chamber Serial Number: 10006125A
 Detector Serial Number: 59
 Env. Background: System Bkgd 157604
 Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/30/2016 2:59:20 PM
 Acquisition Date/Time: 6/30/2016 2:59:20 PM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.453 mL
 Effective Efficiency: 0.1964 +/- 0.0123
 Counting Efficiency: 0.1720 +/- 0.0030 on 12/11/2015 11:36:25 AM
 Chem. Recovery Factor: 1.1419 +/- 0.0742

Control Certificate Name: NatTh_Th-8
 Chem. Recov. of Control: TH-232 1.171470 +/- 0.099802
 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	5.746	50.30	28.18	1.70	0.00E+000	11.0
TH-228	5.424	407.49	9.72	0.51	0.00E+000	21.9
TH-229	T 4.913	339.66	10.64	0.34	0.00E+000	6.7
TH-230	4.683	476.00	8.99	0.00	0.00E+000	32.3
TH-232	4.005	408.66	9.70	0.34	0.00E+000	26.9

T = Tracer Peak used for Effective Efficiency

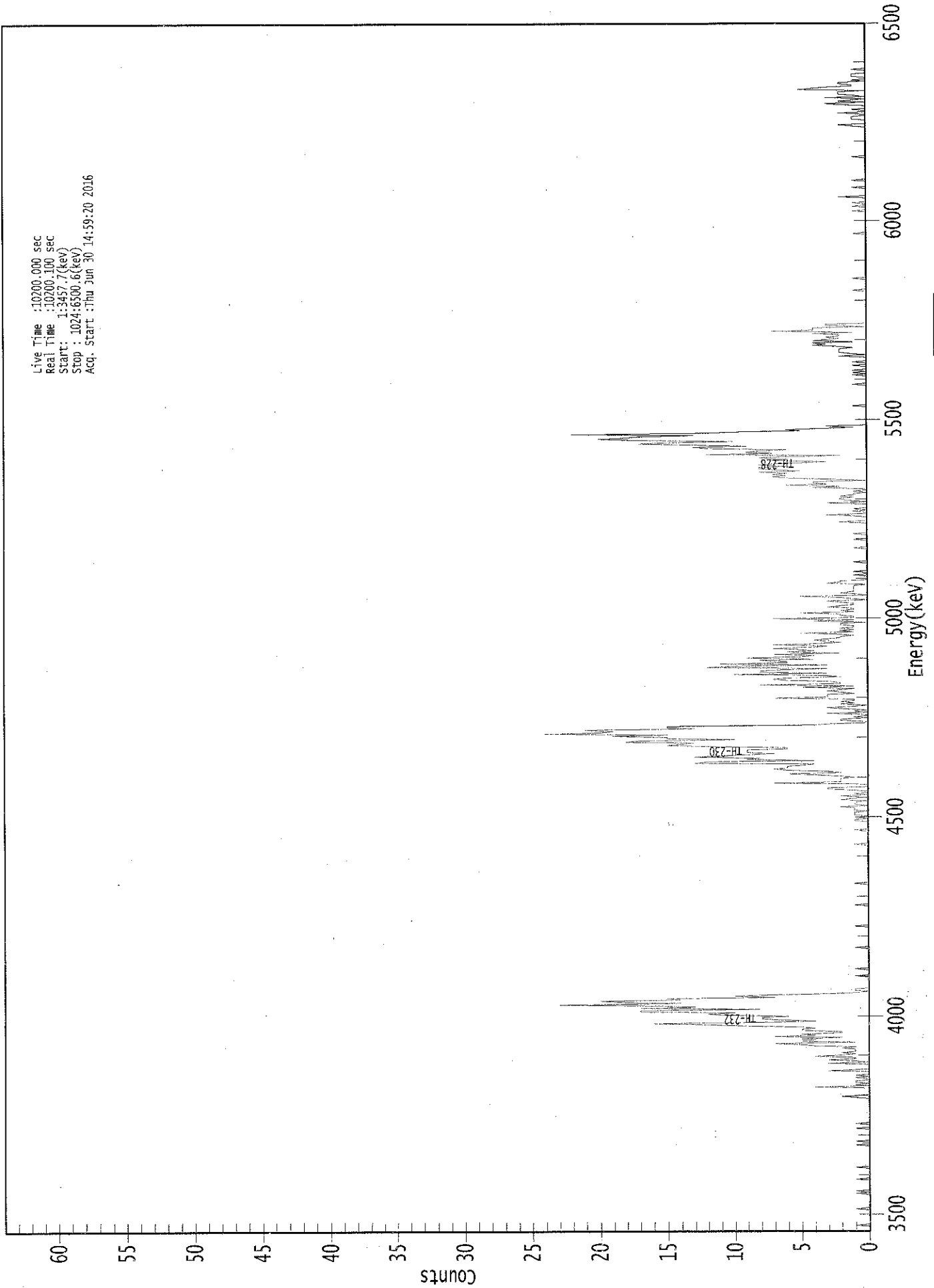
 ----- NUCLIDE ANALYSIS RESULTS -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.945	5850.00*	6.96E-001 +/- 2.14E-001	1.02E-001 +/- 1.25E-002
TH-228	0.997	5400.00*	5.50E+000 +/- 8.60E-001	7.08E-002 +/- 8.68E-003
TH-229	0.991	4872.00*	4.61E+000 +/- 5.64E-001	6.48E-002 +/- 7.94E-003
TH-230	0.999	4672.00*	6.43E+000 +/- 9.78E-001	8.10E-002 +/- 9.93E-003
TH-232	1.000	3997.00*	5.51E+000 +/- 8.62E-001	6.45E-002 +/- 7.90E-003

AG
 7/1/16

0000155921.CNF

Live Time :10200.000 sec
Real Time :10200.100 sec
Start : 1:3457.7(keV)
Stop : 1024:6500.6(keV)
Acq. Start :Thu Jun 30 14:59:20 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	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	1	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	1	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	1	0	1	0	0	0	0	0	0
41:	0	0	0	0	1	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	0	0	0
73:	0	1	0	0	1	0	0	0	0
81:	0	0	0	0	0	0	0	0	1
89:	0	0	0	1	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	1	2	0	0	0	0	0	0
121:	0	0	4	0	1	0	1	1	1
129:	0	0	1	0	1	0	0	0	0
137:	3	0	0	0	0	0	3	0	0
145:	1	3	1	1	4	2	1	2	2
153:	1	1	1	2	1	4	5	7	7
161:	1	5	4	5	2	7	4	5	5
169:	2	2	5	5	4	5	10	12	12
177:	16	7	4	7	8	8	6	11	11
185:	12	10	17	17	8	17	13	16	16
193:	23	14	18	20	14	15	7	10	10
201:	8	3	1	0	1	1	0	0	0
209:	0	0	0	0	0	0	0	0	0
217:	1	0	0	0	0	0	1	0	0
225:	0	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0	0
241:	1	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0	0
257:	0	0	1	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0	0
273:	0	0	0	0	1	0	0	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	1	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	1	1	0	1	0	0
353:	1	1	1	0	1	1	1	2	2
361:	0	1	1	1	0	2	1	0	0

369: 2 0 1 0 0 1 3 3

Sample Title: 01

Channel	1	2	3	4	5	6	7	8	9
377:	0	0	0	7	2	2	2	2	2
385:	1	2	4	6	2	3	6	7	7
393:	6	6	5	4	13	12	4	9	9
401:	8	13	11	9	7	9	9	9	9
409:	6	6	12	15	14	13	18	17	17
417:	10	15	15	19	15	24	20	19	19
425:	21	13	15	15	4	3	0	0	0
433:	2	2	0	1	0	0	3	0	0
441:	1	0	2	3	1	0	2	1	1
449:	2	1	1	7	3	3	3	1	1
457:	2	3	2	1	5	1	8	2	2
465:	2	3	6	7	6	2	3	10	10
473:	3	8	8	6	3	12	10	3	3
481:	11	6	6	8	4	9	5	4	4
489:	7	2	6	4	5	7	4	3	3
497:	7	4	2	3	4	3	2	2	2
505:	1	2	5	1	2	1	2	1	1
513:	1	2	2	0	4	1	7	1	1
521:	1	2	2	5	1	2	1	1	1
529:	3	2	1	1	2	3	0	1	1
537:	2	5	0	1	2	1	1	1	1
545:	1	1	1	0	3	2	2	0	0
553:	0	0	0	1	0	0	1	0	0
561:	0	0	0	0	0	0	1	0	0
569:	0	0	0	0	0	0	0	0	0
577:	0	0	1	0	0	0	0	0	0
585:	0	1	0	0	0	0	1	0	0
593:	0	0	0	0	0	0	0	0	0
601:	2	0	0	0	0	1	3	0	0
609:	0	1	0	1	0	0	0	0	0
617:	3	0	1	2	2	1	2	1	1
625:	1	0	1	0	0	4	2	6	6
633:	3	4	4	0	3	6	7	6	6
641:	7	6	8	5	7	8	8	6	6
649:	8	7	5	3	7	6	8	7	7
657:	2	12	7	9	8	6	12	13	13
665:	9	13	17	15	10	17	20	18	18
673:	17	13	22	12	10	5	6	3	3
681:	1	3	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0	0
697:	0	0	1	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0	0
713:	0	0	0	0	1	0	0	0	0
721:	0	0	0	0	1	0	1	0	0
729:	1	0	0	0	1	0	0	1	1
737:	0	0	0	0	2	0	1	2	2
745:	2	2	2	1	2	4	3	4	4
753:	1	4	3	2	3	2	2	4	4
761:	1	7	4	4	4	0	3	3	3
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	1	0	0	0	0

801: 0 0 0 0 0 0 1 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	1	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	1
865:	0	0	0	1	0	0	1	0
873:	0	0	0	2	0	0	0	0
881:	0	0	0	1	0	0	0	0
889:	0	1	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	1	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	1
937:	2	0	0	0	0	1	1	1
945:	0	0	2	0	0	1	0	0
953:	0	2	3	0	2	1	0	3
961:	0	1	2	2	2	0	5	4
969:	3	1	1	2	2	0	1	0
977:	0	1	1	1	0	0	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

KB
6/30/16

Apex-Alpha™

Sample Description: BLANK
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001559
 Batch Identification: 1606065A-TH
 Sample Identification: 02
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_060
 Chamber Serial Number: 10006125B
 Detector Serial Number: 60
 Env. Background: System Bkgd 157605
 Reagent Blank: <not performed>

Sample Size: 1.500E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/30/2016 2:59:21 PM
 Acquisition Date/Time: 6/30/2016 2:59:21 PM
 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: 0.1838 +/- 0.0157
 Counting Efficiency: 0.1522 +/- 0.0027 on 12/11/2015 11:36:23 AM
 Chem. Recovery Factor: 1.2076 +/- 0.1057

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	5.807	2.32	149.12	0.68	0.00E+000	3.0
TH-228	5.385	3.30	136.59	1.70	0.00E+000	3.0
TH-229 T	4.888	157.49	15.65	0.51	0.00E+000	3.7
TH-230	4.675	2.32	149.12	0.68	0.00E+000	3.0
TH-232	4.000	2.66	128.85	0.34	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

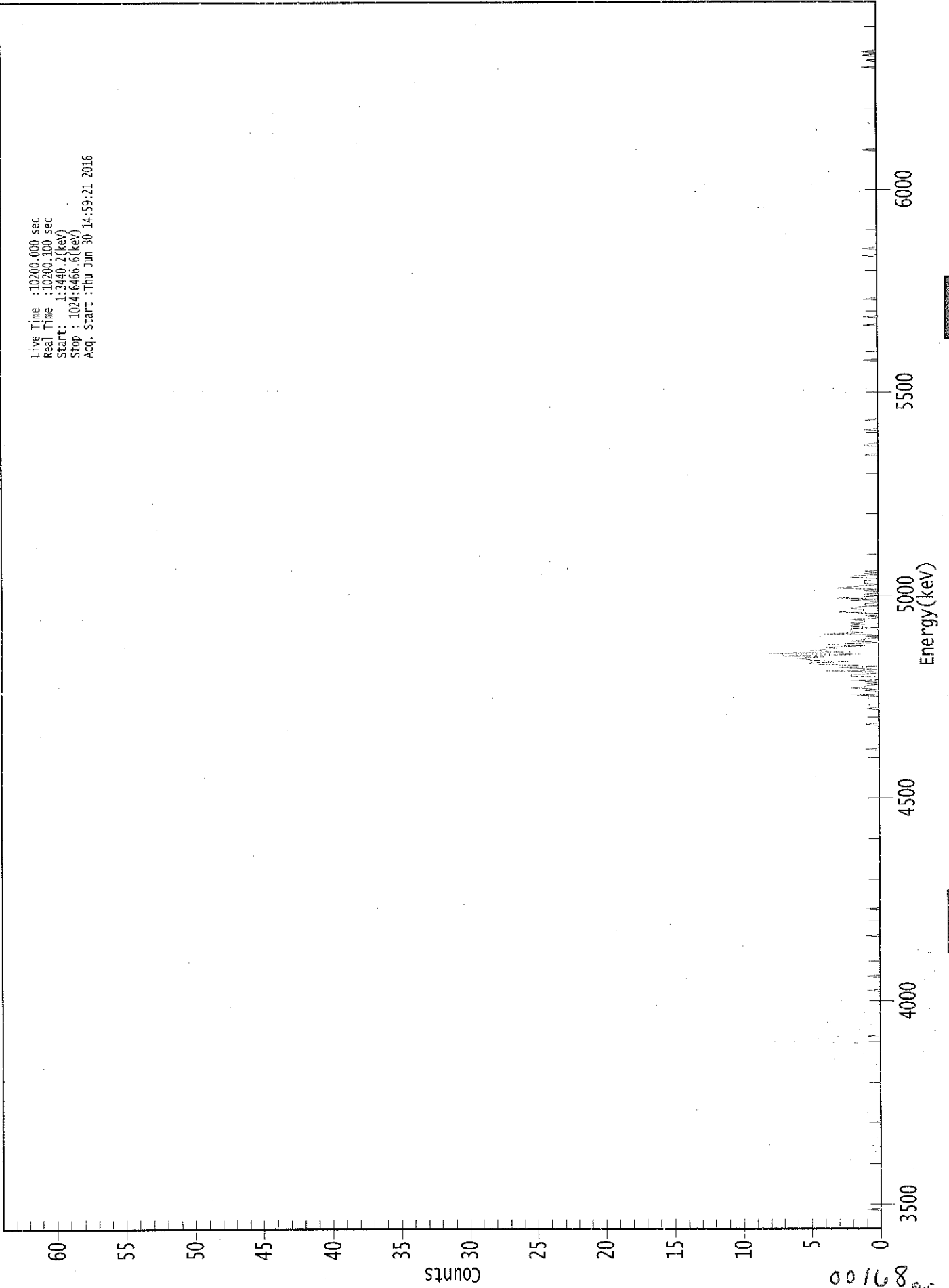
Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.990	5850.00*	2.29E-002 +/- 3.43E-002	5.56E-002 +/- 9.33E-003
TH-228	0.999	5400.00*	3.17E-002 +/- 4.37E-002	7.06E-002 +/- 1.19E-002
TH-229	0.999	4872.00*	1.52E+000 +/- 2.55E-001	5.07E-002 +/- 8.51E-003
TH-230	1.000	4672.00*	2.23E-002 +/- 3.35E-002	5.43E-002 +/- 9.12E-003
TH-232	1.000	3997.00*	2.56E-002 +/- 3.32E-002	4.59E-002 +/- 7.71E-003

AG
7/1/16

00167
8/16/16

0000155922.CNF

Live Time :10200.000 sec
Real Time :10200.100 sec
Start : 1:3440.2(kev)
Stop : 1024:6466.6(kev)
Acq. Start :Thu Jun 30 14:59:21 2016



89100
17/11/16

 ***** 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									
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	1	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	0
153:	0	0	0	0	0	0	0	0	0
161:	1	0	0	0	0	0	0	0	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	0	0	0	0	0
193:	0	0	0	0	0	0	1	0	0
201:	0	0	0	0	0	0	0	0	0
209:	0	0	1	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	1	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	1	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	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

0016981541616
 00100

369: 0 0 0 0 0 0 0 0 0

Sample Title: 02

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	0
393:	0	0	0	0	0	0	0	1
401:	0	0	0	0	0	0	0	0
409:	0	0	0	0	0	0	0	0
417:	0	0	0	0	1	0	0	0
425:	0	0	0	0	0	0	0	0
433:	0	1	0	0	0	0	0	0
441:	0	0	0	0	2	0	0	0
449:	1	0	2	1	1	0	1	0
457:	2	0	0	0	2	2	0	0
465:	4	0	1	3	0	2	5	5
473:	2	5	5	6	4	7	1	8
481:	2	5	4	3	4	1	4	1
489:	0	2	1	1	0	1	0	4
497:	1	2	2	2	0	2	2	1
505:	2	1	1	2	0	0	1	0
513:	0	3	1	1	2	2	0	1
521:	1	0	0	2	0	3	1	0
529:	1	0	0	1	0	3	2	1
537:	0	1	1	1	0	0	2	2
545:	0	1	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	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	0	0	0	0
641:	0	0	0	0	1	0	0	0
649:	0	0	0	0	1	1	0	0
657:	0	0	0	0	0	0	0	0
665:	0	1	0	0	0	0	0	0
673:	0	1	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	1	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:	1	0	0	0	0	0	0	1
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	1	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	1	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	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	1	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	1
969:	0	0	0	0	0	1	0	0
977:	0	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



Sample Description: CP-5013 10-15-DUP
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001559
 Batch Identification: 1606065A-TH
 Sample Identification: 03
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

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

Sample Size: 1.506E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:03:10 AM
 Acquisition Date/Time: 6/30/2016 11:25:29 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.225 mL
 Effective Efficiency: 0.2317 +/- 0.0180
 Counting Efficiency: 0.1645 +/- 0.0029 on 12/11/2015 8:20:53 AM
 Chem. Recovery Factor: 1.4088 +/- 0.1120

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	5.782	24.83	39.49	0.17	0.00E+000	4.5
TH-228	5.434	147.81	16.20	1.19	0.00E+000	13.2
TH-229 T	4.932	199.00	13.93	0.00	0.00E+000	6.3
TH-230	4.682	183.32	14.51	0.68	0.00E+000	7.3
TH-232	4.010	155.66	15.73	0.34	0.00E+000	7.5

T = Tracer Peak used for Effective Efficiency

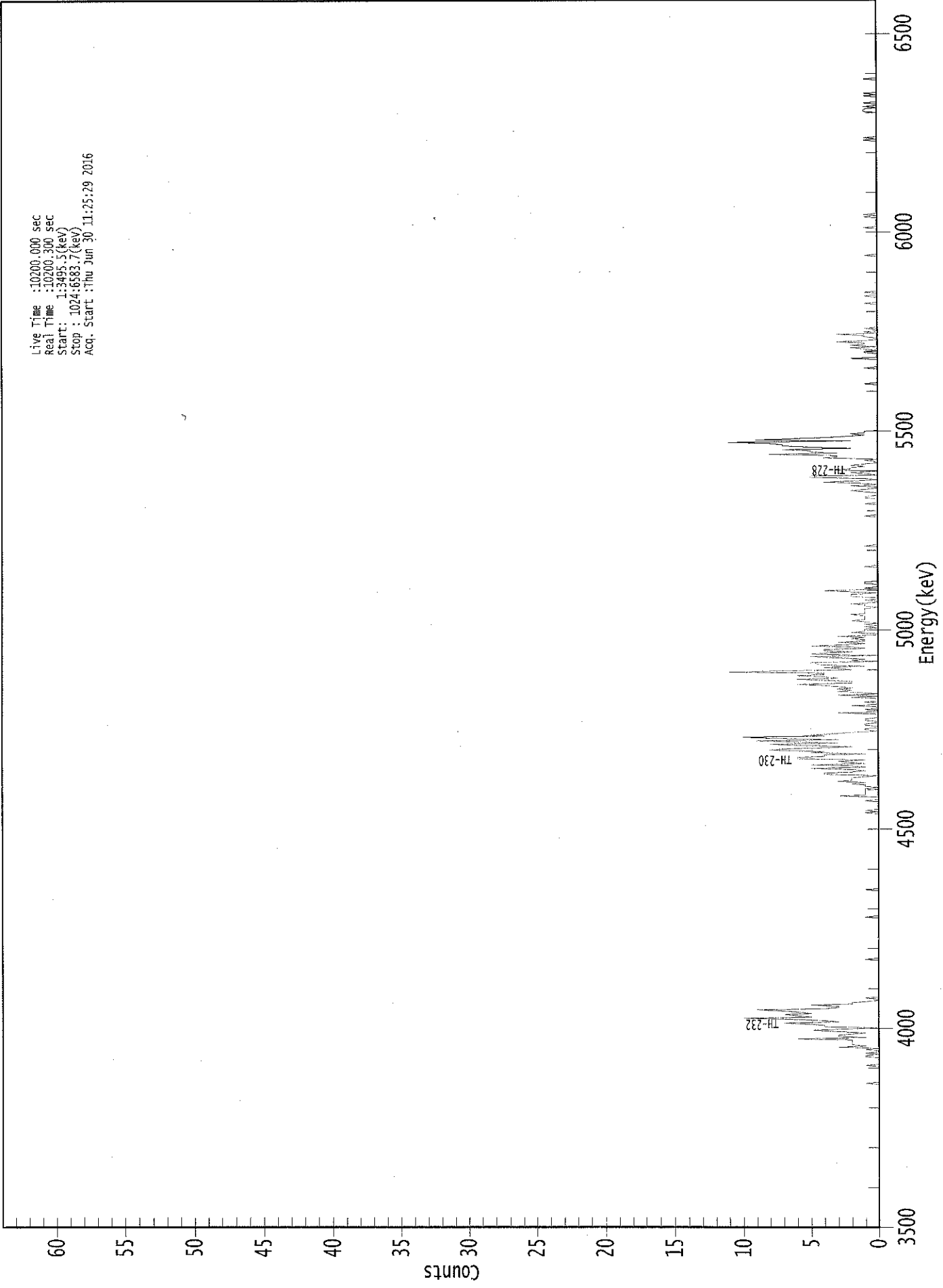
 ----- NUCLIDE ANALYSIS RESULTS -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.976	5850.00*	1.94E-001 +/- 8.20E-002	3.26E-002 +/- 4.95E-003
TH-228	0.994	5400.00*	1.15E+000 +/- 2.55E-001	5.12E-002 +/- 7.78E-003
TH-229	0.981	4872.00*	1.52E+000 +/- 2.31E-001	4.57E-002 +/- 6.95E-003
TH-230	0.999	4672.00*	1.39E+000 +/- 2.93E-001	4.29E-002 +/- 6.52E-003
TH-232	0.999	3997.00*	1.18E+000 +/- 2.58E-001	3.63E-002 +/- 5.52E-003

AG
7/1/16

0000155884.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 Sec
Start : 1:3455.3 (keV)
Stop : 1024:6583.7 (keV)
Acq. Start : Thu Jun 30 11:25:29 2016



ROI Type: 3

ROI Type: 1

00173

 ***** 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	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:	1	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0	1
137:	0	0	0	0	0	0	1	1	1
145:	0	1	0	0	1	0	3	1	1
153:	2	2	2	2	2	6	1	3	3
161:	3	2	1	3	5	3	0	4	4
169:	4	5	7	3	4	6	10	5	5
177:	6	7	5	6	7	9	4	3	3
185:	3	5	2	2	1	0	0	1	1
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	0	0	0	0	1
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	1	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	1	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	0
337:	0	0	0	0	0	0	0	0	0
345:	0	1	0	1	0	0	0	0	0
353:	0	0	0	1	0	0	0	0	3
361:	1	1	1	1	1	1	0	1	1

369: 1 2 1 3 2 2 2 1

Sample Title: 03

Channel	1	2	3	4	5	6	7	8	9
377:	0	4	4	2	1	2	5	1	
385:	2	5	1	2	3	1	6	6	
393:	4	4	1	5	4	8	7	4	
401:	2	6	8	3	6	9	3	8	
409:	10	4	5	3	2	0	1	1	
417:	0	0	1	1	0	0	1	1	
425:	0	0	0	0	3	0	0	1	
433:	0	0	2	0	0	1	0	0	
441:	0	2	0	3	0	1	3	2	
449:	3	2	3	4	6	2	2	3	
457:	6	3	4	6	4	4	11	7	
465:	2	3	4	1	4	5	5	0	
473:	2	1	3	5	0	5	4	2	
481:	4	4	1	2	5	2	1	3	
489:	1	1	2	1	3	0	0	2	
497:	1	1	1	0	1	0	1	0	
505:	1	2	1	1	1	1	2	1	
513:	1	1	1	1	0	1	1	2	
521:	0	0	1	0	0	2	2	2	
529:	0	2	4	0	1	0	0	0	
537:	1	1	0	0	0	0	0	0	
545:	0	0	0	0	0	0	1	0	
553:	0	0	0	0	0	0	0	0	
561:	0	0	0	0	0	0	0	1	
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:	1	0	0	0	0	0	0	0	
601:	0	0	1	0	0	0	0	1	
609:	1	0	0	0	1	2	1	0	
617:	0	2	0	1	4	2	0	1	
625:	5	5	0	1	2	0	3	2	
633:	2	1	2	1	0	0	1	0	
641:	4	3	3	8	3	5	5	7	
649:	2	5	7	7	8	11	2	9	
657:	6	4	2	1	2	1	1	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	1	0	
705:	0	0	0	0	0	0	0	0	
713:	0	0	0	1	0	0	0	0	
721:	0	0	0	2	0	0	0	0	
729:	1	1	0	1	2	0	2	1	
737:	1	3	1	0	0	1	1	3	
745:	0	1	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	1	0	0	0	0	0	1	
777:	0	0	1	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: 03

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	1	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:	1	0	0	0	0	0	0	0
841:	0	1	0	1	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	1	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	1	1	1	0	1	0	0
937:	1	0	0	0	0	0	1	0
945:	1	0	0	0	0	0	0	0
953:	0	0	0	0	1	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
6/30/16

Sample Description: CP-5013 10-15
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001558
 Batch Identification: 1606065A-TH
 Sample Identification: 04
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_038
 Chamber Serial Number: 04026478B
 Detector Serial Number: 91134
 Env. Background: System Bkgd 157584
 Reagent Blank: <not performed>

Sample Size: 1.510E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:03:10 AM
 Acquisition Date/Time: 6/30/2016 11:25:31 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.229 mL
 Effective Efficiency: 0.1957 +/- 0.0162
 Counting Efficiency: 0.1601 +/- 0.0028 on 12/11/2015 8:20:51 AM
 Chem. Recovery Factor: 1.2229 +/- 0.1034

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	5.847	12.66	55.94	0.34	0.00E+000	3.0
TH-228	5.374	120.64	17.96	1.36	0.00E+000	12.3
TH-229 T	4.874	171.15	15.03	0.85	0.00E+000	6.2
TH-230	4.644	154.49	15.80	0.51	0.00E+000	7.5
TH-232	3.970	128.83	17.28	0.17	0.00E+000	15.1

T = Tracer Peak used for Effective Efficiency

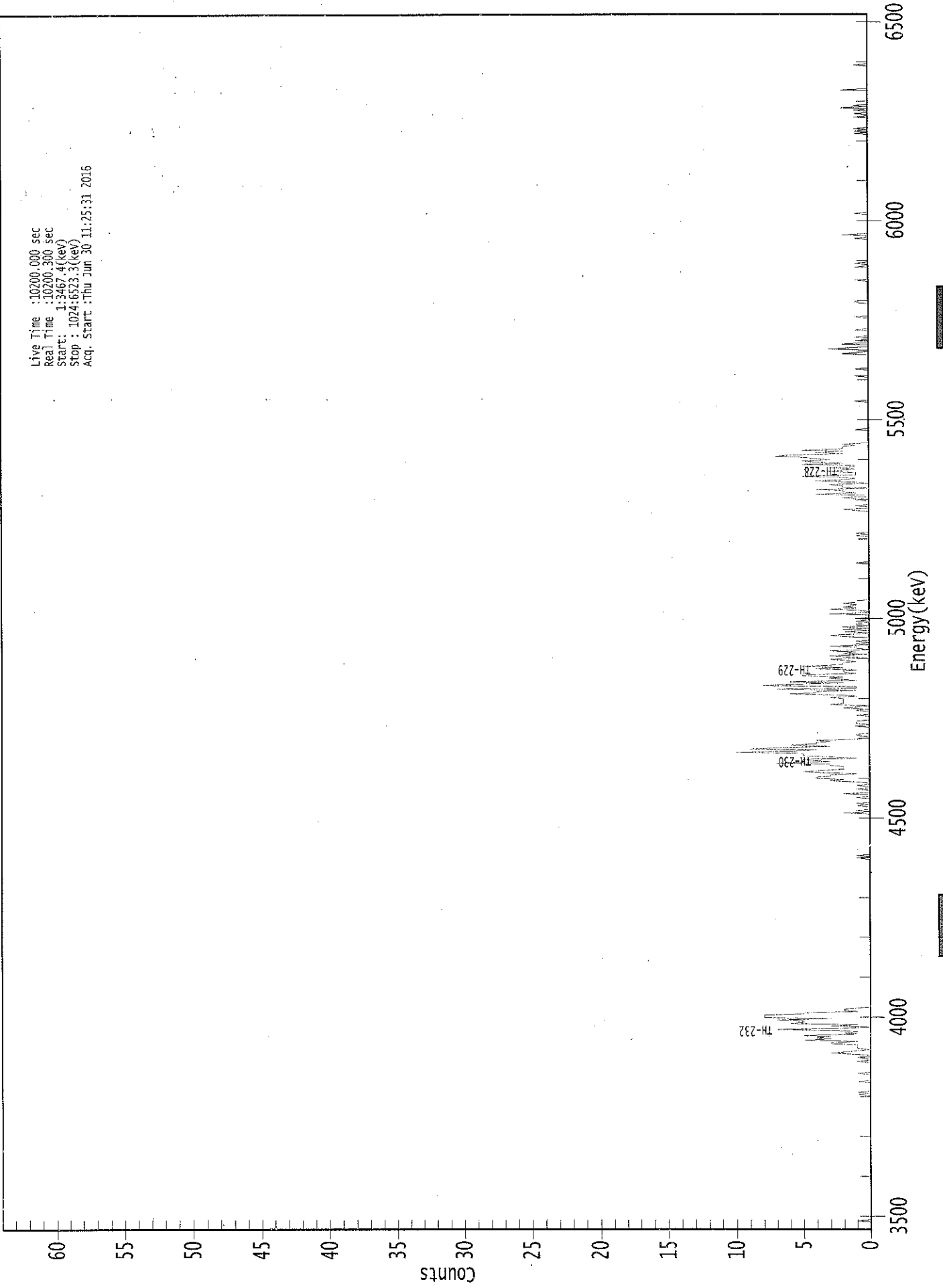
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.17E-001 +/- 6.79E-002	4.40E-002 +/- 7.14E-003
TH-228	0.996	5400.00*	1.11E+000 +/- 2.68E-001	6.29E-002 +/- 1.02E-002
TH-229	1.000	4872.00*	1.54E+000 +/- 2.50E-001	5.39E-002 +/- 8.74E-003
TH-230	0.996	4672.00*	1.39E+000 +/- 3.14E-001	4.71E-002 +/- 7.64E-003
TH-232	0.996	3997.00*	1.15E+000 +/- 2.74E-001	3.74E-002 +/- 6.06E-003

AG
7/1/16

0000155885.CNF

Live Time :10200.000 sec
Real Time :10200.300 sec
Start : 1:5467.4(keV)
Stop : 1024:6523.3(keV)
Acq. Start :Thu Jun 30 11:25:31 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	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	1
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	1	0	1	0	0	0	0	0
121:	0	0	0	0	1	0	0	0	0
129:	0	0	0	1	0	0	0	0	0
137:	0	0	0	0	0	1	0	0	0
145:	1	0	0	1	3	2	1	0	0
153:	1	1	1	1	3	3	1	5	0
161:	3	4	3	5	1	2	1	2	0
169:	7	2	0	3	1	6	5	5	0
177:	7	3	8	8	8	5	5	1	0
185:	2	2	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	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:	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	1	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	2	0	0
353:	1	0	0	0	1	0	1	0	0
361:	0	0	0	1	0	0	2	0	0

369: 0 0 1 0 0 1 0 0

Sample Title: 04

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

801: 0 0 0 0 0 0 0 0 0

Sample Title: 04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	1	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	1	0	0	2	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	1	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	1	0	1	0	1	0	0
929:	0	0	0	0	0	0	0	1
937:	0	0	1	0	0	1	0	2
945:	0	1	0	0	0	0	0	0
953:	0	0	0	0	0	0	2	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	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



6/30/16

Sample Description: CP-5011 00-02
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001558
 Batch Identification: 1606065A-TH
 Sample Identification: 05
 Sample Geometry: Shelf 2
 Procedure Description: Th iso
 Detector Name: Alpha_039
 Chamber Serial Number: 06027396A
 Detector Serial Number: 83109
 Env. Background: System Bkgd 157585
 Reagent Blank: <not performed>

Sample Size: 1.526E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:03:10 AM
 Acquisition Date/Time: 6/30/2016 11:25:33 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.225 mL
 Effective Efficiency: 0.2000 +/- 0.0167
 Counting Efficiency: 0.1862 +/- 0.0032 on 12/11/2015 8:20:49 AM
 Chem. Recovery Factor: 1.0743 +/- 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	5.853	12.79	60.09	2.21	0.00E+000	3.0
TH-228	5.373	154.60	15.96	3.40	0.00E+000	5.7
TH-229 T	4.879	171.43	15.15	3.57	0.00E+000	5.7
TH-230	4.632	198.62	14.00	2.38	0.00E+000	5.1
TH-232	3.962	114.81	18.40	1.19	0.00E+000	5.2

T = Tracer Peak used for Effective Efficiency

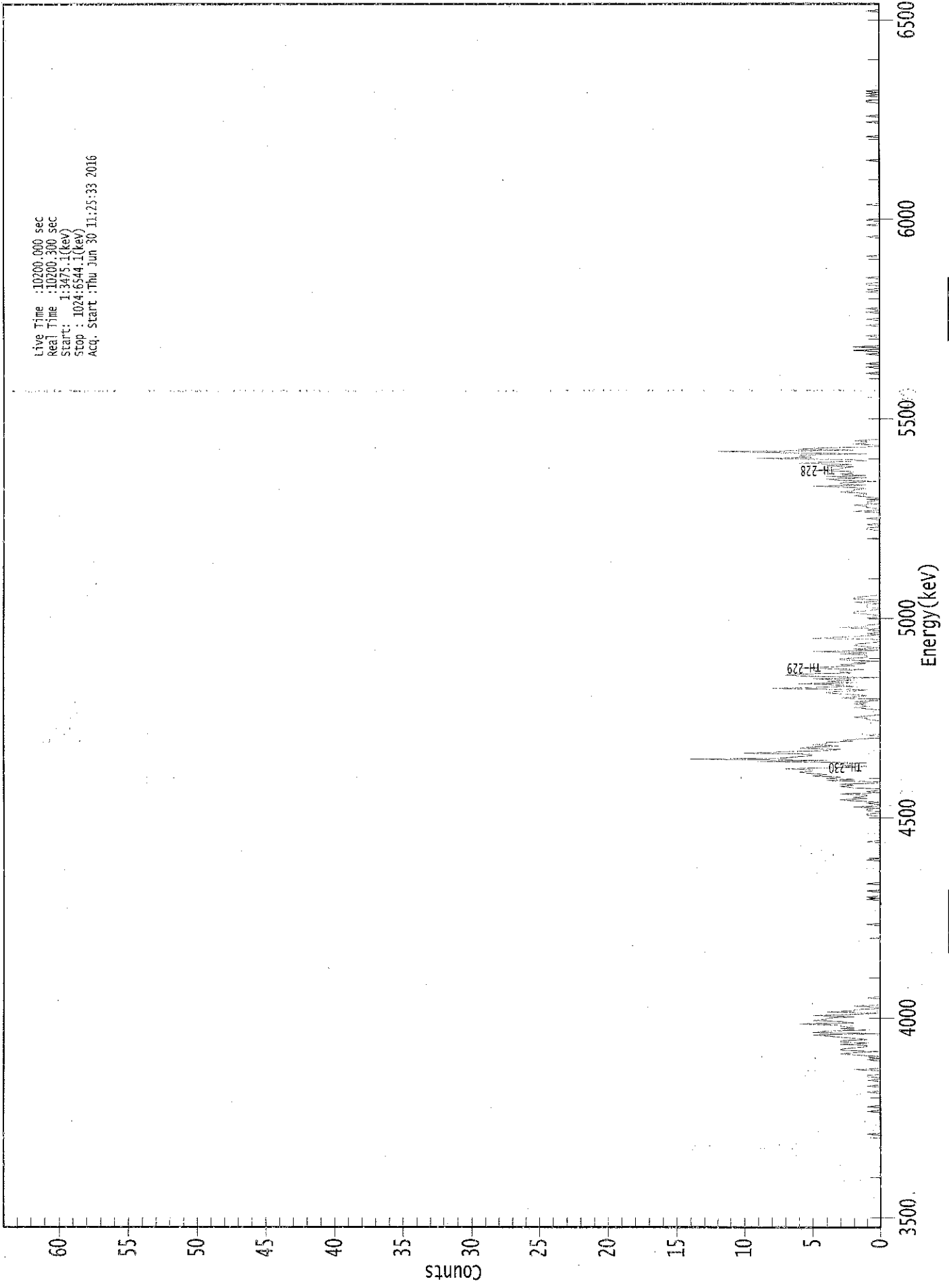
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.14E-001 +/- 7.10E-002	7.13E-002 +/- 1.16E-002
TH-228	0.996	5400.00*	1.37E+000 +/- 3.13E-001	8.23E-002 +/- 1.34E-002
TH-229	1.000	4872.00*	1.50E+000 +/- 2.44E-001	8.23E-002 +/- 1.34E-002
TH-230	0.992	4672.00*	1.73E+000 +/- 3.71E-001	7.13E-002 +/- 1.16E-002
TH-232	0.994	3997.00*	9.97E-001 +/- 2.45E-001	5.72E-002 +/- 9.34E-003

AG
 7/1/16

0000155894.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:34:75.1 (keV)
Stop : 1024:6544.1 (keV)
Acq. Start : Thu Jun 30 11:25:33 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
1:	1	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	1	0	0
81:	0	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0	0
97:	0	1	0	0	0	1	0	0	0
105:	0	0	0	0	0	0	0	0	0
113:	0	1	0	0	0	0	1	0	0
121:	0	0	0	1	0	0	1	1	1
129:	0	0	0	0	2	0	0	0	0
137:	0	0	0	0	1	0	1	0	0
145:	2	3	2	0	3	3	2	1	1
153:	1	3	1	3	3	1	2	3	3
161:	4	5	0	5	4	1	3	2	2
169:	3	3	6	2	3	5	4	4	4
177:	2	5	2	0	4	2	2	0	0
185:	0	2	0	0	0	0	0	0	0
193:	1	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	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	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:	0	0	1	0	1	0	0	0	0
281:	0	1	0	0	0	0	0	1	1
289:	0	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0	0
305:	0	0	0	1	0	0	0	0	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	0	0	0	0
337:	0	0	0	0	0	0	0	0	0
345:	1	1	0	0	1	1	0	2	2
353:	0	0	1	0	2	3	1	2	2
361:	1	1	3	0	1	0	0	2	2

369: 3 2 3 0 0 4 2 4

Sample Title: 05

Channel	1	2	3	4	5	6	7	8	9
377:	3	5	4	5	6	5	5	7	
385:	3	1	3	3	1	9	4	14	
393:	7	6	5	5	10	7	4	3	
401:	6	5	3	5	4	4	2	3	
409:	1	0	0	1	0	0	0	0	
417:	0	0	0	0	0	0	0	0	
425:	1	1	2	1	0	0	0	0	
433:	0	1	2	1	1	2	1	2	
441:	0	0	3	2	1	2	4	4	
449:	2	1	8	5	2	3	6	2	
457:	4	2	5	0	5	7	6	2	
465:	3	3	1	6	4	2	3	1	
473:	2	0	3	3	1	1	1	3	
481:	1	5	0	2	0	1	2	2	
489:	1	0	0	0	5	3	1	0	
497:	1	0	0	1	0	3	1	1	
505:	0	0	0	0	0	1	0	0	
513:	1	2	2	1	0	0	1	1	
521:	1	0	2	0	0	2	2	1	
529:	0	0	0	0	0	0	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	1	
577:	0	0	0	0	0	0	0	1	
585:	1	0	0	1	0	0	0	0	
593:	1	0	0	0	0	0	2	0	
601:	0	1	1	2	0	1	1	0	
609:	1	0	1	2	1	1	3	2	
617:	2	1	2	5	1	3	3	0	
625:	3	4	1	4	1	3	2	2	
633:	5	3	3	2	4	2	6	4	
641:	1	2	9	5	6	6	1	8	
649:	12	2	6	4	0	0	2	1	
657:	1	2	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	1	0	0	0	0	1	0	
721:	0	1	0	0	0	0	0	0	
729:	0	1	0	0	2	0	0	2	
737:	0	0	0	0	0	0	0	0	
745:	1	0	0	0	0	0	0	0	
753:	0	1	0	0	0	0	1	0	
761:	0	0	0	0	1	0	0	1	
769:	0	0	0	0	0	0	0	0	
777:	0	0	0	0	0	1	0	1	
785:	0	0	0	1	1	0	0	0	
793:	0	1	0	0	0	0	0	0	

801: 0 0 0 0 0 0 0 0

Sample Title: 05

Channel								
809:	0	0	0	1	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	1	0	0	0	0
833:	0	0	0	0	0	1	0	0
841:	0	1	0	0	0	0	0	0
849:	0	0	0	0	0	0	1	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	1	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:	1	0	0	0	0	0	0	0
937:	0	0	0	0	1	1	0	0
945:	0	1	0	1	0	1	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

Apex-Alpha™

KB
6/30/16

Sample Description: CP-5011 02-05
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001558
 Batch Identification: 1606065A-TH
 Sample Identification: 06
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

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

Sample Size: 1.505E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:03:10 AM
 Acquisition Date/Time: 6/30/2016 11:25:36 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.235 mL
 Effective Efficiency: 0.1947 +/- 0.0159
 Counting Efficiency: 0.1847 +/- 0.0032 on 12/11/2015 8:20:48 AM
 Chem. Recovery Factor: 1.0540 +/- 0.0881

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	5.801	8.32	71.13	0.68	0.00E+000	3.0
TH-228	5.379	153.30	15.93	1.70	0.00E+000	9.8
TH-229 T	4.883	174.83	14.83	0.17	0.00E+000	4.5
TH-230	4.640	154.83	15.76	0.17	0.00E+000	9.7
TH-232	3.975	166.32	15.23	0.68	0.00E+000	5.2

T = Tracer Peak used for Effective Efficiency

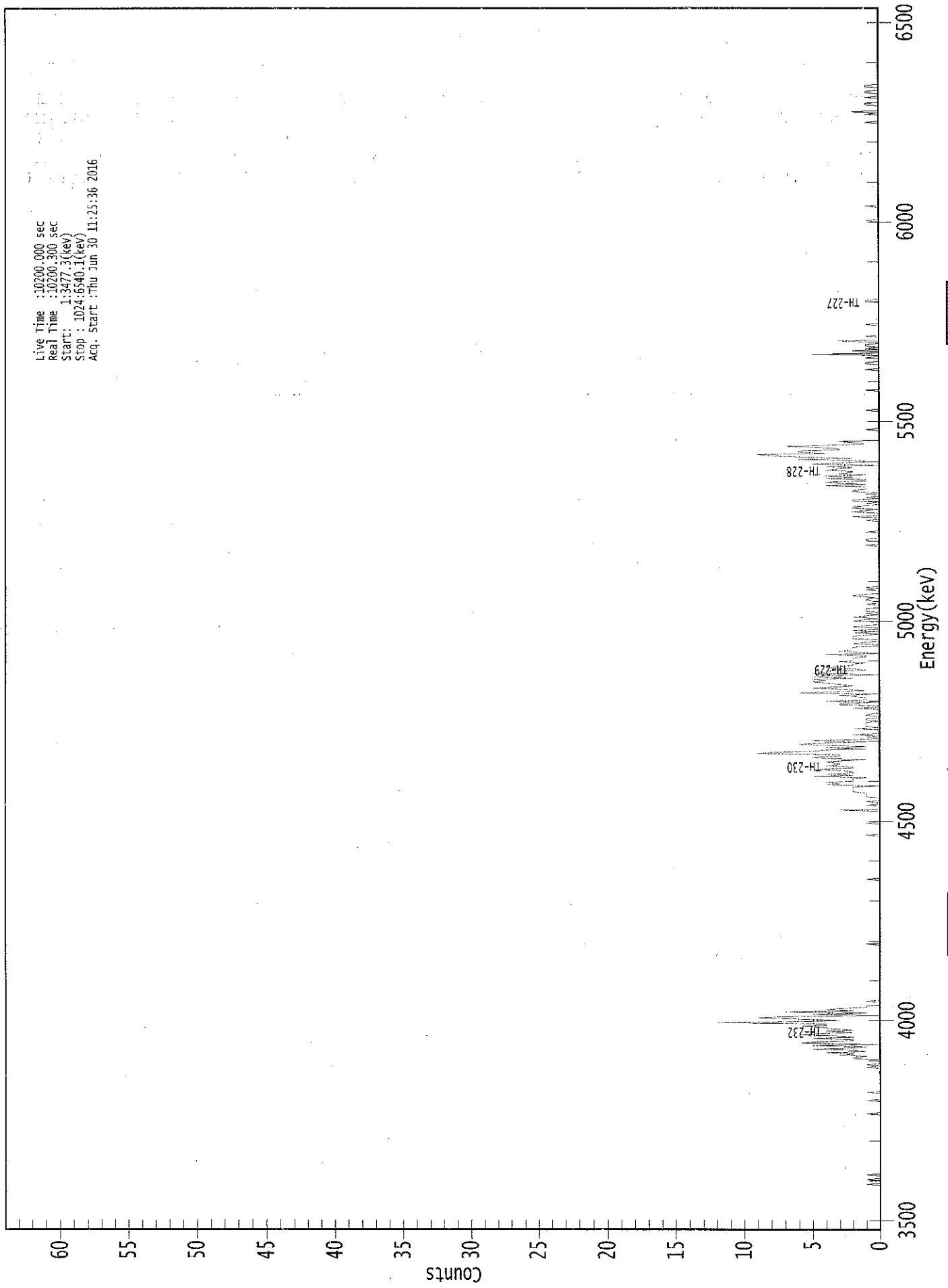
NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	7.73E-002 +/- 5.64E-002	5.24E-002 +/- 8.40E-003
TH-228	0.998	5400.00*	1.42E+000 +/- 3.20E-001	6.79E-002 +/- 1.09E-002
TH-229	0.999	4872.00*	1.59E+000 +/- 2.55E-001	3.79E-002 +/- 6.08E-003
TH-230	0.995	4672.00*	1.40E+000 +/- 3.15E-001	3.78E-002 +/- 6.06E-003
TH-232	0.997	3997.00*	1.50E+000 +/- 3.32E-001	5.10E-002 +/- 8.17E-003

AG
7/1/16

0000155895.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:3477.3(kev)
Stop : 1024.6540.1(kev)
Acq. Start : Thu Jun 30 11:25:36 2016



ROI Type: 3

ROI Type: 1

: 00100

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

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	1	0	0
41:	0	0	1	0	0	0	1	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	1	0	0	0	0	0	0	0
105:	0	0	0	0	1	0	0	0	0
113:	0	0	0	1	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:	1	0	1	0	0	0	0	2	0
145:	2	1	3	2	4	1	2	5	0
153:	2	1	5	0	6	5	2	2	0
161:	5	2	3	6	4	2	4	2	0
169:	4	4	6	4	4	12	6	3	0
177:	6	9	7	0	5	1	7	2	0
185:	4	3	1	1	0	0	0	1	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	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	1	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	0	0	1	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	1	0	0	0	0	0	0
337:	0	0	0	0	1	0	0	0	0
345:	0	0	0	0	0	0	0	3	0
353:	0	0	0	1	0	0	1	0	0
361:	0	0	1	1	1	1	2	2	0

369: 2 2 2 0 4 3 4 2

Sample Title: 06

Channel	1	2	3	4	5	6	7	8
377:	2	2	1	5	2	4	2	2
385:	3	5	2	2	4	3	3	4
393:	3	1	4	5	3	3	9	8
401:	5	4	1	4	1	4	6	4
409:	1	5	1	0	1	0	2	0
417:	0	0	0	2	0	1	1	1
425:	1	0	1	1	0	0	1	1
433:	0	0	0	0	2	0	0	3
441:	3	0	4	1	1	1	2	3
449:	0	6	3	1	3	5	3	2
457:	3	4	5	4	5	2	5	4
465:	0	5	4	4	1	2	4	3
473:	2	2	1	3	2	2	2	1
481:	1	4	0	2	3	2	2	2
489:	0	0	2	1	0	0	2	2
497:	2	1	0	2	0	2	0	0
505:	2	1	0	0	0	2	1	0
513:	2	1	0	1	0	1	1	1
521:	0	0	0	1	0	0	1	1
529:	0	1	2	1	0	0	0	1
537:	0	1	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	1	0	0	0
577:	1	1	0	0	0	0	0	1
585:	0	0	0	0	0	0	0	0
593:	0	1	0	0	2	0	0	0
601:	2	1	0	2	2	1	0	1
609:	0	2	2	0	1	0	0	1
617:	0	2	2	1	1	1	4	1
625:	3	4	1	1	4	2	4	1
633:	3	2	2	4	3	2	4	0
641:	5	3	0	2	6	2	6	8
649:	9	4	6	6	3	3	5	7
657:	3	1	2	3	0	0	0	0
665:	0	0	0	0	0	1	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	1	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	1	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	1
721:	0	0	0	0	1	1	0	0
729:	0	1	0	0	5	0	0	2
737:	0	1	0	1	1	0	0	3
745:	0	0	0	1	0	0	0	0
753:	0	0	0	0	0	1	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	1	1	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: 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	1	0	0	0
849:	0	0	0	0	0	0	0	0
857:	1	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	1	0
929:	0	0	0	0	0	1	0	2
937:	0	0	0	0	0	1	1	0
945:	0	0	0	1	0	0	0	1
953:	1	0	0	0	1	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



105
6/30/14

Sample Description: CP-5011 05-8 5
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001558
 Batch Identification: 1606065A-TH
 Sample Identification: 07
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_041
 Chamber Serial Number: 05026930A
 Detector Serial Number: 91087
 Env. Background: System Bkgd 157587
 Reagent Blank: <not performed>

Sample Size: 1.571E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:03:10 AM
 Acquisition Date/Time: 6/30/2016 11:25:39 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: 0.1728 +/- 0.0153
 Counting Efficiency: 0.1900 +/- 0.0033 on 12/11/2015 8:21:11 AM
 Chem. Recovery Factor: 0.9097 +/- 0.0818

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	5.798	10.15	64.46	0.85	0.00E+000	3.0
TH-228	5.382	143.81	16.42	1.19	0.00E+000	20.1
TH-229 T	4.876	147.81	16.20	1.19	0.00E+000	4.1
TH-230	4.640	134.81	16.97	1.19	0.00E+000	8.5
TH-232	3.968	131.11	17.34	2.89	0.00E+000	4.4

T = Tracer Peak used for Effective Efficiency

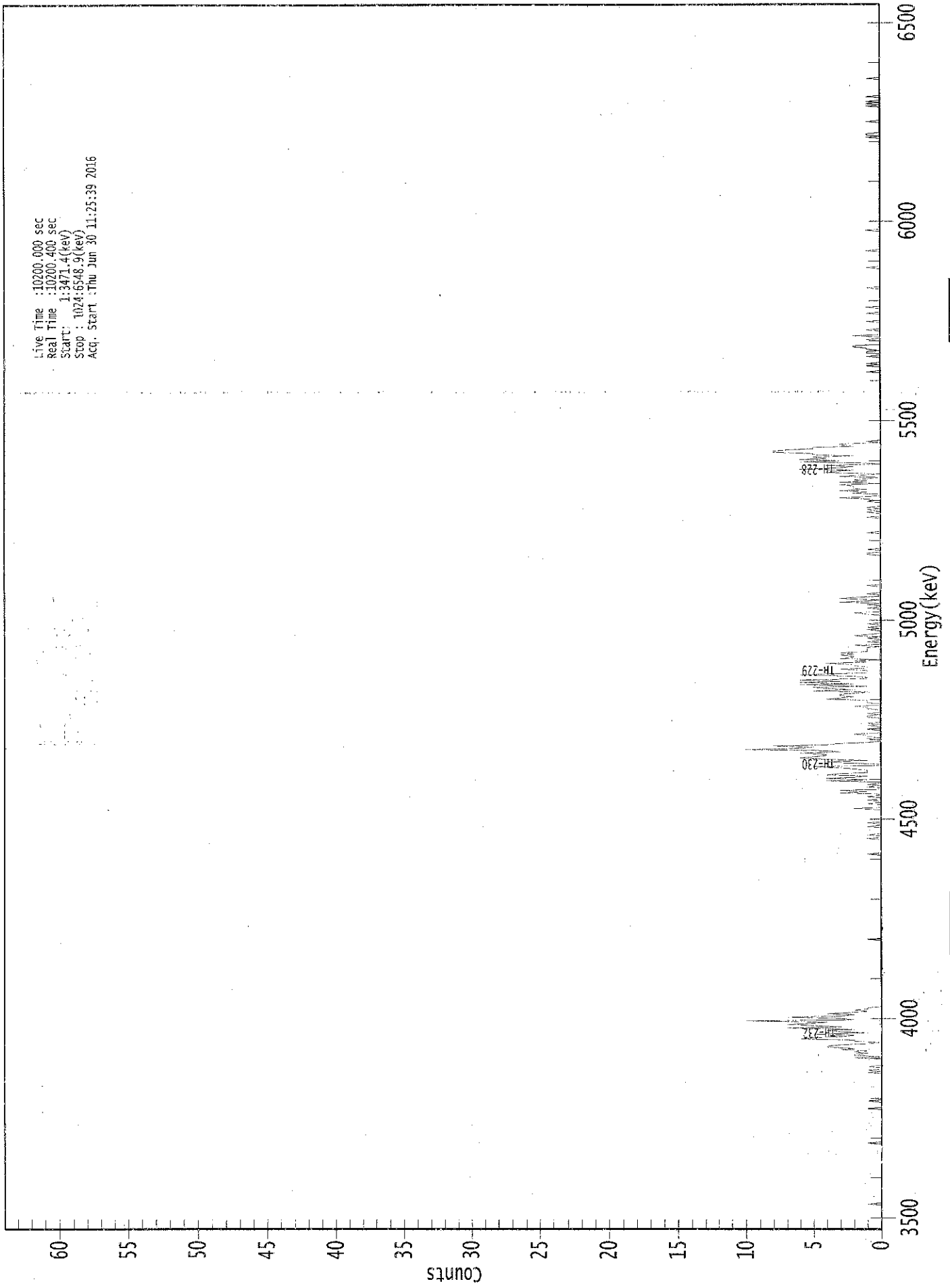
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.986	5850.00*	1.02E-001 +/- 6.80E-002	6.01E-002 +/- 1.04E-002
TH-228	0.998	5400.00*	1.44E+000 +/- 3.43E-001	6.58E-002 +/- 1.14E-002
TH-229	1.000	4872.00*	1.45E+000 +/- 2.51E-001	6.46E-002 +/- 1.12E-002
TH-230	0.995	4672.00*	1.32E+000 +/- 3.19E-001	6.44E-002 +/- 1.11E-002
TH-232	0.996	3997.00*	1.28E+000 +/- 3.13E-001	8.55E-002 +/- 1.48E-002

AG
7/1/16

0000155886.CNF

Live Time : 10200.000 sec
Real Time : 10200.400 sec
Start : 1:34:11.4 (keV)
Stop : 1024:6548.9 (keV)
Acq. Start : Thu Jun 30 11:25:39 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: 07

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	1	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:	1	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	1	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	1	0	1	0	0	0
137:	1	0	0	0	0	0	0	0	2
145:	0	2	2	1	2	1	3	2	2
153:	4	4	3	1	0	2	2	6	6
161:	5	3	2	5	1	3	4	2	2
169:	7	3	5	7	5	4	10	2	2
177:	3	7	3	2	4	2	1	2	2
185:	1	1	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	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	1	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	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	1	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	1	0	0
329:	0	1	0	0	0	0	0	0	0
337:	1	0	0	1	0	0	0	0	0
345:	0	0	0	0	0	0	0	0	2
353:	0	0	0	1	0	0	1	0	0
361:	0	1	0	0	3	1	3	0	0

369: 0 1 0 1 0 0 4 1

Sample Title: 07

Channel	1	2	3	4	5	6	7	8
377:	4	2	1	4	3	1	1	1
385:	2	3	5	0	0	3	4	1
393:	4	6	5	4	4	6	3	4
401:	10	6	5	8	4	3	1	0
409:	0	1	0	1	1	2	0	0
417:	0	1	0	0	1	0	1	0
425:	0	0	0	1	1	0	1	0
433:	0	0	1	1	2	0	0	1
441:	1	1	4	3	2	3	3	2
449:	1	5	2	4	5	1	6	2
457:	6	3	6	1	1	2	6	4
465:	1	1	1	3	1	1	2	2
473:	4	1	2	0	3	2	2	3
481:	2	3	1	1	1	1	0	2
489:	0	0	1	0	0	1	0	2
497:	1	0	0	0	1	0	1	0
505:	0	1	0	0	0	0	0	0
513:	0	1	2	0	0	0	1	0
521:	0	1	0	3	1	0	3	2
529:	0	0	1	0	0	0	0	0
537:	0	1	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	1	1	0	0	1
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	1	0	0
585:	0	0	0	0	0	0	0	0
593:	0	0	1	0	0	0	1	0
601:	1	0	1	0	0	0	0	1
609:	0	1	3	1	0	0	2	1
617:	3	1	2	2	2	3	0	3
625:	1	2	1	0	3	1	0	4
633:	4	2	6	3	2	4	0	1
641:	6	3	6	4	5	2	5	5
649:	8	8	7	5	5	2	3	3
657:	0	1	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	1	0	0	0	0
721:	1	0	1	0	0	0	0	0
729:	1	0	0	1	1	0	1	1
737:	2	2	0	0	0	0	1	0
745:	0	2	0	0	0	0	1	0
753:	0	0	0	0	0	1	0	0
761:	0	0	0	0	1	0	0	0
769:	0	1	0	0	0	0	0	0
777:	0	0	0	0	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 1 0 0 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:	1	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	1	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	1
913:	0	1	1	0	0	0	0	0
921:	0	0	0	0	1	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	1	0	1	0	1	0	0
945:	0	1	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	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



120
6/30/14

Sample Description: CP-5011 8 5-15
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001558
 Batch Identification: 1606065A-TH
 Sample Identification: 08
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha 042
 Chamber Serial Number: 05026930B
 Detector Serial Number: 84185
 Env. Background: System Bkgd 157588
 Reagent Blank: <not performed>

Sample Size: 1.502E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:03:10 AM
 Acquisition Date/Time: 6/30/2016 11:25:43 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.225 mL
 Effective Efficiency: 0.1905 +/- 0.0161
 Counting Efficiency: 0.1789 +/- 0.0031 on 12/11/2015 8:21:10 AM
 Chem. Recovery Factor: 1.0647 +/- 0.0917

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	5.765	8.15	72.72	0.85	0.00E+000	3.0
TH-228	5.366	139.64	16.68	1.36	0.00E+000	6.6
TH-229 T	4.862	163.32	15.37	0.68	0.00E+000	3.9
TH-230	4.630	136.49	16.81	0.51	0.00E+000	9.0
TH-232	3.953	137.66	16.73	0.34	0.00E+000	8.0

T = Tracer Peak used for Effective Efficiency

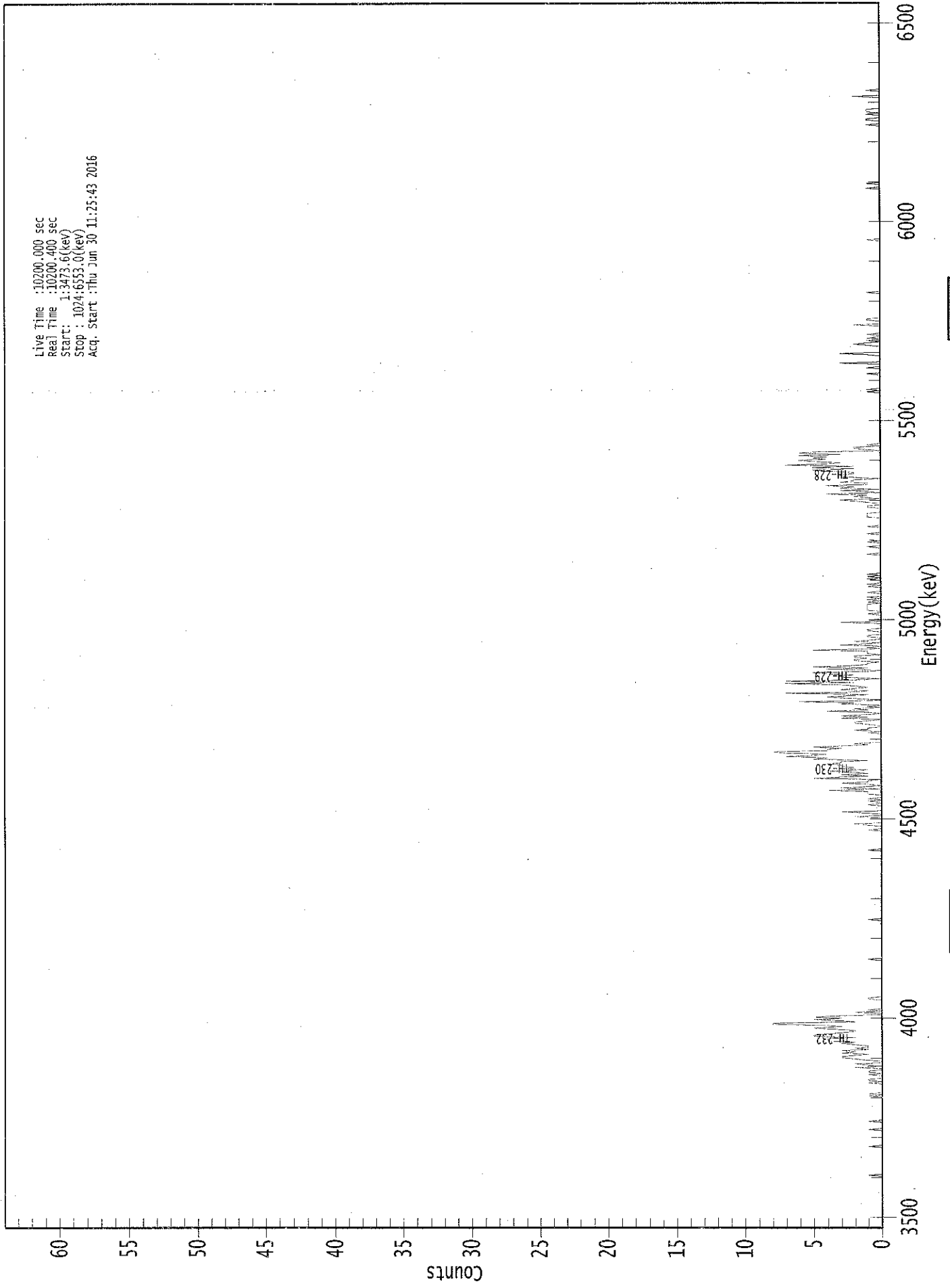
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.963	5850.00*	7.76E-002 +/- 5.78E-002	5.70E-002 +/- 9.42E-003
TH-228	0.994	5400.00*	1.32E+000 +/- 3.11E-001	6.49E-002 +/- 1.07E-002
TH-229	0.999	4872.00*	1.52E+000 +/- 2.51E-001	5.25E-002 +/- 8.68E-003
TH-230	0.991	4672.00*	1.27E+000 +/- 2.99E-001	4.87E-002 +/- 8.05E-003
TH-232	0.990	3997.00*	1.27E+000 +/- 3.00E-001	4.43E-002 +/- 7.32E-003

AG
7/1/16

0000155887.CNF

Live Time : 10200.000 sec
Real Time : 10200.400 sec
Start : 1:34:73.6(keV)
Stop : 1024:6553.0(keV)
Acq. Start : Thu Jun 30 11:25:43 2016



ROI Type: 1

ROI Type: 3

369: 1 0 1 3 1 1 0 5

Sample Title: 08

Channel	1	2	3	4	5	6	7	8
377:	3	1	3	1	2	4	1	3
385:	2	3	3	4	3	3	1	5
393:	4	7	5	4	7	8	4	4
401:	3	5	3	1	2	0	0	0
409:	0	0	0	0	0	1	0	2
417:	1	1	0	0	1	2	2	1
425:	0	3	1	3	1	0	1	4
433:	1	2	0	1	0	3	2	6
441:	0	1	3	4	2	1	7	2
449:	1	3	2	1	2	3	7	2
457:	7	2	0	3	3	2	4	5
465:	1	0	4	1	5	2	1	1
473:	0	2	2	1	2	2	0	1
481:	1	1	5	0	1	0	3	1
489:	0	2	1	0	0	1	1	0
497:	0	0	1	1	0	0	0	0
505:	0	3	0	1	0	0	0	0
513:	1	0	0	1	1	1	1	1
521:	1	0	1	0	1	0	1	0
529:	0	0	1	0	0	0	0	1
537:	0	1	0	0	0	1	0	1
545:	0	1	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	1	0	0	0	0	0
569:	1	0	0	0	1	0	0	0
577:	0	0	0	1	0	0	0	0
585:	0	1	0	0	0	0	0	0
593:	0	1	1	1	1	0	0	0
601:	0	1	1	0	0	1	2	3
609:	0	1	2	1	4	0	1	3
617:	0	3	2	4	1	1	3	2
625:	2	0	2	3	3	2	2	4
633:	5	2	5	2	7	4	3	5
641:	6	4	5	4	6	3	6	5
649:	0	1	2	2	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	1	0	1	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	1	0	0	0	0	1	0	0
721:	0	3	0	0	0	0	0	0
729:	1	3	0	0	0	0	0	0
737:	1	2	1	0	1	0	1	0
745:	0	1	0	0	0	0	0	0
753:	0	2	0	0	0	1	1	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	1	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: 08

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	1	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	1
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:	1	0	0	0	1	1	0	0
929:	0	1	0	1	1	1	0	0
937:	0	0	0	0	0	0	0	0
945:	2	0	0	0	0	1	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

166
6/30/16

Apex-Alpha™

Sample Description: CP-5017 00-02
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001558
 Batch Identification: 1606065A-TH
 Sample Identification: 09
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_043
 Chamber Serial Number: 04026481A
 Detector Serial Number: 91088
 Env. Background: System Bkgd 157589
 Reagent Blank: <not performed>

Sample Size: 1.559E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:03:10 AM
 Acquisition Date/Time: 6/30/2016 11:25:47 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: 0.1698 +/- 0.0151
 Counting Efficiency: 0.1890 +/- 0.0033 on 12/11/2015 8:21:08 AM
 Chem. Recovery Factor: 0.8982 +/- 0.0816

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	5.816	6.81	82.43	1.19	0.00E+000	3.0
TH-228	5.353	116.32	18.24	0.68	0.00E+000	4.1
TH-229 T	4.882	145.13	16.39	1.87	0.00E+000	7.2
TH-230	4.620	143.49	16.40	0.51	0.00E+000	7.5
TH-232	3.955	118.98	18.06	1.02	0.00E+000	7.5

T = Tracer Peak used for Effective Efficiency

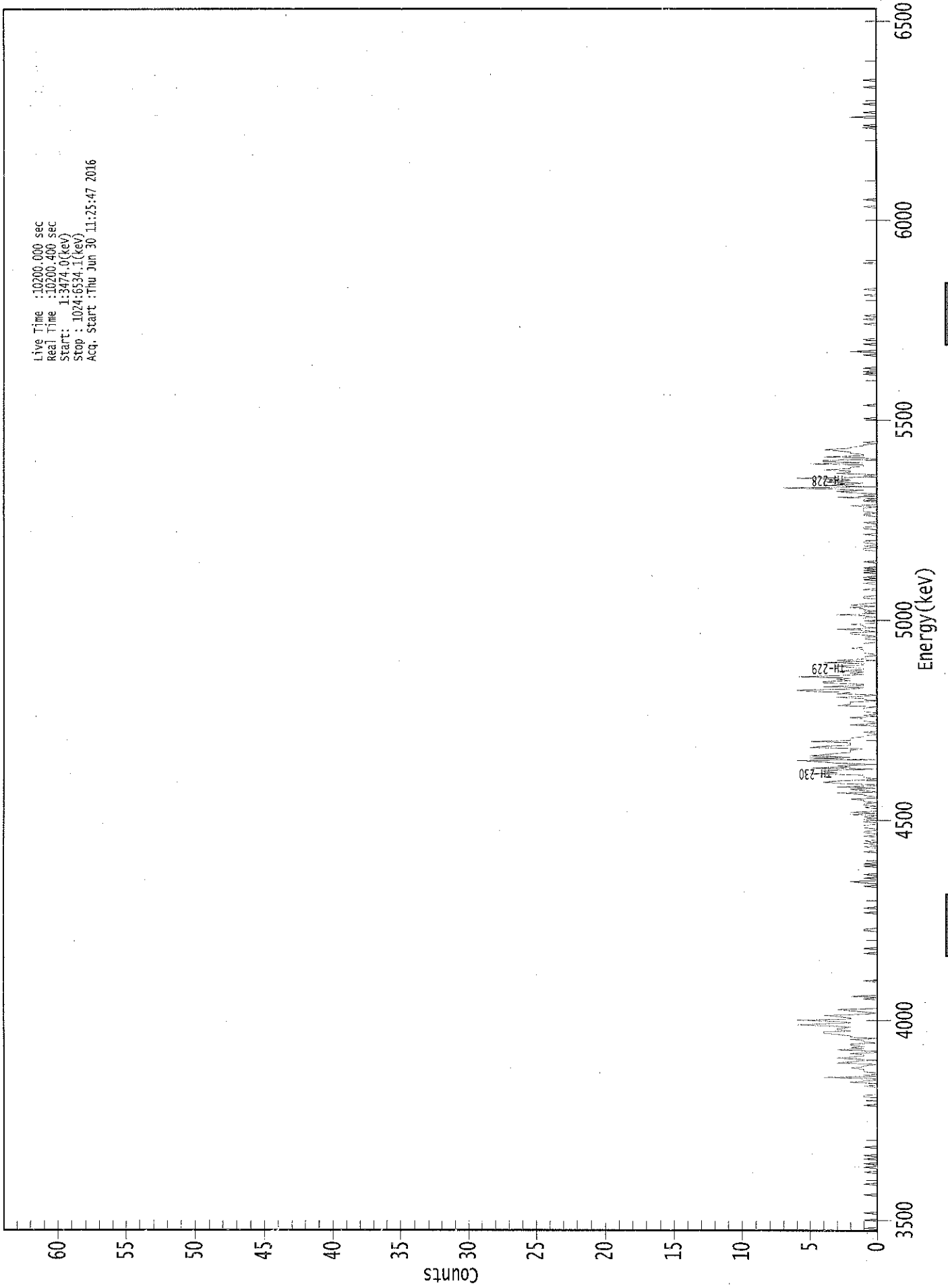
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.994	5850.00*	7.00E-002 +/- 5.90E-002	6.78E-002 +/- 1.18E-002
TH-228	0.989	5400.00*	1.19E+000 +/- 3.01E-001	5.77E-002 +/- 1.01E-002
TH-229	0.999	4372.00*	1.46E+000 +/- 2.55E-001	7.62E-002 +/- 1.33E-002
TH-230	0.986	4672.00*	1.44E+000 +/- 3.45E-001	5.26E-002 +/- 9.20E-003
TH-232	0.991	3997.00*	1.19E+000 +/- 2.99E-001	6.31E-002 +/- 1.10E-002

Ac
7/1/16

0000155888.CNF

Live Time :10200.000 sec
Real Time :10200.400 sec
Start : 1:3474.0(kev)
Stop : 1024:6534.1(kev)
Acq. Start :Thu Jun 30 11:25:47 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: 09

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 1 2 0 3 0 0 3 4

Sample Title: 09

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

801: 0 0 0 0 0 0 0 0 0

Sample Title: 09

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	1	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:	1	0	0	0	0	0	1	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	1	0	1	0	0	0
929:	0	0	0	2	0	0	0	1
937:	0	0	0	0	0	0	1	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	1	0	0	0
961:	0	0	1	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
6/30/16

Sample Description: CP-5017 02-05
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001558
 Batch Identification: 1606065A-TH
 Sample Identification: 10
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_044
 Chamber Serial Number: 04026481B
 Detector Serial Number: 84168
 Env. Background: System Bkgd 157590
 Reagent Blank: <not performed>

Sample Size: 1.510E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:03:10 AM
 Acquisition Date/Time: 6/30/2016 11:25:51 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: 0.2004 +/- 0.0165
 Counting Efficiency: 0.1864 +/- 0.0033 on 12/11/2015 8:21:07 AM
 Chem. Recovery Factor: 1.0750 +/- 0.0907

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	5.842	8.32	71.13	0.68	0.00E+000	3.0
TH-228	5.363	122.15	17.81	0.85	0.00E+000	6.2
TH-229 T	4.860	171.49	14.99	0.51	0.00E+000	3.9
TH-230	4.619	135.66	16.85	0.34	0.00E+000	18.0
TH-232	3.963	128.15	17.38	0.85	0.00E+000	3.4

T = Tracer Peak used for Effective Efficiency

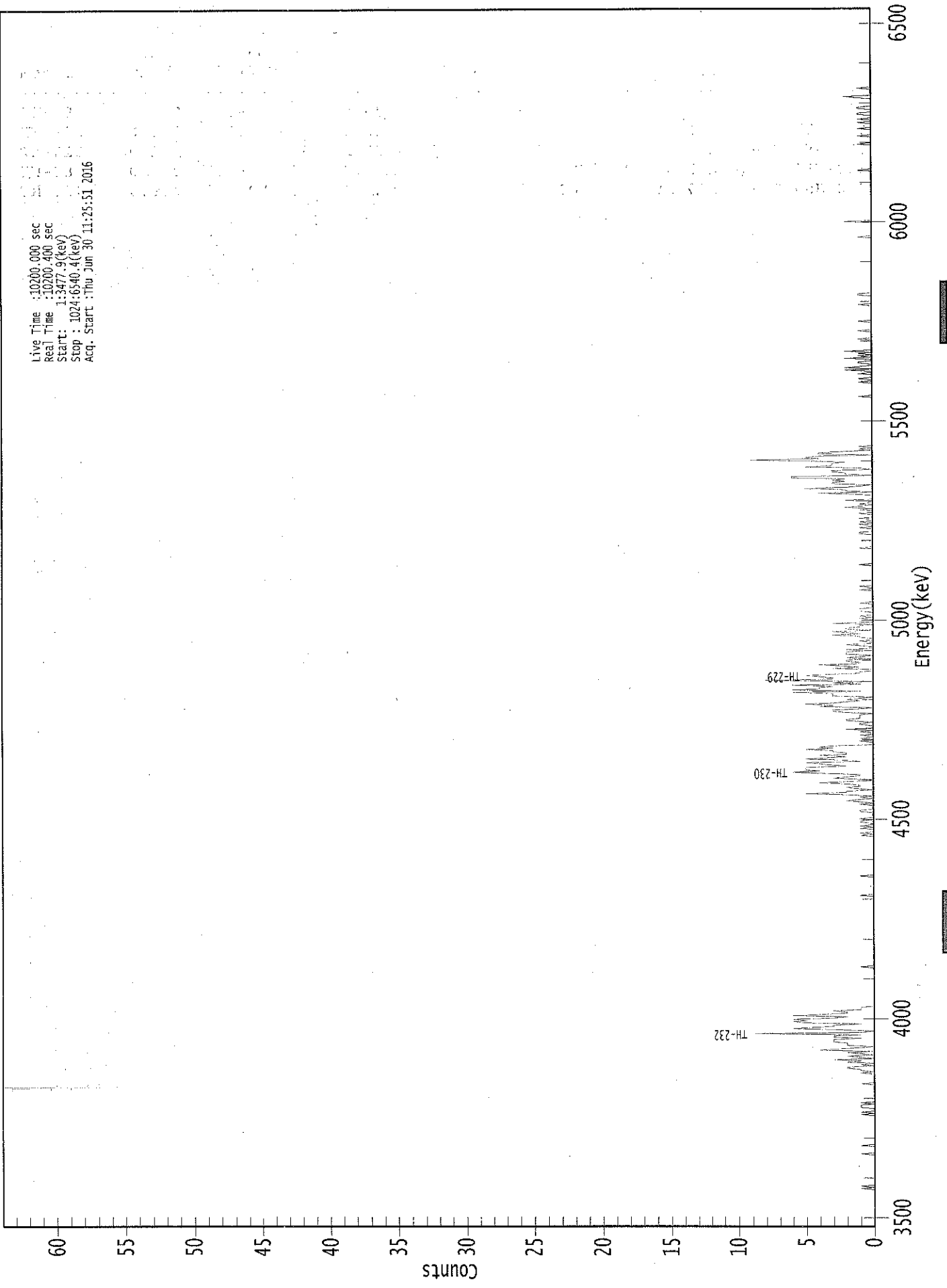
NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	7.48E-002 +/- 5.46E-002	5.07E-002 +/- 8.21E-003
TH-228	0.993	5400.00*	1.09E+000 +/- 2.63E-001	5.36E-002 +/- 8.67E-003
TH-229	0.999	4872.00*	1.51E+000 +/- 2.44E-001	4.61E-002 +/- 7.47E-003
TH-230	0.986	4672.00*	1.19E+000 +/- 2.78E-001	4.19E-002 +/- 6.78E-003
TH-232	0.994	3997.00*	1.12E+000 +/- 2.66E-001	5.24E-002 +/- 8.48E-003

AG
7/1/16

0000155889.CNF

Live Time : 10200.000 sec
Real Time : 10200.400 sec
Start : 1:5477.9(kev)
Stop : 1024:6540.4(kev)
Acq. Start : Thu Jun 30 11:25:51 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: 10

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:	1	0	1	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	1	0	0
65:	0	0	0	0	1	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	1	0
97:	1	0	0	0	1	1	1	0
105:	1	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	1	0	0	0	0	0	0	0
129:	0	1	0	1	1	2	2	0
137:	1	0	2	1	3	0	1	2
145:	0	1	2	0	4	3	1	0
153:	2	2	2	3	3	3	1	3
161:	3	1	9	1	0	2	6	5
169:	3	3	1	5	6	5	6	3
177:	2	6	4	2	2	3	1	1
185:	1	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	1	0	0	0	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	1	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	1	0	0	0	1	0
337:	1	0	0	1	1	0	1	0
345:	0	0	0	0	1	1	0	0
353:	0	0	1	0	1	2	1	0
361:	1	0	2	5	2	2	0	1

369: 2 1 1 2 4 2 0 1

Sample Title: 10

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

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

KB
6/20/16

Apex-Alpha™

Sample Description: CP-5017 05-10
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001558
 Batch Identification: 1606065A-TH
 Sample Identification: 11
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_045
 Chamber Serial Number: 04026482A
 Detector Serial Number: 91131
 Env. Background: System Bkgd 157591
 Reagent Blank: <not performed>

Sample Size: 1.598E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:03:10 AM
 Acquisition Date/Time: 6/30/2016 11:25:55 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: 0.1545 +/- 0.0143
 Counting Efficiency: 0.1710 +/- 0.0030 on 12/11/2015 8:21:05 AM
 Chem. Recovery Factor: 0.9038 +/- 0.0852

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	5.846	5.81	90.53	1.19	0.00E+000	3.0
TH-228	5.337	135.30	16.97	1.70	0.00E+000	12.0
TH-229 T	4.852	132.15	17.11	0.85	0.00E+000	9.2
TH-230	4.606	139.49	16.63	0.51	0.00E+000	8.0
TH-232	3.929	99.60	20.03	3.40	0.00E+000	3.8

T = Tracer Peak used for Effective Efficiency

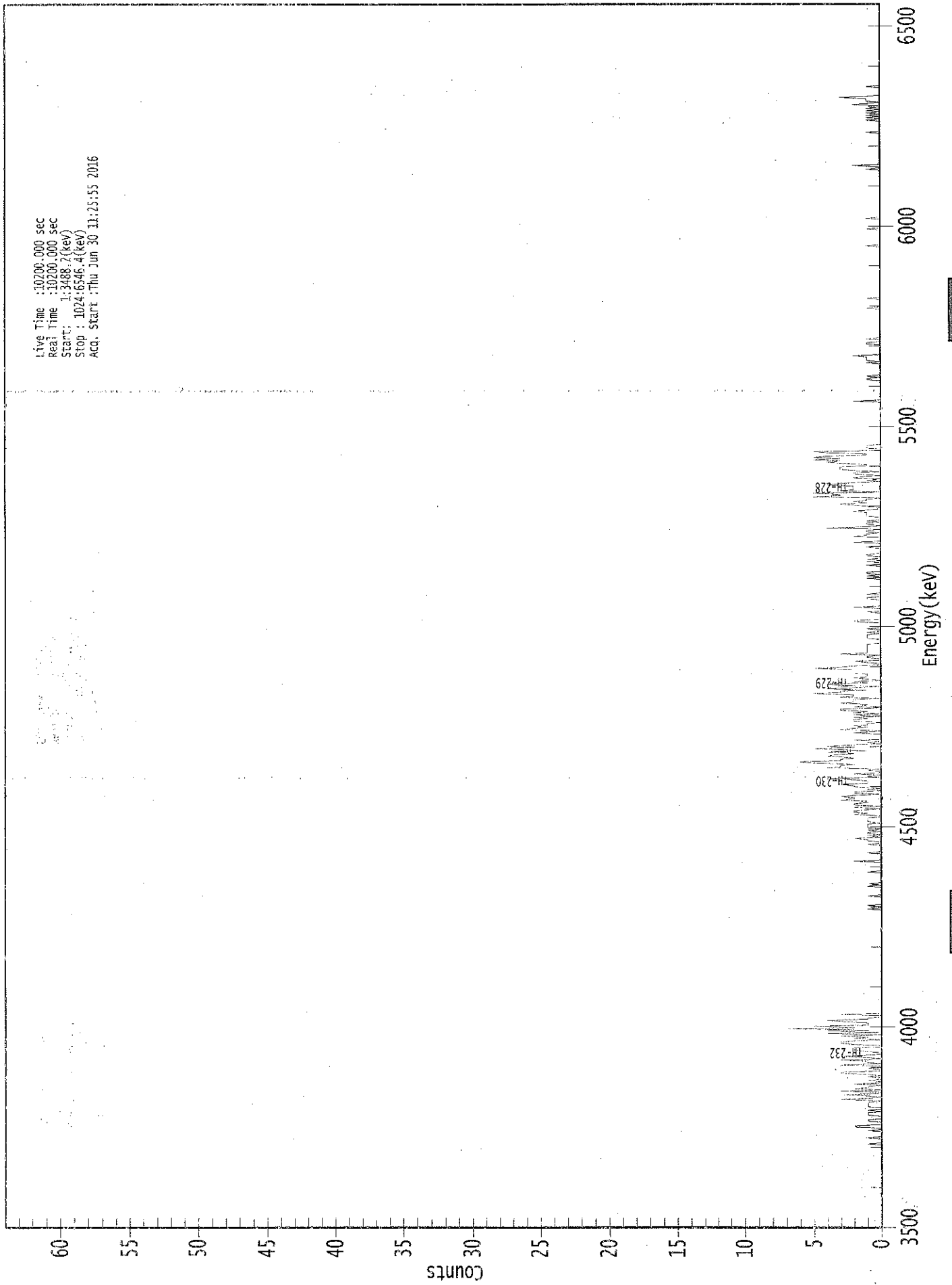
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	6.41E-002 +/- 5.92E-002	7.27E-002 +/- 1.32E-002
TH-228	0.980	5400.00*	1.49E+000 +/- 3.69E-001	8.07E-002 +/- 1.46E-002
TH-229	0.998	4872.00*	1.43E+000 +/- 2.59E-001	6.46E-002 +/- 1.17E-002
TH-230	0.977	4672.00*	1.50E+000 +/- 3.69E-001	5.64E-002 +/- 1.02E-002
TH-232	0.976	3997.00*	1.07E+000 +/- 2.89E-001	9.95E-002 +/- 1.81E-002

AG
7/1/16

0000155890.CNF

Live Time : 10200.000 sec
Real Time : 10200.000 sec
Start : 1:3488.7 (keV)
Stop : 1024:6546.4 (keV)
Acq. Start : Thu Jun 30 11:25:55 2016



ROI Type: 3

ROI Type: 1

01780

***** 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	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	1	0
73:	0	0	0	1	0	0	0	0	0
81:	0	1	0	0	2	2	0	0	0
89:	0	1	1	0	0	0	0	1	1
97:	1	0	1	0	0	1	1	1	1
105:	1	1	0	3	1	0	1	1	3
113:	0	0	3	0	2	1	1	1	0
121:	2	0	0	1	0	0	1	0	0
129:	1	3	3	0	0	1	0	0	0
137:	3	0	1	1	3	0	1	1	3
145:	1	0	0	1	2	2	2	0	0
153:	0	2	3	3	2	0	2	2	1
161:	3	0	4	0	4	1	7	1	2
169:	5	1	1	1	3	4	1	1	1
177:	0	0	3	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	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	1	0	0	1	0	0	0
273:	0	0	0	0	0	1	0	0	0
281:	0	0	0	0	0	1	0	1	0
289:	0	0	0	0	0	0	0	0	0
297:	0	1	0	0	0	0	0	0	0
305:	0	0	2	0	0	0	0	0	0
313:	0	1	0	0	0	0	0	0	0
321:	1	0	0	1	1	2	0	1	0
329:	0	1	1	0	1	0	1	1	1
337:	1	1	0	1	1	1	1	1	0
345:	0	2	1	2	2	1	0	2	2
353:	0	2	2	1	1	3	2	2	2
361:	3	2	0	2	2	0	1	0	0

369: 2 2 3 1 1 1 2 4

Sample Title: 11

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

Sample Title: 11

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	1	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	1	0	0	0	0	0
841:	0	0	0	1	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	1	0	0	2
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	1	0	0	0	0
921:	0	0	0	0	0	1	0	1
929:	0	1	0	1	0	1	0	1
937:	0	0	2	1	0	1	1	1
945:	3	1	0	0	0	0	0	0
953:	0	1	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

Apex-Alpha™

WB
G. Bolla

Sample Description: CP-5017 10-15
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001558
 Batch Identification: 1606065A-TH
 Sample Identification: 12
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_046
 Chamber Serial Number: 04026482B
 Detector Serial Number: 58762
 Env. Background: System Bkgd 157592
 Reagent Blank: <not performed>

Sample Size: 1.564E+000 +/- 0.000E+000 gram
 Sample Date/Time: 6/8/2016 6:03:10 AM
 Acquisition Date/Time: 6/30/2016 11:26:00 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: 0.2048 +/- 0.0168
 Counting Efficiency: 0.1806 +/- 0.0032 on 12/11/2015 8:21:03 AM
 Chem. Recovery Factor: 1.1342 +/- 0.0952

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	5.844	10.98	62.23	1.02	0.00E+000	4.5
TH-228	5.378	145.45	16.42	2.55	0.00E+000	7.3
TH-229 T	4.866	175.30	14.89	1.70	0.00E+000	4.1
TH-230	4.635	168.30	15.20	1.70	0.00E+000	15.6
TH-232	3.959	134.28	17.11	2.72	0.00E+000	5.9

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

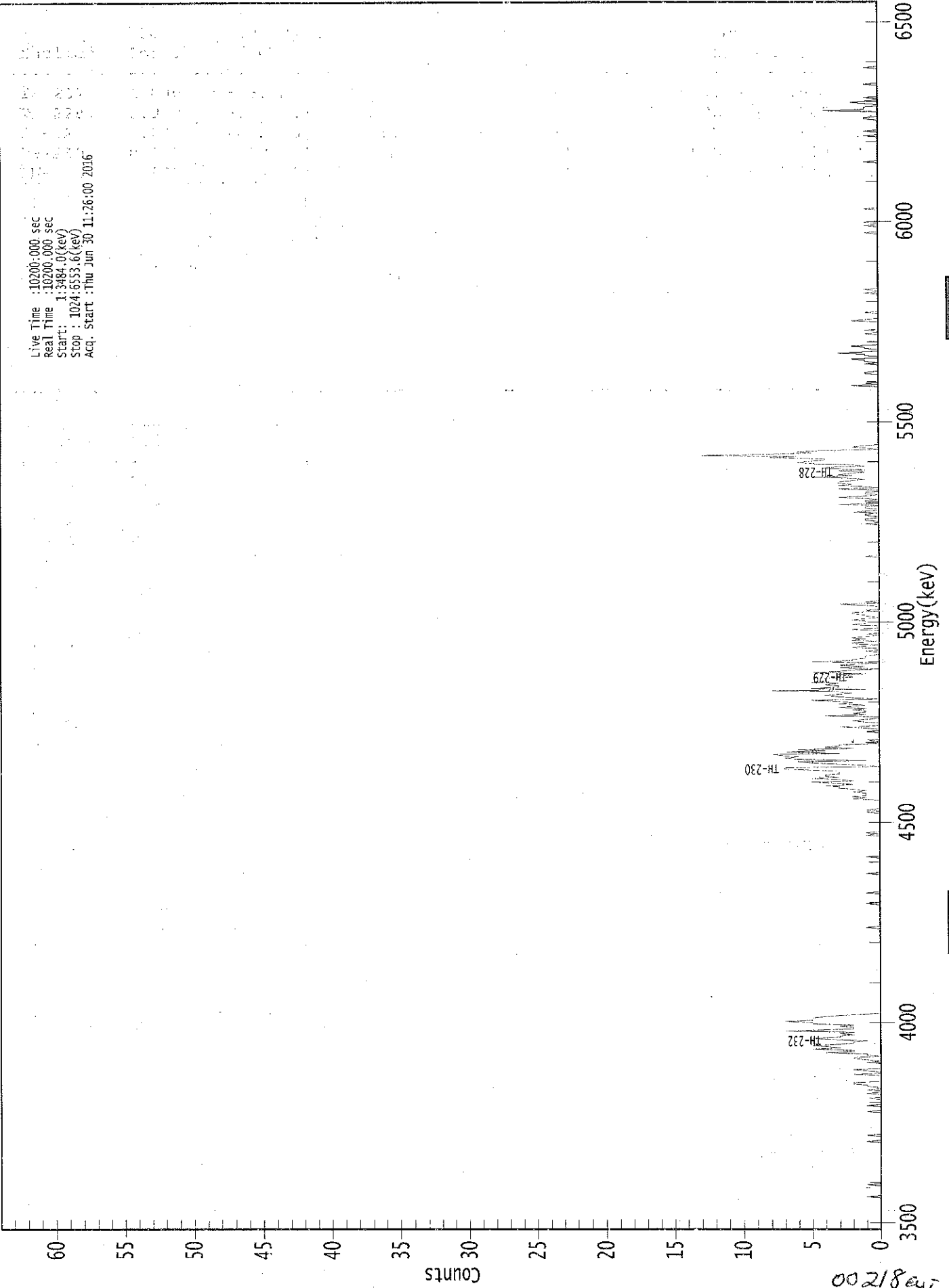
Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	9.34E-002 +/- 6.01E-002	5.36E-002 +/- 8.61E-003
TH-228	0.998	5400.00*	1.23E+000 +/- 2.83E-001	7.10E-002 +/- 1.14E-002
TH-229	1.000	4872.00*	1.46E+000 +/- 2.34E-001	6.11E-002 +/- 9.82E-003
TH-230	0.993	4672.00*	1.40E+000 +/- 3.09E-001	6.09E-002 +/- 9.79E-003
TH-232	0.993	3997.00*	1.11E+000 +/- 2.61E-001	7.10E-002 +/- 1.14E-002

AG
7/1/16

00217 ag/stk/ll
00217

0000155891.CNF

Live Time :10200.000 sec
Real Time :10200.000 sec
Start : 1:3484.0(kev)
Stop : 1024.6553.6(kev)
Acq. Start :Thu Jun 30 11:26:00 2016



ROI Type: 3

ROI Type: 1

00218247
04/14/16

***** 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	1	0	0	0	0	0
33:	0	0	0	0	0	1	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	1	0	0	0	0	1	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	1	0	0	0	0	0	1
105:	0	0	0	0	0	1	0	0	0
113:	0	1	0	0	1	0	0	0	1
121:	1	2	2	0	0	2	0	0	0
129:	0	2	0	0	1	2	0	0	0
137:	0	0	0	1	0	1	2	2	2
145:	0	1	1	4	2	2	5	3	3
153:	4	5	3	2	2	1	4	5	5
161:	3	3	2	3	2	7	4	2	5
169:	2	3	2	5	5	7	5	5	5
177:	5	4	3	1	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	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	1	0	0	0	0	0
257:	0	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0	1
273:	0	0	0	0	0	0	0	0	0
281:	1	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0	0
297:	1	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	1	0	0
313:	0	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0	0
329:	1	0	1	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0
345:	0	0	0	1	0	1	0	0	0
353:	0	0	0	0	0	0	2	1	1
361:	2	1	1	1	2	1	2	3	3

369: 3 4 2 3 5 2 3 5

Sample Title: 12

Channel	3	4	2	3	5	2	3	5
377:	3	4	4	3	3	3	5	7
385:	7	0	1	3	5	6	1	6
393:	7	6	7	8	3	7	4	6
401:	2	4	3	3	0	1	0	1
409:	0	0	0	0	0	0	1	0
417:	0	1	3	0	0	0	1	2
425:	1	0	0	4	1	2	1	1
433:	2	1	3	2	1	3	2	3
441:	5	0	2	3	4	3	2	3
449:	8	1	5	3	3	4	3	5
457:	4	4	4	2	2	3	1	5
465:	3	2	0	3	1	3	2	0
473:	5	2	2	1	1	1	0	0
481:	0	1	0	0	2	1	0	2
489:	2	0	2	1	2	1	0	1
497:	0	0	0	2	0	0	0	2
505:	1	1	1	2	1	0	1	1
513:	2	2	0	1	0	0	0	1
521:	3	0	1	0	0	0	0	0
529:	0	0	0	0	0	0	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:	1	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	1	1
593:	0	0	1	1	0	2	0	0
601:	1	1	0	3	0	1	1	0
609:	1	3	1	0	1	1	0	0
617:	3	0	1	3	2	3	3	2
625:	1	2	5	2	3	2	1	3
633:	1	4	4	1	2	5	6	5
641:	4	4	8	6	13	8	5	6
649:	4	0	1	2	1	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	2	0
705:	1	0	0	0	0	0	0	0
713:	1	1	0	0	0	0	0	0
721:	1	0	1	1	2	0	0	1
729:	1	3	1	0	0	1	1	2
737:	0	0	0	0	0	0	0	0
745:	0	1	0	0	1	0	0	0
753:	0	0	0	0	2	1	0	0
761:	0	0	0	1	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	1	0	0	1	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 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	1	0	0
833:	0	0	0	1	0	0	1	0
841:	0	0	0	0	0	0	0	0
849:	0	1	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:	1	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	1	0
913:	0	0	1	0	0	0	0	0
921:	0	0	0	0	1	1	0	0
929:	0	0	0	4	1	1	1	0
937:	0	1	2	1	0	0	1	0
945:	0	0	0	0	0	0	0	0
953:	0	1	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	1
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



QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 6/30/2016

Time : 6:27:33 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 001	21f	ALL	Not Done	
Alpha 002	21f	ALL	Not Done	
Alpha 003	21f	ALL	Passed	6/30/2016 5:33:30 AM
Alpha 004	21f	ALL	Passed	6/30/2016 5:33:31 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	6/30/2016 5:33:32 AM
Alpha 011	21f	ALL	Passed	6/30/2016 5:33:33 AM
Alpha 012	21f	ALL	Passed	6/30/2016 5:33:34 AM
Alpha 013	21f	ALL	Not Done	
Alpha 014	21f	ALL	Passed	6/30/2016 5:33:34 AM
Alpha 015	21f	Peak Energy	Action	6/30/2016 5:33:35 AM
Alpha 016	21f	ALL	Not Done	
Alpha 033	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:36 AM
Alpha 034	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:38 AM
Alpha 035	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:39 AM
Alpha 036	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:40 AM
Alpha 037	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:42 AM
Alpha 038	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:43 AM
Alpha 039	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:45 AM
Alpha 040	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:46 AM
Alpha 041	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:48 AM
Alpha 042	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:49 AM
Alpha 043	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:51 AM
Alpha 044	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:53 AM
Alpha 045	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:55 AM
Alpha 046	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:57 AM
Alpha 047	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:33:58 AM
Alpha 048	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:34:00 AM
Alpha 049	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:34:02 AM
Alpha 050	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:34:04 AM
Alpha 051	Alpha Analyst100DC	ALL	Not Done	
Alpha 052	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:34:06 AM
Alpha 053	Alpha Analyst100DC	Peak FWHM	Action	6/30/2016 5:34:08 AM
Alpha 054	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:34:10 AM
Alpha 055	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:34:13 AM
Alpha 056	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:34:15 AM
Alpha 057	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:34:18 AM
Alpha 058	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:34:21 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 059	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:34:23 AM
Alpha 060	Alpha Analyst100DC	ALL	Passed	6/30/2016 5:34:26 AM

APPROVED BY: _____

APPROVAL DATE: 6/30/16

 ***** 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	16-06065
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-5013 10-15	36	06/08/16 00:00	5.4356E+02
04	DO	CP-5013 10-15	36	06/08/16 00:00	5.4356E+02
05	TRG	CP-5011 00-02	41	06/08/16 00:00	4.4063E+02
06	TRG	CP-5011 02-05	39	06/08/16 00:00	4.9954E+02
07	TRG	CP-5011 05-8.5	45	06/08/16 00:00	3.7248E+02
08	TRG	CP-5011 8.5-15	53	06/08/16 00:00	4.2969E+02
09	TRG	CP-5017 00-02	52	06/08/16 00:00	5.8028E+02
10	TRG	CP-5017 02-05	50	06/08/16 00:00	5.5014E+02
11	TRG	CP-5017 05-10	57	06/08/16 00:00	3.2424E+02
12	TRG	CP-5017 10-15	36	06/08/16 00:00	3.4510E+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.

16-06065
 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.

12259

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS								
02	MBL								
03	DUP								
04	DO	06/17/16 07:03	KSALLINGS						
05	TRG	06/17/16 07:03	KSALLINGS						
06	TRG	06/17/16 07:03	KSALLINGS						
07	TRG	06/17/16 07:03	KSALLINGS						
08	TRG	06/17/16 07:03	KSALLINGS						
09	TRG	06/17/16 07:03	KSALLINGS						
10	TRG	06/17/16 07:03	KSALLINGS						
11	TRG	06/17/16 07:03	KSALLINGS						
12	TRG	06/17/16 07:03	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.

Preliminary Data Report & Analytical Calculations
Work Order: 16-06065-Gamma-1

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	1.41E+02	9.74E+00	1.36E+00	1.37E+02	102.54	OK		06/14/16 00:00	1.00E+00	06/17/16 10:11	YES
01	CS-137	LCS	LCS	pCi/g	8.76E+01	8.39E+00	1.68E+00	8.69E+01	100.75	OK		06/14/16 00:00	1.00E+00	06/17/16 10:11	YES
02	AC-228	MBL	BLANK	pCi/g	-3.50E-02	1.63E-01	2.58E-01					06/14/16 00:00	1.00E+00	06/17/16 11:46	NO
02	BI-214	MBL	BLANK	pCi/g	-1.87E-02	8.63E-02	1.39E-01					06/14/16 00:00	1.00E+00	06/17/16 11:46	NO
02	K-40	MBL	BLANK	pCi/g	2.43E-01	3.05E-01	7.52E-01					06/14/16 00:00	1.00E+00	06/17/16 11:46	NO
02	PA-231	MBL	BLANK	pCi/g	4.33E-01	1.14E+00	1.93E+00					06/14/16 00:00	1.00E+00	06/17/16 11:46	NO
02	PB-210	MBL	BLANK	pCi/g	4.48E-02	3.33E-01	5.25E-01					06/14/16 00:00	1.00E+00	06/17/16 11:46	NO
02	PB-212	MBL	BLANK	pCi/g	-2.68E-02	6.17E-02	9.37E-02					06/14/16 00:00	1.00E+00	06/17/16 11:46	NO
02	PB-214	MBL	BLANK	pCi/g	8.38E-02	7.34E-02	1.36E-01					06/14/16 00:00	1.00E+00	06/17/16 11:46	NO
02	TL-208	MBL	BLANK	pCi/g	-4.20E-02	1.24E-01	1.92E-01					06/14/16 00:00	1.00E+00	06/17/16 11:46	NO
03	AC-228	DUP	CP-5013 10-15	pCi/g	1.68E+00	2.24E-01	3.47E-01				OK	06/08/16 00:00	5.44E+02	06/17/16 08:56	YES
03	BI-214	DUP	CP-5013 10-15	pCi/g	8.84E-01	1.35E-01	1.54E-01				OK	06/08/16 00:00	5.44E+02	06/17/16 08:56	YES
03	K-40	DUP	CP-5013 10-15	pCi/g	2.34E+01	2.57E+00	9.94E-01				OK	06/08/16 00:00	5.44E+02	06/17/16 08:56	YES
03	PA-231	DUP	CP-5013 10-15	pCi/g	9.08E-01	1.44E+00	2.41E+00					06/08/16 00:00	5.44E+02	06/17/16 08:56	NO
03	PB-210	DUP	CP-5013 10-15	pCi/g	1.51E+00	1.52E+00	2.53E+00					06/08/16 00:00	5.44E+02	06/17/16 08:56	YES
03	PB-212	DUP	CP-5013 10-15	pCi/g	1.17E+00	1.63E-01	2.59E-01					06/08/16 00:00	5.44E+02	06/17/16 08:56	NO
03	PB-214	DUP	CP-5013 10-15	pCi/g	9.93E-01	1.37E-01	2.48E-01					06/08/16 00:00	5.44E+02	06/17/16 08:56	YES
03	TL-208	DUP	CP-5013 10-15	pCi/g	1.02E+00	1.64E-01	1.67E-01					06/08/16 00:00	5.44E+02	06/17/16 08:56	YES
04	AC-228	DO	CP-5013 10-15	pCi/g	1.59E+00	1.88E-01	4.49E-01					06/08/16 00:00	5.44E+02	06/17/16 10:08	YES
04	BI-214	DO	CP-5013 10-15	pCi/g	8.34E-01	1.50E-01	2.03E-01					06/08/16 00:00	5.44E+02	06/17/16 10:08	YES
04	K-40	DO	CP-5013 10-15	pCi/g	2.49E+01	2.71E+00	1.06E+00					06/08/16 00:00	5.44E+02	06/17/16 10:08	YES
04	PA-231	DO	CP-5013 10-15	pCi/g	1.89E+00	1.44E+00	2.49E+00					06/08/16 00:00	5.44E+02	06/17/16 10:08	NO
04	PB-210	DO	CP-5013 10-15	pCi/g	1.07E+00	1.51E+00	2.03E+00					06/08/16 00:00	5.44E+02	06/17/16 10:08	NO
04	PB-212	DO	CP-5013 10-15	pCi/g	1.55E+00	1.77E-01	2.47E-01					06/08/16 00:00	5.44E+02	06/17/16 10:08	YES
04	PB-214	DO	CP-5013 10-15	pCi/g	9.85E-01	1.37E-01	2.24E-01					06/08/16 00:00	5.44E+02	06/17/16 10:08	YES
04	TL-208	DO	CP-5013 10-15	pCi/g	1.16E+00	1.66E-01	1.05E-01					06/08/16 00:00	5.44E+02	06/17/16 10:08	YES
05	AC-228	TRG	CP-5011 00-02	pCi/g	1.70E+00	3.08E-01	4.42E-01					06/08/16 00:00	4.41E+02	06/17/16 08:56	YES
05	BI-214	TRG	CP-5011 00-02	pCi/g	1.66E+00	2.15E-01	2.35E-01					06/08/16 00:00	4.41E+02	06/17/16 08:56	YES
05	K-40	TRG	CP-5011 00-02	pCi/g	2.11E+01	2.66E+00	1.30E+00					06/08/16 00:00	4.41E+02	06/17/16 08:56	YES
05	PA-231	TRG	CP-5011 00-02	pCi/g	-2.22E+00	2.53E+00	2.81E+00					06/08/16 00:00	4.41E+02	06/17/16 08:56	NO
05	PB-210	TRG	CP-5011 00-02	pCi/g	1.98E+00	1.74E+00	2.88E+00					06/08/16 00:00	4.41E+02	06/17/16 08:56	YES
05	PB-212	TRG	CP-5011 00-02	pCi/g	1.24E+00	2.13E-01	2.64E-01					06/08/16 00:00	4.41E+02	06/17/16 08:56	YES
05	PB-214	TRG	CP-5011 00-02	pCi/g	1.63E+00	2.41E-01	2.73E-01					06/08/16 00:00	4.41E+02	06/17/16 08:56	YES
05	TL-208	TRG	CP-5011 00-02	pCi/g	1.17E+00	2.08E-01	1.24E-01					06/08/16 00:00	4.41E+02	06/17/16 08:56	YES
06	AC-228	TRG	CP-5011 02-05	pCi/g	1.71E+00	2.84E-01	4.20E-01					06/08/16 00:00	5.00E+02	06/17/16 08:57	YES
06	BI-214	TRG	CP-5011 02-05	pCi/g	1.38E+00	2.12E-01	9.01E-02					06/08/16 00:00	5.00E+02	06/17/16 08:57	YES
06	K-40	TRG	CP-5011 02-05	pCi/g	2.18E+01	2.72E+00	1.35E+00					06/08/16 00:00	5.00E+02	06/17/16 08:57	YES
06	PA-231	TRG	CP-5011 02-05	pCi/g	-2.21E-02	9.13E-01	3.58E+00					06/08/16 00:00	5.00E+02	06/17/16 08:57	NO

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
06	PB-210	TRG	CP-5011 02-05	pCi/g	1.62E-01	1.93E+00	2.47E+00					06/08/16 00:00	5.00E+02	06/17/16 08:57	NO
06	PB-212	TRG	CP-5011 02-05	pCi/g	1.72E+00	1.92E-01	2.83E-01					06/08/16 00:00	5.00E+02	06/17/16 08:57	YES
06	PB-214	TRG	CP-5011 02-05	pCi/g	1.16E+00	1.91E-01	3.39E-01					06/08/16 00:00	5.00E+02	06/17/16 08:57	YES
06	TL-208	TRG	CP-5011 02-05	pCi/g	1.27E+00	2.33E-01	1.58E-01					06/08/16 00:00	5.00E+02	06/17/16 08:57	YES
07	AC-228	TRG	CP-5011 05-8 5	pCi/g	2.00E+00	6.58E-01	1.04E+00					06/08/16 00:00	3.72E+02	06/17/16 09:10	YES
07	BI-214	TRG	CP-5011 05-8 5	pCi/g	1.38E+00	3.68E-01	2.41E-01					06/08/16 00:00	3.72E+02	06/17/16 09:10	YES
07	K-40	TRG	CP-5011 05-8 5	pCi/g	2.47E+01	4.39E+00	2.05E+00					06/08/16 00:00	3.72E+02	06/17/16 09:10	YES
07	PA-231	TRG	CP-5011 05-8 5	pCi/g	-2.50E-01	1.38E+00	7.28E+00					06/08/16 00:00	3.72E+02	06/17/16 09:10	NO
07	PB-210	TRG	CP-5011 05-8 5	pCi/g	1.53E+00	1.26E+00	2.01E+00					06/08/16 00:00	3.72E+02	06/17/16 09:10	NO
07	PB-212	TRG	CP-5011 05-8 5	pCi/g	2.24E+00	4.15E-01	4.82E-01					06/08/16 00:00	3.72E+02	06/17/16 09:10	YES
07	PB-214	TRG	CP-5011 05-8 5	pCi/g	1.59E+00	3.83E-01	6.91E-01					06/08/16 00:00	3.72E+02	06/17/16 09:10	YES
07	TL-208	TRG	CP-5011 05-8 5	pCi/g	1.88E+00	4.96E-01	1.42E-01					06/08/16 00:00	3.72E+02	06/17/16 09:10	YES
08	AC-228	TRG	CP-5011 8 5-15	pCi/g	1.84E+00	3.04E-01	4.85E-01					06/08/16 00:00	4.30E+02	06/17/16 10:09	YES
08	BI-214	TRG	CP-5011 8 5-15	pCi/g	9.35E-01	1.83E-01	2.75E-01					06/08/16 00:00	4.30E+02	06/17/16 10:09	YES
08	K-40	TRG	CP-5011 8 5-15	pCi/g	2.51E+01	3.05E+00	1.42E+00					06/08/16 00:00	4.30E+02	06/17/16 10:09	YES
08	PA-231	TRG	CP-5011 8 5-15	pCi/g	-1.04E+00	2.38E+00	2.85E+00					06/08/16 00:00	4.30E+02	06/17/16 10:09	NO
08	PB-210	TRG	CP-5011 8 5-15	pCi/g	1.97E+00	1.71E+00	2.83E+00					06/08/16 00:00	4.30E+02	06/17/16 10:09	YES
08	PB-212	TRG	CP-5011 8 5-15	pCi/g	1.53E+00	2.52E-01	2.48E-01					06/08/16 00:00	4.30E+02	06/17/16 10:09	YES
08	PB-214	TRG	CP-5011 8 5-15	pCi/g	1.04E+00	1.87E-01	2.68E-01					06/08/16 00:00	4.30E+02	06/17/16 10:09	YES
08	TL-208	TRG	CP-5011 8 5-15	pCi/g	1.26E+00	2.18E-01	1.27E-01					06/08/16 00:00	4.30E+02	06/17/16 10:09	YES
09	AC-228	TRG	CP-5017 00-02	pCi/g	1.19E+00	2.42E-01	4.01E-01					06/08/16 00:00	5.80E+02	06/17/16 10:09	YES
09	BI-214	TRG	CP-5017 00-02	pCi/g	9.77E-01	1.66E-01	2.00E-01					06/08/16 00:00	5.80E+02	06/17/16 10:09	YES
09	K-40	TRG	CP-5017 00-02	pCi/g	1.84E+01	2.33E+00	1.32E+00					06/08/16 00:00	5.80E+02	06/17/16 10:09	YES
09	PA-231	TRG	CP-5017 00-02	pCi/g	8.65E-01	1.70E+00	2.96E+00					06/08/16 00:00	5.80E+02	06/17/16 10:09	NO
09	PB-210	TRG	CP-5017 00-02	pCi/g	2.46E+00	1.65E+00	2.69E+00					06/08/16 00:00	5.80E+02	06/17/16 10:09	YES
09	PB-212	TRG	CP-5017 00-02	pCi/g	1.29E+00	1.58E-01	3.47E-01					06/08/16 00:00	5.80E+02	06/17/16 10:09	YES
09	PB-214	TRG	CP-5017 00-02	pCi/g	9.85E-01	1.47E-01	2.00E-01					06/08/16 00:00	5.80E+02	06/17/16 10:09	YES
09	TL-208	TRG	CP-5017 00-02	pCi/g	8.56E-01	1.84E-01	2.12E-01					06/08/16 00:00	5.80E+02	06/17/16 10:09	YES
10	AC-228	TRG	CP-5017 02-05	pCi/g	1.47E+00	2.02E-01	3.49E-01					06/08/16 00:00	5.50E+02	06/17/16 11:10	YES
10	BI-214	TRG	CP-5017 02-05	pCi/g	1.90E+00	1.41E-01	1.66E-01					06/08/16 00:00	5.50E+02	06/17/16 11:10	YES
10	K-40	TRG	CP-5017 02-05	pCi/g	1.89E+01	2.18E+00	9.91E-01					06/08/16 00:00	5.50E+02	06/17/16 11:10	YES
10	PA-231	TRG	CP-5017 02-05	pCi/g	1.11E+00	1.31E+00	2.21E+00					06/08/16 00:00	5.50E+02	06/17/16 11:10	NO
10	PB-210	TRG	CP-5017 02-05	pCi/g	1.67E+00	1.42E+00	2.35E+00					06/08/16 00:00	5.50E+02	06/17/16 11:10	YES
10	PB-212	TRG	CP-5017 02-05	pCi/g	1.24E+00	1.55E-01	2.59E-01					06/08/16 00:00	5.50E+02	06/17/16 11:10	YES
10	PB-214	TRG	CP-5017 02-05	pCi/g	1.05E+00	1.49E-01	2.32E-01					06/08/16 00:00	5.50E+02	06/17/16 11:10	YES
10	TL-208	TRG	CP-5017 02-05	pCi/g	1.11E+00	1.54E-01	1.43E-01					06/08/16 00:00	5.50E+02	06/17/16 11:10	YES
11	AC-228	TRG	CP-5017 05-10	pCi/g	2.30E+00	4.53E-01	7.03E-01					06/08/16 00:00	3.24E+02	06/17/16 11:10	YES
11	BI-214	TRG	CP-5017 05-10	pCi/g	1.27E+00	2.59E-01	5.22E-01					06/08/16 00:00	3.24E+02	06/17/16 11:10	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
11	K-40	TRG	CP-5017 05-10	pCi/g	2.71E+01	3.57E+00	1.75E+00					06/08/16 00:00	3.24E+02	06/17/16 11:10	YES
11	PA-231	TRG	CP-5017 05-10	pCi/g	7.22E+00	3.16E+00	5.45E+00					06/08/16 00:00	3.24E+02	06/17/16 11:10	NO
11	PB-210	TRG	CP-5017 05-10	pCi/g	2.35E+00	2.28E+00	3.79E+00					06/08/16 00:00	3.24E+02	06/17/16 11:10	YES
11	PB-212	TRG	CP-5017 05-10	pCi/g	2.45E+00	2.81E-01	3.11E-01					06/08/16 00:00	3.24E+02	06/17/16 11:10	YES
11	PB-214	TRG	CP-5017 05-10	pCi/g	1.46E+00	2.69E-01	4.73E-01					06/08/16 00:00	3.24E+02	06/17/16 11:10	YES
11	TL-208	TRG	CP-5017 05-10	pCi/g	1.63E+00	3.18E-01	2.43E-01					06/08/16 00:00	3.24E+02	06/17/16 11:10	YES
12	AC-228	TRG	CP-5017 10-15	pCi/g	2.14E+00	3.07E-01	5.27E-01					06/08/16 00:00	3.45E+02	06/17/16 12:11	YES
12	BI-214	TRG	CP-5017 10-15	pCi/g	1.37E+00	2.22E-01	3.03E-01					06/08/16 00:00	3.45E+02	06/17/16 12:11	YES
12	K-40	TRG	CP-5017 10-15	pCi/g	3.00E+01	3.46E+00	1.58E+00					06/08/16 00:00	3.45E+02	06/17/16 12:11	YES
12	PA-231	TRG	CP-5017 10-15	pCi/g	3.29E+00	2.03E+00	3.60E+00					06/08/16 00:00	3.45E+02	06/17/16 12:11	NO
12	PB-210	TRG	CP-5017 10-15	pCi/g	1.99E+00	2.18E+00	3.64E+00					06/08/16 00:00	3.45E+02	06/17/16 12:11	YES
12	PB-212	TRG	CP-5017 10-15	pCi/g	1.70E+00	2.44E-01	3.92E-01					06/08/16 00:00	3.45E+02	06/17/16 12:11	NO
12	PB-214	TRG	CP-5017 10-15	pCi/g	1.35E+00	2.22E-01	3.69E-01					06/08/16 00:00	3.45E+02	06/17/16 12:11	YES
12	TL-208	TRG	CP-5017 10-15	pCi/g	1.70E+00	2.57E-01	2.64E-01					06/08/16 00:00	3.45E+02	06/17/16 12:11	YES

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-5013 10-15	06/08/16 00:00	543.5600				0.00		
04	DO	CP-5013 10-15	06/08/16 00:00	543.5600				0.00		
05	TRG	CP-5011 00-02	06/08/16 00:00	440.6300				0.00		
06	TRG	CP-5011 02-05	06/08/16 00:00	499.5400				0.00		
07	TRG	CP-5011 05-8 5	06/08/16 00:00	372.4800				0.00		
08	TRG	CP-5011 8 5-15	06/08/16 00:00	429.6900				0.00		
09	TRG	CP-5017 00-02	06/08/16 00:00	580.2800				0.00		
10	TRG	CP-5017 02-05	06/08/16 00:00	550.1400				0.00		
11	TRG	CP-5017 05-10	06/08/16 00:00	324.2400				0.00		
12	TRG	CP-5017 10-15	06/08/16 00:00	345.1000				0.00		

WKS

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 Analytincs (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* $\mu\text{ps}/\text{gram}$	This Source μps	Uncertainty*, %			Calibration Method*
					u_A	u_B	U	
Am-241	59.5	1.580E+05	—	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 Analytincs' 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		Run	Analysis Code	Rpt Units	Lab Deadline	Technician	
16-06065		1	Gamma	grams	7/5/2016	KSALLINGS	

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 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						1.0000E+00	1.0000E+00				
03	CP-5013 10-15	DUP						5.4356E+02	5.4356E+02				
04	CP-5013 10-15	DO						5.4356E+02	5.4356E+02				
05	CP-5011 00-02	TRG						4.4063E+02	4.4063E+02				
06	CP-5011 02-05	TRG						4.9954E+02	4.9954E+02				
07	CP-5011 05-8 5	TRG						3.7248E+02	3.7248E+02				
08	CP-5011 8 5-15	TRG						4.2969E+02	4.2969E+02				
09	CP-5017 00-02	TRG						5.8028E+02	5.8028E+02				
10	CP-5017 02-05	TRG						5.5014E+02	5.5014E+02				
11	CP-5017 05-10	TRG						3.2424E+02	3.2424E+02				
12	CP-5017 10-15	TRG						3.4510E+02	3.4510E+02				

Comments

Technician: Kenny Salas Date: 6/17/16

**Rough Sample Preparation
 Log Book**

Work Order		Date Received in Prep		Date Sealed		Date Returned		Technician	
16-06065		6/16/2016		6/17/2016		6/18/2016		KSALLINGS	
Lab Deadline		Date Received in Prep		Date Sealed		Date Returned		Technician	
7/5/2016		6/16/2016		6/17/2016		6/18/2016		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-5013 10-15	14.6300	635.9100	821.9000	807.2700	621.2800	23.04%	76.96%	0.0000	0.0000		
05	CP-5011 00-02	14.6100	514.7400	611.2800	596.6700	500.1300	16.18%	83.82%	0.0000	0.0000		
06	CP-5011 02-05	14.5000	581.1900	701.5700	687.0700	566.6900	17.52%	82.48%	0.0000	0.0000		
07	CP-5011 05-8 5	14.4800	444.7800	546.0500	531.5700	430.3000	19.05%	80.95%	0.0000	0.0000		
08	CP-5011 8 5-15	14.5000	517.9600	661.9600	647.4600	503.4600	22.24%	77.76%	0.0000	0.0000		
09	CP-5017 00-02	14.5600	661.8900	785.7400	771.1800	647.3300	16.06%	83.94%	0.0000	0.0000		
10	CP-5017 02-05	14.4800	862.1200	1058.0200	1043.5400	847.6400	18.77%	81.23%	0.0000	0.0000		
11	CP-5017 05-10	14.4900	394.1800	490.7400	476.2500	379.6900	20.28%	79.72%	0.0000	0.0000		
12	CP-5017 10-15	14.4700	412.0000	521.8300	507.3600	397.5300	21.65%	78.35%	0.0000	0.0000		

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

Technician: Kenny Scott

Date: Analysis: Rough Prep Logbook

Analysis: Gamma Page No. 9703

Analysis Report for 1606065-01
GAS-1302

✓
6117

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606065-01
Sample Description : GAS-1302
Sample Type : SOIL

Sample Size : 7.360E+02 grams
Facility : Countroom

Sample Taken On : 7/1/2013 8:51:29AM
Acquisition Started : 6/17/2016 10:11:17AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE4
Geometry : GAS-1402
Live Time : 1800.0 seconds
Real Time : 1835.0 seconds

Dead Time : 1.91 %

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 : 39079

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606065-01

GAS-1302

PEAK LOCATE REPORT

Peak Locate Performed on : 6/17/2016 10:41:55AM
 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	22.40	21.65	0.0000	0.00
2	32.01	31.26	0.0000	0.00
3	53.81	53.07	0.0000	0.00
4	59.57	58.84	0.0000	0.00
5	68.33	67.59	0.0000	0.00
6	87.92	87.19	0.0000	0.00
7	121.91	121.20	0.0000	0.00
8	137.13	136.43	0.0000	0.00
9	166.94	166.24	0.0000	0.00
10	502.92	502.37	0.0000	0.00
11	661.91	661.45	0.0000	0.00
12	807.17	806.78	0.0000	0.00
13	1045.21	1044.94	0.0000	0.00
14	1106.36	1106.13	0.0000	0.00
15	1133.39	1133.18	0.0000	0.00
16	1173.60	1173.40	0.0000	0.00
17	1332.85	1332.75	0.0000	0.00
18	1438.35	1438.31	0.0000	0.00
19	1557.49	1557.53	0.0000	0.00
20	1580.10	1580.14	0.0000	0.00
21	1802.95	1803.14	0.0000	0.00
22	2010.33	2010.66	0.0000	0.00
23	2052.05	2052.41	0.0000	0.00
24	2165.14	2165.58	0.0000	0.00
25	2246.63	2247.12	0.0000	0.00
26	2283.40	2283.92	0.0000	0.00
27	2290.79	2291.32	0.0000	0.00
28	2506.57	2507.26	0.0000	0.00
29	2614.87	2615.64	0.0000	0.00

? = Adjacent peak noted
 Errors quoted at 2.000sigma

Analysis Report for 1606065-01

GAS-1302

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 10:41:55AM

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	4.98E+04	664.85	4.56E+04	2.43
2	32.01	29 -	34	31.26	1.08E+03	220.49	8.92E+03	2.06
M	3	43 -	63	53.07	1.75E+04	951.93	5.09E+04	6.63
m	4	43 -	63	58.84	5.54E+04	587.69	1.60E+04	2.27
5	68.33	65 -	71	67.59	5.10E+02	295.69	1.56E+04	3.28
6	87.92	80 -	93	87.19	1.82E+04	555.94	2.59E+04	2.41
7	121.91	115 -	126	121.20	3.17E+03	359.42	1.45E+04	2.47
8	137.13	133 -	140	136.43	2.59E+02	246.63	9.93E+03	1.96
9	166.94	163 -	170	166.24	2.75E+02	229.58	8.60E+03	2.87
10	502.92	498 -	506	502.37	1.72E+02	158.38	3.72E+03	4.23
11	661.91	656 -	665	661.45	1.22E+04	261.68	2.83E+03	2.54
12	807.17	802 -	811	806.78	2.16E+02	136.05	2.51E+03	4.76
13	1045.21	1042 -	1047	1044.94	1.05E+02	85.35	1.36E+03	2.94
14	1106.36	1102 -	1110	1106.13	1.28E+02	121.40	2.18E+03	2.69
15	1133.39	1129 -	1138	1133.18	1.28E+02	101.51	1.40E+03	5.31
16	1173.60	1166 -	1179	1173.40	9.52E+03	230.59	1.69E+03	2.75
17	1332.85	1327 -	1340	1332.75	8.62E+03	191.92	2.38E+02	2.81
18	1438.35	1433 -	1444	1438.31	2.44E+01	20.78	4.12E+01	1.49
19	1557.49	1550 -	1562	1557.53	1.62E+01	21.25	4.56E+01	6.39
20	1580.10	1574 -	1585	1580.14	2.98E+01	16.12	1.65E+01	6.52
21	1802.95	1799 -	1810	1803.14	1.06E+01	13.71	1.87E+01	3.64
22	2010.33	2002 -	2016	2010.66	1.65E+01	16.76	2.30E+01	8.35
23	2052.05	2046 -	2059	2052.41	2.10E+01	14.49	1.40E+01	3.93
24	2165.14	2162 -	2168	2165.58	6.90E+00	8.03	6.20E+00	1.09
25	2246.63	2244 -	2250	2247.12	7.20E+00	8.03	5.60E+00	3.47
26	2283.40	2279 -	2288	2283.92	1.10E+01	10.68	1.00E+01	2.04
27	2290.79	2289 -	2296	2291.32	7.54E+00	10.20	1.29E+01	1.24
28	2506.57	2502 -	2510	2507.26	3.71E+01	13.28	3.72E+00	2.14
29	2614.87	2612 -	2618	2615.64	1.10E+01	6.63	0.00E+00	2.56

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 1606065-01

GAS-1302

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 10:41:55AM

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	22.40	19 -	25	4.98E+04	664.85	4.56E+04	4.05E+02
2	32.01	29 -	34	1.08E+03	220.49	8.92E+03	1.73E+02
M	3	43 -	63	1.75E+04	951.93	5.09E+04	3.71E+02
m	4	43 -	63	5.54E+04	587.69	1.60E+04	2.08E+02
5	68.33	65 -	71	5.10E+02	295.69	1.56E+04	2.40E+02
6	87.92	80 -	93	1.82E+04	555.94	2.59E+04	4.00E+02
7	121.91	115 -	126	3.17E+03	359.42	1.45E+04	2.81E+02
8	137.13	133 -	140	2.59E+02	246.63	9.93E+03	2.01E+02
9	166.94	163 -	170	2.75E+02	229.58	8.60E+03	1.87E+02
10	502.92	498 -	506	1.72E+02	158.38	3.72E+03	1.28E+02
11	661.91	656 -	665	1.22E+04	261.68	2.83E+03	1.15E+02
12	807.17	802 -	811	2.16E+02	136.05	2.51E+03	1.09E+02
13	1045.21	1042 -	1047	1.05E+02	85.35	1.36E+03	6.81E+01
14	1106.36	1102 -	1110	1.28E+02	121.40	2.18E+03	9.80E+01
15	1133.39	1129 -	1138	1.28E+02	101.51	1.40E+03	8.13E+01
16	1173.60	1166 -	1179	9.52E+03	230.59	1.69E+03	1.01E+02
17	1332.85	1327 -	1340	8.62E+03	191.92	2.38E+02	3.97E+01
18	1438.35	1433 -	1444	2.44E+01	20.78	4.12E+01	1.50E+01
19	1557.49	1550 -	1562	1.62E+01	21.25	4.56E+01	1.62E+01
20	1580.10	1574 -	1585	2.98E+01	16.12	1.65E+01	9.76E+00
21	1802.95	1799 -	1810	1.06E+01	13.71	1.87E+01	9.91E+00
22	2010.33	2002 -	2016	1.65E+01	16.76	2.30E+01	1.20E+01
23	2052.05	2046 -	2059	2.10E+01	14.49	1.40E+01	9.23E+00
24	2165.14	2162 -	2168	6.90E+00	8.03	6.20E+00	4.99E+00
25	2246.63	2244 -	2250	7.20E+00	8.03	5.60E+00	4.91E+00
26	2283.40	2279 -	2288	1.10E+01	10.68	1.00E+01	6.88E+00
27	2290.79	2289 -	2296	7.54E+00	10.20	1.29E+01	7.06E+00
28	2506.57	2502 -	2510	3.71E+01	13.28	3.72E+00	4.33E+00
29	2614.87	2612 -	2618	1.10E+01	6.63	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 1606065-01
GAS-1302

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/17/2016 10:41:55AM

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	4.98E+04	664.85	4.56E+04	.....
2	32.01	29 -	34	31.26	1.08E+03	220.49	8.92E+03	.....
M	3	43 -	63	53.07	1.75E+04	951.93	5.09E+04	.....
m	4	43 -	63	58.84	5.54E+04	587.69	1.60E+04	AM-241
5	68.33	65 -	71	67.59	5.10E+02	295.69	1.56E+04	TI-44 TA-182 TH-230
6	87.92	80 -	93	87.19	1.82E+04	555.94	2.59E+04	CD-109 SN-126 LU-176
7	121.91	115 -	126	121.20	3.17E+03	359.42	1.45E+04	EU-152 CO-57 SE-75
8	137.13	133 -	140	136.43	2.59E+02	246.63	9.93E+03	CO-57
9	166.94	163 -	170	166.24	2.75E+02	229.58	8.60E+03	.....
10	502.92	498 -	506	502.37	1.72E+02	158.38	3.72E+03	.....
11	661.91	656 -	665	661.45	1.22E+04	261.68	2.83E+03	CS-137
12	807.17	802 -	811	806.78	2.16E+02	136.05	2.51E+03	.....
13	1045.21	1042 -	1047	1044.94	1.05E+02	85.35	1.36E+03	.....
14	1106.36	1102 -	1110	1106.13	1.28E+02	121.40	2.18E+03	.....
15	1133.39	1129 -	1138	1133.18	1.28E+02	101.51	1.40E+03	.....
16	1173.60	1166 -	1179	1173.40	9.52E+03	230.59	1.69E+03	CO-60
17	1332.85	1327 -	1340	1332.75	8.62E+03	191.92	2.38E+02	CO-60
18	1438.35	1433 -	1444	1438.31	2.44E+01	20.78	4.12E+01	.....
19	1557.49	1550 -	1562	1557.53	1.62E+01	21.25	4.56E+01	.....
20	1580.10	1574 -	1585	1580.14	2.98E+01	16.12	1.65E+01	.....
21	1802.95	1799 -	1810	1803.14	1.06E+01	13.71	1.87E+01	.....
22	2010.33	2002 -	2016	2010.66	1.65E+01	16.76	2.30E+01	.....
23	2052.05	2046 -	2059	2052.41	2.10E+01	14.49	1.40E+01	.....
24	2165.14	2162 -	2168	2165.58	6.90E+00	8.03	6.20E+00	.....
25	2246.63	2244 -	2250	2247.12	7.20E+00	8.03	5.60E+00	.....
26	2283.40	2279 -	2288	2283.92	1.10E+01	10.68	1.00E+01	.....
27	2290.79	2289 -	2296	2291.32	7.54E+00	10.20	1.29E+01	.....
28	2506.57	2502 -	2510	2507.26	3.71E+01	13.28	3.72E+00	.....
29	2614.87	2612 -	2618	2615.64	1.10E+01	6.63	0.00E+00	TL-208

Analysis Report for 1606065-01
GAS-1302

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/17/2016 10:41:55AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	22.40	4.98E+04	664.85	3.04E-02	1.78E-03
	2	32.01	1.08E+03	220.49	2.91E-02	1.78E-03
M	3	53.81	1.75E+04	951.93	2.49E-02	1.78E-03
m	4	59.57	5.54E+04	587.69	2.39E-02	1.78E-03
	5	68.33	5.10E+02	295.69	2.24E-02	1.73E-03
	6	87.92	1.82E+04	555.94	1.96E-02	1.63E-03
	7	121.91	3.17E+03	359.42	1.60E-02	1.53E-03
	8	137.13	2.59E+02	246.63	1.47E-02	1.42E-03
	9	166.94	2.75E+02	229.58	1.27E-02	1.21E-03
	10	502.92	1.72E+02	158.38	4.68E-03	5.73E-04
	11	661.91	1.22E+04	261.68	3.57E-03	3.40E-04
	12	807.17	2.16E+02	136.05	2.94E-03	2.59E-04
	13	1045.21	1.05E+02	85.35	2.29E-03	1.89E-04
	14	1106.36	1.28E+02	121.40	2.17E-03	1.81E-04
	15	1133.39	1.28E+02	101.51	2.12E-03	1.78E-04
	16	1173.60	9.52E+03	230.59	2.05E-03	1.73E-04
	17	1332.85	8.62E+03	191.92	1.83E-03	2.16E-04
	18	1438.35	2.44E+01	20.78	1.71E-03	1.94E-04
	19	1557.49	1.62E+01	21.25	1.59E-03	1.69E-04
	20	1580.10	2.98E+01	16.12	1.57E-03	1.64E-04
	21	1802.95	1.06E+01	13.71	1.41E-03	1.18E-04
	22	2010.33	1.65E+01	16.76	1.29E-03	1.11E-04
	23	2052.05	2.10E+01	14.49	1.27E-03	1.11E-04
	24	2165.14	6.90E+00	8.03	1.22E-03	1.11E-04
	25	2246.63	7.20E+00	8.03	1.19E-03	1.11E-04
	26	2283.40	1.10E+01	10.68	1.18E-03	1.11E-04
	27	2290.79	7.54E+00	10.20	1.17E-03	1.11E-04
	28	2506.57	3.71E+01	13.28	1.10E-03	1.11E-04
	29	2614.87	1.10E+01	6.63	1.07E-03	1.11E-04

Analysis Report for 1606065-01
GAS-1302

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 : 6/17/2016 10:41:55AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038679.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	22.40	4.98E+04	664.85		4.98E+04	6.65E+02
	2	32.01	1.08E+03	220.49		1.08E+03	2.20E+02
M	3	53.81	1.75E+04	951.93	1.87E+00	1.53E+00	1.75E+04
m	4	59.57	5.54E+04	587.69		5.54E+04	5.88E+02
	5	68.33	5.10E+02	295.69		5.10E+02	2.96E+02
	6	87.92	1.82E+04	555.94		1.82E+04	5.56E+02
	7	121.91	3.17E+03	359.42		3.17E+03	3.59E+02
	8	137.13	2.59E+02	246.63		2.59E+02	2.47E+02
	9	166.94	2.75E+02	229.58		2.75E+02	2.30E+02
	10	502.92	1.72E+02	158.38		1.72E+02	1.58E+02
	11	661.91	1.22E+04	261.68	9.53E-01	1.28E+00	1.22E+04
	12	807.17	2.16E+02	136.05		2.16E+02	1.36E+02
	13	1045.21	1.05E+02	85.35		1.05E+02	8.53E+01
	14	1106.36	1.28E+02	121.40		1.28E+02	1.21E+02
	15	1133.39	1.28E+02	101.51		1.28E+02	1.02E+02
	16	1173.60	9.52E+03	230.59		9.52E+03	2.31E+02
	17	1332.85	8.62E+03	191.92		8.62E+03	1.92E+02
	18	1438.35	2.44E+01	20.78		2.44E+01	2.08E+01
	19	1557.49	1.62E+01	21.25		1.62E+01	2.13E+01
	20	1580.10	2.98E+01	16.12		2.98E+01	1.61E+01
	21	1802.95	1.06E+01	13.71		1.06E+01	1.37E+01
	22	2010.33	1.65E+01	16.76		1.65E+01	1.68E+01
	23	2052.05	2.10E+01	14.49		2.10E+01	1.45E+01
	24	2165.14	6.90E+00	8.03		6.90E+00	8.03E+00
	25	2246.63	7.20E+00	8.03		7.20E+00	8.03E+00
	26	2283.40	1.10E+01	10.68		1.10E+01	1.07E+01
	27	2290.79	7.54E+00	10.20		7.54E+00	1.02E+01
	28	2506.57	3.71E+01	13.28		3.71E+01	1.33E+01
	29	2614.87	1.10E+01	6.63		1.10E+01	6.63E+00

Analysis Report for 1606065-01

GAS-1302

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

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/17/2016 10:41:55AM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038679.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	4.98E+04	664.85			4.98E+04	6.65E+02
	2	1.08E+03	220.49			1.08E+03	2.20E+02
M	3	1.75E+04	951.93	1.87E+00	1.53E+00	1.75E+04	9.52E+02
m	4	5.54E+04	587.69			5.54E+04	5.88E+02
	5	5.10E+02	295.69			5.10E+02	2.96E+02
	6	1.82E+04	555.94			1.82E+04	5.56E+02
	7	3.17E+03	359.42			3.17E+03	3.59E+02
	8	2.59E+02	246.63			2.59E+02	2.47E+02
	9	2.75E+02	229.58			2.75E+02	2.30E+02
	10	1.72E+02	158.38			1.72E+02	1.58E+02
	11	1.22E+04	261.68	9.53E-01	1.28E+00	1.22E+04	2.62E+02
	12	2.16E+02	136.05			2.16E+02	1.36E+02
	13	1.05E+02	85.35			1.05E+02	8.53E+01
	14	1.28E+02	121.40			1.28E+02	1.21E+02
	15	1.28E+02	101.51			1.28E+02	1.02E+02
	16	9.52E+03	230.59			9.52E+03	2.31E+02
	17	8.62E+03	191.92			8.62E+03	1.92E+02
	18	2.44E+01	20.78			2.44E+01	2.08E+01
	19	1.62E+01	21.25			1.62E+01	2.13E+01
	20	2.98E+01	16.12			2.98E+01	1.61E+01
	21	1.06E+01	13.71			1.06E+01	1.37E+01
	22	1.65E+01	16.76			1.65E+01	1.68E+01
	23	2.10E+01	14.49			2.10E+01	1.45E+01
	24	6.90E+00	8.03			6.90E+00	8.03E+00
	25	7.20E+00	8.03			7.20E+00	8.03E+00
	26	1.10E+01	10.68			1.10E+01	1.07E+01
	27	7.54E+00	10.20			7.54E+00	1.02E+01
	28	3.71E+01	13.28			3.71E+01	1.33E+01
	29	1.10E+01	6.63			1.10E+01	6.63E+00

Analysis Report for 1606065-01
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	0.913	122.06 *	85.51	7.55E+01	1.12E+01
		136.48 *	10.60	5.41E+01	5.18E+01
CO-60	0.976	1173.22 *	100.00	1.40E+02	1.22E+01
		1332.49 *	100.00	1.42E+02	1.71E+01
CD-109	0.971	88.03 *	3.72	2.56E+03	2.73E+02
SN-126	0.981	87.57 *	37.00	5.11E+01	4.53E+00
CS-137	0.989	661.65 *	85.12	8.76E+01	8.56E+00
AM-241	1.000	59.54 *	35.90	1.32E+02	9.96E+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 : 6/17/2016 10:41:55AM
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	2.76756E+01	0.67		
2	32.01	6.01975E-01	10.17		

Analysis Report for 1606065-01
GAS-1302

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M 3	53.81	9.73686E+00	2.72		
5	68.33	2.83276E-01	28.99	Tol.	TA-182 TH-230
9	166.94	1.52690E-01	41.77		
10	502.92	9.55239E-02	46.06		
12	807.17	1.19861E-01	31.53		
13	1045.21	5.84987E-02	40.53		
14	1106.36	7.09960E-02	47.50		
15	1133.39	7.09665E-02	39.73		
18	1438.35	1.35617E-02	42.57		
19	1557.49	8.99573E-03	65.63		
20	1580.10	1.65278E-02	27.10		
21	1802.95	5.91667E-03	64.37		
22	2010.33	9.16667E-03	50.77		
23	2052.05	1.16667E-02	34.50		
24	2165.14	3.83333E-03	58.20		
25	2246.63	4.00000E-03	55.77		
26	2283.40	6.11111E-03	48.53		
27	2290.79	4.18651E-03	67.66		
28	2506.57	2.06339E-02	17.87	Sum	
29	2614.87	6.11111E-03	30.15	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	0.91	122.06 *	85.51	7.55E+01	1.12E+01
		136.48 *	10.60	5.41E+01	5.18E+01
CO-60	0.97	1173.22 *	100.00	1.40E+02	1.22E+01
		1332.49 *	100.00	1.42E+02	1.71E+01
CD-109	0.97	88.03 *	3.72	2.56E+03	2.73E+02
SN-126	0.98	87.57 *	37.00	5.11E+01	4.53E+00

Analysis Report for 1606065-01
GAS-1302

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CS-137	0.98	661.65 *	85.12	8.76E+01	8.56E+00
AM-241	1.00	59.54 *	35.90	1.32E+02	9.96E+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
CO-57	0.913	7.45E+01	1.10E+01	
CO-60	0.976	1.41E+02	9.94E+00	
? CD-109	0.971	2.56E+03	2.73E+02	
? SN-126	0.981	5.11E+01	4.53E+00	
CS-137	0.989	8.76E+01	8.56E+00	
AM-241	1.000	1.32E+02	9.96E+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 1606065-01
GAS-1302

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 10:41:55AM
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	2.76756E+01	0.67		
2	32.01	6.01975E-01	10.17		
M 3	53.81	9.73686E+00	2.72		
5	68.33	2.83276E-01	28.99	Tol.	TA-182 TH-230
9	166.94	1.52690E-01	41.77		
10	502.92	9.55239E-02	46.06		
12	807.17	1.19861E-01	31.53		
13	1045.21	5.84987E-02	40.53		
14	1106.36	7.09960E-02	47.50		
15	1133.39	7.09665E-02	39.73		
18	1438.35	1.35617E-02	42.57		
19	1557.49	8.99573E-03	65.63		
20	1580.10	1.65278E-02	27.10		
21	1802.95	5.91667E-03	64.37		
22	2010.33	9.16667E-03	50.77		
23	2052.05	1.16667E-02	34.50		
24	2165.14	3.83333E-03	58.20		
25	2246.63	4.00000E-03	55.77		
26	2283.40	6.11111E-03	48.53		
27	2290.79	4.18651E-03	67.66		
28	2506.57	2.06339E-02	17.87	Sum	
29	2614.87	6.11111E-03	30.15	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 1606065-01

GAS-1302

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	3.74E+06	1.18E+07	1.18E+07
+	NA-22	1274.54	99.94	4.18E-01	1.48E+00	1.48E+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
+	AL-26	1808.65	99.76	8.73E-03	3.01E-01	3.01E-01
+	K-40	1460.81	10.67	5.01E-01	3.15E+00	3.15E+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	4.71E-01	4.71E-01
		78.34	96.00	-1.36E-01		5.15E-01
+	SC-46	889.25	99.98	-4.29E+03	1.06E+04	1.06E+04
		1120.51	99.99	4.78E+03		1.08E+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	-1.55E+12	4.22E+12	4.22E+12
+	MN-54	834.83	99.97	4.25E+00	1.38E+01	1.38E+01
+	CO-56	846.75	99.96	9.52E+03	1.42E+04	1.75E+04
		1037.75	14.03	3.38E+03		1.42E+05
		1238.25	67.00	-6.21E+02		1.46E+04
		1771.40	15.51	-3.06E+03		2.75E+04
		2598.48	16.90	3.07E+03		1.42E+04
+	CO-57	122.06	* 85.51	7.55E+01	1.34E+01	1.34E+01
		136.48	* 10.60	5.41E+01		8.46E+01
+	CO-58	810.76	99.40	-7.84E+03	4.74E+04	4.74E+04
+	FE-59	1099.22	56.50	3.30E+05	2.93E+07	5.31E+07
		1291.56	43.20	1.65E+06		2.93E+07
+	CO-60	1173.22	* 100.00	1.40E+02	1.36E+00	3.00E+00
		1332.49	* 100.00	1.42E+02		1.36E+00
+	ZN-65	1115.52	50.75	5.77E+01	6.37E+01	6.37E+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	1.22E+04	4.40E+02	1.74E+03
		136.00	59.20	-1.26E+01		4.40E+02
		264.65	59.80	-1.67E+02		5.93E+02
		279.53	25.20	-1.91E+02		1.43E+03
		400.65	11.40	-5.44E+02		3.94E+03
+	RB-82	776.52	13.00	1.52E+13	4.81E+13	4.81E+13
+	RB-83	520.41	46.00	-8.24E+02	1.18E+04	1.18E+04
		529.64	30.30	-1.74E+03		1.79E+04
		552.65	16.40	-5.51E+03		3.32E+04
+	KR-85	513.99	0.43	6.16E+01	2.56E+02	2.56E+02
+	SR-85	513.99	99.27	2.35E+04	9.76E+04	9.76E+04

Analysis Report for 1606065-01

GAS-1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02	93.40	4.93E+02	5.01E+02	1.76E+03
		1836.01	99.38	2.10E+02		5.01E+02
+	NB-93M	16.57	9.43	-1.54E+02	5.05E+00	5.05E+00
+	NB-94	702.63	100.00	3.67E-01	1.00E+00	1.00E+00
		871.10	100.00	-2.69E-01		1.36E+00
+	NB-95	765.79	99.81	-2.14E+08	2.11E+09	2.11E+09
+	@ NB-95M	235.69	25.00	1.00E+26	1.00E+26	1.00E+26
+	ZR-95	724.18	43.70	2.49E+03	2.33E+05	2.85E+05
		756.72	55.30	4.46E+04		2.33E+05
+	@ 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	2.70E+07	1.96E+08	1.96E+08
+	RU-106	621.84	9.80	7.91E+00	7.39E+01	7.39E+01
+	AG-108M	433.93	89.90	-1.08E-01	1.04E+00	1.04E+00
		614.37	90.40	3.31E-01		1.06E+00
		722.95	90.50	1.22E-01		1.14E+00
+	CD-109	88.03	* 3.72	2.56E+03	1.13E+02	1.13E+02
+	AG-110M	657.75	93.14	-3.13E-01	3.16E+01	5.05E+01
		677.61	10.53	-6.35E+00		1.85E+02
		706.67	16.46	-3.75E+01		1.20E+02
		763.93	21.98	-2.02E+01		9.82E+01
		884.67	71.63	2.56E+01		3.90E+01
		1384.27	23.94	5.00E+00		3.16E+01
+	CD-113M	263.70	0.02	-1.71E+03	3.38E+03	3.38E+03
+	SN-113	255.12	1.93	9.79E+03	8.79E+02	2.36E+04
		391.69	64.90	4.72E+02		8.79E+02
+	TE123M	159.00	84.10	-1.65E+02	3.22E+02	3.22E+02
+	SB-124	602.71	97.87	-6.53E+04	1.73E+05	2.44E+05
		645.85	7.26	-7.00E+05		3.51E+06
		722.78	11.10	3.97E+05		2.34E+06
		1691.02	49.00	4.33E+04		1.73E+05
+	I-125	35.49	6.49	-3.02E+06	1.24E+06	1.24E+06
+	SB-125	176.33	6.89	-1.38E+01	6.55E+00	1.64E+01
		427.89	29.33	2.91E+00		6.55E+00
		463.38	10.35	-4.10E+00		2.02E+01
		600.56	17.80	5.52E+00		1.11E+01
		635.90	11.32	1.40E+00		1.86E+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	5.11E+01	2.25E+00	2.25E+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	-3.06E+00	6.83E-01	6.83E-01
		33.60	13.20	-1.40E+00		2.26E+00

Analysis Report for 1606065-01

GAS-1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	I-129	39.58	7.52	-1.96E+01	6.83E-01	4.48E+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	-8.24E-01	1.58E+00	1.81E+00
		302.84	17.80	-2.69E-01		4.84E+00
		356.01	60.00	1.35E-01		1.58E+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	1.72E+00	2.56E+00	2.92E+01
		569.32	15.43	2.33E+00		1.57E+01
		604.70	97.60	-9.88E-01		2.56E+00
		795.84	85.40	-2.08E-01		3.56E+00
		801.93	8.73	-5.06E+00		3.62E+01
+	CS-135	268.24	16.00	9.80E-01	4.28E+00	4.28E+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	8.76E+01	1.68E+00	1.68E+00
+	LA-138	788.74	34.00	-6.31E-01	5.74E-01	3.22E+00
		1435.80	66.00	2.17E-01		5.74E-01
+	CE-139	165.85	80.35	-1.03E+01	1.56E+02	1.56E+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	0.00E+00		1.00E+26
+	CE-141	145.44	48.40	-3.25E+09	1.08E+10	1.08E+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	1.07E+00	6.37E+01	6.37E+01
+	PM-144	476.78	42.00	1.26E+01	7.43E+00	1.87E+01

Analysis Report for 1606065-01

GAS-1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-144	618.01	98.60	-4.18E+00	7.43E+00	7.43E+00
		696.49	99.49	-1.89E+00		7.81E+00
+	PM-145	36.85	21.70	-5.68E+00	8.72E-01	1.59E+00
		37.36	39.70	-3.93E+00		8.72E-01
		42.30	15.10	-4.53E+00		2.90E+00
		72.40	2.31	6.68E+00		2.22E+01
+	PM-146	453.90	39.94	2.18E-01	3.56E+00	3.56E+00
		735.90	14.01	-3.30E-01		1.07E+01
		747.13	13.10	6.94E+00		1.19E+01
+	@ 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	2.11E+01	2.76E+00	3.13E+00
		244.69	5.40	9.54E-01		1.45E+01
		344.27	19.13	1.25E+00		4.66E+00
		778.89	9.20	-5.39E+00		1.39E+01
		964.01	10.40	8.62E+00		1.75E+01
		1085.78	7.22	3.75E+00		2.45E+01
		1112.02	9.60	-2.29E-01		1.81E+01
		1407.95	14.94	-2.90E-01		2.76E+00
+	GD-153	97.43	31.30	-1.98E+00	2.88E+01	2.88E+01
		103.18	22.20	-3.38E+00		4.16E+01
+	EU-154	123.07	40.50	1.04E+01	1.72E+00	1.72E+00
		723.30	19.70	6.96E-01		6.53E+00
		873.19	11.50	5.91E+00		1.50E+01
		996.32	10.30	5.59E-02		1.76E+01
		1004.76	17.90	-1.79E+00		9.98E+00
		1274.45	35.50	6.74E-01		2.39E+00
+	EU-155	86.50	30.90	9.06E+01	3.06E+00	3.84E+00
		105.30	20.70	-3.03E-01		3.06E+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	1.13E-01	8.00E-01	8.00E-01
		280.45	29.60	-7.05E-01		2.32E+00
		410.94	11.10	4.17E-01		7.90E+00
		711.69	54.10	-5.30E-01		1.80E+00
+	TM-171	66.72	0.14	-9.39E+04	8.80E+02	8.80E+02
+	HF-172	81.75	4.52	-1.37E+01	1.45E+01	3.32E+01
		125.81	11.30	6.28E-01		1.45E+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	1.92E+01	1.45E+01	3.52E+01
		272.11	21.20	3.35E+00		1.45E+01
+	HF-175	343.40	84.00	9.11E+03	4.10E+04	4.10E+04
+	LU-176	88.34	13.30	1.35E+02	7.19E-01	5.83E+00
		201.83	86.00	-4.05E-02		7.19E-01

Analysis Report for 1606065-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	306.78	94.00	3.31E-02	7.19E-01	7.62E-01
+	TA-182	67.75	41.20	-2.77E+04	7.32E+02	7.32E+02
		1121.30	34.90	9.49E+02		2.78E+03
		1189.05	16.23	8.83E+02		4.27E+03
		1221.41	26.98	5.47E+02		2.17E+03
		1231.02	11.44	-1.28E+03		4.62E+03
+	IR-192	308.46	29.68	3.54E+04	5.29E+04	6.12E+04
		468.07	48.10	2.11E+04		5.29E+04
+	HG-203	279.19	77.30	-1.16E+06	8.66E+06	8.66E+06
+	BI-207	569.67	97.72	1.45E-01	9.75E-01	9.75E-01
		1063.62	74.90	9.78E-01		2.10E+00
+	TL-208	583.14	30.22	5.91E-01	9.63E-01	3.09E+00
		860.37	4.48	3.52E+00		2.92E+01
		2614.66	35.85	4.84E-01		9.63E-01
+	BI-210M	262.00	45.00	1.82E-01	1.51E+00	1.51E+00
		300.00	23.00	1.03E+00		3.07E+00
+	PB-210	46.50	4.25	1.67E+01	1.33E+01	1.33E+01
+	PB-211	404.84	2.90	1.65E+01	3.01E+01	3.01E+01
		831.96	2.90	1.62E+01		4.31E+01
+	BI-212	727.17	11.80	1.03E+00	8.69E+00	8.69E+00
		1620.62	2.75	8.16E+00		1.34E+01
+	PB-212	238.63	44.60	1.48E+00	1.54E+00	1.54E+00
		300.09	3.41	6.95E+00		2.07E+01
+	BI-214	609.31	46.30	4.10E-01	2.03E+00	2.03E+00
		1120.29	15.10	4.12E+00		9.35E+00
		1764.49	15.80	2.87E-01		2.21E+00
		2204.22	4.98	3.29E+00		7.44E+00
+	PB-214	295.21	19.19	8.30E-01	2.09E+00	3.63E+00
		351.92	37.19	-1.54E-01		2.09E+00
+	RN-219	401.80	6.50	-7.00E-01	1.32E+01	1.32E+01
+	RA-223	323.87	3.88	3.63E+00	1.89E+01	1.89E+01
+	RA-224	240.98	3.95	1.40E+01	1.74E+01	1.74E+01
+	@ RA-225	40.00	31.00	1.00E+26	1.00E+26	1.00E+26
+	RA-226	186.21	3.28	6.74E+00	1.80E+01	1.80E+01
+	TH-227	50.10	8.40	1.98E+01	5.94E+00	7.16E+00
		236.00	11.50	-2.16E-01		5.94E+00
		256.20	6.30	5.29E+00		1.07E+01
+	AC-228	338.32	11.40	1.08E+00	5.28E+00	6.57E+00
		911.07	27.70	-3.85E+00		5.28E+00
		969.11	16.60	2.19E+00		8.94E+00
+	TH-230	48.44	16.90	1.06E+01	3.39E+00	3.39E+00
		62.85	4.60	8.60E+02		2.20E+01
		67.67	0.37	-4.38E+03		1.16E+02
+	PA-231	283.67	1.60	1.37E+01	3.08E+01	4.32E+01
		302.67	2.30	-1.71E+00		3.08E+01
+	TH-231	25.64	14.70	-1.16E+01	5.46E+00	5.46E+00
		84.21	6.40	3.17E+01		1.05E+01
+	PA-233	311.98	38.60	8.64E+11	2.18E+12	2.18E+12

Analysis Report for 1606065-01

GAS-1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PA-234	131.20	20.40	-4.61E-01	2.32E+00	2.32E+00
		733.99	8.80	1.74E+00		1.18E+01
		946.00	12.00	5.06E+00		1.38E+01
+	PA-234M	1001.03	0.92	2.63E+01	1.55E+02	1.55E+02
+	TH-234	63.29	3.80	5.61E+02	2.29E+01	2.29E+01
+	U-235	143.76	10.50	5.35E-01	4.70E+00	4.70E+00
		163.35	4.70	-3.79E-01		1.13E+01
		205.31	4.70	5.65E+00		1.33E+01
+	NP-237	86.50	12.60	1.47E+02	6.23E+00	6.23E+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	1.32E+02	2.96E+00	2.96E+00
+	AM-243	74.67	66.00	7.93E-03	7.00E-01	7.00E-01
+	CM-243	209.75	3.29	-9.21E+00	5.27E+00	2.07E+01
		228.14	10.60	2.81E+00		6.89E+00
		277.60	14.00	9.76E-01		5.27E+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	1.18E+07	1.18E+07	3.74E+06	5.82E+06
	NA-22	1274.54	99.94	1.48E+00	1.48E+00	4.18E-01	7.08E-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	3.01E-01	3.01E-01	8.73E-03	1.31E-01

Analysis Report for 1606065-01

GAS-1302

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
K-40	1460.81	10.67	3.15E+00	3.15E+00	5.01E-01	1.42E+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	4.71E-01	4.71E-01	-1.78E+01	2.34E-01
	78.34	96.00	5.15E-01		-1.36E-01	2.56E-01
SC-46	889.25	99.98	1.06E+04	1.06E+04	-4.29E+03	5.20E+03
	1120.51	99.99	1.08E+04		4.78E+03	5.32E+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
CR-51	320.08	9.83	4.22E+12	4.22E+12	-1.55E+12	2.09E+12
MN-54	834.83	99.97	1.38E+01	1.38E+01	4.25E+00	6.81E+00
CO-56	846.75	99.96	1.75E+04	1.42E+04	9.52E+03	8.62E+03
	1037.75	14.03	1.42E+05		3.38E+03	6.97E+04
	1238.25	67.00	1.46E+04		-6.21E+02	6.99E+03
	1771.40	15.51	2.75E+04		-3.06E+03	1.21E+04
	2598.48	16.90	1.42E+04		3.07E+03	5.05E+03
+ CO-57	122.06	* 85.51	1.34E+01	1.34E+01	7.55E+01	6.69E+00
	136.48	* 10.60	8.46E+01		5.41E+01	4.20E+01
CO-58	810.76	99.40	4.74E+04	4.74E+04	-7.84E+03	2.33E+04
FE-59	1099.22	56.50	5.31E+07	2.93E+07	3.30E+05	2.61E+07
	1291.56	43.20	2.93E+07		1.65E+06	1.40E+07
+ CO-60	1173.22	* 100.00	3.00E+00	1.36E+00	1.40E+02	1.48E+00
	1332.49	* 100.00	1.36E+00		1.42E+02	6.56E-01
ZN-65	1115.52	50.75	6.37E+01	6.37E+01	5.77E+01	3.13E+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	1.74E+03	4.40E+02	1.22E+04	8.62E+02
	136.00	59.20	4.40E+02		-1.26E+01	2.18E+02
	264.65	59.80	5.93E+02		-1.67E+02	2.94E+02
	279.53	25.20	1.43E+03		-1.91E+02	7.06E+02
	400.65	11.40	3.94E+03		-5.44E+02	1.95E+03
RB-82	776.52	13.00	4.81E+13	4.81E+13	1.52E+13	2.37E+13
RB-83	520.41	46.00	1.18E+04	1.18E+04	-8.24E+02	5.84E+03
	529.64	30.30	1.79E+04		-1.74E+03	8.84E+03
	552.65	16.40	3.32E+04		-5.51E+03	1.64E+04
KR-85	513.99	0.43	2.56E+02	2.56E+02	6.16E+01	1.26E+02
SR-85	513.99	99.27	9.76E+04	9.76E+04	2.35E+04	4.82E+04
Y-88	898.02	93.40	1.76E+03	5.01E+02	4.93E+02	8.69E+02
	1836.01	99.38	5.01E+02		2.10E+02	2.28E+02
NB-93M	16.57	9.43	5.05E+00	5.05E+00	-1.54E+02	2.51E+00
NB-94	702.63	100.00	1.00E+00	1.00E+00	3.67E-01	4.92E-01
	871.10	100.00	1.36E+00		-2.69E-01	6.68E-01
NB-95	765.79	99.81	2.11E+09	2.11E+09	-2.14E+08	1.04E+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	2.85E+05	2.33E+05	2.49E+03	1.40E+05
	756.72	55.30	2.33E+05		4.46E+04	1.15E+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	1.96E+08	1.96E+08	2.70E+07	9.69E+07
RU-106	621.84	9.80	7.39E+01	7.39E+01	7.91E+00	3.64E+01
AG-108M	433.93	89.90	1.04E+00	1.04E+00	-1.08E-01	5.12E-01
	614.37	90.40	1.06E+00		3.31E-01	5.24E-01

Analysis Report for 1606065-01

GAS-1302

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AG-108M	722.95	90.50	1.14E+00	1.04E+00	1.22E-01	5.62E-01
+ CD-109	88.03	* 3.72	1.13E+02	1.13E+02	2.56E+03	5.62E+01
AG-110M	657.75	93.14	5.05E+01	3.16E+01	-3.13E-01	2.51E+01
	677.61	10.53	1.85E+02		-6.35E+00	9.12E+01
	706.67	16.46	1.20E+02		-3.75E+01	5.90E+01
	763.93	21.98	9.82E+01		-2.02E+01	4.83E+01
	884.67	71.63	3.90E+01		2.56E+01	1.92E+01
	1384.27	23.94	3.16E+01		5.00E+00	1.45E+01
CD-113M	263.70	0.02	3.38E+03	3.38E+03	-1.71E+03	1.68E+03
SN-113	255.12	1.93	2.36E+04	8.79E+02	9.79E+03	1.17E+04
	391.69	64.90	8.79E+02		4.72E+02	4.35E+02
TE123M	159.00	84.10	3.22E+02	3.22E+02	-1.65E+02	1.60E+02
SB-124	602.71	97.87	2.44E+05	1.73E+05	-6.53E+04	1.20E+05
	645.85	7.26	3.51E+06		-7.00E+05	1.73E+06
	722.78	11.10	2.34E+06		3.97E+05	1.15E+06
	1691.02	49.00	1.73E+05		4.33E+04	7.69E+04
I-125	35.49	6.49	1.24E+06	1.24E+06	-3.02E+06	6.14E+05
SB-125	176.33	6.89	1.64E+01	6.55E+00	-1.38E+01	8.12E+00
	427.89	29.33	6.55E+00		2.91E+00	3.24E+00
	463.38	10.35	2.02E+01		-4.10E+00	9.97E+00
	600.56	17.80	1.11E+01		5.52E+00	5.45E+00
	635.90	11.32	1.86E+01		1.40E+00	9.18E+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	2.25E+00	2.25E+00	5.11E+01	1.12E+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	6.83E-01	6.83E-01	-3.06E+00	3.40E-01
	33.60	13.20	2.26E+00		-1.40E+00	1.13E+00
	39.58	7.52	4.48E+00		-1.96E+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	1.81E+00	1.58E+00	-8.24E-01	8.98E-01
	302.84	17.80	4.84E+00		-2.69E-01	2.40E+00
	356.01	60.00	1.58E+00		1.35E-01	7.83E-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	2.92E+01	2.56E+00	1.72E+00	1.44E+01
	569.32	15.43	1.57E+01		2.33E+00	7.74E+00
	604.70	97.60	2.56E+00		-9.88E-01	1.26E+00
	795.84	85.40	3.56E+00		-2.08E-01	1.75E+00
	801.93	8.73	3.62E+01		-5.06E+00	1.78E+01
CS-135	268.24	16.00	4.28E+00	4.28E+00	9.80E-01	2.12E+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

Analysis Report for 1606065-01

GAS-1302

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@ 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
+ CS-137	661.65	* 85.12	1.68E+00	1.68E+00	8.76E+01	8.30E-01
LA-138	788.74	34.00	3.22E+00	5.74E-01	-6.31E-01	1.58E+00
	1435.80	66.00	5.74E-01		2.17E-01	2.63E-01
CE-139	165.85	80.35	1.56E+02	1.56E+02	-1.03E+01	7.74E+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		0.00E+00	1.00E+20
CE-141	145.44	48.40	1.08E+10	1.08E+10	-3.25E+09	5.34E+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	6.37E+01	6.37E+01	1.07E+00	3.16E+01
PM-144	476.78	42.00	1.87E+01	7.43E+00	1.26E+01	9.25E+00
	618.01	98.60	7.43E+00		-4.18E+00	3.66E+00
	696.49	99.49	7.81E+00		-1.89E+00	3.84E+00
PM-145	36.85	21.70	1.59E+00	8.72E-01	-5.68E+00	7.88E-01
	37.36	39.70	8.72E-01		-3.93E+00	4.33E-01
	42.30	15.10	2.90E+00		-4.53E+00	1.44E+00
	72.40	2.31	2.22E+01		6.68E+00	1.10E+01
PM-146	453.90	39.94	3.56E+00	3.56E+00	2.18E-01	1.76E+00
	735.90	14.01	1.07E+01		-3.30E-01	5.24E+00
	747.13	13.10	1.19E+01		6.94E+00	5.84E+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	3.13E+00	2.76E+00	2.11E+01	1.56E+00
	244.69	5.40	1.45E+01		9.54E-01	7.20E+00
	344.27	19.13	4.66E+00		1.25E+00	2.30E+00
	778.89	9.20	1.39E+01		-5.39E+00	6.83E+00
	964.01	10.40	1.75E+01		8.62E+00	8.62E+00
	1085.78	7.22	2.45E+01		3.75E+00	1.20E+01
	1112.02	9.60	1.81E+01		-2.29E-01	8.91E+00
	1407.95	14.94	2.76E+00		-2.90E-01	1.26E+00
GD-153	97.43	31.30	2.88E+01	2.88E+01	-1.98E+00	1.43E+01
	103.18	22.20	4.16E+01		-3.38E+00	2.06E+01
EU-154	123.07	40.50	1.72E+00	1.72E+00	1.04E+01	8.56E-01
	723.30	19.70	6.53E+00		6.96E-01	3.21E+00
	873.19	11.50	1.50E+01		5.91E+00	7.38E+00
	996.32	10.30	1.76E+01		5.59E-02	8.66E+00

Analysis Report for 1606065-01

GAS-1302

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-154	1004.76	17.90	9.98E+00	1.72E+00	-1.79E+00	4.91E+00
	1274.45	35.50	2.39E+00		6.74E-01	1.14E+00
EU-155	86.50	30.90	3.84E+00	3.06E+00	9.06E+01	1.91E+00
	105.30	20.70	3.06E+00		-3.03E-01	1.52E+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	8.00E-01	8.00E-01	1.13E-01	3.97E-01
	280.45	29.60	2.32E+00		-7.05E-01	1.15E+00
	410.94	11.10	7.90E+00		4.17E-01	3.90E+00
	711.69	54.10	1.80E+00		-5.30E-01	8.86E-01
TM-171	66.72	0.14	8.80E+02	8.80E+02	-9.39E+04	4.37E+02
HF-172	81.75	4.52	3.32E+01	1.45E+01	-1.37E+01	1.65E+01
	125.81	11.30	1.45E+01		6.28E-01	7.19E+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	3.52E+01	1.45E+01	1.92E+01	1.75E+01
	272.11	21.20	1.45E+01		3.35E+00	7.19E+00
HF-175	343.40	84.00	4.10E+04	4.10E+04	9.11E+03	2.03E+04
LU-176	88.34	13.30	5.83E+00	7.19E-01	1.35E+02	2.91E+00
	201.83	86.00	7.19E-01		-4.05E-02	3.56E-01
	306.78	94.00	7.62E-01		3.31E-02	3.77E-01
TA-182	67.75	41.20	7.32E+02	7.32E+02	-2.77E+04	3.64E+02
	1121.30	34.90	2.78E+03		9.49E+02	1.36E+03
	1189.05	16.23	4.27E+03		8.83E+02	2.08E+03
	1221.41	26.98	2.17E+03		5.47E+02	1.05E+03
	1231.02	11.44	4.62E+03		-1.28E+03	2.23E+03
IR-192	308.46	29.68	6.12E+04	5.29E+04	3.54E+04	3.03E+04
	468.07	48.10	5.29E+04		2.11E+04	2.61E+04
HG-203	279.19	77.30	8.66E+06	8.66E+06	-1.16E+06	4.29E+06
BI-207	569.67	97.72	9.75E-01	9.75E-01	1.45E-01	4.80E-01
	1063.62	74.90	2.10E+00		9.78E-01	1.03E+00
TL-208	583.14	30.22	3.09E+00	9.63E-01	5.91E-01	1.52E+00
	860.37	4.48	2.92E+01		3.52E+00	1.44E+01
	2614.66	35.85	9.63E-01		4.84E-01	4.10E-01
BI-210M	262.00	45.00	1.51E+00	1.51E+00	1.82E-01	7.46E-01
	300.00	23.00	3.07E+00		1.03E+00	1.52E+00
PB-210	46.50	4.25	1.33E+01	1.33E+01	1.67E+01	6.64E+00
PB-211	404.84	2.90	3.01E+01	3.01E+01	1.65E+01	1.49E+01
	831.96	2.90	4.31E+01		1.62E+01	2.12E+01
BI-212	727.17	11.80	8.69E+00	8.69E+00	1.03E+00	4.28E+00
	1620.62	2.75	1.34E+01		8.16E+00	6.04E+00
PB-212	238.63	44.60	1.54E+00	1.54E+00	1.48E+00	7.65E-01
	300.09	3.41	2.07E+01		6.95E+00	1.02E+01
BI-214	609.31	46.30	2.03E+00	2.03E+00	4.10E-01	1.00E+00
	1120.29	15.10	9.35E+00		4.12E+00	4.59E+00
	1764.49	15.80	2.21E+00		2.87E-01	9.83E-01
	2204.22	4.98	7.44E+00		3.29E+00	3.26E+00
PB-214	295.21	19.19	3.63E+00	2.09E+00	8.30E-01	1.80E+00
	351.92	37.19	2.09E+00		-1.54E-01	1.04E+00
RN-219	401.80	6.50	1.32E+01	1.32E+01	-7.00E-01	6.54E+00

Analysis Report for 1606065-01
GAS-1302

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
RA-223	323.87	3.88	1.89E+01	1.89E+01	3.63E+00	9.37E+00
RA-224	240.98	3.95	1.74E+01	1.74E+01	1.40E+01	8.62E+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	1.80E+01	1.80E+01	6.74E+00	8.94E+00
TH-227	50.10	8.40	7.16E+00	5.94E+00	1.98E+01	3.57E+00
	236.00	11.50	5.94E+00		-2.16E-01	2.94E+00
	256.20	6.30	1.07E+01		5.29E+00	5.29E+00
AC-228	338.32	11.40	6.57E+00	5.28E+00	1.08E+00	3.25E+00
	911.07	27.70	5.28E+00		-3.85E+00	2.60E+00
	969.11	16.60	8.94E+00		2.19E+00	4.40E+00
TH-230	48.44	16.90	3.39E+00	3.39E+00	1.06E+01	1.69E+00
	62.85	4.60	2.20E+01		8.60E+02	1.10E+01
	67.67	0.37	1.16E+02		-4.38E+03	5.77E+01
PA-231	283.67	1.60	4.32E+01	3.08E+01	1.37E+01	2.14E+01
	302.67	2.30	3.08E+01		-1.71E+00	1.52E+01
TH-231	25.64	14.70	5.46E+00	5.46E+00	-1.16E+01	2.72E+00
	84.21	6.40	1.05E+01		3.17E+01	5.23E+00
PA-233	311.98	38.60	2.18E+12	2.18E+12	8.64E+11	1.08E+12
PA-234	131.20	20.40	2.32E+00	2.32E+00	-4.61E-01	1.15E+00
	733.99	8.80	1.18E+01		1.74E+00	5.78E+00
	946.00	12.00	1.38E+01		5.06E+00	6.79E+00
PA-234M	1001.03	0.92	1.55E+02	1.55E+02	2.63E+01	7.62E+01
TH-234	63.29	3.80	2.29E+01	2.29E+01	5.61E+02	1.14E+01
U-235	143.76	10.50	4.70E+00	4.70E+00	5.35E-01	2.33E+00
	163.35	4.70	1.13E+01		-3.79E-01	5.63E+00
	205.31	4.70	1.33E+01		5.65E+00	6.61E+00
NP-237	86.50	12.60	6.23E+00	6.23E+00	1.47E+02	3.10E+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	2.96E+00	2.96E+00	1.32E+02	1.48E+00
AM-243	74.67	66.00	7.00E-01	7.00E-01	7.93E-03	3.48E-01
CM-243	209.75	3.29	2.07E+01	5.27E+00	-9.21E+00	1.03E+01
	228.14	10.60	6.89E+00		2.81E+00	3.42E+00
	277.60	14.00	5.27E+00		9.76E-01	2.61E+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.

Analysis Report for 1606065-01
GAS-1302

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: GAS-1302

Elapsed Live time: 1800
 Elapsed Real Time: 1835

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	2	337	1282	
17:	1452	1485	2804	10134	20456	17484	8567	7427	
25:	5756	2323	904	639	728	855	1244	1164	
33:	816	736	835	854	876	878	963	1042	
41:	1205	1415	1457	1620	1701	1985	2433	2984	
49:	3344	3405	3409	3472	3452	3629	3821	4171	
57:	7062	17568	23639	12586	2654	977	963	1012	
65:	1101	1184	1200	1263	1197	1201	1157	1156	
73:	1219	1173	1289	1225	1208	1161	1176	1238	
81:	1239	1308	1290	1294	1578	3606	7413	6735	
89:	2595	807	675	693	676	675	682	700	
97:	670	644	635	696	698	682	671	674	
105:	626	628	642	641	666	651	680	667	
113:	645	628	615	708	708	620	714	1003	
121:	1587	1651	983	638	625	592	593	621	
129:	665	590	615	659	640	641	663	745	
137:	708	606	610	610	587	617	581	611	
145:	599	586	563	553	589	568	616	589	
153:	554	555	548	530	573	564	567	562	
161:	551	559	524	560	616	626	592	556	
169:	562	537	531	527	515	498	468	541	
177:	493	524	542	531	529	515	597	585	
185:	571	568	590	544	598	561	586	560	
193:	575	544	579	562	553	527	569	530	
201:	556	517	581	525	562	516	536	563	
209:	555	512	521	529	568	598	558	550	
217:	575	558	527	606	544	548	553	583	
225:	494	545	534	593	508	531	496	481	
233:	507	479	546	518	526	561	489	501	
241:	481	479	460	475	444	440	438	488	
249:	429	420	406	443	423	437	418	427	
257:	451	459	389	407	375	408	439	414	
265:	423	409	400	404	431	379	406	410	
273:	400	399	390	370	379	387	390	374	
281:	388	381	369	350	390	372	370	388	
289:	361	321	354	368	337	334	348	346	
297:	355	399	352	355	336	332	358	333	
305:	334	357	375	345	343	375	346	357	
313:	347	308	331	343	318	334	353	323	
321:	348	303	324	359	349	325	310	331	
329:	308	332	320	307	322	319	287	335	
337:	330	321	317	319	332	305	328	307	
345:	300	348	358	307	306	312	309	335	
353:	324	306	313	306	324	339	274	295	
361:	308	342	332	334	298	291	302	308	

369: 308 295 287 288 310 294 290 309

Sample Title: GAS-1302

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	306	320	284	294	297	274	332	323
385:	269	284	284	317	289	316	318	301
393:	313	292	324	295	318	259	292	316
401:	317	339	301	288	295	326	291	297
409:	296	290	299	283	303	315	285	324
417:	296	286	304	312	277	314	284	292
425:	304	312	293	308	324	300	314	318
433:	255	277	295	296	289	294	280	312
441:	273	317	292	300	300	325	273	275
449:	309	317	290	321	309	310	323	309
457:	306	335	309	325	307	304	287	301
465:	305	303	322	316	309	303	327	314
473:	313	282	307	296	294	299	278	235
481:	248	248	233	257	221	251	249	252
489:	222	214	206	214	232	239	208	210
497:	248	207	227	251	238	226	260	227
505:	221	177	205	245	215	217	219	229
513:	222	194	195	214	207	200	198	218
521:	190	195	189	208	208	204	199	184
529:	209	187	190	179	185	176	205	204
537:	189	198	198	192	193	192	184	195
545:	179	173	190	191	169	175	179	154
553:	174	182	197	190	173	190	189	179
561:	158	184	162	164	191	162	159	158
569:	140	183	162	162	166	159	137	170
577:	184	168	169	164	176	185	184	167
585:	177	149	170	150	171	165	168	172
593:	150	150	152	189	160	135	185	155
601:	156	142	182	164	143	155	167	138
609:	173	164	161	153	174	136	149	159
617:	177	153	146	151	143	137	157	165
625:	157	157	150	158	156	163	162	182
633:	163	167	137	175	164	163	188	167
641:	166	178	158	162	142	162	144	145
649:	154	148	161	146	145	163	155	157
657:	147	167	443	1965	4374	4198	1660	373
665:	123	127	164	129	144	131	126	124
673:	124	143	160	134	117	141	145	143
681:	124	162	131	144	141	117	154	140
689:	146	137	129	127	135	142	120	127
697:	134	136	132	145	139	140	134	137
705:	125	129	122	134	133	106	128	130
713:	136	126	108	131	133	125	133	143
721:	118	126	135	125	120	145	146	128
729:	114	151	133	142	126	129	130	127
737:	127	130	135	126	131	139	144	134
745:	147	118	138	153	134	135	139	125
753:	118	127	128	120	133	133	157	126
761:	117	125	112	121	146	141	144	154
769:	133	135	124	133	151	143	146	129
777:	137	135	118	150	129	111	160	139
785:	131	120	131	122	132	137	126	122
793:	134	119	142	148	140	134	136	148

801: 125 141 149 132 155 163 168 145

Sample Title: GAS-1302

Channel	1	2	3	4	5	6	7	8
809:	149	139	130	109	129	152	139	138
817:	141	137	149	144	154	131	150	138
825:	135	130	142	147	160	150	150	150
833:	147	162	161	138	154	159	141	156
841:	134	160	166	160	158	150	143	158
849:	156	136	144	148	138	140	154	156
857:	168	140	174	141	149	152	154	173
865:	152	165	169	164	171	170	147	166
873:	156	163	165	173	172	167	134	147
881:	175	161	163	167	161	161	165	200
889:	142	162	145	173	145	177	179	167
897:	145	202	187	169	177	184	170	193
905:	188	180	176	154	183	166	198	175
913:	180	169	172	209	182	186	184	177
921:	209	182	219	180	189	198	197	163
929:	197	178	202	205	175	218	202	217
937:	204	209	213	204	197	197	207	193
945:	192	209	216	225	208	221	199	201
953:	184	206	192	208	192	204	197	192
961:	208	173	178	176	194	157	180	155
969:	151	147	144	154	153	123	166	128
977:	149	175	142	158	140	153	144	146
985:	148	160	144	147	132	159	149	139
993:	161	120	158	139	141	139	142	131
1001:	132	130	148	140	138	135	129	130
1009:	132	134	142	125	135	162	153	133
1017:	129	148	149	149	147	131	183	121
1025:	141	142	150	127	127	139	124	141
1033:	126	137	129	123	137	163	122	141
1041:	128	120	124	154	134	152	102	110
1049:	133	118	124	127	140	125	133	125
1057:	120	127	137	134	129	120	135	139
1065:	119	127	147	125	112	132	150	132
1073:	128	136	119	138	130	135	133	130
1081:	144	145	150	131	136	125	122	126
1089:	133	141	131	142	112	132	109	148
1097:	134	117	149	124	122	130	132	125
1105:	150	159	149	120	131	123	112	114
1113:	135	140	118	127	123	133	118	109
1121:	80	97	97	94	82	83	78	72
1129:	71	81	89	98	95	72	96	80
1137:	74	70	67	60	89	70	75	79
1145:	62	67	71	86	64	85	82	67
1153:	70	66	74	72	78	66	70	80
1161:	62	66	76	62	78	72	76	66
1169:	73	108	444	1645	3189	2946	1309	265
1177:	82	46	44	45	55	49	46	43
1185:	49	39	43	50	53	51	46	46
1193:	44	39	39	52	45	33	40	38
1201:	41	42	38	32	40	34	38	33
1209:	36	31	36	41	31	39	24	24
1217:	33	22	34	33	38	24	33	27
1225:	39	30	30	28	27	26	14	25

1233: 26 24 25 28 20 23 21 13

Sample Title: GAS-1302

Channel	1	2	3	4	5	6	7	8
1241:	17	28	25	22	22	28	20	26
1249:	26	17	19	14	14	20	21	24
1257:	14	18	21	23	19	17	23	16
1265:	29	16	17	20	13	15	24	18
1273:	18	19	18	19	18	17	15	14
1281:	20	10	12	13	15	13	8	19
1289:	22	24	16	10	17	17	12	15
1297:	17	20	15	20	26	10	12	20
1305:	11	20	11	26	19	18	15	17
1313:	20	15	16	23	24	9	20	13
1321:	14	14	11	23	19	16	14	14
1329:	30	196	972	2416	2896	1666	472	45
1337:	5	7	4	6	2	7	3	2
1345:	10	10	4	3	4	10	6	6
1353:	6	4	4	1	5	6	6	4
1361:	5	6	5	2	8	2	3	2
1369:	3	5	3	4	8	2	2	3
1377:	3	4	6	4	4	2	4	6
1385:	5	10	2	4	3	5	3	4
1393:	3	1	4	2	7	4	2	4
1401:	5	6	5	4	5	3	3	3
1409:	5	2	6	4	5	3	2	6
1417:	2	2	4	3	5	6	1	1
1425:	3	6	5	3	4	4	1	3
1433:	1	6	1	2	6	6	11	3
1441:	4	4	1	0	3	4	3	2
1449:	4	1	8	3	3	3	2	2
1457:	4	3	5	4	3	1	3	3
1465:	3	3	3	3	2	3	1	3
1473:	1	4	3	6	2	7	3	2
1481:	4	1	4	0	3	1	1	1
1489:	0	1	2	6	6	1	4	3
1497:	7	4	1	4	3	8	3	4
1505:	5	0	4	2	2	6	3	3
1513:	2	3	3	4	5	2	2	3
1521:	3	0	2	4	2	2	2	4
1529:	4	1	0	5	2	2	1	4
1537:	1	1	2	3	2	4	3	3
1545:	1	5	0	3	2	2	3	1
1553:	1	2	5	3	8	2	2	2
1561:	7	1	2	2	3	5	3	3
1569:	4	3	5	1	1	2	4	1
1577:	3	5	4	1	6	5	4	3
1585:	0	0	3	4	2	0	4	3
1593:	4	2	2	3	1	3	0	3
1601:	3	3	3	1	2	1	7	3
1609:	2	1	6	7	3	1	0	2
1617:	2	1	4	3	5	6	1	2
1625:	5	1	1	3	2	1	2	4
1633:	2	6	2	2	3	4	2	5
1641:	1	1	5	2	2	2	3	3
1649:	4	3	2	4	7	3	4	0
1657:	2	3	4	4	2	2	2	3

1665: 5 2 0 3 2 7 0 2

Sample Title: GAS-1302

Channel	1	2	3	4	5	6	7	8	9
1673:	2	0	5	4	2	4	4	1	
1681:	2	3	2	0	2	3	2	1	
1689:	2	5	2	2	0	2	5	2	
1697:	2	1	0	2	5	1	1	1	
1705:	1	3	3	3	1	2	1	4	
1713:	1	1	2	2	1	1	4	3	
1721:	3	6	3	0	2	1	1	0	
1729:	2	4	4	1	4	4	1	2	
1737:	3	1	1	2	5	1	3	0	
1745:	3	3	1	1	3	1	1	2	
1753:	2	0	0	1	0	2	2	4	
1761:	0	1	2	6	0	0	3	3	
1769:	2	1	4	1	1	0	0	1	
1777:	1	1	2	2	4	3	5	3	
1785:	4	2	2	1	5	5	2	2	
1793:	3	0	3	0	3	1	0	0	
1801:	4	2	4	3	1	1	1	1	
1809:	2	1	1	3	0	1	0	0	
1817:	3	5	2	3	2	0	4	2	
1825:	2	0	2	3	1	3	2	3	
1833:	1	4	5	5	6	3	2	2	
1841:	1	1	2	2	2	3	6	0	
1849:	6	2	1	3	0	1	1	2	
1857:	0	1	2	1	2	3	3	2	
1865:	1	3	3	0	3	3	2	4	
1873:	1	1	0	1	1	3	0	1	
1881:	2	0	1	0	2	3	4	2	
1889:	0	1	2	1	0	1	0	3	
1897:	1	2	2	1	3	2	1	2	
1905:	0	0	2	2	1	2	1	3	
1913:	1	0	0	1	3	0	2	1	
1921:	2	0	3	2	3	0	3	4	
1929:	2	0	2	1	2	0	2	2	
1937:	1	1	1	0	1	0	0	2	
1945:	0	2	2	4	2	0	4	0	
1953:	1	0	0	2	1	2	2	0	
1961:	1	1	1	3	0	2	5	1	
1969:	0	1	5	2	5	0	5	3	
1977:	4	2	2	0	4	1	2	0	
1985:	3	0	2	2	3	3	3	4	
1993:	1	2	1	0	2	4	0	1	
2001:	1	1	1	0	0	2	5	0	
2009:	4	2	2	1	4	4	2	0	
2017:	1	1	2	1	2	1	2	5	
2025:	0	3	1	1	0	3	1	0	
2033:	1	0	3	2	2	1	1	1	
2041:	1	2	0	2	0	1	1	0	
2049:	3	2	6	1	4	4	1	1	
2057:	2	2	0	1	1	1	2	1	
2065:	4	3	0	1	2	2	0	0	
2073:	2	2	2	3	3	2	1	1	
2081:	1	1	3	0	1	3	1	0	
2089:	2	0	1	2	1	0	2	1	

2097: 1 2 2 0 1 0 2 3

Sample Title: GAS-1302

Channel	1	2	3	4	5	6	7	8
2105:	2	2	1	2	1	3	1	0
2113:	1	1	2	2	0	1	3	0
2121:	1	1	2	1	1	1	1	0
2129:	0	4	5	1	0	2	1	1
2137:	0	2	0	2	1	0	2	2
2145:	1	0	2	0	0	0	2	2
2153:	1	3	0	3	1	4	2	1
2161:	0	2	1	0	2	1	4	0
2169:	0	1	1	1	0	2	0	0
2177:	2	1	2	1	2	1	2	0
2185:	1	2	0	0	1	0	5	0
2193:	2	3	3	1	0	1	1	0
2201:	1	0	3	1	3	2	1	2
2209:	1	3	1	1	0	1	3	0
2217:	2	0	1	1	2	2	1	1
2225:	2	1	0	3	3	1	2	3
2233:	0	3	0	2	0	1	0	0
2241:	5	0	1	1	0	4	2	1
2249:	2	0	0	1	0	0	0	1
2257:	2	1	1	1	3	3	1	0
2265:	4	1	1	3	0	0	1	0
2273:	0	0	2	2	1	0	1	2
2281:	0	1	1	4	4	1	2	0
2289:	1	1	5	2	2	1	1	1
2297:	1	1	1	1	0	1	1	1
2305:	0	0	1	0	0	1	2	0
2313:	0	0	1	1	0	2	0	1
2321:	0	1	1	0	2	0	2	2
2329:	0	1	2	0	0	0	1	1
2337:	0	0	0	1	0	2	2	0
2345:	2	1	1	1	0	0	0	2
2353:	0	0	0	1	0	0	2	0
2361:	0	0	0	3	2	0	0	1
2369:	0	0	0	0	1	0	0	0
2377:	0	0	1	1	0	0	0	0
2385:	1	0	0	0	0	1	1	0
2393:	0	0	1	0	0	1	0	2
2401:	0	0	4	1	0	0	0	1
2409:	0	0	0	1	1	0	0	0
2417:	0	1	1	0	0	0	0	0
2425:	1	0	0	0	0	0	0	1
2433:	0	0	0	0	1	0	0	2
2441:	1	0	0	0	2	1	0	0
2449:	0	1	1	0	0	0	0	0
2457:	0	0	0	1	0	0	0	0
2465:	0	0	0	0	0	0	0	0
2473:	0	0	0	0	1	0	0	0
2481:	0	0	0	0	2	0	0	0
2489:	0	0	1	0	0	2	0	0
2497:	0	0	0	0	0	0	0	1
2505:	1	5	16	11	5	0	1	0
2513:	0	0	0	0	0	1	0	0
2521:	0	0	0	0	0	0	0	1

2529: 0 0 0 0 0 0 0 0 0

Sample Title: GAS-1302

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2537:	0	0	0	0	0	0	1	0
2545:	0	0	0	0	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	1	0	0	1
2577:	0	0	0	0	0	0	0	0
2585:	0	0	0	0	0	0	0	0
2593:	0	0	0	1	0	0	0	0
2601:	1	0	0	0	0	0	0	0
2609:	1	0	0	0	0	1	4	4
2617:	2	0	0	0	0	0	0	0
2625:	0	0	0	0	0	0	0	0
2633:	0	0	0	0	0	1	0	0
2641:	0	0	0	0	0	0	0	0
2649:	0	0	0	0	0	1	1	0
2657:	0	0	0	0	0	0	0	1
2665:	1	0	0	0	0	0	0	0
2673:	0	0	0	1	0	0	0	0
2681:	0	0	0	0	0	0	0	0
2689:	0	0	0	0	0	1	1	0
2697:	0	0	0	0	0	0	1	0
2705:	0	1	0	0	0	0	0	0
2713:	1	0	1	0	0	0	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	1	0	0	0	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	1	0	0	0	0	0	0
2761:	0	0	0	0	0	0	0	0
2769:	0	0	1	0	0	0	0	0
2777:	0	0	0	0	0	0	0	0
2785:	0	0	1	0	0	0	0	0
2793:	1	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	1
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	1	0	0	0
2825:	0	0	0	0	0	0	1	0
2833:	1	0	0	0	0	0	1	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	0	1	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	1	0	0	0	0	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	1	0	0	0	0	0	0
2945:	0	1	1	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961: 0 0 0 0 0 0 0 0 0

Sample Title: GAS-1302

Channel	1	2	3	4	5	6	7	8	9
2969:	0	0	0	0	0	0	0	0	0
2977:	0	0	0	0	0	0	0	0	0
2985:	0	0	0	0	0	1	0	0	0
2993:	0	0	0	1	0	0	0	0	0
3001:	0	0	0	0	0	0	0	0	0
3009:	0	0	0	0	0	0	0	0	0
3017:	0	0	0	0	0	0	1	0	0
3025:	0	0	0	0	0	0	0	0	0
3033:	0	0	0	0	0	1	0	0	0
3041:	0	0	0	0	0	0	0	0	0
3049:	0	0	0	0	0	1	0	0	0
3057:	0	0	0	0	0	0	1	0	0
3065:	0	0	0	1	0	0	0	0	0
3073:	0	0	0	0	0	1	0	0	0
3081:	0	0	0	0	0	0	1	0	0
3089:	0	1	0	0	0	0	0	0	0
3097:	0	0	2	1	0	0	0	0	0
3105:	0	0	0	0	0	0	1	0	0
3113:	0	0	0	0	0	0	0	2	0
3121:	0	0	0	0	0	0	0	0	0
3129:	0	0	0	0	0	1	0	0	0
3137:	0	0	0	0	0	0	0	0	0
3145:	0	1	0	0	0	0	0	0	0
3153:	0	0	0	0	0	0	0	0	0
3161:	0	0	0	0	0	0	0	0	0
3169:	0	0	0	0	1	0	0	0	0
3177:	0	0	0	0	0	0	0	0	0
3185:	0	0	0	0	0	0	0	0	0
3193:	1	0	0	0	0	0	0	0	0
3201:	0	0	0	0	0	0	0	0	0
3209:	0	0	0	0	0	0	0	0	0
3217:	0	0	1	0	0	0	0	0	0
3225:	0	0	0	0	1	0	0	0	0
3233:	0	0	0	0	0	0	0	0	0
3241:	0	0	0	0	0	0	0	0	0
3249:	0	0	0	0	0	1	0	0	0
3257:	0	0	0	0	0	0	0	0	0
3265:	0	0	0	0	0	0	0	0	0
3273:	0	0	0	0	0	0	0	0	0
3281:	0	0	0	0	0	0	0	0	0
3289:	0	0	1	0	0	0	1	0	0
3297:	0	0	0	0	0	0	0	0	0
3305:	0	0	0	0	0	1	0	0	0
3313:	0	0	0	0	0	0	0	0	0
3321:	0	0	0	0	0	0	0	0	0
3329:	0	0	0	0	0	0	0	0	0
3337:	0	0	0	0	0	0	0	1	0
3345:	0	0	0	1	0	0	0	0	0
3353:	0	0	0	0	0	0	1	0	0
3361:	0	0	0	0	0	0	0	0	0
3369:	0	0	0	0	0	0	0	0	0
3377:	0	0	0	0	1	0	0	0	0
3385:	0	0	0	1	1	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	1	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	1	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	1	1
3457:	0	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	1	0
3473:	1	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	0	1	0	0
3521:	0	0	0	0	0	0	0	0	0
3529:	0	0	0	0	0	1	0	0	0
3537:	0	0	0	0	0	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:	0	0	0	0	0	0	0	0	0
3569:	0	0	0	0	0	0	0	0	0
3577:	0	0	0	0	0	0	0	0	0
3585:	0	0	0	0	0	1	0	0	0
3593:	0	0	0	0	0	0	0	0	0
3601:	0	0	0	0	0	0	0	0	0
3609:	1	0	0	0	0	0	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:	0	0	0	0	0	0	0	0	0
3649:	0	0	0	0	1	0	0	0	0
3657:	0	0	0	0	0	0	0	0	0
3665:	0	1	0	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0	0
3681:	0	1	0	0	0	0	1	0	0
3689:	0	0	0	0	0	0	0	0	0
3697:	0	0	0	0	0	0	1	0	0
3705:	0	0	0	0	0	0	0	0	0
3713:	0	0	0	0	0	0	0	0	0
3721:	0	0	0	0	0	1	1	0	0
3729:	0	0	0	0	0	0	1	0	1
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	0	0	0	0	0	0
3777:	0	0	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	0	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0	0

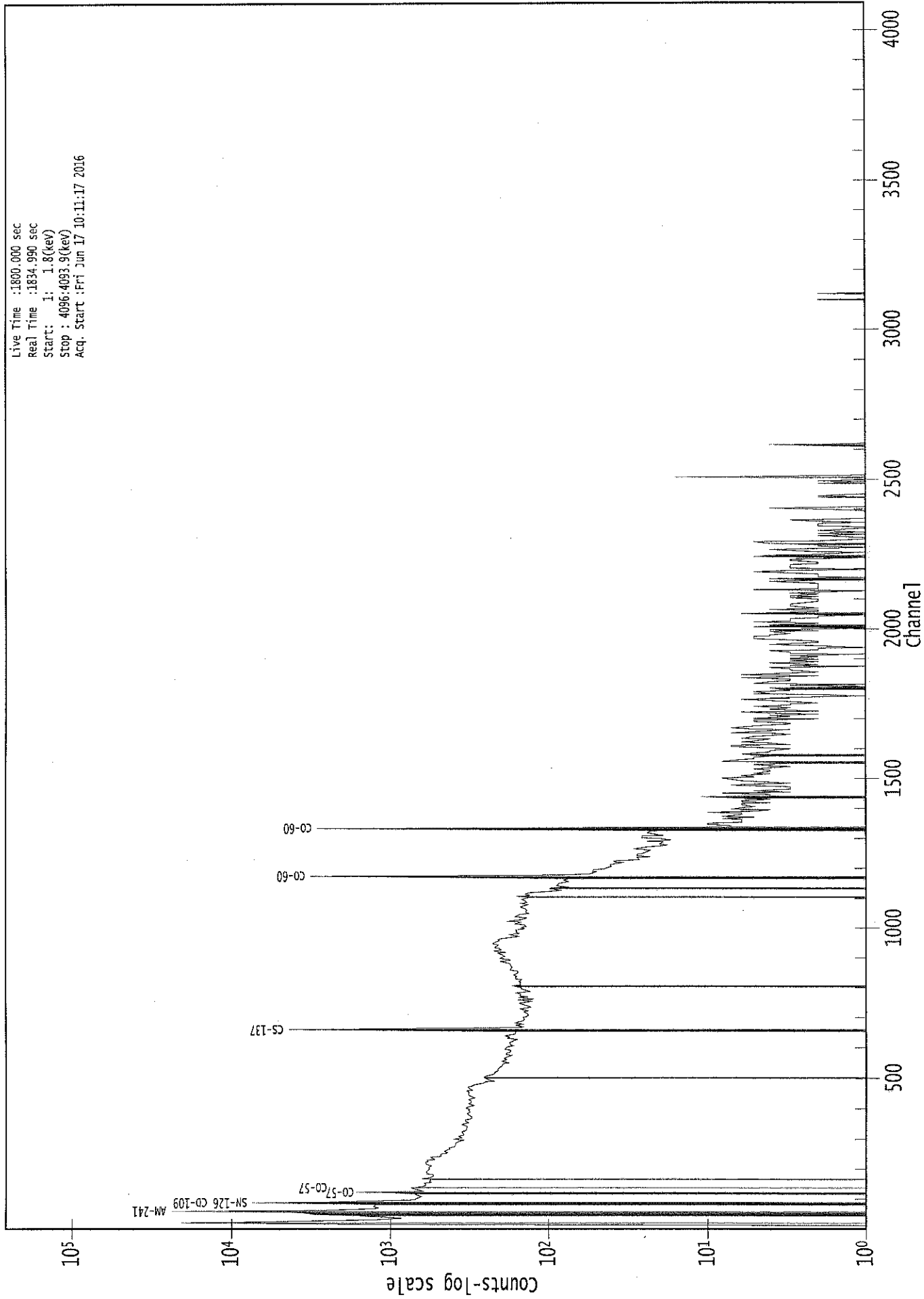
3825: 0 0 0 0 0 0 0 0

Sample Title: GAS-1302

Channel	1	2	3	4	5	6	7	8
3833:	0	0	1	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	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	0	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	0
3905:	0	0	0	0	0	0	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:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	0	0	0	0
3985:	0	1	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	1	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:	1	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

0000039079.CNF

Live Time :1800.000 sec
Real Time :1834.990 sec
Start: 1: 1.8(keV)
Stop : 4096:4093.9(keV)
Acq. Start :Fri Jun 17 10:11:17 2016



Analysis Report for 1606065-02
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GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606065-02
Sample Description : BLANK
Sample Type : SOIL

Sample Size : 7.834E+02 grams
Facility : Countroom

Sample Taken On : 6/17/2016 8:51:49AM
Acquisition Started : 6/17/2016 11:46:44AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE4
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3635.5 seconds

Dead Time : 0.98 %

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 : 39092

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

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6/17/16

Analysis Report for 1606065-02

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PEAK LOCATE REPORT

Peak Locate Performed on : 6/17/2016 12:47:22PM
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	241.78	241.12	0.0000	0.00
2	399.23	398.64	0.0000	0.00
3	415.51	414.92	0.0000	0.00
4	421.64	421.06	0.0000	0.00
5	502.93	502.38	0.0000	0.00
6	589.48	588.98	0.0000	0.00
7	970.27	969.96	0.0000	0.00
8	998.79	998.50	0.0000	0.00
9	1074.41	1074.16	0.0000	0.00
10	1109.29	1109.06	0.0000	0.00
11	1230.00	1229.83	0.0000	0.00
12	1285.01	1284.88	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606065-02

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PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 12:47:22PM

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)
M	1	228 -	255	241.12	8.37E+01	66.09	2.53E+02	21.84
	2	396 -	402	398.64	1.21E+01	14.35	2.97E+01	3.66
m	3	413 -	435	414.92	1.31E+01	8.00	4.74E+00	3.32
	4	413 -	435	421.06	1.44E+01	16.40	1.93E+01	3.63
	5	498 -	506	502.38	2.23E+01	15.27	2.14E+01	5.96
	6	579 -	596	588.98	3.58E+01	23.24	3.64E+01	13.45
	7	965 -	975	969.96	1.15E+01	11.34	1.10E+01	4.44
	8	994 -	1002	998.50	1.40E+01	7.48	0.00E+00	3.12
	9	1069 -	1078	1074.16	1.03E+01	10.49	9.47E+00	4.49
	10	1104 -	1114	1109.06	1.21E+01	9.50	5.73E+00	5.77
	11	1225 -	1232	1229.83	6.00E+00	4.90	0.00E+00	1.98
	12	1282 -	1287	1284.88	8.00E+00	5.66	0.00E+00	1.66

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 : 6/17/2016 12:47:22PM

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	228 -	255	8.37E+01	66.09	2.53E+02	5.22E+01
	2	396 -	402	1.21E+01	14.35	2.97E+01	1.03E+01
M	3	413 -	435	1.31E+01	8.00	4.74E+00	3.58E+00

Analysis Report for 1606065-02

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	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	4	421.64	413 -	435	1.44E+01	16.40	1.93E+01	7.22E+00
	5	502.93	498 -	506	2.23E+01	15.27	2.14E+01	9.86E+00
	6	589.48	579 -	596	3.58E+01	23.24	3.64E+01	1.64E+01
	7	970.27	965 -	975	1.15E+01	11.34	1.10E+01	7.47E+00
	8	998.79	994 -	1002	1.40E+01	7.48	0.00E+00	0.00E+00
	9	1074.41	1069 -	1078	1.03E+01	10.49	9.47E+00	6.82E+00
	10	1109.29	1104 -	1114	1.21E+01	9.50	5.73E+00	5.31E+00
	11	1230.00	1225 -	1232	6.00E+00	4.90	0.00E+00	0.00E+00
	12	1285.01	1282 -	1287	8.00E+00	5.66	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 : 6/17/2016 12:47:22PM

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	241.78	228 -	255	241.12	8.37E+01	66.09	2.53E+02	RA-224
	2	399.23	396 -	402	398.64	1.21E+01	14.35	2.97E+01	.....
M	3	415.51	413 -	435	414.92	1.31E+01	8.00	4.74E+00	SB-126
m	4	421.64	413 -	435	421.06	1.44E+01	16.40	1.93E+01	.....
	5	502.93	498 -	506	502.38	2.23E+01	15.27	2.14E+01	.....
	6	589.48	579 -	596	588.98	3.58E+01	23.24	3.64E+01	.....
	7	970.27	965 -	975	969.96	1.15E+01	11.34	1.10E+01	.....
	8	998.79	994 -	1002	998.50	1.40E+01	7.48	0.00E+00	.....
	9	1074.41	1069 -	1078	1074.16	1.03E+01	10.49	9.47E+00	.....
	10	1109.29	1104 -	1114	1109.06	1.21E+01	9.50	5.73E+00	.....
	11	1230.00	1225 -	1232	1229.83	6.00E+00	4.90	0.00E+00	EU-156
	12	1285.01	1282 -	1287	1284.88	8.00E+00	5.66	0.00E+00

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Analysis Report for 1606065-02

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/17/2016 12:47:22PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	241.78	8.37E+01	66.09	9.31E-03	9.77E-04
	2	399.23	1.21E+01	14.35	5.86E-03	7.25E-04
M	3	415.51	1.31E+01	8.00	5.64E-03	7.01E-04
m	4	421.64	1.44E+01	16.40	5.56E-03	6.92E-04
	5	502.93	2.23E+01	15.27	4.68E-03	5.73E-04
	6	589.48	3.58E+01	23.24	4.00E-03	4.46E-04
	7	970.27	1.15E+01	11.34	2.46E-03	1.99E-04
	8	998.79	1.40E+01	7.48	2.39E-03	1.95E-04
	9	1074.41	1.03E+01	10.49	2.23E-03	1.85E-04
	10	1109.29	1.21E+01	9.50	2.16E-03	1.81E-04
	11	1230.00	6.00E+00	4.90	1.97E-03	1.88E-04
	12	1285.01	8.00E+00	5.66	1.89E-03	2.03E-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 : 6/17/2016 12:47:22PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038679.CNF

Analysis Report for 1606065-02

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Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	241.78	8.37E+01	66.09		8.37E+01	6.61E+01
	2	399.23	1.21E+01	14.35		1.21E+01	1.44E+01
M	3	415.51	1.31E+01	8.00		1.31E+01	8.00E+00
m	4	421.64	1.44E+01	16.40		1.44E+01	1.64E+01
	5	502.93	2.23E+01	15.27		2.23E+01	1.53E+01
	6	589.48	3.58E+01	23.24		3.58E+01	2.32E+01
	7	970.27	1.15E+01	11.34		1.15E+01	1.13E+01
	8	998.79	1.40E+01	7.48		1.40E+01	7.48E+00
	9	1074.41	1.03E+01	10.49		1.03E+01	1.05E+01
	10	1109.29	1.21E+01	9.50		1.21E+01	9.50E+00
	11	1230.00	6.00E+00	4.90		6.00E+00	4.90E+00
	12	1285.01	8.00E+00	5.66		8.00E+00	5.66E+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 : 6/17/2016 12:47:22PM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038679.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	241.78	8.37E+01	66.09		8.37E+01	6.61E+01
	2	399.23	1.21E+01	14.35		1.21E+01	1.44E+01
M	3	415.51	1.31E+01	8.00		1.31E+01	8.00E+00
m	4	421.64	1.44E+01	16.40		1.44E+01	1.64E+01
	5	502.93	2.23E+01	15.27		2.23E+01	1.53E+01
	6	589.48	3.58E+01	23.24		3.58E+01	2.32E+01
	7	970.27	1.15E+01	11.34		1.15E+01	1.13E+01
	8	998.79	1.40E+01	7.48		1.40E+01	7.48E+00
	9	1074.41	1.03E+01	10.49		1.03E+01	1.05E+01
	10	1109.29	1.21E+01	9.50		1.21E+01	9.50E+00
	11	1230.00	6.00E+00	4.90		6.00E+00	4.90E+00
	12	1285.01	8.00E+00	5.66		8.00E+00	5.66E+00

Analysis Report for 1606065-02

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

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
RA-224	0.903	240.98 *	3.95	2.18E+00	1.74E+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 : 6/17/2016 12:47:22PM
 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	3.37449E-03	59.07		
M	3	3.63242E-03	30.59	Tol.	SB-126
m	4	3.99951E-03	56.96		
	5	6.19949E-03	34.22		
	6	9.93827E-03	32.48		
	7	3.19444E-03	49.29		
	8	3.88889E-03	26.73		
	9	2.85185E-03	51.08		
	10	3.37037E-03	39.15		

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Analysis Report for 1606065-02

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
11	1230.00	1.66667E-03	40.82	Tol.	EU-156
12	1285.01	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
RA-224	0.90	240.98 *	3.95	2.18E+00	1.74E+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

Analysis Report for 1606065-02

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Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
RA-224	0.903	2.18E+00	1.74E+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 1606065-02

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 12:47:22PM
 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	399.23	3.37449E-03		
M	3	415.51	3.63242E-03	Tol.	SB-126
m	4	421.64	3.99951E-03		
	5	502.93	6.19949E-03		
	6	589.48	9.93827E-03		
	7	970.27	3.19444E-03		
	8	998.79	3.88889E-03		
	9	1074.41	2.85185E-03		
	10	1109.29	3.37037E-03		
	11	1230.00	1.66667E-03	Tol.	EU-156
	12	1285.01	2.22222E-03		

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	-1.18E-01	5.03E-01	5.03E-01
+	NA-22	1274.54	99.94	1.12E-02	8.40E-02	8.40E-02
+	NA-24	1368.53	99.99	-1.89E-02	4.63E-02	4.63E-02
		2754.09	99.86	5.42E-03		1.01E-01
+	AL-26	1808.65	99.76	-5.92E-03	8.96E-02	8.96E-02
+	K-40	1460.81	10.67	2.43E-01	7.52E-01	7.52E-01

Analysis Report for 1606065-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	AR-41	1293.64	99.16	-4.75E-02	2.46E-01	2.46E-01
+	TI-44	67.88	94.40	1.10E-02	2.69E-02	2.95E-02
		78.34	96.00	-9.82E-03		2.69E-02
+	SC-46	889.25	99.98	4.25E-03	5.98E-02	5.98E-02
		1120.51	99.99	0.00E+00		7.46E-02
+	V-48	983.52	99.98	2.60E-02	7.21E-02	7.21E-02
		1312.10	97.50	3.41E-02		9.68E-02
+	CR-51	320.08	9.83	-1.70E-01	4.20E-01	4.20E-01
+	MN-54	834.83	99.97	1.19E-02	6.12E-02	6.12E-02
+	CO-56	846.75	99.96	3.05E-02	8.05E-02	8.05E-02
		1037.75	14.03	-5.54E-02		5.17E-01
		1238.25	67.00	2.74E-02		1.28E-01
		1771.40	15.51	1.44E-02		4.66E-01
		2598.48	16.90	1.58E-01		5.68E-01
+	CO-57	122.06	85.51	1.11E-02	3.34E-02	3.34E-02
		136.48	10.60	3.23E-02		2.98E-01
+	CO-58	810.76	99.40	-4.00E-02	6.21E-02	6.21E-02
+	FE-59	1099.22	56.50	1.64E-02	1.36E-01	1.36E-01
		1291.56	43.20	-1.58E-02		1.67E-01
+	CO-60	1173.22	100.00	-3.46E-04	7.78E-02	7.78E-02
		1332.49	100.00	5.44E-03		8.74E-02
+	ZN-65	1115.52	50.75	-1.46E-02	1.53E-01	1.53E-01
+	GA-67	93.31	35.70	5.26E-02	9.09E-02	9.09E-02
		208.95	2.24	-2.72E-01		1.81E+00
		300.22	16.00	8.38E-02		2.87E-01
+	SE-75	121.11	16.70	5.27E-02	5.42E-02	1.67E-01
		136.00	59.20	3.11E-03		5.42E-02
		264.65	59.80	-1.09E-02		7.40E-02
		279.53	25.20	1.06E-01		1.80E-01
		400.65	11.40	-4.48E-02		4.24E-01
+	RB-82	776.52	13.00	1.38E-01	5.95E-01	5.95E-01
+	RB-83	520.41	46.00	7.68E-03	1.28E-01	1.28E-01
		529.64	30.30	-5.30E-02		1.85E-01
		552.65	16.40	-1.08E-01		3.22E-01
+	KR-85	513.99	0.43	1.21E+01	1.78E+01	1.78E+01
+	SR-85	513.99	99.27	5.28E-02	7.78E-02	7.78E-02
+	Y-88	898.02	93.40	1.16E-02	7.48E-02	8.04E-02
		1836.01	99.38	-4.63E-03		7.48E-02
+	NB-93M	16.57	9.43	3.60E-01	2.15E-01	2.15E-01
+	NB-94	702.63	100.00	-2.85E-03	6.69E-02	6.69E-02
		871.10	100.00	1.38E-02		6.85E-02
+	NB-95	765.79	99.81	-1.28E-02	7.64E-02	7.64E-02
+	NB-95M	235.69	25.00	1.48E-02	1.69E-01	1.69E-01
+	ZR-95	724.18	43.70	-5.44E-03	1.27E-01	1.35E-01
		756.72	55.30	-7.88E-03		1.27E-01
+	MO-99	181.06	6.20	-3.44E-01	5.77E-01	5.77E-01
		739.58	12.80	1.50E-01		5.95E-01

Analysis Report for 1606065-02

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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>
	MO-99	778.00	4.50	3.84E-01	5.77E-01	1.67E+00
+	RU-103	497.08	89.00	1.47E-02	6.89E-02	6.89E-02
+	RU-106	621.84	9.80	-3.68E-01	4.67E-01	4.67E-01
+	AG-108M	433.93	89.90	6.08E-03	5.72E-02	5.72E-02
		614.37	90.40	4.61E-02		7.54E-02
		722.95	90.50	-2.05E-02		6.09E-02
+	CD-109	88.03	3.72	-6.52E-01	7.59E-01	7.59E-01
+	AG-110M	657.75	93.14	-1.99E-02	6.27E-02	6.27E-02
		677.61	10.53	-1.17E-01		4.91E-01
		706.67	16.46	-4.89E-02		4.18E-01
		763.93	21.98	-1.60E-02		3.45E-01
		884.67	71.63	-1.10E-02		7.90E-02
		1384.27	23.94	5.51E-02		3.40E-01
+	CD-113M	263.70	0.02	-1.06E+02	1.78E+02	1.78E+02
+	SN-113	255.12	1.93	2.04E-01	7.58E-02	2.28E+00
		391.69	64.90	1.72E-02		7.58E-02
+	TE123M	159.00	84.10	-1.55E-02	4.06E-02	4.06E-02
+	SB-124	602.71	97.87	6.53E-03	6.26E-02	6.26E-02
		645.85	7.26	-5.68E-02		7.27E-01
		722.78	11.10	-3.24E-01		4.79E-01
		1691.02	49.00	3.78E-02		1.73E-01
+	I-125	35.49	6.49	-3.25E-03	2.89E-01	2.89E-01
+	SB-125	176.33	6.89	8.64E-02	1.71E-01	5.08E-01
		427.89	29.33	-4.71E-02		1.71E-01
		463.38	10.35	-1.55E-01		4.57E-01
		600.56	17.80	7.97E-02		3.43E-01
		635.90	11.32	1.22E-01		5.36E-01
+	SB-126	414.70	83.30	-1.49E-03	5.52E-02	5.52E-02
		666.33	99.60	1.50E-02		6.84E-02
		695.00	99.60	2.37E-02		6.99E-02
		720.50	53.80	-3.79E-02		9.92E-02
+	SN-126	87.57	37.00	-6.54E-02	7.60E-02	7.60E-02
+	SB-127	473.00	25.00	-2.28E-02	1.65E-01	2.26E-01
		685.20	35.70	1.06E-02		1.65E-01
		783.80	14.70	-9.08E-02		4.31E-01
+	I-129	29.78	57.00	-1.53E-02	3.32E-02	3.32E-02
		33.60	13.20	-6.33E-02		1.39E-01
		39.58	7.52	-2.62E-01		2.54E-01
+	I-131	284.30	6.05	-2.37E-01	6.27E-02	6.68E-01
		364.48	81.20	1.45E-02		6.27E-02
		636.97	7.26	2.14E-01		8.28E-01
		722.89	1.80	-2.02E+00		2.99E+00
+	TE-132	49.72	13.10	1.78E-01	4.54E-02	1.89E-01
		228.16	88.00	1.03E-02		4.54E-02
+	BA-133	81.00	33.00	-2.37E-02	7.76E-02	7.85E-02
		302.84	17.80	5.60E-02		2.50E-01
		356.01	60.00	0.00E+00		7.76E-02
+	I-133	529.87	86.30	-2.09E-02	7.27E-02	7.27E-02

Analysis Report for 1606065-02

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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	-2.10E-02	6.95E-02	6.95E-02
+	CS-134	563.23	8.38	-7.40E-01	5.91E-02	5.66E-01
		569.32	15.43	1.28E-01		4.10E-01
		604.70	97.60	-4.46E-02		5.91E-02
		795.84	85.40	-1.99E-02		8.03E-02
		801.93	8.73	7.84E-02		8.34E-01
+	CS-135	268.24	16.00	6.13E-02	2.84E-01	2.84E-01
+	I-135	1131.51	22.50	1.13E-01	4.16E-01	5.20E-01
		1260.41	28.60	-1.50E-01		4.16E-01
		1678.03	9.54	1.07E-02		1.03E+00
+	CS-136	153.22	7.46	-5.04E-02	6.51E-02	4.43E-01
		163.89	4.61	5.52E-02		8.18E-01
		176.55	13.56	4.43E-02		2.60E-01
		273.65	12.66	4.11E-02		3.57E-01
		340.57	48.50	3.57E-02		1.08E-01
		818.50	99.70	-1.36E-02		6.51E-02
		1048.07	79.60	-1.62E-02		7.98E-02
		1235.34	19.70	-1.47E-01		3.53E-01
+	CS-137	661.65	85.12	-1.04E-02	7.07E-02	7.07E-02
+	LA-138	788.74	34.00	-3.75E-02	1.02E-01	1.70E-01
		1435.80	66.00	-2.55E-02		1.02E-01
+	CE-139	165.85	80.35	1.51E-02	4.74E-02	4.74E-02
+	BA-140	162.64	6.70	1.36E-01	2.44E-01	5.62E-01
		304.84	4.50	-2.40E-02		1.03E+00
		423.70	3.20	2.79E-01		1.63E+00
		437.55	2.00	6.04E-01		2.21E+00
		537.32	25.00	1.39E-01		2.44E-01
+	LA-140	328.77	20.50	4.57E-03	9.15E-02	2.17E-01
		487.03	45.50	-1.23E-03		1.14E-01
		815.85	23.50	8.48E-02		2.93E-01
		1596.49	95.49	4.32E-03		9.15E-02
+	CE-141	145.44	48.40	-3.45E-02	6.40E-02	6.40E-02
+	CE-143	57.36	11.80	-2.90E-01	9.94E-02	1.97E-01
		293.26	42.00	-5.48E-03		9.94E-02
		664.55	5.20	5.49E-01		1.45E+00
+	CE-144	133.54	10.80	-1.69E-02	2.86E-01	2.86E-01
+	PM-144	476.78	42.00	-1.63E-02	5.27E-02	1.28E-01
		618.01	98.60	-2.20E-03		5.27E-02
		696.49	99.49	-1.29E-04		6.96E-02
+	PM-145	36.85	21.70	1.08E-02	4.92E-02	8.77E-02
		37.36	39.70	2.49E-02		4.92E-02
		42.30	15.10	5.50E-02		1.43E-01
		72.40	2.31	2.34E-01		1.15E+00
+	PM-146	453.90	39.94	6.84E-03	1.11E-01	1.11E-01
		735.90	14.01	-1.83E-01		5.00E-01
		747.13	13.10	-4.30E-01		4.02E-01
+	ND-147	91.11	28.90	8.54E-02	1.11E-01	1.11E-01
		531.02	13.10	-1.94E-01		4.24E-01
+	PM-149	285.90	3.10	2.58E-01	1.41E+00	1.41E+00

Analysis Report for 1606065-02

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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	4.64E-02	1.39E-01	1.39E-01
		244.69	5.40	-1.31E-01		8.28E-01
		344.27	19.13	-5.18E-02		2.59E-01
		778.89	9.20	1.81E-01		7.87E-01
		964.01	10.40	8.70E-02		7.26E-01
		1085.78	7.22	0.00E+00		8.48E-01
		1112.02	9.60	-7.71E-03		8.70E-01
		1407.95	14.94	-5.33E-02		3.97E-01
+	GD-153	97.43	31.30	-2.25E-02	9.11E-02	9.11E-02
		103.18	22.20	-5.62E-02		1.19E-01
+	EU-154	123.07	40.50	1.15E-02	7.24E-02	7.24E-02
		723.30	19.70	-9.42E-02		2.80E-01
		873.19	11.50	4.64E-03		5.56E-01
		996.32	10.30	0.00E+00		7.57E-01
		1004.76	17.90	-1.25E-01		4.09E-01
		1274.45	35.50	3.15E-02		2.36E-01
+	EU-155	86.50	30.90	-9.53E-02	9.01E-02	9.01E-02
		105.30	20.70	-3.60E-02		1.30E-01
+	EU-156	811.77	10.40	5.15E-02	6.58E-01	6.58E-01
		1153.47	7.20	-1.82E-01		1.02E+00
		1230.71	8.90	-8.27E-02		8.75E-01
+	HO-166M	184.41	72.60	-1.00E-02	5.09E-02	5.09E-02
		280.45	29.60	5.24E-02		1.50E-01
		410.94	11.10	1.06E-01		4.64E-01
		711.69	54.10	6.73E-02		1.33E-01
+	TM-171	66.72	0.14	1.35E+01	2.02E+01	2.02E+01
+	HF-172	81.75	4.52	-2.40E-02	2.80E-01	5.84E-01
		125.81	11.30	1.37E-01		2.80E-01
		181.53	20.60	2.00E-02		1.18E-01
+	LU-172	810.06	16.63	-2.42E-01	1.18E-01	1.80E-01
		912.12	15.25	1.38E-01		3.76E-01
		1093.66	62.50	-4.47E-03		5.21E-01
		100.72	5.24	-1.06E-01		1.18E-01
+	LU-173	272.11	21.20	2.04E-02	2.12E-01	5.02E-01
		343.40	84.00	-9.42E-04		2.12E-01
+	HF-175	343.40	84.00	-9.42E-04	5.96E-02	5.96E-02
+	LU-176	88.34	13.30	1.59E-01	4.35E-02	2.35E-01
		201.83	86.00	6.79E-03		4.35E-02
		306.78	94.00	8.36E-04		4.96E-02
		67.75	41.20	2.51E-02		6.76E-02
+	TA-182	1121.30	34.90	-2.78E-02	6.76E-02	2.04E-01
		1189.05	16.23	4.05E-02		4.11E-01
		1221.41	26.98	-1.80E-02		1.93E-01
		1231.02	11.44	-6.40E-02		6.77E-01
		308.46	29.68	-2.60E-02		1.17E-01
+	IR-192	468.07	48.10	4.73E-02	1.17E-01	1.53E-01
		279.19	77.30	3.45E-02		1.17E-01
+	HG-203	279.19	77.30	3.45E-02	5.88E-02	5.88E-02
+	BI-207	569.67	97.72	2.02E-02	6.47E-02	6.47E-02
		1063.62	74.90	-6.79E-03		1.07E-01
+	TL-208	583.14	30.22	-4.20E-02	1.92E-01	1.92E-01

Analysis Report for 1606065-02

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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	-6.98E-01	1.92E-01	1.16E+00
	2614.66	35.85	-1.66E-02		2.68E-01
+ BI-210M	262.00	45.00	1.45E-02	9.66E-02	9.66E-02
	300.00	23.00	4.82E-02		1.86E-01
+ PB-210	46.50	4.25	4.48E-02	5.25E-01	5.25E-01
+ PB-211	404.84	2.90	5.79E-02	1.79E+00	1.79E+00
	831.96	2.90	-1.29E+00		1.84E+00
+ BI-212	727.17	11.80	1.47E-02	5.46E-01	5.46E-01
	1620.62	2.75	3.02E-02		2.97E+00
+ PB-212	238.63	44.60	-2.68E-02	9.37E-02	9.37E-02
	300.09	3.41	3.25E-01		1.26E+00
+ BI-214	609.31	46.30	-1.87E-02	1.39E-01	1.39E-01
	1120.29	15.10	0.00E+00		4.93E-01
	1764.49	15.80	3.60E-01		7.67E-01
	2204.22	4.98	1.12E+00		2.39E+00
+ PB-214	295.21	19.19	-7.18E-02	1.36E-01	1.96E-01
	351.92	37.19	8.38E-02		1.36E-01
+ RN-219	401.80	6.50	-1.65E-01	7.65E-01	7.65E-01
+ RA-223	323.87	3.88	-1.57E-01	1.10E+00	1.10E+00
+ RA-224	240.98	* 3.95	2.18E+00	2.79E+00	2.79E+00
+ RA-225	40.00	31.00	-6.42E-02	6.23E-02	6.23E-02
+ RA-226	186.21	3.28	9.00E-02	1.17E+00	1.17E+00
+ TH-227	50.10	8.40	2.70E-01	2.87E-01	2.87E-01
	236.00	11.50	3.13E-02		3.57E-01
	256.20	6.30	-7.85E-02		6.45E-01
+ AC-228	338.32	11.40	2.67E-02	2.58E-01	4.32E-01
	911.07	27.70	-3.50E-02		2.58E-01
	969.11	16.60	1.60E-01		5.00E-01
+ TH-230	48.44	16.90	5.81E-02	1.36E-01	1.36E-01
	62.85	4.60	3.97E-01		5.74E-01
	67.67	0.37	2.79E+00		7.52E+00
+ PA-231	283.67	1.60	1.61E-01	1.93E+00	2.67E+00
	302.67	2.30	4.33E-01		1.93E+00
+ TH-231	25.64	14.70	-2.57E-02	1.40E-01	1.40E-01
	84.21	6.40	-4.02E-02		4.12E-01
+ PA-233	311.98	38.60	3.03E-02	1.21E-01	1.21E-01
+ PA-234	131.20	20.40	-1.07E-03	1.53E-01	1.53E-01
	733.99	8.80	-1.54E-01		8.11E-01
	946.00	12.00	-1.57E-01		5.29E-01
+ PA-234M	1001.03	0.92	0.00E+00	8.22E+00	8.22E+00
+ TH-234	63.29	3.80	5.97E-01	7.14E-01	7.14E-01
+ U-235	143.76	10.50	-4.32E-02	2.93E-01	2.93E-01
	163.35	4.70	5.36E-02		7.94E-01
	205.31	4.70	-1.53E-01		8.08E-01
+ NP-237	86.50	12.60	-2.34E-01	2.21E-01	2.21E-01
+ NP-239	106.10	22.70	-3.44E-02	1.24E-01	1.24E-01
	228.18	10.70	-2.59E-02		3.67E-01
	277.60	14.10	6.82E-03		3.23E-01

Analysis Report for 1606065-02

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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	1.79E-03	6.79E-02	6.79E-02
+	AM-243	74.67	66.00	2.76E-02	4.11E-02	4.11E-02
+	CM-243	209.75	3.29	2.53E-02	3.12E-01	1.20E+00
		228.14	10.60	8.29E-02		3.66E-01
		277.60	14.00	6.58E-03		3.12E-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	5.03E-01	5.03E-01	-1.18E-01	2.26E-01
NA-22	1274.54	99.94	8.40E-02	8.40E-02	1.12E-02	3.52E-02
NA-24	1368.53	99.99	4.63E-02	4.63E-02	-1.89E-02	1.46E-02
	2754.09	99.86	1.01E-01		5.42E-03	3.57E-02
AL-26	1808.65	99.76	8.96E-02	8.96E-02	-5.92E-03	3.55E-02
K-40	1460.81	10.67	7.52E-01	7.52E-01	2.43E-01	3.04E-01
AR-41	1293.64	99.16	2.46E-01	2.46E-01	-4.75E-02	9.74E-02
TI-44	67.88	94.40	2.95E-02	2.69E-02	1.10E-02	1.42E-02
	78.34	96.00	2.69E-02		-9.82E-03	1.28E-02
SC-46	889.25	99.98	5.98E-02	5.98E-02	4.25E-03	2.51E-02
	1120.51	99.99	7.46E-02		0.00E+00	3.12E-02
V-48	983.52	99.98	7.21E-02	7.21E-02	2.60E-02	3.07E-02
	1312.10	97.50	9.68E-02		3.41E-02	4.12E-02
CR-51	320.08	9.83	4.20E-01	4.20E-01	-1.70E-01	1.92E-01
MN-54	834.83	99.97	6.12E-02	6.12E-02	1.19E-02	2.60E-02
CO-56	846.75	99.96	8.05E-02	8.05E-02	3.05E-02	3.56E-02
	1037.75	14.03	5.17E-01		-5.54E-02	2.18E-01
	1238.25	67.00	1.28E-01		2.74E-02	5.39E-02

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Analysis Report for 1606065-02

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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	4.66E-01	8.05E-02	1.44E-02	1.74E-01
	2598.48	16.90	5.68E-01		1.58E-01	2.13E-01
CO-57	122.06	85.51	3.34E-02	3.34E-02	1.11E-02	1.58E-02
	136.48	10.60	2.98E-01		3.23E-02	1.41E-01
CO-58	810.76	99.40	6.21E-02	6.21E-02	-4.00E-02	2.66E-02
FE-59	1099.22	56.50	1.36E-01	1.36E-01	1.64E-02	5.73E-02
	1291.56	43.20	1.67E-01		-1.58E-02	6.74E-02
CO-60	1173.22	100.00	7.78E-02	7.78E-02	-3.46E-04	3.26E-02
	1332.49	100.00	8.74E-02		5.44E-03	3.66E-02
ZN-65	1115.52	50.75	1.53E-01	1.53E-01	-1.46E-02	6.46E-02
GA-67	93.31	35.70	9.09E-02	9.09E-02	5.26E-02	4.35E-02
	208.95	2.24	1.81E+00		-2.72E-01	8.47E-01
	300.22	16.00	2.87E-01		8.38E-02	1.32E-01
SE-75	121.11	16.70	1.67E-01	5.42E-02	5.27E-02	7.86E-02
	136.00	59.20	5.42E-02		3.11E-03	2.56E-02
	264.65	59.80	7.40E-02		-1.09E-02	3.45E-02
	279.53	25.20	1.80E-01		1.06E-01	8.38E-02
	400.65	11.40	4.24E-01		-4.48E-02	1.92E-01
RB-82	776.52	13.00	5.95E-01	5.95E-01	1.38E-01	2.65E-01
RB-83	520.41	46.00	1.28E-01	1.28E-01	7.68E-03	5.77E-02
	529.64	30.30	1.85E-01		-5.30E-02	8.28E-02
	552.65	16.40	3.22E-01		-1.08E-01	1.43E-01
KR-85	513.99	0.43	1.78E+01	1.78E+01	1.21E+01	8.24E+00
SR-85	513.99	99.27	7.78E-02	7.78E-02	5.28E-02	3.61E-02
Y-88	898.02	93.40	8.04E-02	7.48E-02	1.16E-02	3.49E-02
	1836.01	99.38	7.48E-02		-4.63E-03	2.80E-02
NB-93M	16.57	9.43	2.15E-01	2.15E-01	3.60E-01	1.03E-01
NB-94	702.63	100.00	6.69E-02	6.69E-02	-2.85E-03	2.96E-02
	871.10	100.00	6.85E-02		1.38E-02	2.95E-02
NB-95	765.79	99.81	7.64E-02	7.64E-02	-1.28E-02	3.40E-02
NB-95M	235.69	25.00	1.69E-01	1.69E-01	1.48E-02	7.88E-02
ZR-95	724.18	43.70	1.35E-01	1.27E-01	-5.44E-03	5.85E-02
	756.72	55.30	1.27E-01		-7.88E-03	5.62E-02
MO-99	181.06	6.20	5.77E-01	5.77E-01	-3.44E-01	2.70E-01
	739.58	12.80	5.95E-01		1.50E-01	2.65E-01
	778.00	4.50	1.67E+00		3.84E-01	7.35E-01
RU-103	497.08	89.00	6.89E-02	6.89E-02	1.47E-02	3.14E-02
RU-106	621.84	9.80	4.67E-01	4.67E-01	-3.68E-01	1.99E-01
AG-108M	433.93	89.90	5.72E-02	5.72E-02	6.08E-03	2.59E-02
	614.37	90.40	7.54E-02		4.61E-02	3.39E-02
	722.95	90.50	6.09E-02		-2.05E-02	2.61E-02
CD-109	88.03	3.72	7.59E-01	7.59E-01	-6.52E-01	3.62E-01
AG-110M	657.75	93.14	6.27E-02	6.27E-02	-1.99E-02	2.75E-02
	677.61	10.53	4.91E-01		-1.17E-01	2.10E-01
	706.67	16.46	4.18E-01		-4.89E-02	1.85E-01
	763.93	21.98	3.45E-01		-1.60E-02	1.54E-01
	884.67	71.63	7.90E-02		-1.10E-02	3.28E-02
	1384.27	23.94	3.40E-01		5.51E-02	1.40E-01
CD-113M	263.70	0.02	1.78E+02	1.78E+02	-1.06E+02	8.26E+01
SN-113	255.12	1.93	2.28E+00	7.58E-02	2.04E-01	1.07E+00
	391.69	64.90	7.58E-02		1.72E-02	3.46E-02
TE123M	159.00	84.10	4.06E-02	4.06E-02	-1.55E-02	1.91E-02
SB-124	602.71	97.87	6.26E-02	6.26E-02	6.53E-03	2.79E-02

Analysis Report for 1606065-02

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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	7.27E-01	6.26E-02	-5.68E-02	3.15E-01
	722.78	11.10	4.79E-01		-3.24E-01	2.04E-01
	1691.02	49.00	1.73E-01		3.78E-02	6.86E-02
I-125	35.49	6.49	2.89E-01	2.89E-01	-3.25E-03	1.38E-01
SB-125	176.33	6.89	5.08E-01	1.71E-01	8.64E-02	2.39E-01
	427.89	29.33	1.71E-01		-4.71E-02	7.72E-02
	463.38	10.35	4.57E-01		-1.55E-01	2.04E-01
	600.56	17.80	3.43E-01		7.97E-02	1.53E-01
	635.90	11.32	5.36E-01		1.22E-01	2.37E-01
SB-126	414.70	83.30	5.52E-02	5.52E-02	-1.49E-03	2.48E-02
	666.33	99.60	6.84E-02		1.50E-02	3.05E-02
	695.00	99.60	6.99E-02		2.37E-02	3.11E-02
	720.50	53.80	9.92E-02		-3.79E-02	4.22E-02
SN-126	87.57	37.00	7.60E-02	7.60E-02	-6.54E-02	3.62E-02
SB-127	473.00	25.00	2.26E-01	1.65E-01	-2.28E-02	1.02E-01
	685.20	35.70	1.65E-01		1.06E-02	7.19E-02
	783.80	14.70	4.31E-01		-9.08E-02	1.86E-01
I-129	29.78	57.00	3.32E-02	3.32E-02	-1.53E-02	1.58E-02
	33.60	13.20	1.39E-01		-6.33E-02	6.62E-02
	39.58	7.52	2.54E-01		-2.62E-01	1.21E-01
I-131	284.30	6.05	6.68E-01	6.27E-02	-2.37E-01	3.07E-01
	364.48	81.20	6.27E-02		1.45E-02	2.88E-02
	636.97	7.26	8.28E-01		2.14E-01	3.65E-01
	722.89	1.80	2.99E+00		-2.02E+00	1.27E+00
TE-132	49.72	13.10	1.89E-01	4.54E-02	1.78E-01	9.06E-02
	228.16	88.00	4.54E-02		1.03E-02	2.12E-02
BA-133	81.00	33.00	7.85E-02	7.76E-02	-2.37E-02	3.73E-02
	302.84	17.80	2.50E-01		5.60E-02	1.15E-01
	356.01	60.00	7.76E-02		0.00E+00	3.55E-02
I-133	529.87	86.30	7.27E-02	7.27E-02	-2.09E-02	3.25E-02
XE-133	81.00	38.00	6.95E-02	6.95E-02	-2.10E-02	3.30E-02
CS-134	563.23	8.38	5.66E-01	5.91E-02	-7.40E-01	2.46E-01
	569.32	15.43	4.10E-01		1.28E-01	1.85E-01
	604.70	97.60	5.91E-02		-4.46E-02	2.62E-02
	795.84	85.40	8.03E-02		-1.99E-02	3.51E-02
	801.93	8.73	8.34E-01		7.84E-02	3.67E-01
CS-135	268.24	16.00	2.84E-01	2.84E-01	6.13E-02	1.32E-01
I-135	1131.51	22.50	5.20E-01	4.16E-01	1.13E-01	2.21E-01
	1260.41	28.60	4.16E-01		-1.50E-01	1.74E-01
	1678.03	9.54	1.03E+00		1.07E-02	3.87E-01
CS-136	153.22	7.46	4.43E-01	6.51E-02	-5.04E-02	2.09E-01
	163.89	4.61	8.18E-01		5.52E-02	3.87E-01
	176.55	13.56	2.60E-01		4.43E-02	1.22E-01
	273.65	12.66	3.57E-01		4.11E-02	1.66E-01
	340.57	48.50	1.08E-01		3.57E-02	4.99E-02
	818.50	99.70	6.51E-02		-1.36E-02	2.80E-02
	1048.07	79.60	7.98E-02		-1.62E-02	3.27E-02
	1235.34	19.70	3.53E-01		-1.47E-01	1.43E-01
CS-137	661.65	85.12	7.07E-02	7.07E-02	-1.04E-02	3.11E-02
LA-138	788.74	34.00	1.70E-01	1.02E-01	-3.75E-02	7.24E-02
	1435.80	66.00	1.02E-01		-2.55E-02	3.95E-02
CE-139	165.85	80.35	4.74E-02	4.74E-02	1.51E-02	2.25E-02
BA-140	162.64	6.70	5.62E-01	2.44E-01	1.36E-01	2.66E-01

Analysis Report for 1606065-02

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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	2.44E-01	-2.40E-02	4.76E-01		
	423.70	3.20	1.63E+00		2.79E-01	7.40E-01		
	437.55	2.00	2.21E+00		6.04E-01	9.82E-01		
	537.32	25.00	2.44E-01		1.39E-01	1.10E-01		
LA-140	328.77	20.50	2.17E-01	9.15E-02	4.57E-03	9.96E-02		
	487.03	45.50	1.14E-01		-1.23E-03	5.11E-02		
	815.85	23.50	2.93E-01		8.48E-02	1.27E-01		
	1596.49	95.49	9.15E-02		4.32E-03	3.70E-02		
CE-141	145.44	48.40	6.40E-02	6.40E-02	-3.45E-02	3.01E-02		
CE-143	57.36	11.80	1.97E-01	9.94E-02	-2.90E-01	9.34E-02		
	293.26	42.00	9.94E-02		-5.48E-03	4.55E-02		
	664.55	5.20	1.45E+00		5.49E-01	6.48E-01		
CE-144	133.54	10.80	2.86E-01	2.86E-01	-1.69E-02	1.35E-01		
PM-144	476.78	42.00	1.28E-01	5.27E-02	-1.63E-02	5.80E-02		
	618.01	98.60	5.27E-02		-2.20E-03	2.29E-02		
	696.49	99.49	6.96E-02		-1.29E-04	3.10E-02		
PM-145	36.85	21.70	8.77E-02	4.92E-02	1.08E-02	4.18E-02		
	37.36	39.70	4.92E-02		2.49E-02	2.34E-02		
	42.30	15.10	1.43E-01		5.50E-02	6.85E-02		
	72.40	2.31	1.15E+00		2.34E-01	5.49E-01		
PM-146	453.90	39.94	1.11E-01	1.11E-01	6.84E-03	4.94E-02		
	735.90	14.01	5.00E-01		-1.83E-01	2.21E-01		
	747.13	13.10	4.02E-01		-4.30E-01	1.70E-01		
ND-147	91.11	28.90	1.11E-01	1.11E-01	8.54E-02	5.33E-02		
	531.02	13.10	4.24E-01		-1.94E-01	1.90E-01		
PM-149	285.90	3.10	1.41E+00	1.41E+00	2.58E-01	6.50E-01		
EU-152	121.78	20.50	1.39E-01	1.39E-01	4.64E-02	6.56E-02		
	244.69	5.40	8.28E-01		-1.31E-01	3.88E-01		
	344.27	19.13	2.59E-01		-5.18E-02	1.20E-01		
	778.89	9.20	7.87E-01		1.81E-01	3.47E-01		
	964.01	10.40	7.26E-01		8.70E-02	3.13E-01		
	1085.78	7.22	8.48E-01		0.00E+00	3.43E-01		
	1112.02	9.60	8.70E-01		-7.71E-03	3.73E-01		
	1407.95	14.94	3.97E-01		-5.33E-02	1.49E-01		
	GD-153	97.43	31.30		9.11E-02	9.11E-02	-2.25E-02	4.33E-02
		103.18	22.20		1.19E-01		-5.62E-02	5.61E-02
EU-154	123.07	40.50	7.24E-02	7.24E-02	1.15E-02	3.42E-02		
	723.30	19.70	2.80E-01		-9.42E-02	1.20E-01		
	873.19	11.50	5.56E-01		4.64E-03	2.36E-01		
	996.32	10.30	7.57E-01		0.00E+00	3.26E-01		
	1004.76	17.90	4.09E-01		-1.25E-01	1.74E-01		
	1274.45	35.50	2.36E-01		3.15E-02	9.90E-02		
EU-155	86.50	30.90	9.01E-02	9.01E-02	-9.53E-02	4.29E-02		
	105.30	20.70	1.30E-01		-3.60E-02	6.15E-02		
EU-156	811.77	10.40	6.58E-01	6.58E-01	5.15E-02	2.86E-01		
	1153.47	7.20	1.02E+00		-1.82E-01	4.23E-01		
	1230.71	8.90	8.75E-01		-8.27E-02	3.63E-01		
HO-166M	184.41	72.60	5.09E-02	5.09E-02	-1.00E-02	2.39E-02		
	280.45	29.60	1.50E-01		5.24E-02	6.97E-02		
	410.94	11.10	4.64E-01		1.06E-01	2.11E-01		
	711.69	54.10	1.33E-01		6.73E-02	5.94E-02		
TM-171	66.72	0.14	2.02E+01	2.02E+01	1.35E+01	9.67E+00		
HF-172	81.75	4.52	5.84E-01	2.80E-01	-2.40E-02	2.78E-01		

Analysis Report for 1606065-02

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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	2.80E-01	2.80E-01	1.37E-01	1.33E-01
LU-172	181.53	20.60	1.80E-01	1.18E-01	2.00E-02	8.44E-02
	810.06	16.63	3.76E-01		-2.42E-01	1.61E-01
	912.12	15.25	5.21E-01		1.38E-01	2.28E-01
	1093.66	62.50	1.18E-01		-4.47E-03	4.95E-02
LU-173	100.72	5.24	5.02E-01	2.12E-01	-1.06E-01	2.38E-01
	272.11	21.20	2.12E-01		2.04E-02	9.88E-02
HF-175	343.40	84.00	5.96E-02	5.96E-02	-9.42E-04	2.75E-02
LU-176	88.34	13.30	2.35E-01	4.35E-02	1.59E-01	1.12E-01
	201.83	86.00	4.35E-02		6.79E-03	2.04E-02
	306.78	94.00	4.96E-02		8.36E-04	2.30E-02
TA-182	67.75	41.20	6.76E-02	6.76E-02	2.51E-02	3.24E-02
	1121.30	34.90	2.04E-01		-2.78E-02	8.44E-02
	1189.05	16.23	4.11E-01		4.05E-02	1.66E-01
	1221.41	26.98	1.93E-01		-1.80E-02	7.24E-02
	1231.02	11.44	6.77E-01		-6.40E-02	2.81E-01
IR-192	308.46	29.68	1.53E-01	1.17E-01	-2.60E-02	7.04E-02
	468.07	48.10	1.17E-01		4.73E-02	5.31E-02
HG-203	279.19	77.30	5.88E-02	5.88E-02	3.45E-02	2.73E-02
BI-207	569.67	97.72	6.47E-02	6.47E-02	2.02E-02	2.91E-02
	1063.62	74.90	1.07E-01		-6.79E-03	4.58E-02
TL-208	583.14	30.22	1.92E-01	1.92E-01	-4.20E-02	8.55E-02
	860.37	4.48	1.16E+00		-6.98E-01	4.77E-01
	2614.66	35.85	2.68E-01		-1.66E-02	1.00E-01
BI-210M	262.00	45.00	9.66E-02	9.66E-02	1.45E-02	4.50E-02
	300.00	23.00	1.86E-01		4.82E-02	8.57E-02
PB-210	46.50	4.25	5.25E-01	5.25E-01	4.48E-02	2.51E-01
PB-211	404.84	2.90	1.79E+00	1.79E+00	5.79E-02	8.20E-01
	831.96	2.90	1.84E+00		-1.29E+00	7.62E-01
BI-212	727.17	11.80	5.46E-01	5.46E-01	1.47E-02	2.39E-01
	1620.62	2.75	2.97E+00		3.02E-02	1.18E+00
PB-212	238.63	44.60	9.37E-02	9.37E-02	-2.68E-02	4.38E-02
	300.09	3.41	1.26E+00		3.25E-01	5.78E-01
BI-214	609.31	46.30	1.39E-01	1.39E-01	-1.87E-02	6.21E-02
	1120.29	15.10	4.93E-01		0.00E+00	2.07E-01
	1764.49	15.80	7.67E-01		3.60E-01	3.26E-01
	2204.22	4.98	2.39E+00		1.12E+00	9.82E-01
PB-214	295.21	19.19	1.96E-01	1.36E-01	-7.18E-02	8.95E-02
	351.92	37.19	1.36E-01		8.38E-02	6.28E-02
RN-219	401.80	6.50	7.65E-01	7.65E-01	-1.65E-01	3.48E-01
RA-223	323.87	3.88	1.10E+00	1.10E+00	-1.57E-01	5.02E-01
RA-224	240.98	3.95	2.79E+00	2.79E+00	2.18E+00	1.36E+00
RA-225	40.00	31.00	6.23E-02	6.23E-02	-6.42E-02	2.96E-02
RA-226	186.21	3.28	1.17E+00	1.17E+00	9.00E-02	5.49E-01
TH-227	50.10	8.40	2.87E-01	2.87E-01	2.70E-01	1.37E-01
	236.00	11.50	3.57E-01		3.13E-02	1.67E-01
	256.20	6.30	6.45E-01		-7.85E-02	2.99E-01
AC-228	338.32	11.40	4.32E-01	2.58E-01	2.67E-02	2.00E-01
	911.07	27.70	2.58E-01		-3.50E-02	1.11E-01
	969.11	16.60	5.00E-01		1.60E-01	2.18E-01
TH-230	48.44	16.90	1.36E-01	1.36E-01	5.81E-02	6.51E-02
	62.85	4.60	5.74E-01		3.97E-01	2.75E-01
	67.67	0.37	7.52E+00		2.79E+00	3.61E+00

Analysis Report for 1606065-02

BLANK

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	2.67E+00	1.93E+00	1.61E-01	1.23E+00
	302.67	2.30	1.93E+00		4.33E-01	8.92E-01
TH-231	25.64	14.70	1.40E-01	1.40E-01	-2.57E-02	6.71E-02
	84.21	6.40	4.12E-01		-4.02E-02	1.96E-01
PA-233	311.98	38.60	1.21E-01	1.21E-01	3.03E-02	5.60E-02
PA-234	131.20	20.40	1.53E-01	1.53E-01	-1.07E-03	7.21E-02
	733.99	8.80	8.11E-01		-1.54E-01	3.60E-01
	946.00	12.00	5.29E-01		-1.57E-01	2.21E-01
PA-234M	1001.03	0.92	8.22E+00	8.22E+00	0.00E+00	3.52E+00
TH-234	63.29	3.80	7.14E-01	7.14E-01	5.97E-01	3.42E-01
U-235	143.76	10.50	2.93E-01	2.93E-01	-4.32E-02	1.38E-01
	163.35	4.70	7.94E-01		5.36E-02	3.76E-01
	205.31	4.70	8.08E-01		-1.53E-01	3.78E-01
NP-237	86.50	12.60	2.21E-01	2.21E-01	-2.34E-01	1.05E-01
NP-239	106.10	22.70	1.24E-01	1.24E-01	-3.44E-02	5.88E-02
	228.18	10.70	3.67E-01		-2.59E-02	1.70E-01
	277.60	14.10	3.23E-01		6.82E-03	1.50E-01
AM-241	59.54	35.90	6.79E-02	6.79E-02	1.79E-03	3.24E-02
AM-243	74.67	66.00	4.11E-02	4.11E-02	2.76E-02	1.97E-02
CM-243	209.75	3.29	1.20E+00	3.12E-01	2.53E-02	5.62E-01
	228.14	10.60	3.66E-01		8.29E-02	1.70E-01
	277.60	14.00	3.12E-01		6.58E-03	1.45E-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 1606065-02

BLANK

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: BLANK

Elapsed Live time: 3600
 Elapsed Real Time: 3635

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	9	39
17:	28	42	25	33	21	22	20	20	21
25:	18	19	27	15	14	12	12	12	12
33:	13	23	15	14	12	13	15	15	14
41:	18	13	13	10	30	32	21	15	15
49:	13	11	18	14	22	8	17	15	15
57:	9	8	15	15	16	27	34	27	27
65:	18	15	17	15	14	23	19	15	15
73:	16	18	20	14	18	13	14	10	10
81:	9	17	12	22	18	16	10	13	13
89:	12	19	18	44	30	11	7	11	11
97:	12	20	13	12	10	11	9	4	4
105:	11	9	11	15	21	7	15	9	9
113:	8	5	8	9	4	10	4	11	11
121:	10	12	10	19	13	8	8	14	14
129:	16	5	13	13	12	11	8	11	11
137:	7	16	10	9	12	10	6	8	8
145:	15	9	6	9	9	10	12	15	15
153:	10	9	8	8	7	9	16	11	11
161:	12	10	16	13	6	12	8	14	14
169:	15	11	7	7	10	13	5	10	10
177:	6	13	5	11	8	6	3	12	12
185:	19	12	6	6	8	16	12	12	12
193:	8	7	7	7	8	6	14	3	3
201:	11	6	10	10	5	6	9	8	8
209:	8	5	8	17	10	10	8	6	6
217:	3	5	11	2	5	9	13	7	7
225:	8	7	3	5	1	12	7	9	9
233:	7	4	6	5	10	9	10	8	8
241:	9	7	12	10	8	6	10	5	5
249:	6	8	12	6	8	7	3	7	7
257:	10	6	3	6	11	8	5	7	7
265:	6	4	4	12	10	5	11	6	6
273:	4	3	7	9	6	6	9	3	3
281:	9	5	6	4	4	4	7	2	2
289:	7	4	6	1	5	5	0	6	6
297:	5	3	5	6	7	5	9	4	4
305:	4	6	6	5	5	9	7	3	3
313:	7	7	2	4	5	5	0	4	4
321:	6	3	8	5	6	5	2	10	10
329:	1	4	5	3	5	1	5	7	7
337:	7	7	6	5	5	6	6	5	5
345:	7	2	7	5	5	3	9	4	4
353:	6	4	5	1	4	0	6	4	4
361:	5	4	7	3	3	4	7	7	7

369: 4 5 5 5 4 2 5 5

Sample Title: BLANK

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

801: 3 2 4 3 0 1 2 0

Sample Title: BLANK

Channel	1	2	3	4	5	6	7	8	9
809:	2	1	1	1	3	1	4	3	
817:	2	0	0	2	0	1	2	2	
825:	2	4	2	1	0	2	0	0	
833:	2	2	1	0	2	2	1	0	
841:	1	6	2	0	1	1	1	3	
849:	2	4	2	2	1	1	1	2	
857:	2	1	1	0	0	0	1	0	
865:	3	1	2	0	0	1	3	1	
873:	3	2	1	0	0	2	2	0	
881:	2	1	1	0	2	2	0	0	
889:	1	0	2	2	0	1	2	0	
897:	1	3	1	1	5	1	2	1	
905:	1	2	1	2	2	1	3	2	
913:	0	1	1	4	1	1	1	1	
921:	0	2	0	2	2	4	0	2	
929:	3	2	1	2	1	2	1	2	
937:	1	0	2	1	4	0	1	1	
945:	1	1	1	1	2	1	1	0	
953:	1	2	1	0	1	0	3	1	
961:	2	1	2	1	0	1	1	4	
969:	0	3	4	2	1	1	0	1	
977:	1	0	0	1	3	1	0	2	
985:	1	2	1	0	0	1	3	0	
993:	0	0	1	1	2	3	1	5	
1001:	1	0	0	0	0	2	2	1	
1009:	0	2	2	0	1	2	1	2	
1017:	1	0	1	2	0	0	3	0	
1025:	0	0	3	1	0	0	0	2	
1033:	1	1	2	0	0	1	1	2	
1041:	2	0	5	1	1	2	0	3	
1049:	0	0	0	0	1	1	0	3	
1057:	0	2	1	2	1	2	1	3	
1065:	0	2	0	2	0	2	1	0	
1073:	4	2	3	1	2	0	0	1	
1081:	1	1	0	0	0	1	0	1	
1089:	2	1	2	0	0	1	0	2	
1097:	1	1	1	2	1	2	0	0	
1105:	3	1	1	0	0	5	1	2	
1113:	2	0	1	1	1	2	0	2	
1121:	2	0	1	0	0	1	2	1	
1129:	2	2	2	0	1	1	0	1	
1137:	2	0	2	2	1	1	0	1	
1145:	0	1	0	1	0	1	0	1	
1153:	1	1	0	2	2	3	2	1	
1161:	1	1	3	1	1	1	0	0	
1169:	1	1	1	0	1	0	3	1	
1177:	1	2	1	2	0	0	1	0	
1185:	0	0	1	2	1	0	1	1	
1193:	0	0	0	2	1	1	1	1	
1201:	0	0	1	1	0	2	2	0	
1209:	0	2	2	0	0	2	1	1	
1217:	0	1	1	0	0	0	1	0	
1225:	0	0	0	0	2	3	1	0	

1233: 0 1 1 3 0 0 0 3

Sample Title: BLANK

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

1665: 0 0 0 0 0 0 1 1

Sample Title: BLANK

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

2097: 0 0 1 0 0 0 1 0

Sample Title: BLANK

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

2529: 0 0 0 1 0 0 0 0

Sample Title: BLANK

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

2961: 0 0 0 0 1 0 0 0

Sample Title: BLANK

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

3393: 0 0 0 0 0 1 0 0

Sample Title: BLANK

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3401:	0	0	0	0	0	0	1	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	1	0
3425:	0	0	0	0	0	0	0	0
3433:	0	1	0	0	0	1	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	1	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	0	0	0
3489:	0	0	0	0	0	1	0	0
3497:	0	0	0	0	1	1	0	1
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	1	0	1	0	0
3521:	0	0	0	0	0	0	1	0
3529:	0	0	0	0	0	0	0	0
3537:	0	0	0	0	0	0	0	0
3545:	0	0	0	1	0	1	0	0
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	1	0	0	0	1
3569:	0	1	0	1	0	0	0	0
3577:	0	0	0	0	0	1	0	0
3585:	0	0	0	0	0	0	0	0
3593:	0	1	0	0	0	0	0	1
3601:	0	0	0	0	0	1	0	0
3609:	0	0	0	0	0	0	0	0
3617:	0	2	1	0	1	0	0	0
3625:	0	0	0	0	0	0	0	0
3633:	1	0	1	0	0	1	0	0
3641:	2	1	0	0	1	0	0	0
3649:	0	0	0	0	0	0	0	1
3657:	1	0	0	0	0	0	0	0
3665:	0	0	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	0	0	0	0	0	2	0	0
3689:	0	0	0	0	0	0	0	1
3697:	0	0	0	0	0	0	0	1
3705:	1	0	0	0	0	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	1	0	0	0	0	0	0
3729:	0	0	1	0	1	0	0	0
3737:	0	0	0	1	0	0	0	0
3745:	0	1	0	0	0	0	0	0
3753:	0	0	0	0	1	0	0	1
3761:	0	0	0	0	0	0	0	0
3769:	0	0	0	0	1	0	0	0
3777:	2	0	0	0	0	0	0	0
3785:	0	0	0	0	0	0	0	1
3793:	0	0	0	0	0	0	0	0
3801:	1	0	0	1	0	0	0	0
3809:	1	0	0	0	0	0	0	0
3817:	0	0	1	1	0	0	0	0

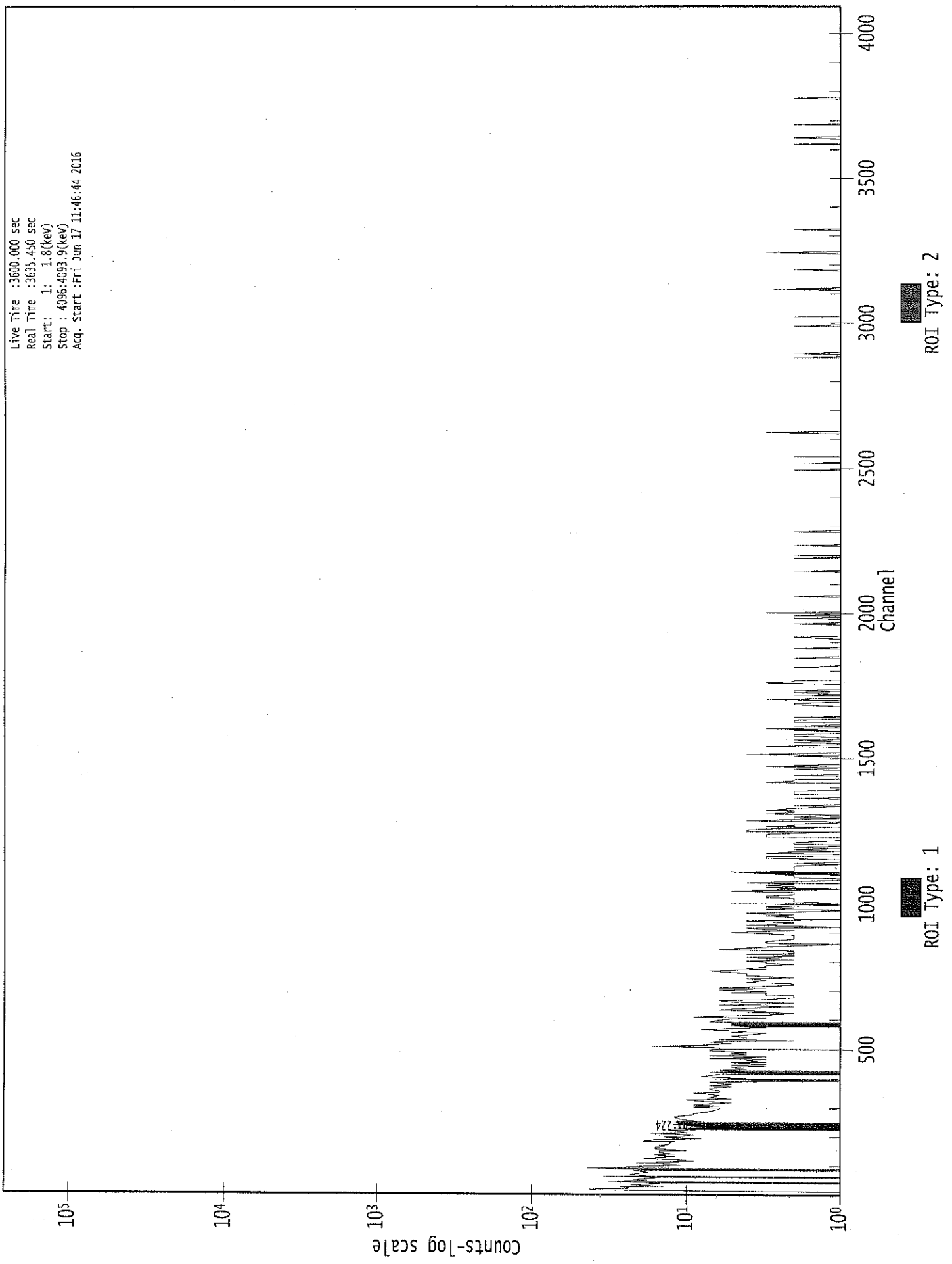
3825: 0 0 0 1 1 0 0 0

Sample Title: BLANK

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	1	0	0	0
3841:	0	0	0	0	0	1	0	0
3849:	0	0	1	0	0	1	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	0	1	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	1	1	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	1	0	0
3937:	0	0	0	0	0	0	1	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	1
3969:	0	0	1	0	0	0	0	0
3977:	1	1	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	0	0	1
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	1	0	0	0	0	0
4073:	0	0	0	0	1	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000039092.CNF

Live Time : 3600.000 sec
Real Time : 3635.450 sec
Start: 1: 1.8(keV)
Stop : 4096.4093.9(keV)
Acq. Start : Fri Jun 17 11:46:44 2016



Analysis Report for 1606065-03
CP-5013 10-15

✓
6117

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606065-03
Sample Description : CP-5013 10-15
Sample Type : SOIL

Sample Size : 5.436E+02 grams
Facility : Countroom

Sample Taken On : 6/8/2016 8:52:12AM
Acquisition Started : 6/17/2016 8:56:50AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE1
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.3 seconds

Dead Time : 0.04 %

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 : 39072

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606065-03
CP-5013 10-15

PEAK LOCATE REPORT

Peak Locate Performed on : 6/17/2016 9:56:55AM
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	47.18	47.53	0.0000	0.00
2	76.78	77.12	0.0000	0.00
3	93.15	93.49	0.0000	0.00
4	106.00	106.33	0.0000	0.00
5	129.44	129.76	0.0000	0.00
6	154.81	155.13	0.0000	0.00
7	186.23	186.53	0.0000	0.00
8	239.63	239.92	0.0000	0.00
9	270.84	271.11	0.0000	0.00
10	295.83	296.10	0.0000	0.00
11	300.23	300.50	0.0000	0.00
12	328.89	329.15	0.0000	0.00
13	339.00	339.25	0.0000	0.00
14	352.49	352.74	0.0000	0.00
15	378.53	378.77	0.0000	0.00
16	394.91	395.15	0.0000	0.00
17	463.54	463.75	0.0000	0.00
18	478.22	478.43	0.0000	0.00
19	505.80	506.00	0.0000	0.00
20	511.48	511.67	0.0000	0.00
21	583.80	583.97	0.0000	0.00
22	609.91	610.07	0.0000	0.00
23	696.26	696.39	0.0000	0.00
24	727.89	728.01	0.0000	0.00
25	732.26	732.38	0.0000	0.00
26	743.73	743.85	0.0000	0.00
27	770.93	771.03	0.0000	0.00
28	795.88	795.97	0.0000	0.00
29	833.89	833.97	0.0000	0.00
30	861.29	861.36	0.0000	0.00
31	895.95	896.01	0.0000	0.00
32	912.02	912.08	0.0000	0.00
33	965.16	965.20	0.0000	0.00
34	969.77	969.80	0.0000	0.00
35	1032.42	1032.43	0.0000	0.00
36	1040.84	1040.85	0.0000	0.00
37	1117.41	1117.39	0.0000	0.00
38	1120.94	1120.92	0.0000	0.00
39	1215.48	1215.42	0.0000	0.00
40	1235.23	1235.17	0.0000	0.00
41	1238.50	1238.44	0.0000	0.00
42	1351.42	1351.31	0.0000	0.00

Analysis Report for 1606065-03
CP-5013 10-15

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1376.69	1376.58	0.0000	0.00
44	1442.15	1442.01	0.0000	0.00
45	1461.62	1461.48	0.0000	0.00
46	1495.65	1495.49	0.0000	0.00
47	1501.39	1501.23	0.0000	0.00
48	1584.63	1584.44	0.0000	0.00
49	1588.93	1588.74	0.0000	0.00
50	1730.52	1730.27	0.0000	0.00
51	1764.90	1764.65	0.0000	0.00
52	1775.72	1775.46	0.0000	0.00
53	1848.19	1847.90	0.0000	0.00
54	2067.70	2067.33	0.0000	0.00
55	2104.66	2104.27	0.0000	0.00
56	2205.02	2204.60	0.0000	0.00
57	2335.74	2335.26	0.0000	0.00
58	2448.30	2447.78	0.0000	0.00
59	2615.22	2614.64	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606065-03
CP-5013 10-15

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 9:56:55AM

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	45 -	51	47.53	1.23E+02	81.53	1.13E+03	1.84
	2	73 -	83	77.12	1.07E+03	161.48	2.88E+03	3.08
	3	90 -	97	93.49	4.19E+02	113.33	1.78E+03	1.86
m	4	98 -	109	106.33	6.60E+01	61.99	7.70E+02	1.83
	5	127 -	133	129.76	7.15E+01	74.19	9.49E+02	2.25
	6	153 -	158	155.13	5.92E+01	63.80	7.56E+02	2.03
	7	182 -	190	186.53	2.80E+02	86.03	9.63E+02	1.66
	8	234 -	245	239.92	1.10E+03	111.82	1.01E+03	2.01
	9	268 -	274	271.11	7.22E+01	51.99	4.42E+02	1.34
M	10	292 -	306	296.10	2.67E+02	43.77	2.28E+02	1.49
m	11	292 -	306	300.50	5.93E+01	46.30	3.29E+02	2.11
	12	326 -	332	329.15	4.68E+01	46.06	3.48E+02	2.02
	13	335 -	343	339.25	2.36E+02	61.88	4.40E+02	1.51
	14	348 -	357	352.74	3.53E+02	68.99	4.75E+02	1.74
	15	376 -	382	378.77	3.45E+01	38.33	2.43E+02	2.88
	16	392 -	398	395.15	3.04E+01	35.82	2.13E+02	3.25
	17	460 -	467	463.75	6.98E+01	42.33	2.52E+02	1.34
	18	474 -	482	478.43	3.50E+01	38.04	1.98E+02	4.95
M	19	505 -	519	506.00	1.75E+01	8.20	2.30E+01	1.73
m	20	505 -	519	511.67	2.39E+02	50.65	2.25E+02	3.39
	21	579 -	588	583.97	2.78E+02	54.15	2.60E+02	1.41
	22	606 -	614	610.07	2.57E+02	52.25	2.63E+02	1.45
	23	681 -	707	696.39	8.19E+01	90.98	5.12E+02	23.08
M	24	723 -	735	728.01	6.41E+01	29.17	1.17E+02	1.95
m	25	723 -	735	732.38	2.31E+01	29.63	1.39E+02	2.49
	26	740 -	748	743.85	3.06E+01	31.10	1.29E+02	4.16
	27	765 -	778	771.03	6.55E+01	46.89	2.09E+02	5.43
	28	792 -	799	795.97	4.90E+01	30.59	1.22E+02	2.05
	29	828 -	842	833.97	4.74E+01	46.03	2.05E+02	9.18
	30	858 -	864	861.36	5.19E+01	27.99	1.04E+02	1.92
	31	890 -	902	896.01	2.95E+01	35.77	1.37E+02	6.79
	32	908 -	917	912.08	2.36E+02	41.65	1.08E+02	2.04
M	33	961 -	979	965.20	4.62E+01	26.41	9.54E+01	2.18
m	34	961 -	979	969.80	1.35E+02	31.90	7.32E+01	2.17
	35	1028 -	1037	1032.43	3.26E+01	28.71	9.68E+01	1.92
	36	1038 -	1045	1040.85	2.03E+01	22.72	7.34E+01	3.32
M	37	1116 -	1131	1117.39	1.90E+01	11.66	1.89E+01	1.66
m	38	1116 -	1131	1120.92	7.25E+01	25.85	5.24E+01	2.49
	39	1213 -	1219	1215.42	2.24E+01	23.10	8.11E+01	2.92
M	40	1233 -	1244	1235.17	1.64E+01	16.99	4.82E+01	2.29

Analysis Report for 1606065-03

CP-5013 10-15

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	1238.50	1233 - 1244		1238.44	3.51E+01	26.61	7.12E+01	2.55
	42	1351.42	1347 - 1355		1351.31	1.51E+01	18.40	3.77E+01	4.29
	43	1376.69	1368 - 1385		1376.58	4.35E+01	27.53	4.91E+01	3.01
	44	1442.15	1437 - 1446		1442.01	1.45E+01	11.22	8.95E+00	7.97
	45	1461.62	1456 - 1467		1461.48	9.07E+02	63.72	5.45E+01	2.25
M	46	1495.65	1492 - 1505		1495.49	1.11E+01	8.26	1.44E+00	2.94
m	47	1501.39	1492 - 1505		1501.23	1.46E+01	11.18	6.84E+00	3.92
M	48	1584.63	1582 - 1601		1584.44	7.55E+00	9.80	2.05E+01	3.28
m	49	1588.93	1582 - 1601		1588.74	1.79E+01	14.32	2.27E+01	2.99
	50	1730.52	1726 - 1735		1730.27	2.00E+01	12.08	8.00E+00	2.78
	51	1764.90	1759 - 1768		1764.65	6.80E+01	16.49	0.00E+00	2.67
	52	1775.72	1773 - 1778		1775.46	5.29E+00	6.08	3.43E+00	2.15
	53	1848.19	1844 - 1853		1847.90	1.21E+01	9.22	5.80E+00	2.01
	54	2067.70	2065 - 2070		2067.33	6.78E+00	7.35	4.44E+00	3.03
	55	2104.66	2101 - 2108		2104.27	1.57E+01	9.38	4.61E+00	4.08
	56	2205.02	2201 - 2208		2204.60	1.00E+01	6.32	0.00E+00	3.22
	57	2335.74	2333 - 2337		2335.26	4.92E+00	5.50	2.17E+00	1.88
	58	2448.30	2444 - 2451		2447.78	9.00E+00	6.00	0.00E+00	1.33
	59	2615.22	2611 - 2618		2614.64	8.90E+01	20.10	8.00E+00	3.60

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 : 6/17/2016 9:56:55AM

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	47.18	45 -	51	1.23E+02	81.53	1.13E+03	6.45E+01
	2	76.78	73 -	83	1.07E+03	161.48	2.88E+03	1.21E+02
	3	93.15	90 -	97	4.19E+02	113.33	1.78E+03	8.69E+01
m	4	106.00	98 -	109	6.60E+01	61.99	7.70E+02	4.56E+01
	5	129.44	127 -	133	7.15E+01	74.19	9.49E+02	5.94E+01
	6	154.81	153 -	158	5.92E+01	63.80	7.56E+02	5.09E+01
	7	186.23	182 -	190	2.80E+02	86.03	9.63E+02	6.51E+01
	8	239.63	234 -	245	1.10E+03	111.82	1.01E+03	7.40E+01
	9	270.84	268 -	274	7.22E+01	51.99	4.42E+02	4.04E+01

: 00308

Analysis Report for 1606065-03

CP-5013 10-15

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	10	295.83	292 -	306	2.67E+02	43.77	2.28E+02	2.48E+01
m	11	300.23	292 -	306	5.93E+01	46.30	3.29E+02	2.98E+01
	12	328.89	326 -	332	4.68E+01	46.06	3.48E+02	3.62E+01
	13	339.00	335 -	343	2.36E+02	61.88	4.40E+02	4.41E+01
	14	352.49	348 -	357	3.53E+02	68.99	4.75E+02	4.76E+01
	15	378.53	376 -	382	3.45E+01	38.33	2.43E+02	3.00E+01
	16	394.91	392 -	398	3.04E+01	35.82	2.13E+02	2.80E+01
	17	463.54	460 -	467	6.98E+01	42.33	2.52E+02	3.20E+01
	18	478.22	474 -	482	3.50E+01	38.04	1.98E+02	2.97E+01
M	19	505.80	505 -	519	1.75E+01	8.20	2.30E+01	7.88E+00
m	20	511.48	505 -	519	2.39E+02	50.65	2.25E+02	2.46E+01
	21	583.80	579 -	588	2.78E+02	54.15	2.60E+02	3.51E+01
	22	609.91	606 -	614	2.57E+02	52.25	2.63E+02	3.39E+01
	23	696.26	681 -	707	8.19E+01	90.98	5.12E+02	7.33E+01
M	24	727.89	723 -	735	6.41E+01	29.17	1.17E+02	1.77E+01
m	25	732.26	723 -	735	2.31E+01	29.63	1.39E+02	1.94E+01
	26	743.73	740 -	748	3.06E+01	31.10	1.29E+02	2.39E+01
	27	770.93	765 -	778	6.55E+01	46.89	2.09E+02	3.62E+01
	28	795.88	792 -	799	4.90E+01	30.59	1.22E+02	2.24E+01
	29	833.89	828 -	842	4.74E+01	46.03	2.05E+02	3.61E+01
	30	861.29	858 -	864	5.19E+01	27.99	1.04E+02	1.97E+01
	31	895.95	890 -	902	2.95E+01	35.77	1.37E+02	2.80E+01
	32	912.02	908 -	917	2.36E+02	41.65	1.08E+02	2.31E+01
M	33	965.16	961 -	979	4.62E+01	26.41	9.54E+01	1.61E+01
m	34	969.77	961 -	979	1.35E+02	31.90	7.32E+01	1.41E+01
	35	1032.42	1028 -	1037	3.26E+01	28.71	9.68E+01	2.16E+01
	36	1040.84	1038 -	1045	2.03E+01	22.72	7.34E+01	1.71E+01
M	37	1117.41	1116 -	1131	1.90E+01	11.66	1.89E+01	7.15E+00
m	38	1120.94	1116 -	1131	7.25E+01	25.85	5.24E+01	1.19E+01
	39	1215.48	1213 -	1219	2.24E+01	23.10	8.11E+01	1.73E+01
M	40	1235.23	1233 -	1244	1.64E+01	16.99	4.82E+01	1.14E+01
m	41	1238.50	1233 -	1244	3.51E+01	26.61	7.12E+01	1.39E+01
	42	1351.42	1347 -	1355	1.51E+01	18.40	3.77E+01	1.37E+01
	43	1376.69	1368 -	1385	4.35E+01	27.53	4.91E+01	1.99E+01
	44	1442.15	1437 -	1446	1.45E+01	11.22	8.95E+00	6.77E+00
	45	1461.62	1456 -	1467	9.07E+02	63.72	5.45E+01	1.71E+01
M	46	1495.65	1492 -	1505	1.11E+01	8.26	1.44E+00	1.97E+00
m	47	1501.39	1492 -	1505	1.46E+01	11.18	6.84E+00	4.30E+00
M	48	1584.63	1582 -	1601	7.55E+00	9.80	2.05E+01	7.45E+00
m	49	1588.93	1582 -	1601	1.79E+01	14.32	2.27E+01	7.83E+00
	50	1730.52	1726 -	1735	2.00E+01	12.08	8.00E+00	6.68E+00
	51	1764.90	1759 -	1768	6.80E+01	16.49	0.00E+00	0.00E+00
	52	1775.72	1773 -	1778	5.29E+00	6.08	3.43E+00	3.27E+00
	53	1848.19	1844 -	1853	1.21E+01	9.22	5.80E+00	4.97E+00
	54	2067.70	2065 -	2070	6.78E+00	7.35	4.44E+00	4.26E+00
	55	2104.66	2101 -	2108	1.57E+01	9.38	4.61E+00	4.13E+00
	56	2205.02	2201 -	2208	1.00E+01	6.32	0.00E+00	0.00E+00
	57	2335.74	2333 -	2337	4.92E+00	5.50	2.17E+00	2.67E+00
	58	2448.30	2444 -	2451	9.00E+00	6.00	0.00E+00	0.00E+00
	59	2615.22	2611 -	2618	8.90E+01	20.10	8.00E+00	5.70E+00

Analysis Report for 1606065-03

CP-5013 10-15

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 : 6/17/2016 9:56:55AM

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	47.18	45 -	51	47.53	1.23E+02	81.53	1.13E+03	PB-210
2	76.78	73 -	83	77.12	1.07E+03	161.48	2.88E+03	.....
3	93.15	90 -	97	93.49	4.19E+02	113.33	1.78E+03	GA-67
m 4	106.00	98 -	109	106.33	6.60E+01	61.99	7.70E+02	NP-239 EU-155
5	129.44	127 -	133	129.76	7.15E+01	74.19	9.49E+02	.....
6	154.81	153 -	158	155.13	5.92E+01	63.80	7.56E+02	.....
7	186.23	182 -	190	186.53	2.80E+02	86.03	9.63E+02	RA-226
8	239.63	234 -	245	239.92	1.10E+03	111.82	1.01E+03	.....
9	270.84	268 -	274	271.11	7.22E+01	51.99	4.42E+02	.....
M 10	295.83	292 -	306	296.10	2.67E+02	43.77	2.28E+02	PB-214
m 11	300.23	292 -	306	300.50	5.93E+01	46.30	3.29E+02	GA-67 PB-212 BI-210M
12	328.89	326 -	332	329.15	4.68E+01	46.06	3.48E+02	LA-140
13	339.00	335 -	343	339.25	2.36E+02	61.88	4.40E+02	AC-228
14	352.49	348 -	357	352.74	3.53E+02	68.99	4.75E+02	PB-214
15	378.53	376 -	382	378.77	3.45E+01	38.33	2.43E+02	.....
16	394.91	392 -	398	395.15	3.04E+01	35.82	2.13E+02	.....
17	463.54	460 -	467	463.75	6.98E+01	42.33	2.52E+02	SB-125
18	478.22	474 -	482	478.43	3.50E+01	38.04	1.98E+02	BE-7
M 19	505.80	505 -	519	506.00	1.75E+01	8.20	2.30E+01	.....
m 20	511.48	505 -	519	511.67	2.39E+02	50.65	2.25E+02	.....
21	583.80	579 -	588	583.97	2.78E+02	54.15	2.60E+02	TL-208
22	609.91	606 -	614	610.07	2.57E+02	52.25	2.63E+02	BI-214
23	696.26	681 -	707	696.39	8.19E+01	90.98	5.12E+02	PM-144
M 24	727.89	723 -	735	728.01	6.41E+01	29.17	1.17E+02	BI-212
m 25	732.26	723 -	735	732.38	2.31E+01	29.63	1.39E+02	.....
26	743.73	740 -	748	743.85	3.06E+01	31.10	1.29E+02	.....
27	770.93	765 -	778	771.03	6.55E+01	46.89	2.09E+02	.....

: 00310

Analysis Report for 1606065-03

CP-5013 10-15

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	28	795.88	792 -	799	795.97	4.90E+01	30.59	1.22E+02	CS-134
	29	833.89	828 -	842	833.97	4.74E+01	46.03	2.05E+02	MN-54
	30	861.29	858 -	864	861.36	5.19E+01	27.99	1.04E+02	TL-208
	31	895.95	890 -	902	896.01	2.95E+01	35.77	1.37E+02	.....
	32	912.02	908 -	917	912.08	2.36E+02	41.65	1.08E+02	LU-172 AC-228
M	33	965.16	961 -	979	965.20	4.62E+01	26.41	9.54E+01	.....
m	34	969.77	961 -	979	969.80	1.35E+02	31.90	7.32E+01	AC-228
	35	1032.42	1028 -	1037	1032.43	3.26E+01	28.71	9.68E+01	.....
	36	1040.84	1038 -	1045	1040.85	2.03E+01	22.72	7.34E+01	.....
M	37	1117.41	1116 -	1131	1117.39	1.90E+01	11.66	1.89E+01	.....
m	38	1120.94	1116 -	1131	1120.92	7.25E+01	25.85	5.24E+01	TA-182 SC-46 BI-214
	39	1215.48	1213 -	1219	1215.42	2.24E+01	23.10	8.11E+01	.....
M	40	1235.23	1233 -	1244	1235.17	1.64E+01	16.99	4.82E+01	CS-136
m	41	1238.50	1233 -	1244	1238.44	3.51E+01	26.61	7.12E+01	CO-56
	42	1351.42	1347 -	1355	1351.31	1.51E+01	18.40	3.77E+01	.....
	43	1376.69	1368 -	1385	1376.58	4.35E+01	27.53	4.91E+01	.....
	44	1442.15	1437 -	1446	1442.01	1.45E+01	11.22	8.95E+00	.....
	45	1461.62	1456 -	1467	1461.48	9.07E+02	63.72	5.45E+01	K-40
M	46	1495.65	1492 -	1505	1495.49	1.11E+01	8.26	1.44E+00	.....
m	47	1501.39	1492 -	1505	1501.23	1.46E+01	11.18	6.84E+00	.....
M	48	1584.63	1582 -	1601	1584.44	7.55E+00	9.80	2.05E+01	.....
m	49	1588.93	1582 -	1601	1588.74	1.79E+01	14.32	2.27E+01	.....
	50	1730.52	1726 -	1735	1730.27	2.00E+01	12.08	8.00E+00	.....
	51	1764.90	1759 -	1768	1764.65	6.80E+01	16.49	0.00E+00	BI-214
	52	1775.72	1773 -	1778	1775.46	5.29E+00	6.08	3.43E+00	.....
	53	1848.19	1844 -	1853	1847.90	1.21E+01	9.22	5.80E+00	.....
	54	2067.70	2065 -	2070	2067.33	6.78E+00	7.35	4.44E+00	.....
	55	2104.66	2101 -	2108	2104.27	1.57E+01	9.38	4.61E+00	.....
	56	2205.02	2201 -	2208	2204.60	1.00E+01	6.32	0.00E+00	BI-214
	57	2335.74	2333 -	2337	2335.26	4.92E+00	5.50	2.17E+00	.....
	58	2448.30	2444 -	2451	2447.78	9.00E+00	6.00	0.00E+00	.....
	59	2615.22	2611 -	2618	2614.64	8.90E+01	20.10	8.00E+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 : 6/17/2016 9:56:55AM

: 00011

Analysis Report for 1606065-03
CP-5013 10-15

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	47.18	1.23E+02	81.53	1.72E-02	1.78E-03
	2	76.78	1.07E+03	161.48	2.77E-02	2.36E-03
	3	93.15	4.19E+02	113.33	2.86E-02	2.64E-03
m	4	106.00	6.60E+01	61.99	2.82E-02	2.39E-03
	5	129.44	7.15E+01	74.19	2.67E-02	2.09E-03
	6	154.81	5.92E+01	63.80	2.47E-02	2.15E-03
	7	186.23	2.80E+02	86.03	2.24E-02	2.03E-03
	8	239.63	1.10E+03	111.82	1.92E-02	1.63E-03
	9	270.84	7.22E+01	51.99	1.77E-02	1.40E-03
M	10	295.83	2.67E+02	43.77	1.67E-02	1.31E-03
m	11	300.23	5.93E+01	46.30	1.65E-02	1.30E-03
	12	328.89	4.68E+01	46.06	1.55E-02	1.24E-03
	13	339.00	2.36E+02	61.88	1.52E-02	1.22E-03
	14	352.49	3.53E+02	68.99	1.47E-02	1.19E-03
	15	378.53	3.45E+01	38.33	1.40E-02	1.14E-03
	16	394.91	3.04E+01	35.82	1.36E-02	1.11E-03
	17	463.54	6.98E+01	42.33	1.21E-02	1.04E-03
	18	478.22	3.50E+01	38.04	1.18E-02	1.02E-03
M	19	505.80	1.75E+01	8.20	1.13E-02	9.96E-04
m	20	511.48	2.39E+02	50.65	1.12E-02	9.90E-04
	21	583.80	2.78E+02	54.15	1.02E-02	9.15E-04
	22	609.91	2.57E+02	52.25	9.82E-03	8.88E-04
	23	696.26	8.19E+01	90.98	8.85E-03	8.03E-04
M	24	727.89	6.41E+01	29.17	8.55E-03	7.75E-04
m	25	732.26	2.31E+01	29.63	8.51E-03	7.71E-04
	26	743.73	3.06E+01	31.10	8.40E-03	7.61E-04
	27	770.93	6.55E+01	46.89	8.17E-03	7.36E-04
	28	795.88	4.90E+01	30.59	7.96E-03	7.14E-04
	29	833.89	4.74E+01	46.03	7.67E-03	6.80E-04
	30	861.29	5.19E+01	27.99	7.48E-03	6.55E-04
	31	895.95	2.95E+01	35.77	7.24E-03	6.24E-04
	32	912.02	2.36E+02	41.65	7.14E-03	6.15E-04
M	33	965.16	4.62E+01	26.41	6.83E-03	5.87E-04
m	34	969.77	1.35E+02	31.90	6.80E-03	5.85E-04
	35	1032.42	3.26E+01	28.71	6.47E-03	5.52E-04
	36	1040.84	2.03E+01	22.72	6.43E-03	5.48E-04
M	37	1117.41	1.90E+01	11.66	6.08E-03	5.08E-04
m	38	1120.94	7.25E+01	25.85	6.06E-03	5.06E-04
	39	1215.48	2.24E+01	23.10	5.69E-03	4.72E-04
M	40	1235.23	1.64E+01	16.99	5.62E-03	4.68E-04
m	41	1238.50	3.51E+01	26.61	5.61E-03	4.68E-04
	42	1351.42	1.51E+01	18.40	5.26E-03	4.46E-04
	43	1376.69	4.35E+01	27.53	5.19E-03	4.40E-04
	44	1442.15	1.45E+01	11.22	5.02E-03	4.24E-04
	45	1461.62	9.07E+02	63.72	4.97E-03	4.19E-04
M	46	1495.65	1.11E+01	8.26	4.89E-03	4.11E-04
m	47	1501.39	1.46E+01	11.18	4.88E-03	4.09E-04
M	48	1584.63	7.55E+00	9.80	4.70E-03	3.88E-04
m	49	1588.93	1.79E+01	14.32	4.69E-03	3.87E-04
	50	1730.52	2.00E+01	12.08	4.45E-03	3.52E-04
	51	1764.90	6.80E+01	16.49	4.40E-03	3.44E-04
	52	1775.72	5.29E+00	6.08	4.38E-03	3.41E-04
	53	1848.19	1.21E+01	9.22	4.28E-03	3.26E-04

Analysis Report for 1606065-03
CP-5013 10-15

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
54	2067.70	6.78E+00	7.35	4.05E-03	3.26E-04
55	2104.66	1.57E+01	9.38	4.02E-03	3.26E-04
56	2205.02	1.00E+01	6.32	3.95E-03	3.26E-04
57	2335.74	4.92E+00	5.50	3.88E-03	3.26E-04
58	2448.30	9.00E+00	6.00	3.83E-03	3.26E-04
59	2615.22	8.90E+01	20.10	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 : 6/17/2016 9:56:55AM

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	47.18	1.23E+02	81.53	4.33E+01	8.35E+00	8.01E+01	8.20E+01
2	76.78	1.07E+03	161.48			1.07E+03	1.61E+02
3	93.15	4.19E+02	113.33	1.29E+02	7.14E+00	2.90E+02	1.14E+02
m 4	106.00	6.60E+01	61.99			6.60E+01	6.20E+01
5	129.44	7.15E+01	74.19			7.15E+01	7.42E+01
6	154.81	5.92E+01	63.80			5.92E+01	6.38E+01
7	186.23	2.80E+02	86.03	5.81E+01	8.50E+00	2.22E+02	8.65E+01
8	239.63	1.10E+03	111.82	1.81E+01	5.76E+00	1.08E+03	1.12E+02
9	270.84	7.22E+01	51.99			7.22E+01	5.20E+01
M 10	295.83	2.67E+02	43.77	1.02E+00	5.38E+00	2.66E+02	4.41E+01
m 11	300.23	5.93E+01	46.30			5.93E+01	4.63E+01
12	328.89	4.68E+01	46.06			4.68E+01	4.61E+01
13	339.00	2.36E+02	61.88	3.86E+00	4.98E+00	2.32E+02	6.21E+01
14	352.49	3.53E+02	68.99	7.25E+00	4.86E+00	3.45E+02	6.92E+01
15	378.53	3.45E+01	38.33			3.45E+01	3.83E+01
16	394.91	3.04E+01	35.82			3.04E+01	3.58E+01
17	463.54	6.98E+01	42.33			6.98E+01	4.23E+01
18	478.22	3.50E+01	38.04			3.50E+01	3.80E+01
M 19	505.80	1.75E+01	8.20			1.75E+01	8.20E+00
m 20	511.48	2.39E+02	50.65	7.58E+01	5.38E+00	1.63E+02	5.09E+01
21	583.80	2.78E+02	54.15	6.11E+00	3.78E+00	2.72E+02	5.43E+01
22	609.91	2.57E+02	52.25	6.74E+00	3.64E+00	2.51E+02	5.24E+01
23	696.26	8.19E+01	90.98			8.19E+01	9.10E+01
M 24	727.89	6.41E+01	29.17			6.41E+01	2.92E+01

Analysis Report for 1606065-03

CP-5013 10-15

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	25	732.26	2.31E+01	29.63			2.31E+01	2.96E+01
	26	743.73	3.06E+01	31.10			3.06E+01	3.11E+01
	27	770.93	6.55E+01	46.89			6.55E+01	4.69E+01
	28	795.88	4.90E+01	30.59			4.90E+01	3.06E+01
	29	833.89	4.74E+01	46.03			4.74E+01	4.60E+01
	30	861.29	5.19E+01	27.99			5.19E+01	2.80E+01
	31	895.95	2.95E+01	35.77			2.95E+01	3.58E+01
	32	912.02	2.36E+02	41.65	4.21E+00	2.98E+00	2.32E+02	4.18E+01
M	33	965.16	4.62E+01	26.41			4.62E+01	2.64E+01
m	34	969.77	1.35E+02	31.90			1.35E+02	3.19E+01
	35	1032.42	3.26E+01	28.71			3.26E+01	2.87E+01
	36	1040.84	2.03E+01	22.72			2.03E+01	2.27E+01
M	37	1117.41	1.90E+01	11.66			1.90E+01	1.17E+01
m	38	1120.94	7.25E+01	25.85			7.25E+01	2.58E+01
	39	1215.48	2.24E+01	23.10			2.24E+01	2.31E+01
M	40	1235.23	1.64E+01	16.99			1.64E+01	1.70E+01
m	41	1238.50	3.51E+01	26.61			3.51E+01	2.66E+01
	42	1351.42	1.51E+01	18.40			1.51E+01	1.84E+01
	43	1376.69	4.35E+01	27.53			4.35E+01	2.75E+01
	44	1442.15	1.45E+01	11.22			1.45E+01	1.12E+01
	45	1461.62	9.07E+02	63.72	6.83E+00	2.10E+00	9.00E+02	6.38E+01
M	46	1495.65	1.11E+01	8.26			1.11E+01	8.26E+00
m	47	1501.39	1.46E+01	11.18			1.46E+01	1.12E+01
M	48	1584.63	7.55E+00	9.80			7.55E+00	9.80E+00
m	49	1588.93	1.79E+01	14.32			1.79E+01	1.43E+01
	50	1730.52	2.00E+01	12.08			2.00E+01	1.21E+01
	51	1764.90	6.80E+01	16.49	1.66E+00	1.65E+00	6.63E+01	1.66E+01
	52	1775.72	5.29E+00	6.08			5.29E+00	6.08E+00
	53	1848.19	1.21E+01	9.22			1.21E+01	9.22E+00
	54	2067.70	6.78E+00	7.35			6.78E+00	7.35E+00
	55	2104.66	1.57E+01	9.38			1.57E+01	9.38E+00
	56	2205.02	1.00E+01	6.32			1.00E+01	6.32E+00
	57	2335.74	4.92E+00	5.50			4.92E+00	5.50E+00
	58	2448.30	9.00E+00	6.00			9.00E+00	6.00E+00
	59	2615.22	8.90E+01	20.10	4.95E+00	1.35E+00	8.40E+01	2.01E+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 1606065-03

CP-5013 10-15

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/17/2016 9:56:55AM

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	47.18	1.23E+02	81.53	4.33E+01	8.35E+00	8.01E+01	8.20E+01
	2	76.78	1.07E+03	161.48			1.07E+03	1.61E+02
	3	93.15	4.19E+02	113.33	1.29E+02	7.14E+00	2.90E+02	1.14E+02
m	4	106.00	6.60E+01	61.99			6.60E+01	6.20E+01
	5	129.44	7.15E+01	74.19			7.15E+01	7.42E+01
	6	154.81	5.92E+01	63.80			5.92E+01	6.38E+01
	7	186.23	2.80E+02	86.03	5.81E+01	8.50E+00	2.22E+02	8.65E+01
	8	239.63	1.10E+03	111.82	1.81E+01	5.76E+00	1.08E+03	1.12E+02
	9	270.84	7.22E+01	51.99			7.22E+01	5.20E+01
M	10	295.83	2.67E+02	43.77	1.02E+00	5.38E+00	2.66E+02	4.41E+01
m	11	300.23	5.93E+01	46.30			5.93E+01	4.63E+01
	12	328.89	4.68E+01	46.06			4.68E+01	4.61E+01
	13	339.00	2.36E+02	61.88	3.86E+00	4.98E+00	2.32E+02	6.21E+01
	14	352.49	3.53E+02	68.99	7.25E+00	4.86E+00	3.45E+02	6.92E+01
	15	378.53	3.45E+01	38.33			3.45E+01	3.83E+01
	16	394.91	3.04E+01	35.82			3.04E+01	3.58E+01
	17	463.54	6.98E+01	42.33			6.98E+01	4.23E+01
	18	478.22	3.50E+01	38.04			3.50E+01	3.80E+01
M	19	505.80	1.75E+01	8.20			1.75E+01	8.20E+00
m	20	511.48	2.39E+02	50.65	7.58E+01	5.38E+00	1.63E+02	5.09E+01
	21	583.80	2.78E+02	54.15	6.11E+00	3.78E+00	2.72E+02	5.43E+01
	22	609.91	2.57E+02	52.25	6.74E+00	3.64E+00	2.51E+02	5.24E+01
	23	696.26	8.19E+01	90.98			8.19E+01	9.10E+01
M	24	727.89	6.41E+01	29.17			6.41E+01	2.92E+01
m	25	732.26	2.31E+01	29.63			2.31E+01	2.96E+01
	26	743.73	3.06E+01	31.10			3.06E+01	3.11E+01
	27	770.93	6.55E+01	46.89			6.55E+01	4.69E+01
	28	795.88	4.90E+01	30.59			4.90E+01	3.06E+01
	29	833.89	4.74E+01	46.03			4.74E+01	4.60E+01
	30	861.29	5.19E+01	27.99			5.19E+01	2.80E+01
	31	895.95	2.95E+01	35.77			2.95E+01	3.58E+01
	32	912.02	2.36E+02	41.65	4.21E+00	2.98E+00	2.32E+02	4.18E+01
M	33	965.16	4.62E+01	26.41			4.62E+01	2.64E+01
m	34	969.77	1.35E+02	31.90			1.35E+02	3.19E+01
	35	1032.42	3.26E+01	28.71			3.26E+01	2.87E+01
	36	1040.84	2.03E+01	22.72			2.03E+01	2.27E+01
M	37	1117.41	1.90E+01	11.66			1.90E+01	1.17E+01
m	38	1120.94	7.25E+01	25.85			7.25E+01	2.58E+01
	39	1215.48	2.24E+01	23.10			2.24E+01	2.31E+01
M	40	1235.23	1.64E+01	16.99			1.64E+01	1.70E+01
m	41	1238.50	3.51E+01	26.61			3.51E+01	2.66E+01

Analysis Report for 1606065-03

CP-5013 10-15

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	42	1351.42	1.51E+01	18.40			1.51E+01	1.84E+01
	43	1376.69	4.35E+01	27.53			4.35E+01	2.75E+01
	44	1442.15	1.45E+01	11.22			1.45E+01	1.12E+01
	45	1461.62	9.07E+02	63.72	6.83E+00	2.10E+00	9.00E+02	6.38E+01
M	46	1495.65	1.11E+01	8.26			1.11E+01	8.26E+00
m	47	1501.39	1.46E+01	11.18			1.46E+01	1.12E+01
M	48	1584.63	7.55E+00	9.80			7.55E+00	9.80E+00
m	49	1588.93	1.79E+01	14.32			1.79E+01	1.43E+01
	50	1730.52	2.00E+01	12.08			2.00E+01	1.21E+01
	51	1764.90	6.80E+01	16.49	1.66E+00	1.65E+00	6.63E+01	1.66E+01
	52	1775.72	5.29E+00	6.08			5.29E+00	6.08E+00
	53	1848.19	1.21E+01	9.22			1.21E+01	9.22E+00
	54	2067.70	6.78E+00	7.35			6.78E+00	7.35E+00
	55	2104.66	1.57E+01	9.38			1.57E+01	9.38E+00
	56	2205.02	1.00E+01	6.32			1.00E+01	6.32E+00
	57	2335.74	4.92E+00	5.50			4.92E+00	5.50E+00
	58	2448.30	9.00E+00	6.00			9.00E+00	6.00E+00
	59	2615.22	8.90E+01	20.10	4.95E+00	1.35E+00	8.40E+01	2.01E+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	0.938	477.59 *	10.42	4.41E-01	4.81E-01
K-40	0.899	1460.81 *	10.67	2.34E+01	2.63E+00
MN-54	0.868	834.83 *	99.97	8.71E-02	8.49E-02
GA-67	0.901	93.31 *	35.70	2.67E+00	4.47E+00
		208.95	2.24		
		300.22 *	16.00	2.11E+00	3.82E+00
TL-208	0.937	583.14 *	30.22	1.22E+00	2.68E-01
		860.37 *	4.48	2.14E+00	1.17E+00
		2614.66 *	35.85	8.53E-01	2.17E-01
PB-210	0.929	46.50 *	4.25	1.51E+00	1.55E+00
BI-212	0.701	727.17 *	11.80	8.77E-01	4.07E-01
		1620.62	2.75		
BI-214	0.946	609.31 *	46.30	7.62E-01	1.73E-01

: 00316

Analysis Report for 1606065-03
CP-5013 10-15

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.946	1120.29 *	15.10	1.09E+00	4.00E-01
		1764.49 *	15.80	1.32E+00	3.45E-01
		2204.22 *	4.98	7.02E-01	4.48E-01
PB-214	0.946	295.21 *	19.19	1.15E+00	2.11E-01
		351.92 *	37.19	8.70E-01	1.88E-01
RA-226	1.000	186.21 *	3.28	4.19E+00	7.84E+00
AC-228	0.898	338.32 *	11.40	1.86E+00	5.18E-01
		911.07 *	27.70	1.62E+00	3.23E-01
		969.11 *	16.60	1.66E+00	4.16E-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 : 6/17/2016 9:56:55AM

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	76.78	2.97558E-01	7.54		
m 4	106.00	1.83418E-02	46.94	Tol.	EU-155 NP-239
5	129.44	1.98542E-02	51.90		
6	154.81	1.64347E-02	53.91		
8	239.63	3.00715E-01	5.17		
9	270.84	2.00640E-02	35.99		
12	328.89	1.29902E-02	49.24		
15	378.53	9.59135E-03	55.51		
16	394.91	8.44789E-03	58.89		
17	463.54	1.93856E-02	30.33	Tol.	SB-125
M 19	505.80	4.86795E-03	23.40		
m 20	511.48	4.53689E-02	15.59		
23	696.26	2.27457E-02	55.55	Tol.	PM-144
m 25	732.26	6.42450E-03	64.05		
26	743.73	8.50292E-03	50.80	D-Esc	
27	770.93	1.81871E-02	35.81	Sum	
28	795.88	1.36111E-02	31.22	Sum	
31	895.95	8.18311E-03	60.71		
M 33	965.16	1.28208E-02	28.62		

Analysis Report for 1606065-03
CP-5013 10-15

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	35	1032.42	9.05693E-03		
	36	1040.84	5.63840E-03		
M	37	1117.41	5.28703E-03		
	39	1215.48	6.23457E-03		
M	40	1235.23	4.56103E-03	Tol.	CS-136
m	41	1238.50	9.74269E-03	Tol.	CO-56
	42	1351.42	4.20752E-03		
	43	1376.69	1.20752E-02		
	44	1442.15	4.03509E-03		
M	46	1495.65	3.08568E-03	Sum	
m	47	1501.39	4.05042E-03		
M	48	1584.63	2.09664E-03		
m	49	1588.93	4.97564E-03	Sum	
	50	1730.52	5.55556E-03	Sum	
	52	1775.72	1.46825E-03		
	53	1848.19	3.36111E-03	Sum	
	54	2067.70	1.88272E-03		
	55	2104.66	4.35957E-03		
	57	2335.74	1.36574E-03	S-Esc	
	58	2448.30	2.50000E-03		

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	0.93	477.59 *	10.42	4.41E-01	4.81E-01
K-40	0.89	1460.81 *	10.67	2.34E+01	2.63E+00
MN-54	0.86	834.83 *	99.97	8.71E-02	8.49E-02
GA-67	0.90	93.31 *	35.70	2.67E+00	4.47E+00
		208.95	2.24		
		300.22 *	16.00	2.11E+00	3.82E+00
TL-208	0.93	583.14 *	30.22	1.22E+00	2.68E-01
		860.37 *	4.48	2.14E+00	1.17E+00

Analysis Report for 1606065-03

CP-5013 10-15

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.93	2614.66 *	35.85	8.53E-01	2.17E-01
PB-210	0.92	46.50 *	4.25	1.51E+00	1.55E+00
BI-212	0.70	727.17 *	11.80	8.77E-01	4.07E-01
		1620.62	2.75		
BI-214	0.94	609.31 *	46.30	7.62E-01	1.73E-01
		1120.29 *	15.10	1.09E+00	4.00E-01
		1764.49 *	15.80	1.32E+00	3.45E-01
		2204.22 *	4.98	7.02E-01	4.48E-01
PB-214	0.94	295.21 *	19.19	1.15E+00	2.11E-01
		351.92 *	37.19	8.70E-01	1.88E-01
RA-226	1.00	186.21 *	3.28	4.19E+00	7.84E+00
AC-228	0.89	338.32 *	11.40	1.86E+00	5.18E-01
		911.07 *	27.70	1.62E+00	3.23E-01
		969.11 *	16.60	1.66E+00	4.16E-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	0.938	4.41E-01	4.81E-01	
K-40	0.899	2.34E+01	2.63E+00	
MN-54	0.868	8.71E-02	8.49E-02	
GA-67	0.901	2.37E+00	3.51E+00	
TL-208	0.937	1.02E+00	1.67E-01	
PB-210	0.929	1.51E+00	1.55E+00	
BI-212	0.701	8.77E-01	4.07E-01	
BI-214	0.946	8.84E-01	1.38E-01	
PB-214	0.946	9.93E-01	1.40E-01	
RA-226	1.000	4.19E+00	7.84E+00	
AC-228	0.898	1.68E+00	2.29E-01	

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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

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 9:56:55AM
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	76.78	2.97558E-01		
m	4	106.00	1.83418E-02	46.94	Tol. EU-155 NP-239
	5	129.44	1.98542E-02	51.90	
	6	154.81	1.64347E-02	53.91	
	8	239.63	3.00715E-01	5.17	
	9	270.84	2.00640E-02	35.99	
	12	328.89	1.29902E-02	49.24	
	15	378.53	9.59135E-03	55.51	
	16	394.91	8.44789E-03	58.89	
	17	463.54	1.93856E-02	30.33	Tol. SB-125
M	19	505.80	4.86795E-03	23.40	
m	20	511.48	4.53689E-02	15.59	
	23	696.26	2.27457E-02	55.55	Tol. PM-144
m	25	732.26	6.42450E-03	64.05	
	26	743.73	8.50292E-03	50.80	D-Esc
	27	770.93	1.81871E-02	35.81	Sum
	28	795.88	1.36111E-02	31.22	Sum
	31	895.95	8.18311E-03	60.71	
M	33	965.16	1.28208E-02	28.62	
	35	1032.42	9.05693E-03	44.02	
	36	1040.84	5.63840E-03	55.95	
M	37	1117.41	5.28703E-03	30.64	
	39	1215.48	6.23457E-03	51.47	
M	40	1235.23	4.56103E-03	51.72	Tol. CS-136
m	41	1238.50	9.74269E-03	37.93	Tol. CO-56
	42	1351.42	4.20752E-03	60.73	
	43	1376.69	1.20752E-02	31.67	
	44	1442.15	4.03509E-03	38.64	
M	46	1495.65	3.08568E-03	37.19	Sum
m	47	1501.39	4.05042E-03	38.34	
M	48	1584.63	2.09664E-03	64.91	
m	49	1588.93	4.97564E-03	39.97	Sum
	50	1730.52	5.55556E-03	30.21	Sum
	52	1775.72	1.46825E-03	57.54	

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
53	1848.19	3.36111E-03	38.10	Sum	
54	2067.70	1.88272E-03	54.21		
55	2104.66	4.35957E-03	29.89	S-Esc	
57	2335.74	1.36574E-03	55.93		
58	2448.30	2.50000E-03	33.33		

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	4.41E-01	7.84E-01	7.84E-01
+	NA-22	1274.54	99.94	-2.79E-02	7.95E-02	7.95E-02
+	NA-24	1368.53	99.99	-5.89E+01	8.73E+02	1.41E+03
		2754.09	99.86	-4.51E+01		8.73E+02
+	AL-26	1808.65	99.76	8.67E-03	4.80E-02	4.80E-02
+	K-40	1460.81	* 10.67	2.34E+01	9.94E-01	9.94E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-2.77E-02	6.89E-02	6.89E-02
		78.34	96.00	1.39E-01		8.85E-02
+	SC-46	889.25	99.98	2.02E-02	7.34E-02	7.34E-02
		1120.51	99.99	1.87E-01		1.31E-01
+	V-48	983.52	99.98	7.70E-03	1.03E-01	1.03E-01
		1312.10	97.50	-4.12E-02		1.03E-01
+	CR-51	320.08	9.83	-5.58E-03	6.27E-01	6.27E-01
+	MN-54	834.83	* 99.97	8.71E-02	1.38E-01	1.38E-01
+	CO-56	846.75	99.96	7.65E-03	7.88E-02	7.88E-02
		1037.75	14.03	-1.14E-02		5.89E-01
		1238.25	67.00	1.69E-01		1.91E-01
		1771.40	15.51	1.10E-02		2.64E-01
		2598.48	16.90	2.33E-02		2.80E-01
+	CO-57	122.06	85.51	-1.33E-02	5.48E-02	5.48E-02
		136.48	10.60	-1.95E-01		4.58E-01
+	CO-58	810.76	99.40	3.04E-02	7.78E-02	7.78E-02
+	FE-59	1099.22	56.50	4.85E-02	1.64E-01	1.64E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	FE-59	1291.56	43.20	1.53E-02	1.64E-01	2.12E-01
+	CO-60	1173.22	100.00	4.92E-02	5.56E-02	9.10E-02
		1332.49	100.00	-3.10E-02		5.56E-02
+	ZN-65	1115.52	50.75	-1.86E-03	1.69E-01	1.69E-01
+	GA-67	93.31	* 35.70	2.67E+00	1.67E+00	1.67E+00
		208.95	2.24	1.36E+01		1.81E+01
		300.22	* 16.00	2.11E+00		4.99E+00
+	SE-75	121.11	16.70	-4.10E-02	8.44E-02	2.84E-01
		136.00	59.20	5.09E-02		8.57E-02
		264.65	59.80	5.48E-03		8.44E-02
		279.53	25.20	1.11E-01		2.19E-01
		400.65	11.40	3.76E-02		4.78E-01
+	RB-82	776.52	13.00	-9.28E-03	6.62E-01	6.62E-01
+	RB-83	520.41	46.00	-4.51E-03	1.34E-01	1.34E-01
		529.64	30.30	-6.92E-02		2.14E-01
		552.65	16.40	-1.15E-01		3.83E-01
+	KR-85	513.99	0.43	4.37E+01	2.27E+01	2.27E+01
+	SR-85	513.99	99.27	2.10E-01	1.09E-01	1.09E-01
+	Y-88	898.02	93.40	-6.58E-04	5.44E-02	8.14E-02
		1836.01	99.38	2.10E-02		5.44E-02
+	NB-93M	16.57	9.43	-5.23E+01	6.54E+01	6.54E+01
+	NB-94	702.63	100.00	4.67E-02	6.94E-02	7.77E-02
		871.10	100.00	-6.32E-03		6.94E-02
+	NB-95	765.79	99.81	2.70E-02	9.68E-02	9.68E-02
+	NB-95M	235.69	25.00	-1.60E+01	1.33E+00	1.33E+00
+	ZR-95	724.18	43.70	6.64E-03	1.39E-01	1.92E-01
		756.72	55.30	5.62E-02		1.39E-01
+	MO-99	181.06	6.20	2.31E+00	5.54E+00	8.03E+00
		739.58	12.80	1.51E+00		5.54E+00
		778.00	4.50	-3.73E+00		1.33E+01
+	RU-103	497.08	89.00	-5.16E-02	6.77E-02	6.77E-02
+	RU-106	621.84	9.80	-1.63E-01	6.57E-01	6.57E-01
+	AG-108M	433.93	89.90	1.05E-02	6.31E-02	6.31E-02
		614.37	90.40	-7.33E-03		7.52E-02
		722.95	90.50	1.52E-02		7.78E-02
+	CD-109	88.03	3.72	1.09E+00	1.80E+00	1.80E+00
+	AG-110M	657.75	93.14	9.25E-03	7.61E-02	7.61E-02
		677.61	10.53	-1.28E-01		6.06E-01
		706.67	16.46	8.05E-02		4.51E-01
		763.93	21.98	3.16E-02		3.30E-01
		884.67	71.63	3.64E-02		1.02E-01
		1384.27	23.94	7.63E-03		1.82E-01
+	CD-113M	263.70	0.02	1.68E+01	2.12E+02	2.12E+02
+	SN-113	255.12	1.93	-1.29E-01	7.24E-02	2.65E+00
		391.69	64.90	-4.05E-03		7.24E-02
+	TE123M	159.00	84.10	6.82E-03	5.86E-02	5.86E-02
+	SB-124	602.71	97.87	1.61E-02	7.96E-02	7.96E-02
		645.85	7.26	-6.14E-02		1.02E+00

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	722.78	11.10	1.38E-01	7.96E-02	7.03E-01
		1691.02	49.00	2.08E-02		1.21E-01
+	I-125	35.49	6.49	3.84E-01	2.49E+00	2.49E+00
+	SB-125	176.33	6.89	-2.03E-01	1.94E-01	7.29E-01
		427.89	29.33	-8.09E-02		1.94E-01
		463.38	10.35	8.39E-01		7.23E-01
		600.56	17.80	2.04E-01		4.12E-01
		635.90	11.32	-8.03E-02		5.62E-01
+	SB-126	414.70	83.30	-5.36E-02	1.10E-01	1.10E-01
		666.33	99.60	-5.92E-03		1.16E-01
		695.00	99.60	-6.33E-02		1.18E-01
		720.50	53.80	2.84E-02		2.13E-01
+	SN-126	87.57	37.00	1.08E-01	1.79E-01	1.79E-01
+	SB-127	473.00	25.00	1.43E-01	9.93E-01	1.12E+00
		685.20	35.70	-5.24E-02		9.93E-01
		783.80	14.70	1.74E+00		2.70E+00
+	I-129	29.78	57.00	1.08E-02	4.60E-01	4.60E-01
		33.60	13.20	8.94E-02		1.31E+00
		39.58	7.52	4.42E-01		1.41E+00
+	I-131	284.30	6.05	-4.66E-01	1.29E-01	1.79E+00
		364.48	81.20	4.77E-02		1.29E-01
		636.97	7.26	-2.40E-01		1.93E+00
		722.89	1.80	1.67E+00		8.51E+00
+	TE-132	49.72	13.10	-8.21E-01	4.02E-01	4.05E+00
		228.16	88.00	4.79E-02		4.02E-01
+	BA-133	81.00	33.00	-9.54E-01	9.06E-02	1.91E-01
		302.84	17.80	1.18E-01		3.12E-01
		356.01	60.00	-3.40E-01		9.06E-02
+	I-133	529.87	86.30	-3.08E+01	9.53E+01	9.53E+01
+	XE-133	81.00	38.00	-2.73E+00	5.46E-01	5.46E-01
+	CS-134	563.23	8.38	2.96E-01	7.11E-02	7.95E-01
		569.32	15.43	-2.56E-01		4.13E-01
		604.70	97.60	2.42E-02		7.11E-02
		795.84	85.40	8.82E-02		1.03E-01
		801.93	8.73	1.41E-01		7.93E-01
+	CS-135	268.24	16.00	1.40E-01	3.45E-01	3.45E-01
+	I-135	1131.51	22.50	-9.23E+08	2.16E+09	2.44E+09
		1260.41	28.60	-1.34E+08		2.16E+09
		1678.03	9.54	5.83E+08		4.54E+09
+	CS-136	153.22	7.46	1.06E+00	1.01E-01	1.15E+00
		163.89	4.61	-1.11E+00		1.69E+00
		176.55	13.56	-1.65E-01		5.93E-01
		273.65	12.66	-1.77E-03		6.61E-01
		340.57	48.50	5.93E-01		2.61E-01
		818.50	99.70	1.99E-02		1.01E-01
		1048.07	79.60	-3.24E-02		1.30E-01
		1235.34	19.70	-3.09E-01		8.40E-01
+	CS-137	661.65	85.12	-3.37E-03	8.34E-02	8.34E-02
+	LA-138	788.74	34.00	3.49E-02	8.62E-02	2.05E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-138	1435.80	66.00	-7.54E-03	8.62E-02	8.62E-02
+	CE-139	165.85	80.35	-1.08E-02	6.62E-02	6.62E-02
+	BA-140	162.64	6.70	8.54E-02	4.21E-01	1.18E+00
		304.84	4.50	-3.68E-01		1.84E+00
		423.70	3.20	6.81E-01		2.98E+00
		437.55	2.00	-1.56E+00		4.60E+00
		537.32	25.00	-5.63E-02		4.21E-01
+	LA-140	328.77	20.50	3.61E-01	1.24E-01	4.56E-01
		487.03	45.50	1.17E-01		2.09E-01
		815.85	23.50	-2.80E-01		4.12E-01
		1596.49	95.49	5.80E-02		1.24E-01
+	CE-141	145.44	48.40	-4.77E-02	1.25E-01	1.25E-01
+	CE-143	57.36	11.80	-1.61E+01	1.65E+01	5.05E+01
		293.26	42.00	2.87E+01		1.65E+01
		664.55	5.20	-4.23E+01		1.23E+02
+	CE-144	133.54	10.80	5.93E-02	4.46E-01	4.46E-01
+	PM-144	476.78	42.00	1.63E-02	6.46E-02	1.44E-01
		618.01	98.60	-3.69E-02		6.46E-02
		696.49	99.49	1.96E-02		7.78E-02
+	PM-145	36.85	21.70	-5.95E-02	3.13E-01	5.95E-01
		37.36	39.70	-3.81E-02		3.13E-01
		42.30	15.10	9.93E-03		5.88E-01
		72.40	2.31	3.03E-01		2.98E+00
+	PM-146	453.90	39.94	2.65E-02	1.53E-01	1.53E-01
		735.90	14.01	2.05E-01		5.41E-01
		747.13	13.10	1.64E-02		5.12E-01
+	ND-147	91.11	28.90	-1.48E+00	4.13E-01	4.13E-01
		531.02	13.10	-2.23E-02		8.48E-01
+	PM-149	285.90	3.10	-2.62E+00	2.73E+01	2.73E+01
+	EU-152	121.78	20.50	-5.41E-02	2.23E-01	2.23E-01
		244.69	5.40	5.94E-02		1.06E+00
		344.27	19.13	-2.21E-02		2.49E-01
		778.89	9.20	4.62E-02		7.08E-01
		964.01	10.40	-5.66E-01		9.63E-01
		1085.78	7.22	-2.77E-01		1.03E+00
		1112.02	9.60	6.79E-02		8.33E-01
		1407.95	14.94	9.07E-03		4.07E-01
+	GD-153	97.43	31.30	-1.66E-01	1.64E-01	1.64E-01
		103.18	22.20	-1.06E-01		2.27E-01
+	EU-154	123.07	40.50	5.39E-02	1.17E-01	1.17E-01
		723.30	19.70	7.02E-02		3.58E-01
		873.19	11.50	-1.79E-01		5.90E-01
		996.32	10.30	-3.40E-01		6.49E-01
		1004.76	17.90	-2.05E-02		4.28E-01
		1274.45	35.50	-7.81E-02		2.23E-01
+	EU-155	86.50	30.90	3.19E-01	2.20E-01	2.20E-01
		105.30	20.70	1.47E-01		2.45E-01
+	EU-156	811.77	10.40	2.05E-01	9.91E-01	9.91E-01
		1153.47	7.20	4.02E-01		1.75E+00

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-156	1230.71	8.90	6.54E-01	9.91E-01	1.45E+00
+	HO-166M	184.41	72.60	1.68E-01	9.21E-02	9.21E-02
		280.45	29.60	2.70E-03		1.70E-01
		410.94	11.10	1.08E-01		5.48E-01
		711.69	54.10	1.57E-02		1.31E-01
+	TM-171	66.72	0.14	-4.58E+01	4.87E+01	4.87E+01
+	HF-172	81.75	4.52	-4.63E+00	4.18E-01	1.29E+00
		125.81	11.30	6.90E-02		4.18E-01
+	LU-172	181.53	20.60	1.14E-01	3.33E-01	6.37E-01
		810.06	16.63	6.20E-01		1.11E+00
		912.12	15.25	7.08E+00		2.55E+00
		1093.66	62.50	-2.32E-02		3.33E-01
+	LU-173	100.72	5.24	4.97E-01	2.77E-01	9.66E-01
		272.11	21.20	2.24E-01		2.77E-01
+	HF-175	343.40	84.00	-1.95E-02	6.08E-02	6.08E-02
+	LU-176	88.34	13.30	4.93E-01	5.11E-02	5.15E-01
		201.83	86.00	-1.28E-02		6.00E-02
		306.78	94.00	4.45E-03		5.11E-02
+	TA-182	67.75	41.20	-6.71E-02	1.67E-01	1.67E-01
		1121.30	34.90	3.69E-01		3.57E-01
		1189.05	16.23	-8.54E-02		6.06E-01
		1221.41	26.98	5.65E-02		3.39E-01
		1231.02	11.44	3.56E-01		7.90E-01
+	IR-192	308.46	29.68	6.48E-03	1.33E-01	1.73E-01
		468.07	48.10	-3.13E-02		1.33E-01
+	HG-203	279.19	77.30	-2.05E-02	7.49E-02	7.49E-02
+	BI-207	569.67	97.72	-4.86E-02	6.47E-02	6.47E-02
		1063.62	74.90	2.03E-02		1.10E-01
+	TL-208	583.14	* 30.22	1.22E+00	1.67E-01	3.31E-01
		860.37	* 4.48	2.14E+00		1.74E+00
		2614.66	* 35.85	8.53E-01		1.67E-01
+	BI-210M	262.00	45.00	2.85E-02	1.13E-01	1.13E-01
		300.00	23.00	-6.94E-01		2.51E-01
+	PB-210	46.50	* 4.25	1.51E+00	2.53E+00	2.53E+00
+	PB-211	404.84	2.90	5.19E-01	1.84E+00	1.84E+00
		831.96	2.90	1.01E-01		2.63E+00
+	BI-212	727.17	* 11.80	8.77E-01	1.01E+00	1.01E+00
		1620.62	2.75	8.67E-01		2.25E+00
+	PB-212	238.63	44.60	1.17E+00	2.59E-01	2.59E-01
		300.09	3.41	-4.68E+00		1.69E+00
+	BI-214	609.31	* 46.30	7.62E-01	1.54E-01	2.17E-01
		1120.29	* 15.10	1.09E+00		8.75E-01
		1764.49	* 15.80	1.32E+00		1.54E-01
		2204.22	* 4.98	7.02E-01		1.90E-01
+	PB-214	295.21	* 19.19	1.15E+00	2.48E-01	5.97E-01
		351.92	* 37.19	8.70E-01		2.48E-01
+	RN-219	401.80	6.50	1.14E-01	8.15E-01	8.15E-01
+	RA-223	323.87	3.88	4.03E-01	1.31E+00	1.31E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	1.80E+01	3.04E+00	3.04E+00
+	RA-225	40.00		31.00	1.59E-01	5.07E-01	5.07E-01
+	RA-226	186.21	*	3.28	4.19E+00	2.56E+00	2.56E+00
+	TH-227	50.10		8.40	-1.86E-01	5.11E-01	9.15E-01
		236.00		11.50	-6.16E+00		5.11E-01
		256.20		6.30	-1.61E-01		7.84E-01
+	AC-228	338.32	*	11.40	1.86E+00	3.47E-01	7.32E-01
		911.07	*	27.70	1.62E+00		3.47E-01
		969.11	*	16.60	1.66E+00		9.82E-01
+	TH-230	48.44		16.90	4.66E-01	5.03E-01	5.03E-01
		62.85		4.60	2.26E+00		1.58E+00
		67.67		0.37	-7.08E+00		1.76E+01
+	PA-231	283.67		1.60	1.27E+00	2.41E+00	3.22E+00
		302.67		2.30	9.08E-01		2.41E+00
+	TH-231	25.64		14.70	-3.80E+01	9.53E-01	4.40E+00
		84.21		6.40	-1.66E+00		9.53E-01
+	PA-233	311.98		38.60	6.08E-03	1.51E-01	1.51E-01
+	PA-234	131.20		20.40	-9.79E-02	2.41E-01	2.41E-01
		733.99		8.80	8.53E-02		8.70E-01
		946.00		12.00	-4.05E-01		5.21E-01
+	PA-234M	1001.03		0.92	-3.40E-01	8.14E+00	8.14E+00
+	TH-234	63.29		3.80	2.57E+00	1.94E+00	1.94E+00
+	U-235	143.76		10.50	2.98E-01	4.82E-01	4.82E-01
		163.35		4.70	-6.75E-01		1.03E+00
		205.31		4.70	-3.61E-01		1.13E+00
+	NP-237	86.50		12.60	7.80E-01	5.39E-01	5.39E-01
+	NP-239	106.10		22.70	1.91E+00	3.18E+00	3.18E+00
		228.18		10.70	8.23E-01		6.91E+00
		277.60		14.10	3.55E-01		5.19E+00
+	AM-241	59.54		35.90	-1.05E-01	1.75E-01	1.75E-01
+	AM-243	74.67		66.00	-4.69E-01	1.26E-01	1.26E-01
+	CM-243	209.75		3.29	1.59E+00	3.68E-01	1.81E+00
		228.14		10.60	5.84E-02		4.90E-01
		277.60		14.00	2.52E-02		3.68E-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

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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	7.84E-01	7.84E-01	4.41E-01	3.75E-01
NA-22	1274.54	99.94	7.95E-02	7.95E-02	-2.79E-02	3.63E-02
NA-24	1368.53	99.99	1.41E+03	8.73E+02	-5.89E+01	6.28E+02
	2754.09	99.86	8.73E+02		-4.51E+01	3.27E+02
AL-26	1808.65	99.76	4.80E-02	4.80E-02	8.67E-03	1.97E-02
+ K-40	1460.81 *	10.67	9.94E-01	9.94E-01	2.34E+01	4.62E-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	6.89E-02	6.89E-02	-2.77E-02	3.37E-02
	78.34	96.00	8.85E-02		1.39E-01	4.36E-02
SC-46	889.25	99.98	7.34E-02	7.34E-02	2.02E-02	3.39E-02
	1120.51	99.99	1.31E-01		1.87E-01	6.20E-02
V-48	983.52	99.98	1.03E-01	1.03E-01	7.70E-03	4.74E-02
	1312.10	97.50	1.03E-01		-4.12E-02	4.63E-02
CR-51	320.08	9.83	6.27E-01	6.27E-01	-5.58E-03	2.98E-01
+ MN-54	834.83 *	99.97	1.38E-01	1.38E-01	8.71E-02	6.64E-02
CO-56	846.75	99.96	7.88E-02	7.88E-02	7.65E-03	3.67E-02
	1037.75	14.03	5.89E-01		-1.14E-02	2.72E-01
	1238.25	67.00	1.91E-01		1.69E-01	9.01E-02
	1771.40	15.51	2.64E-01		1.10E-02	1.02E-01
	2598.48	16.90	2.80E-01		2.33E-02	1.08E-01
CO-57	122.06	85.51	5.48E-02	5.48E-02	-1.33E-02	2.66E-02
	136.48	10.60	4.58E-01		-1.95E-01	2.22E-01
CO-58	810.76	99.40	7.78E-02	7.78E-02	3.04E-02	3.63E-02
FE-59	1099.22	56.50	1.64E-01	1.64E-01	4.85E-02	7.59E-02
	1291.56	43.20	2.12E-01		1.53E-02	9.70E-02
CO-60	1173.22	100.00	9.10E-02	5.56E-02	4.92E-02	4.23E-02
	1332.49	100.00	5.56E-02		-3.10E-02	2.43E-02
ZN-65	1115.52	50.75	1.69E-01	1.69E-01	-1.86E-03	7.84E-02
+ GA-67	93.31 *	35.70	1.67E+00	1.67E+00	2.67E+00	8.22E-01
	208.95	2.24	1.81E+01		1.36E+01	8.79E+00
	300.22 *	16.00	4.99E+00		2.11E+00	2.44E+00
SE-75	121.11	16.70	2.84E-01	8.44E-02	-4.10E-02	1.38E-01
	136.00	59.20	8.57E-02		5.09E-02	4.16E-02
	264.65	59.80	8.44E-02		5.48E-03	4.04E-02
	279.53	25.20	2.19E-01		1.11E-01	1.05E-01
	400.65	11.40	4.78E-01		3.76E-02	2.26E-01
RB-82	776.52	13.00	6.62E-01	6.62E-01	-9.28E-03	3.09E-01
RB-83	520.41	46.00	1.34E-01	1.34E-01	-4.51E-03	6.32E-02
	529.64	30.30	2.14E-01		-6.92E-02	1.01E-01
	552.65	16.40	3.83E-01		-1.15E-01	1.80E-01
KR-85	513.99	0.43	2.27E+01	2.27E+01	4.37E+01	1.10E+01
SR-85	513.99	99.27	1.09E-01	1.09E-01	2.10E-01	5.27E-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)
Y-88	898.02	93.40	8.14E-02	5.44E-02	-6.58E-04	3.78E-02
	1836.01	99.38	5.44E-02		2.10E-02	2.26E-02
NB-93M	16.57	9.43	6.54E+01	6.54E+01	-5.23E+01	3.03E+01
NB-94	702.63	100.00	7.77E-02	6.94E-02	4.67E-02	3.67E-02
	871.10	100.00	6.94E-02		-6.32E-03	3.22E-02
NB-95	765.79	99.81	9.68E-02	9.68E-02	2.70E-02	4.57E-02
NB-95M	235.69	25.00	1.33E+00	1.33E+00	-1.60E+01	6.42E-01
ZR-95	724.18	43.70	1.92E-01	1.39E-01	6.64E-03	9.06E-02
	756.72	55.30	1.39E-01		5.62E-02	6.51E-02
MO-99	181.06	6.20	8.03E+00	5.54E+00	2.31E+00	3.89E+00
	739.58	12.80	5.54E+00		1.51E+00	2.60E+00
	778.00	4.50	1.33E+01		-3.73E+00	6.17E+00
RU-103	497.08	89.00	6.77E-02	6.77E-02	-5.16E-02	3.17E-02
RU-106	621.84	9.80	6.57E-01	6.57E-01	-1.63E-01	3.08E-01
AG-108M	433.93	89.90	6.31E-02	6.31E-02	1.05E-02	2.99E-02
	614.37	90.40	7.52E-02		-7.33E-03	3.55E-02
	722.95	90.50	7.78E-02		1.52E-02	3.65E-02
CD-109	88.03	3.72	1.80E+00	1.80E+00	1.09E+00	8.83E-01
AG-110M	657.75	93.14	7.61E-02	7.61E-02	9.25E-03	3.58E-02
	677.61	10.53	6.06E-01		-1.28E-01	2.83E-01
	706.67	16.46	4.51E-01		8.05E-02	2.12E-01
	763.93	21.98	3.30E-01		3.16E-02	1.55E-01
	884.67	71.63	1.02E-01		3.64E-02	4.74E-02
	1384.27	23.94	1.82E-01		7.63E-03	7.53E-02
CD-113M	263.70	0.02	2.12E+02	2.12E+02	1.68E+01	1.02E+02
SN-113	255.12	1.93	2.65E+00	7.24E-02	-1.29E-01	1.27E+00
	391.69	64.90	7.24E-02		-4.05E-03	3.40E-02
TE123M	159.00	84.10	5.86E-02	5.86E-02	6.82E-03	2.83E-02
SB-124	602.71	97.87	7.96E-02	7.96E-02	1.61E-02	3.77E-02
	645.85	7.26	1.02E+00		-6.14E-02	4.79E-01
	722.78	11.10	7.03E-01		1.38E-01	3.30E-01
	1691.02	49.00	1.21E-01		2.08E-02	5.10E-02
I-125	35.49	6.49	2.49E+00	2.49E+00	3.84E-01	1.21E+00
SB-125	176.33	6.89	7.29E-01	1.94E-01	-2.03E-01	3.53E-01
	427.89	29.33	1.94E-01		-8.09E-02	9.22E-02
	463.38	10.35	7.23E-01		8.39E-01	3.46E-01
	600.56	17.80	4.12E-01		2.04E-01	1.95E-01
	635.90	11.32	5.62E-01		-8.03E-02	2.64E-01
SB-126	414.70	83.30	1.10E-01	1.10E-01	-5.36E-02	5.20E-02
	666.33	99.60	1.16E-01		-5.92E-03	5.44E-02
	695.00	99.60	1.18E-01		-6.33E-02	5.55E-02
	720.50	53.80	2.13E-01		2.84E-02	1.00E-01
SN-126	87.57	37.00	1.79E-01	1.79E-01	1.08E-01	8.77E-02
SB-127	473.00	25.00	1.12E+00	9.93E-01	1.43E-01	5.28E-01
	685.20	35.70	9.93E-01		-5.24E-02	4.67E-01
	783.80	14.70	2.70E+00		1.74E+00	1.27E+00
I-129	29.78	57.00	4.60E-01	4.60E-01	1.08E-02	2.23E-01
	33.60	13.20	1.31E+00		8.94E-02	6.36E-01
	39.58	7.52	1.41E+00		4.42E-01	6.82E-01
I-131	284.30	6.05	1.79E+00	1.29E-01	-4.66E-01	8.54E-01
	364.48	81.20	1.29E-01		4.77E-02	6.10E-02
	636.97	7.26	1.93E+00		-2.40E-01	9.08E-01
	722.89	1.80	8.51E+00		1.67E+00	3.99E+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)
TE-132	49.72	13.10	4.05E+00	4.02E-01	-8.21E-01	1.97E+00
	228.16	88.00	4.02E-01		4.79E-02	1.94E-01
BA-133	81.00	33.00	1.91E-01	9.06E-02	-9.54E-01	9.35E-02
	302.84	17.80	3.12E-01		1.18E-01	1.50E-01
I-133	356.01	60.00	9.06E-02	9.53E+01	-3.40E-01	4.32E-02
	529.87	86.30	9.53E+01		-3.08E+01	4.50E+01
XE-133	81.00	38.00	5.46E-01	5.46E-01	-2.73E+00	2.67E-01
CS-134	563.23	8.38	7.95E-01	7.11E-02	2.96E-01	3.76E-01
	569.32	15.43	4.13E-01		-2.56E-01	1.95E-01
	604.70	97.60	7.11E-02		2.42E-02	3.36E-02
	795.84	85.40	1.03E-01		8.82E-02	4.86E-02
CS-135	801.93	8.73	7.93E-01	3.45E-01	1.41E-01	3.69E-01
	268.24	16.00	3.45E-01		1.40E-01	1.66E-01
I-135	1131.51	22.50	2.44E+09	2.16E+09	-9.23E+08	1.12E+09
	1260.41	28.60	2.16E+09		-1.34E+08	9.93E+08
	1678.03	9.54	4.54E+09		5.83E+08	1.96E+09
	153.22	7.46	1.15E+00		1.01E-01	1.06E+00	5.60E-01
CS-136	163.89	4.61	1.69E+00	1.01E-01	-1.11E+00	8.17E-01
	176.55	13.56	5.93E-01		-1.65E-01	2.87E-01
	273.65	12.66	6.61E-01		-1.77E-03	3.17E-01
	340.57	48.50	2.61E-01		5.93E-01	1.27E-01
	818.50	99.70	1.01E-01		1.99E-02	4.66E-02
	1048.07	79.60	1.30E-01		-3.24E-02	5.92E-02
CS-137	1235.34	19.70	8.40E-01	8.34E-02	-3.09E-01	3.93E-01
	661.65	85.12	8.34E-02		-3.37E-03	3.93E-02
LA-138	788.74	34.00	2.05E-01	8.62E-02	3.49E-02	9.57E-02
	1435.80	66.00	8.62E-02		-7.54E-03	3.75E-02
CE-139	165.85	80.35	6.62E-02	6.62E-02	-1.08E-02	3.21E-02
BA-140	162.64	6.70	1.18E+00	4.21E-01	8.54E-02	5.70E-01
	304.84	4.50	1.84E+00		-3.68E-01	8.77E-01
	423.70	3.20	2.98E+00		6.81E-01	1.42E+00
	437.55	2.00	4.60E+00		-1.56E+00	2.18E+00
	537.32	25.00	4.21E-01		-5.63E-02	1.99E-01
LA-140	328.77	20.50	4.56E-01	1.24E-01	3.61E-01	2.18E-01
	487.03	45.50	2.09E-01		1.17E-01	9.88E-02
	815.85	23.50	4.12E-01		-2.80E-01	1.89E-01
	1596.49	95.49	1.24E-01		5.80E-02	5.50E-02
CE-141	145.44	48.40	1.25E-01	1.25E-01	-4.77E-02	6.09E-02
CE-143	57.36	11.80	5.05E+01	1.65E+01	-1.61E+01	2.46E+01
	293.26	42.00	1.65E+01		2.87E+01	8.00E+00
	664.55	5.20	1.23E+02		-4.23E+01	5.76E+01
CE-144	133.54	10.80	4.46E-01	4.46E-01	5.93E-02	2.16E-01
PM-144	476.78	42.00	1.44E-01	6.46E-02	1.63E-02	6.83E-02
	618.01	98.60	6.46E-02		-3.69E-02	3.03E-02
	696.49	99.49	7.78E-02		1.96E-02	3.67E-02
PM-145	36.85	21.70	5.95E-01	3.13E-01	-5.95E-02	2.89E-01
	37.36	39.70	3.13E-01		-3.81E-02	1.52E-01
	42.30	15.10	5.88E-01		9.93E-03	2.85E-01
	72.40	2.31	2.98E+00		3.03E-01	1.46E+00
PM-146	453.90	39.94	1.53E-01	1.53E-01	2.65E-02	7.29E-02
	735.90	14.01	5.41E-01		2.05E-01	2.55E-01
	747.13	13.10	5.12E-01		1.64E-02	2.39E-01
ND-147	91.11	28.90	4.13E-01	4.13E-01	-1.48E+00	2.03E-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)
ND-147	531.02	13.10	8.48E-01	4.13E-01	-2.23E-02	4.01E-01
PM-149	285.90	3.10	2.73E+01	2.73E+01	-2.62E+00	1.30E+01
EU-152	121.78	20.50	2.23E-01	2.23E-01	-5.41E-02	1.08E-01
	244.69	5.40	1.06E+00		5.94E-02	5.12E-01
	344.27	19.13	2.49E-01		-2.21E-02	1.18E-01
	778.89	9.20	7.08E-01		4.62E-02	3.29E-01
	964.01	10.40	9.63E-01		-5.66E-01	4.55E-01
	1085.78	7.22	1.03E+00		-2.77E-01	4.75E-01
	1112.02	9.60	8.33E-01		6.79E-02	3.84E-01
	1407.95	14.94	4.07E-01		9.07E-03	1.79E-01
GD-153	97.43	31.30	1.64E-01	1.64E-01	-1.66E-01	7.99E-02
	103.18	22.20	2.27E-01		-1.06E-01	1.11E-01
EU-154	123.07	40.50	1.17E-01	1.17E-01	5.39E-02	5.68E-02
	723.30	19.70	3.58E-01		7.02E-02	1.68E-01
	873.19	11.50	5.90E-01		-1.79E-01	2.73E-01
	996.32	10.30	6.49E-01		-3.40E-01	2.97E-01
	1004.76	17.90	4.28E-01		-2.05E-02	1.98E-01
	1274.45	35.50	2.23E-01		-7.81E-02	1.02E-01
EU-155	86.50	30.90	2.20E-01	2.20E-01	3.19E-01	1.08E-01
	105.30	20.70	2.45E-01		1.47E-01	1.20E-01
EU-156	811.77	10.40	9.91E-01	9.91E-01	2.05E-01	4.61E-01
	1153.47	7.20	1.75E+00		4.02E-01	8.11E-01
	1230.71	8.90	1.45E+00		6.54E-01	6.69E-01
HO-166M	184.41	72.60	9.21E-02	9.21E-02	1.68E-01	4.49E-02
	280.45	29.60	1.70E-01		2.70E-03	8.12E-02
	410.94	11.10	5.48E-01		1.08E-01	2.61E-01
	711.69	54.10	1.31E-01		1.57E-02	6.14E-02
TM-171	66.72	0.14	4.87E+01	4.87E+01	-4.58E+01	2.39E+01
HF-172	81.75	4.52	1.29E+00	4.18E-01	-4.63E+00	6.28E-01
	125.81	11.30	4.18E-01		6.90E-02	2.03E-01
LU-172	181.53	20.60	6.37E-01	3.33E-01	1.14E-01	3.08E-01
	810.06	16.63	1.11E+00		6.20E-01	5.16E-01
	912.12	15.25	2.55E+00		7.08E+00	1.23E+00
	1093.66	62.50	3.33E-01		-2.32E-02	1.54E-01
LU-173	100.72	5.24	9.66E-01	2.77E-01	4.97E-01	4.70E-01
	272.11	21.20	2.77E-01		2.24E-01	1.33E-01
HF-175	343.40	84.00	6.08E-02	6.08E-02	-1.95E-02	2.88E-02
LU-176	88.34	13.30	5.15E-01	5.11E-02	4.93E-01	2.52E-01
	201.83	86.00	6.00E-02		-1.28E-02	2.90E-02
	306.78	94.00	5.11E-02		4.45E-03	2.43E-02
TA-182	67.75	41.20	1.67E-01	1.67E-01	-6.71E-02	8.16E-02
	1121.30	34.90	3.57E-01		3.69E-01	1.69E-01
	1189.05	16.23	6.06E-01		-8.54E-02	2.82E-01
	1221.41	26.98	3.39E-01		5.65E-02	1.57E-01
	1231.02	11.44	7.90E-01		3.56E-01	3.64E-01
IR-192	308.46	29.68	1.73E-01	1.33E-01	6.48E-03	8.23E-02
	468.07	48.10	1.33E-01		-3.13E-02	6.32E-02
HG-203	279.19	77.30	7.49E-02	7.49E-02	-2.05E-02	3.59E-02
BI-207	569.67	97.72	6.47E-02	6.47E-02	-4.86E-02	3.05E-02
	1063.62	74.90	1.10E-01		2.03E-02	5.13E-02
+ TL-208	583.14	* 30.22	3.31E-01	1.67E-01	1.22E+00	1.60E-01
	860.37	* 4.48	1.74E+00		2.14E+00	8.14E-01
	2614.66	* 35.85	1.67E-01		8.53E-01	6.97E-02

Analysis Report for 1606065-03

CP-5013 10-15

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BI-210M	262.00	45.00	1.13E-01	1.13E-01	2.85E-02	5.40E-02
	300.00	23.00	2.51E-01		-6.94E-01	1.21E-01
+ PB-210	46.50 *	4.25	2.53E+00	2.53E+00	1.51E+00	1.24E+00
PB-211	404.84	2.90	1.84E+00	1.84E+00	5.19E-01	8.74E-01
	831.96	2.90	2.63E+00		1.01E-01	1.23E+00
+ BI-212	727.17 *	11.80	1.01E+00	1.01E+00	8.77E-01	4.88E-01
	1620.62	2.75	2.25E+00		8.67E-01	9.77E-01
PB-212	238.63	44.60	2.59E-01	2.59E-01	1.17E+00	1.27E-01
	300.09	3.41	1.69E+00		-4.68E+00	8.14E-01
+ BI-214	609.31 *	46.30	2.17E-01	1.54E-01	7.62E-01	1.04E-01
	1120.29 *	15.10	8.75E-01		1.09E+00	4.17E-01
	1764.49 *	15.80	1.54E-01		1.32E+00	5.01E-02
	2204.22 *	4.98	1.90E-01		7.02E-01	0.00E+00
+ PB-214	295.21 *	19.19	5.97E-01	2.48E-01	1.15E+00	2.93E-01
	351.92 *	37.19	2.48E-01		8.70E-01	1.21E-01
RN-219	401.80	6.50	8.15E-01	8.15E-01	1.14E-01	3.86E-01
RA-223	323.87	3.88	1.31E+00	1.31E+00	4.03E-01	6.26E-01
RA-224	240.98	3.95	3.04E+00	3.04E+00	1.80E+01	1.49E+00
RA-225	40.00	31.00	5.07E-01	5.07E-01	1.59E-01	2.46E-01
+ RA-226	186.21 *	3.28	2.56E+00	2.56E+00	4.19E+00	1.26E+00
TH-227	50.10	8.40	9.15E-01	5.11E-01	-1.86E-01	4.46E-01
	236.00	11.50	5.11E-01		-6.16E+00	2.47E-01
	256.20	6.30	7.84E-01		-1.61E-01	3.76E-01
+ AC-228	338.32 *	11.40	7.32E-01	3.47E-01	1.86E+00	3.55E-01
	911.07 *	27.70	3.47E-01		1.62E+00	1.64E-01
	969.11 *	16.60	9.82E-01		1.66E+00	4.74E-01
TH-230	48.44	16.90	5.03E-01	5.03E-01	4.66E-01	2.45E-01
	62.85	4.60	1.58E+00		2.26E+00	7.76E-01
	67.67	0.37	1.76E+01		-7.08E+00	8.61E+00
PA-231	283.67	1.60	3.22E+00	2.41E+00	1.27E+00	1.54E+00
	302.67	2.30	2.41E+00		9.08E-01	1.16E+00
TH-231	25.64	14.70	4.40E+00	9.53E-01	-3.80E+01	2.14E+00
	84.21	6.40	9.53E-01		-1.66E+00	4.66E-01
PA-233	311.98	38.60	1.51E-01	1.51E-01	6.08E-03	7.16E-02
PA-234	131.20	20.40	2.41E-01	2.41E-01	-9.79E-02	1.17E-01
	733.99	8.80	8.70E-01		8.53E-02	4.10E-01
	946.00	12.00	5.21E-01		-4.05E-01	2.38E-01
PA-234M	1001.03	0.92	8.14E+00	8.14E+00	-3.40E-01	3.76E+00
TH-234	63.29	3.80	1.94E+00	1.94E+00	2.57E+00	9.50E-01
U-235	143.76	10.50	4.82E-01	4.82E-01	2.98E-01	2.34E-01
	163.35	4.70	1.03E+00		-6.75E-01	4.98E-01
	205.31	4.70	1.13E+00		-3.61E-01	5.46E-01
NP-237	86.50	12.60	5.39E-01	5.39E-01	7.80E-01	2.64E-01
NP-239	106.10	22.70	3.18E+00	3.18E+00	1.91E+00	1.55E+00
	228.18	10.70	6.91E+00		8.23E-01	3.33E+00
	277.60	14.10	5.19E+00		3.55E-01	2.49E+00
AM-241	59.54	35.90	1.75E-01	1.75E-01	-1.05E-01	8.54E-02
AM-243	74.67	66.00	1.26E-01	1.26E-01	-4.69E-01	6.18E-02
CM-243	209.75	3.29	1.81E+00	3.68E-01	1.59E+00	8.77E-01
	228.14	10.60	4.90E-01		5.84E-02	2.36E-01
	277.60	14.00	3.68E-01		2.52E-02	1.76E-01

Analysis Report for 1606065-03
CP-5013 10-15

- + = 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-5013 10-15

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	52	81	80	116	848	197
25:	78	73	52	52	61	68	66	67
33:	70	72	71	71	71	73	68	73
41:	75	64	61	76	66	81	139	150
49:	77	90	85	91	83	100	101	108
57:	74	87	105	98	101	117	144	226
65:	169	128	136	133	145	128	127	150
73:	133	159	238	429	255	569	250	122
81:	121	119	116	131	177	143	126	246
89:	177	135	203	115	236	293	148	94
97:	87	76	96	115	90	69	94	86
105:	79	117	105	83	73	78	79	77
113:	77	91	65	78	75	71	63	61
121:	70	67	84	72	84	71	64	73
129:	93	104	84	64	64	72	81	71
137:	74	64	60	81	62	79	73	75
145:	91	65	67	72	86	76	70	84
153:	60	84	97	78	58	60	54	58
161:	64	53	65	62	64	62	78	68
169:	73	53	56	63	67	66	56	59
177:	56	64	66	64	62	52	64	69
185:	72	126	190	78	60	51	50	52
193:	55	52	65	53	50	60	60	53
201:	54	56	58	53	57	64	56	55
209:	65	116	62	52	53	61	36	62
217:	42	64	39	44	47	43	46	47
225:	39	46	44	39	61	47	47	48
233:	53	41	44	56	61	91	434	462
241:	103	122	110	46	35	40	33	31
249:	34	35	32	36	28	40	33	38
257:	38	34	41	47	33	40	34	33
265:	30	34	33	25	33	44	81	44
273:	42	24	43	33	33	46	39	27
281:	26	45	30	26	32	40	32	31
289:	39	22	30	29	29	26	59	201
297:	81	33	35	49	58	28	33	37
305:	28	26	27	24	29	21	27	19
313:	29	24	17	26	27	29	26	21
321:	24	32	24	29	29	26	24	37
329:	50	38	26	20	26	29	27	24
337:	24	59	162	80	34	26	20	23
345:	20	18	30	24	25	29	33	140
353:	218	56	20	21	24	18	24	27
361:	19	23	25	29	12	24	14	21

369: 9 23 17 30 24 17 18 15

Sample Title: CP-5013 10-15

Channel	1	2	3	4	5	6	7	8
377:	27	23	30	19	20	22	14	25
385:	24	21	27	24	18	18	11	14
393:	15	21	24	25	21	17	18	27
401:	17	25	18	23	19	26	25	14
409:	22	30	22	15	16	23	15	12
417:	15	18	14	17	14	20	21	22
425:	11	20	17	17	16	15	19	14
433:	22	16	15	10	17	13	16	19
441:	20	15	20	18	14	21	25	16
449:	12	17	14	21	20	16	17	23
457:	12	20	15	16	17	22	26	58
465:	27	15	15	17	12	13	10	14
473:	19	8	14	15	21	20	20	10
481:	18	8	10	10	11	17	17	17
489:	14	14	11	12	13	10	7	12
497:	11	12	8	14	16	19	11	9
505:	14	21	13	18	26	41	72	80
513:	57	24	19	10	12	16	8	14
521:	8	17	14	10	10	17	12	14
529:	11	9	14	16	18	20	15	15
537:	15	21	10	15	15	13	15	7
545:	12	12	9	9	12	13	14	9
553:	9	11	12	14	19	13	10	16
561:	9	10	19	20	19	10	12	13
569:	13	13	18	13	10	21	21	11
577:	21	13	12	11	20	7	59	188
585:	69	15	13	14	13	14	13	14
593:	10	11	13	14	10	18	17	14
601:	14	21	19	11	15	11	12	11
609:	63	177	67	13	15	20	12	14
617:	12	9	5	16	11	11	15	14
625:	8	10	20	13	14	8	9	9
633:	9	8	10	10	13	16	11	12
641:	17	13	12	16	10	7	18	8
649:	13	7	14	11	14	11	7	7
657:	15	13	12	13	21	8	14	11
665:	13	12	14	10	13	10	13	6
673:	12	15	9	11	5	14	7	13
681:	8	11	14	20	10	10	11	8
689:	10	17	12	11	9	14	16	13
697:	12	10	15	18	15	13	14	11
705:	10	20	6	11	10	18	10	7
713:	13	9	14	11	14	10	11	15
721:	9	13	6	12	12	11	29	38
729:	23	12	14	12	22	9	8	12
737:	14	11	12	4	11	14	15	11
745:	16	8	11	5	8	7	6	7
753:	15	10	10	12	14	6	13	6
761:	4	7	18	12	7	11	13	17
769:	17	25	10	7	18	18	8	9
777:	8	2	10	8	7	14	15	9
785:	10	13	17	8	6	4	12	6
793:	11	10	21	29	16	13	4	9

801: 8 8 11 16 6 9 8 11

Sample Title: CP-5013 10-15

Channel	1	2	3	4	5	6	7	8
809:	6	8	15	8	12	5	6	6
817:	6	6	3	9	8	11	8	5
825:	11	10	7	4	12	14	14	5
833:	11	12	5	7	19	15	6	8
841:	11	7	9	8	12	9	9	10
849:	9	7	9	9	4	8	8	12
857:	6	10	10	10	25	31	11	7
865:	7	8	11	11	7	8	5	7
873:	6	11	7	8	7	11	9	10
881:	6	5	4	12	8	7	10	11
889:	7	2	6	8	6	15	8	11
897:	3	6	7	11	10	5	7	6
905:	8	8	9	6	8	12	70	112
913:	50	10	8	9	5	3	6	6
921:	2	6	11	8	5	5	7	7
929:	9	9	6	5	8	9	11	8
937:	4	6	7	10	5	11	9	5
945:	2	5	10	3	4	9	10	11
953:	12	6	5	7	9	3	10	7
961:	8	2	10	8	29	29	15	11
969:	52	60	25	9	12	7	6	8
977:	6	5	1	7	10	5	5	6
985:	6	6	7	4	11	8	9	9
993:	7	5	4	7	8	4	5	11
1001:	4	15	6	6	6	9	6	5
1009:	9	7	8	3	5	7	6	9
1017:	12	6	4	10	7	4	6	6
1025:	11	5	4	8	6	6	15	13
1033:	6	9	6	9	3	5	9	5
1041:	13	11	3	6	5	5	3	5
1049:	6	6	4	6	7	7	11	5
1057:	7	12	5	2	8	6	5	12
1065:	3	11	12	5	16	5	5	11
1073:	7	8	8	3	5	5	5	8
1081:	7	7	7	2	10	10	3	4
1089:	8	9	7	9	6	8	6	9
1097:	8	9	6	6	9	4	7	3
1105:	2	6	6	6	10	3	8	7
1113:	9	7	5	1	13	11	8	23
1121:	38	20	5	6	11	7	5	7
1129:	4	13	3	7	5	3	10	9
1137:	6	9	6	10	10	7	9	5
1145:	4	11	8	5	5	7	6	7
1153:	10	4	9	8	8	6	8	2
1161:	6	10	8	9	12	9	10	8
1169:	7	11	8	8	7	7	9	9
1177:	3	5	4	5	5	5	11	10
1185:	9	9	11	8	7	8	13	5
1193:	6	13	5	11	4	6	7	11
1201:	7	13	8	9	8	7	7	16
1209:	12	9	9	7	4	12	12	14
1217:	8	6	7	5	7	11	6	8
1225:	7	5	7	6	6	12	9	7

1233: 3 5 17 11 8 20 15 14

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Channel	1	2	3	4	5	6	7	8
1241:	10	10	10	3	5	7	10	7
1249:	7	8	10	8	7	7	7	4
1257:	4	8	2	5	6	11	9	8
1265:	8	5	7	5	6	8	6	4
1273:	6	7	4	2	9	5	9	7
1281:	5	11	3	3	5	12	2	2
1289:	8	3	6	9	6	4	4	3
1297:	4	2	5	2	2	5	9	4
1305:	7	8	6	5	0	3	8	6
1313:	3	3	3	4	6	4	5	5
1321:	3	5	6	3	5	2	1	3
1329:	3	4	2	2	3	0	2	4
1337:	6	3	3	4	2	2	2	3
1345:	2	4	5	0	4	7	9	2
1353:	2	5	0	1	2	1	2	4
1361:	3	1	4	6	3	1	3	2
1369:	1	5	6	5	3	4	2	5
1377:	6	12	5	7	1	1	2	1
1385:	0	1	2	1	2	1	2	1
1393:	5	4	2	4	2	1	2	1
1401:	3	0	2	5	2	2	0	3
1409:	7	0	4	2	1	2	1	1
1417:	2	1	3	2	1	3	4	4
1425:	2	2	2	2	4	2	1	0
1433:	3	4	0	1	1	5	1	1
1441:	1	1	1	4	4	0	0	1
1449:	2	1	2	4	1	5	3	1
1457:	4	4	14	109	341	345	82	21
1465:	6	4	3	2	4	4	0	3
1473:	6	1	3	3	3	1	1	2
1481:	2	1	2	2	2	0	4	1
1489:	3	2	0	0	2	0	5	1
1497:	5	1	3	1	7	4	2	1
1505:	0	1	4	0	3	4	1	1
1513:	3	3	2	0	5	0	0	1
1521:	2	1	3	2	1	1	1	3
1529:	2	1	2	2	0	2	2	1
1537:	1	2	4	3	1	2	3	2
1545:	2	3	5	4	3	1	3	4
1553:	1	0	4	3	2	2	1	1
1561:	3	1	2	1	2	2	1	2
1569:	1	1	3	1	1	3	2	4
1577:	4	0	2	2	2	2	3	1
1585:	5	3	1	9	6	3	1	2
1593:	5	4	6	4	1	1	1	3
1601:	0	0	1	2	0	1	1	0
1609:	0	2	0	1	1	1	1	1
1617:	3	1	2	0	7	1	1	1
1625:	1	3	1	2	1	3	6	1
1633:	2	3	2	0	1	4	5	4
1641:	0	2	0	0	3	0	0	2
1649:	3	2	2	1	1	2	1	2
1657:	5	1	1	2	1	2	2	2

1665: 0 0 3 2 2 2 1 1

Sample Title: CP-5013 10-15

Channel	1	2	3	4	5	6	7	8	9
1673:	1	2	4	1	1	1	1	2	
1681:	3	2	1	3	1	1	1	1	
1689:	1	1	1	2	2	2	1	1	
1697:	2	0	1	2	2	1	0	1	
1705:	2	1	0	1	1	0	0	1	
1713:	0	1	0	0	3	0	1	1	
1721:	0	1	3	0	1	1	0	2	
1729:	7	6	4	2	1	1	0	0	
1737:	0	1	2	0	1	2	1	0	
1745:	2	1	1	1	2	2	0	2	
1753:	0	0	1	1	3	0	0	2	
1761:	2	1	4	16	24	17	2	0	
1769:	0	3	0	0	0	1	2	3	
1777:	1	0	1	1	2	0	1	2	
1785:	1	0	0	0	0	1	1	2	
1793:	0	3	1	2	0	0	2	2	
1801:	1	2	0	0	2	1	1	0	
1809:	0	2	1	2	0	1	1	1	
1817:	0	1	1	1	4	0	0	1	
1825:	0	0	0	3	1	0	1	0	
1833:	2	1	0	0	0	1	4	0	
1841:	0	1	0	0	1	1	3	5	
1849:	2	1	1	1	0	1	1	2	
1857:	0	2	0	1	0	1	0	0	
1865:	0	3	1	0	0	4	2	0	
1873:	0	2	1	1	1	1	2	1	
1881:	1	1	1	0	0	0	0	2	
1889:	1	1	3	0	1	0	1	0	
1897:	0	3	0	0	0	4	2	0	
1905:	0	2	1	3	1	3	0	2	
1913:	2	0	1	2	0	3	0	1	
1921:	0	0	0	4	2	1	0	1	
1929:	1	1	0	1	0	1	1	0	
1937:	1	0	2	1	3	2	0	0	
1945:	1	0	1	1	1	2	0	2	
1953:	2	0	0	0	0	0	0	2	
1961:	0	1	1	0	3	2	0	0	
1969:	0	3	0	0	0	1	0	2	
1977:	2	1	2	0	3	1	0	1	
1985:	0	2	1	0	0	4	0	0	
1993:	1	1	1	0	2	0	0	2	
2001:	1	1	0	1	0	1	1	2	
2009:	3	0	2	3	0	1	0	1	
2017:	1	0	0	3	0	1	0	0	
2025:	0	1	2	1	0	0	1	1	
2033:	0	0	0	1	1	0	2	0	
2041:	2	0	0	1	1	1	0	0	
2049:	1	0	2	2	2	1	0	1	
2057:	2	0	0	2	1	2	1	2	
2065:	0	3	2	3	1	0	0	0	
2073:	1	1	1	2	0	0	1	1	
2081:	2	1	0	1	1	2	0	0	
2089:	1	3	0	1	1	1	0	2	

2097: 1 0 0 0 0 3 1 5

Sample Title: CP-5013 10-15

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

2529: 2 1 0 0 0 0 0 0

Sample Title: CP-5013 10-15

Channel	1	2	3	4	5	6	7	8	9
2537:	2	0	1	0	1	1	0	0	
2545:	0	1	0	0	0	0	0	0	
2553:	0	0	0	0	0	0	0	1	
2561:	0	0	0	0	0	1	1	1	
2569:	0	1	0	0	1	0	0	0	
2577:	0	0	1	0	0	0	0	0	
2585:	0	0	1	1	0	1	1	0	
2593:	0	0	2	0	0	1	0	0	
2601:	1	0	0	1	0	0	0	0	
2609:	2	1	0	2	16	27	22	21	
2617:	5	0	1	0	0	0	0	0	
2625:	0	0	0	0	0	0	0	0	
2633:	0	1	0	0	2	0	0	0	
2641:	0	0	0	0	0	1	1	0	
2649:	0	0	0	0	0	0	0	1	
2657:	0	0	0	0	1	0	0	0	
2665:	0	0	0	0	0	0	1	0	
2673:	0	0	0	0	0	2	1	2	
2681:	1	1	0	2	0	0	0	0	
2689:	0	0	0	1	0	0	0	0	
2697:	0	1	0	0	0	1	0	1	
2705:	0	0	0	0	0	1	0	0	
2713:	0	0	2	0	0	0	0	1	
2721:	0	0	2	1	1	0	0	1	
2729:	0	1	1	0	0	0	0	0	
2737:	0	0	0	0	1	0	0	0	
2745:	0	0	1	1	0	2	0	1	
2753:	0	0	0	0	0	0	0	1	
2761:	0	0	0	0	0	0	0	0	
2769:	0	1	0	0	0	0	0	0	
2777:	1	0	1	0	1	0	0	0	
2785:	0	0	0	0	0	0	2	0	
2793:	0	0	0	0	0	1	1	1	
2801:	0	0	0	0	0	0	0	1	
2809:	1	0	0	0	0	0	0	0	
2817:	0	0	0	1	0	0	0	0	
2825:	1	1	0	0	1	0	0	1	
2833:	1	0	0	1	1	1	0	0	
2841:	0	0	0	0	0	0	1	1	
2849:	0	0	0	0	1	0	0	0	
2857:	0	0	0	0	0	0	0	1	
2865:	1	0	1	0	0	0	1	0	
2873:	0	0	1	3	0	0	0	0	
2881:	1	0	0	0	1	0	0	1	
2889:	0	0	0	0	1	0	0	0	
2897:	0	0	0	0	0	0	0	0	
2905:	0	0	1	0	0	0	0	0	
2913:	0	0	0	0	0	0	1	0	
2921:	0	0	1	1	1	0	0	0	
2929:	1	0	0	1	0	0	0	0	
2937:	1	0	0	2	0	0	0	0	
2945:	2	1	1	2	0	0	0	1	
2953:	0	1	0	1	1	0	0	1	

2961: 0 0 0 0 0 1 1 0

Sample Title: CP-5013 10-15

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

3393: 0 0 0 0 0 1 0 0

Sample Title: CP-5013 10-15

Channel	1	0	0	0	0	0	0	0
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	1	1
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	1	0	0	0	1	0	0	1
3457:	0	0	0	0	0	0	0	0
3465:	0	1	0	0	0	0	0	1
3473:	0	0	0	1	0	0	0	1
3481:	0	0	0	0	0	1	1	0
3489:	0	1	0	0	0	0	0	0
3497:	0	1	0	0	2	0	1	0
3505:	1	0	0	0	0	0	0	0
3513:	0	1	0	0	0	0	0	0
3521:	0	0	0	0	0	0	0	0
3529:	1	0	0	0	0	0	0	0
3537:	0	0	0	0	0	0	0	0
3545:	0	0	0	0	0	0	0	0
3553:	0	1	0	0	0	0	0	0
3561:	0	0	0	0	1	1	0	0
3569:	1	0	0	0	0	0	0	0
3577:	0	0	0	0	0	0	0	0
3585:	0	1	0	0	0	0	1	0
3593:	0	0	0	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	0	0	0
3625:	0	0	0	0	0	0	1	0
3633:	0	0	1	0	0	0	0	1
3641:	0	0	0	0	0	0	0	0
3649:	0	0	0	0	0	0	0	0
3657:	1	0	0	0	0	0	0	0
3665:	1	0	0	0	0	0	0	0
3673:	1	0	0	1	0	0	0	0
3681:	0	0	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	1	0	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	1	0	0	1	0
3729:	0	0	0	0	0	0	0	1
3737:	0	0	2	0	0	1	0	0
3745:	0	0	0	0	0	0	0	0
3753:	0	1	0	0	1	0	0	0
3761:	0	0	1	0	0	0	0	0
3769:	0	0	0	0	0	0	0	1
3777:	0	0	2	0	0	0	0	0
3785:	0	0	0	0	0	1	0	0
3793:	0	0	0	1	0	0	0	0
3801:	0	0	0	0	0	0	0	0
3809:	1	0	1	0	0	0	1	1
3817:	0	0	0	0	1	0	1	1

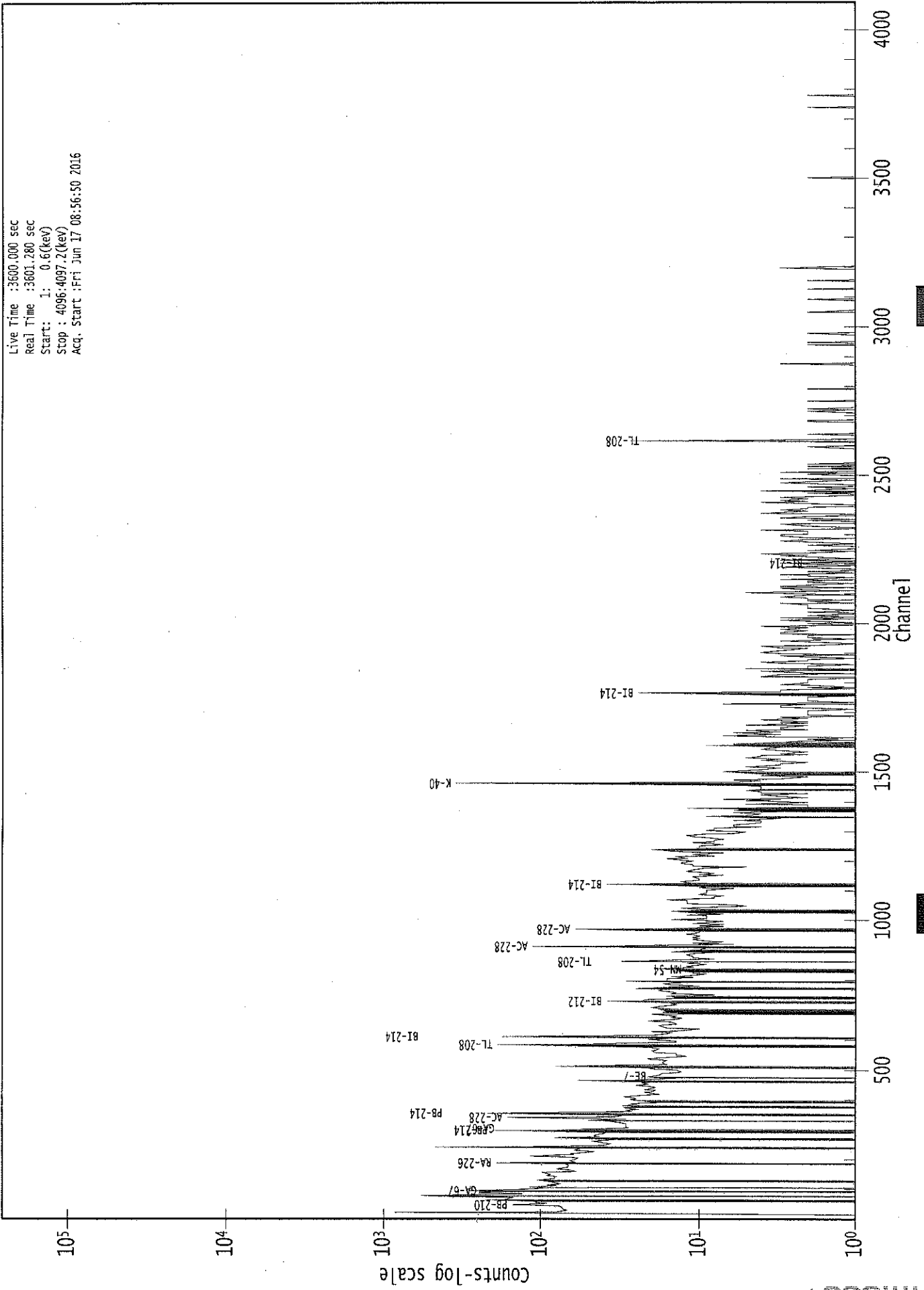
3825: 0 0 0 0 0 0 0 0

Sample Title: CP-5013 10-15

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

0000039072.CNF

Live Time : 3600.000 sec
Real Time : 3601.280 sec
Start : 1: 0.6(keV)
Stop : 4096.4097.2(keV)
Acq. Start : Fri Jun 17 08:56:50 2016



Analysis Report for 1606065-04
CP-5013 10-15

✓
6117

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606065-04
Sample Description : CP-5013 10-15
Sample Type : SOIL

Sample Size : 5.436E+02 grams
Facility : Countroom

Sample Taken On : 6/8/2016 8:52:36AM
Acquisition Started : 6/17/2016 10:08:59AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE1
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.3 seconds

Dead Time : 0.04 %

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 : 39076

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606065-04
CP-5013 10-15

PEAK LOCATE REPORT

Peak Locate Performed on : 6/17/2016 11:09:03AM
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	76.86	77.20	0.0000	0.00
2	93.82	94.16	0.0000	0.00
3	106.40	106.73	0.0000	0.00
4	177.94	178.25	0.0000	0.00
5	186.57	186.87	0.0000	0.00
6	209.63	209.92	0.0000	0.00
7	239.17	239.46	0.0000	0.00
8	242.50	242.79	0.0000	0.00
9	258.42	258.70	0.0000	0.00
10	270.55	270.82	0.0000	0.00
11	277.48	277.75	0.0000	0.00
12	295.72	295.98	0.0000	0.00
13	300.81	301.08	0.0000	0.00
14	327.79	328.05	0.0000	0.00
15	336.05	336.31	0.0000	0.00
16	339.09	339.34	0.0000	0.00
17	352.55	352.80	0.0000	0.00
18	387.51	387.74	0.0000	0.00
19	463.89	464.10	0.0000	0.00
20	511.64	511.84	0.0000	0.00
21	584.03	584.20	0.0000	0.00
22	609.90	610.06	0.0000	0.00
23	727.94	728.06	0.0000	0.00
24	757.81	757.92	0.0000	0.00
25	770.81	770.92	0.0000	0.00
26	786.50	786.60	0.0000	0.00
27	796.76	796.85	0.0000	0.00
28	838.75	838.83	0.0000	0.00
29	861.14	861.21	0.0000	0.00
30	904.75	904.80	0.0000	0.00
31	911.95	912.01	0.0000	0.00
32	920.67	920.72	0.0000	0.00
33	934.69	934.73	0.0000	0.00
34	965.77	965.80	0.0000	0.00
35	970.03	970.07	0.0000	0.00
36	991.97	991.99	0.0000	0.00
37	1002.17	1002.19	0.0000	0.00
38	1055.45	1055.46	0.0000	0.00
39	1077.59	1077.58	0.0000	0.00
40	1121.95	1121.93	0.0000	0.00
41	1378.82	1378.71	0.0000	0.00
42	1409.67	1409.54	0.0000	0.00

Analysis Report for 1606065-04
CP-5013 10-15

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1442.08	1441.95	0.0000	0.00
44	1461.65	1461.50	0.0000	0.00
45	1513.29	1513.13	0.0000	0.00
46	1578.80	1578.61	0.0000	0.00
47	1588.19	1588.00	0.0000	0.00
48	1600.29	1600.10	0.0000	0.00
49	1661.02	1660.81	0.0000	0.00
50	1765.38	1765.13	0.0000	0.00
51	1847.81	1847.52	0.0000	0.00
52	1917.76	1917.44	0.0000	0.00
53	1951.42	1951.09	0.0000	0.00
54	2104.17	2103.79	0.0000	0.00
55	2151.33	2150.92	0.0000	0.00
56	2204.61	2204.19	0.0000	0.00
57	2296.50	2296.04	0.0000	0.00
58	2315.78	2315.32	0.0000	0.00
59	2448.63	2448.11	0.0000	0.00
60	2615.25	2614.67	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606065-04
CP-5013 10-15

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 11:09:03AM

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	76.86	72 -	83	77.20	9.95E+02	170.82	3.13E+03	2.70
2	93.82	92 -	98	94.16	3.06E+02	101.52	1.56E+03	1.60
3	106.40	104 -	109	106.73	6.06E+01	70.41	9.45E+02	1.85
4	177.94	176 -	181	178.25	6.28E+01	58.69	6.42E+02	3.05
5	186.57	183 -	190	186.87	2.54E+02	81.51	9.33E+02	1.37
6	209.63	206 -	213	209.92	1.38E+02	71.30	7.53E+02	1.18
M	7	234 -	246	239.46	9.98E+02	76.76	4.37E+02	1.78
m	8	234 -	246	242.79	2.01E+02	72.46	5.04E+02	2.04
9	258.42	255 -	263	258.70	5.62E+01	61.01	5.34E+02	1.65
10	270.55	268 -	274	270.82	1.21E+02	52.51	4.14E+02	1.53
11	277.48	275 -	280	277.75	6.35E+01	44.97	3.53E+02	3.59
M	12	292 -	305	295.98	2.43E+02	46.92	2.74E+02	1.58
m	13	292 -	305	301.08	6.50E+01	38.44	2.86E+02	1.74
14	327.79	324 -	331	328.05	5.87E+01	49.88	3.75E+02	1.93
M	15	335 -	344	336.31	2.97E+01	16.09	6.84E+01	1.45
m	16	335 -	344	339.34	2.03E+02	44.75	2.12E+02	1.95
17	352.55	349 -	357	352.80	3.82E+02	65.08	4.13E+02	1.67
18	387.51	385 -	390	387.74	3.06E+01	34.07	2.09E+02	2.86
19	463.89	459 -	468	464.10	5.26E+01	47.70	2.95E+02	2.00
20	511.64	508 -	519	511.84	1.89E+02	57.31	3.11E+02	2.84
21	584.03	580 -	588	584.20	3.17E+02	52.24	2.24E+02	1.70
22	609.90	606 -	613	610.06	2.59E+02	50.16	2.44E+02	1.47
23	727.94	723 -	732	728.06	6.10E+01	41.40	2.10E+02	2.34
24	757.81	754 -	760	757.92	2.72E+01	26.91	1.06E+02	1.95
25	770.81	764 -	776	770.92	4.61E+01	48.29	2.50E+02	5.11
26	786.50	783 -	791	786.60	4.06E+01	30.83	1.21E+02	1.43
27	796.76	792 -	804	796.85	7.01E+01	40.02	1.54E+02	3.50
28	838.75	834 -	845	838.83	5.74E+01	33.76	1.13E+02	7.70
29	861.14	857 -	867	861.21	3.35E+01	34.73	1.43E+02	2.33
M	30	901 -	916	904.80	3.55E+01	20.49	6.93E+01	2.15
m	31	901 -	916	912.01	2.36E+02	34.07	4.94E+01	1.76
32	920.67	919 -	923	920.72	1.35E+01	14.54	3.50E+01	1.38
33	934.69	932 -	938	934.73	2.35E+01	21.93	7.10E+01	1.69
M	34	961 -	974	965.80	5.04E+01	25.77	5.30E+01	2.18
m	35	961 -	974	970.07	1.27E+02	28.71	5.89E+01	2.19
36	991.97	989 -	997	991.99	2.10E+01	21.71	6.20E+01	1.14
37	1002.17	997 -	1007	1002.19	3.17E+01	28.07	8.86E+01	1.97
38	1055.45	1052 -	1059	1055.46	2.70E+01	23.24	7.20E+01	2.94
39	1077.59	1073 -	1082	1077.58	3.51E+01	24.43	6.58E+01	1.10
40	1121.95	1116 -	1128	1121.93	1.24E+02	38.58	1.16E+02	2.45

Analysis Report for 1606065-04

CP-5013 10-15

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1378.82	1375 - 1382		1378.71	2.09E+01	17.32	3.62E+01	1.36
42	1409.67	1406 - 1414		1409.54	1.60E+01	16.42	3.21E+01	1.10
43	1442.08	1437 - 1446		1441.95	2.37E+01	14.11	1.46E+01	2.07
44	1461.65	1455 - 1468		1461.50	9.64E+02	66.03	5.69E+01	2.26
45	1513.29	1510 - 1517		1513.13	8.57E+00	10.95	1.09E+01	5.70
46	1578.80	1575 - 1582		1578.61	9.23E+00	10.39	1.15E+01	3.31
47	1588.19	1584 - 1591		1588.00	2.80E+01	14.42	1.60E+01	1.37
48	1600.29	1597 - 1603		1600.10	8.12E+00	9.42	9.77E+00	3.05
49	1661.02	1653 - 1670		1660.81	3.10E+01	11.14	0.00E+00	14.16
50	1765.38	1759 - 1769		1765.13	5.66E+01	19.82	2.28E+01	1.90
51	1847.81	1844 - 1850		1847.52	1.05E+01	8.97	7.00E+00	1.60
52	1917.76	1913 - 1920		1917.44	9.00E+00	6.00	0.00E+00	2.92
53	1951.42	1948 - 1953		1951.09	6.56E+00	6.40	2.88E+00	1.11
54	2104.17	2099 - 2109		2103.79	2.90E+01	12.58	6.06E+00	2.60
55	2151.33	2148 - 2153		2150.92	8.65E+00	7.00	2.70E+00	1.09
56	2204.61	2199 - 2207		2204.19	2.48E+01	14.73	1.84E+01	2.18
57	2296.50	2294 - 2298		2296.04	7.00E+00	6.18	2.00E+00	2.84
58	2315.78	2311 - 2318		2315.32	8.00E+00	8.94	8.00E+00	4.42
59	2448.63	2444 - 2452		2448.11	2.00E+01	10.40	3.95E+00	2.55
60	2615.25	2611 - 2619		2614.67	1.02E+02	20.20	0.00E+00	2.92

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 : 6/17/2016 11:09:03AM

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	76.86	72 -	83	9.95E+02	170.82	3.13E+03	1.30E+02	
2	93.82	92 -	98	3.06E+02	101.52	1.56E+03	7.83E+01	
3	106.40	104 -	109	6.06E+01	70.41	9.45E+02	5.64E+01	
4	177.94	176 -	181	6.28E+01	58.69	6.42E+02	4.64E+01	
5	186.57	183 -	190	2.54E+02	81.51	9.33E+02	6.17E+01	
6	209.63	206 -	213	1.38E+02	71.30	7.53E+02	5.53E+01	
M	7	239.17	234 -	246	9.98E+02	76.76	4.37E+02	3.44E+01
m	8	242.50	234 -	246	2.01E+02	72.46	5.04E+02	3.69E+01

: 00319

Analysis Report for 1606065-04

CP-5013 10-15

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	9	258.42	255 -	263	5.62E+01	61.01	5.34E+02	2.26E+01
	10	270.55	268 -	274	1.21E+02	52.51	4.14E+02	3.92E+01
	11	277.48	275 -	280	6.35E+01	44.97	3.53E+02	3.46E+01
M	12	295.72	292 -	305	2.43E+02	46.92	2.74E+02	2.72E+01
m	13	300.81	292 -	305	6.50E+01	38.44	2.86E+02	2.78E+01
	14	327.79	324 -	331	5.87E+01	49.88	3.75E+02	3.90E+01
M	15	336.05	335 -	344	2.97E+01	16.09	6.84E+01	1.36E+01
m	16	339.09	335 -	344	2.03E+02	44.75	2.12E+02	2.40E+01
	17	352.55	349 -	357	3.82E+02	65.08	4.13E+02	4.28E+01
	18	387.51	385 -	390	3.06E+01	34.07	2.09E+02	2.65E+01
	19	463.89	459 -	468	5.26E+01	47.70	2.95E+02	3.73E+01
	20	511.64	508 -	519	1.89E+02	57.31	3.11E+02	4.13E+01
	21	584.03	580 -	588	3.17E+02	52.24	2.24E+02	3.14E+01
	22	609.90	606 -	613	2.59E+02	50.16	2.44E+02	3.16E+01
	23	727.94	723 -	732	6.10E+01	41.40	2.10E+02	3.15E+01
	24	757.81	754 -	760	2.72E+01	26.91	1.06E+02	2.04E+01
	25	770.81	764 -	776	4.61E+01	48.29	2.50E+02	3.81E+01
	26	786.50	783 -	791	4.06E+01	30.83	1.21E+02	2.31E+01
	27	796.76	792 -	804	7.01E+01	40.02	1.54E+02	2.99E+01
	28	838.75	834 -	845	5.74E+01	33.76	1.13E+02	2.48E+01
	29	861.14	857 -	867	3.35E+01	34.73	1.43E+02	2.69E+01
M	30	904.75	901 -	916	3.55E+01	20.49	6.93E+01	1.37E+01
m	31	911.95	901 -	916	2.36E+02	34.07	4.94E+01	1.15E+01
	32	920.67	919 -	923	1.35E+01	14.54	3.50E+01	1.03E+01
	33	934.69	932 -	938	2.35E+01	21.93	7.10E+01	1.62E+01
M	34	965.77	961 -	974	5.04E+01	25.77	5.30E+01	1.20E+01
m	35	970.03	961 -	974	1.27E+02	28.71	5.89E+01	1.26E+01
	36	991.97	989 -	997	2.10E+01	21.71	6.20E+01	1.62E+01
	37	1002.17	997 -	1007	3.17E+01	28.07	8.86E+01	2.11E+01
	38	1055.45	1052 -	1059	2.70E+01	23.24	7.20E+01	1.71E+01
	39	1077.59	1073 -	1082	3.51E+01	24.43	6.58E+01	1.76E+01
	40	1121.95	1116 -	1128	1.24E+02	38.58	1.16E+02	2.59E+01
	41	1378.82	1375 -	1382	2.09E+01	17.32	3.62E+01	1.21E+01
	42	1409.67	1406 -	1414	1.60E+01	16.42	3.21E+01	1.18E+01
	43	1442.08	1437 -	1446	2.37E+01	14.11	1.46E+01	8.39E+00
	44	1461.65	1455 -	1468	9.64E+02	66.03	5.69E+01	1.85E+01
	45	1513.29	1510 -	1517	8.57E+00	10.95	1.09E+01	7.61E+00
	46	1578.80	1575 -	1582	9.23E+00	10.39	1.15E+01	6.93E+00
	47	1588.19	1584 -	1591	2.80E+01	14.42	1.60E+01	8.05E+00
	48	1600.29	1597 -	1603	8.12E+00	9.42	9.77E+00	6.17E+00
	49	1661.02	1653 -	1670	3.10E+01	11.14	0.00E+00	0.00E+00
	50	1765.38	1759 -	1769	5.66E+01	19.82	2.28E+01	1.06E+01
	51	1847.81	1844 -	1850	1.05E+01	8.97	7.00E+00	5.10E+00
	52	1917.76	1913 -	1920	9.00E+00	6.00	0.00E+00	0.00E+00
	53	1951.42	1948 -	1953	6.56E+00	6.40	2.88E+00	3.16E+00
	54	2104.17	2099 -	2109	2.90E+01	12.58	6.06E+00	5.35E+00
	55	2151.33	2148 -	2153	8.65E+00	7.00	2.70E+00	3.12E+00
	56	2204.61	2199 -	2207	2.48E+01	14.73	1.84E+01	8.92E+00
	57	2296.50	2294 -	2298	7.00E+00	6.18	2.00E+00	2.63E+00
	58	2315.78	2311 -	2318	8.00E+00	8.94	8.00E+00	5.70E+00
	59	2448.63	2444 -	2452	2.00E+01	10.40	3.95E+00	4.36E+00

Analysis Report for 1606065-04

CP-5013 10-15

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
60	2615.25	2611 -	2619	1.02E+02	20.20	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 : 6/17/2016 11:09:03AM

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	76.86	72 -	83	77.20	9.95E+02	170.82	3.13E+03	.....
2	93.82	92 -	98	94.16	3.06E+02	101.52	1.56E+03	GA-67
3	106.40	104 -	109	106.73	6.06E+01	70.41	9.45E+02	NP-239
4	177.94	176 -	181	178.25	6.28E+01	58.69	6.42E+02	.....
5	186.57	183 -	190	186.87	2.54E+02	81.51	9.33E+02	RA-226
6	209.63	206 -	213	209.92	1.38E+02	71.30	7.53E+02	CM-243 GA-67
M 7	239.17	234 -	246	239.46	9.98E+02	76.76	4.37E+02	PB-212
m 8	242.50	234 -	246	242.79	2.01E+02	72.46	5.04E+02	.....
9	258.42	255 -	263	258.70	5.62E+01	61.01	5.34E+02	.....
10	270.55	268 -	274	270.82	1.21E+02	52.51	4.14E+02	.....
11	277.48	275 -	280	277.75	6.35E+01	44.97	3.53E+02	CM-243 NP-239
M 12	295.72	292 -	305	295.98	2.43E+02	46.92	2.74E+02	PB-214
m 13	300.81	292 -	305	301.08	6.50E+01	38.44	2.86E+02	GA-67 PB-212 BI-210M
14	327.79	324 -	331	328.05	5.87E+01	49.88	3.75E+02	LA-140
M 15	336.05	335 -	344	336.31	2.97E+01	16.09	6.84E+01	.....
m 16	339.09	335 -	344	339.34	2.03E+02	44.75	2.12E+02	AC-228
17	352.55	349 -	357	352.80	3.82E+02	65.08	4.13E+02	PB-214
18	387.51	385 -	390	387.74	3.06E+01	34.07	2.09E+02	.....
19	463.89	459 -	468	464.10	5.26E+01	47.70	2.95E+02	SB-125
20	511.64	508 -	519	511.84	1.89E+02	57.31	3.11E+02	.....
21	584.03	580 -	588	584.20	3.17E+02	52.24	2.24E+02	TL-208

Analysis Report for 1606065-04

CP-5013 10-15

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	22	609.90	606 -	613	610.06	2.59E+02	50.16	2.44E+02	BI-214
	23	727.94	723 -	732	728.06	6.10E+01	41.40	2.10E+02	BI-212
	24	757.81	754 -	760	757.92	2.72E+01	26.91	1.06E+02	.....
	25	770.81	764 -	776	770.92	4.61E+01	48.29	2.50E+02	.....
	26	786.50	783 -	791	786.60	4.06E+01	30.83	1.21E+02	.....
	27	796.76	792 -	804	796.85	7.01E+01	40.02	1.54E+02	CS-134
	28	838.75	834 -	845	838.83	5.74E+01	33.76	1.13E+02	.....
	29	861.14	857 -	867	861.21	3.35E+01	34.73	1.43E+02	TL-208
M	30	904.75	901 -	916	904.80	3.55E+01	20.49	6.93E+01	.....
m	31	911.95	901 -	916	912.01	2.36E+02	34.07	4.94E+01	LU-172 AC-228
	32	920.67	919 -	923	920.72	1.35E+01	14.54	3.50E+01	.....
	33	934.69	932 -	938	934.73	2.35E+01	21.93	7.10E+01	.....
M	34	965.77	961 -	974	965.80	5.04E+01	25.77	5.30E+01	.....
m	35	970.03	961 -	974	970.07	1.27E+02	28.71	5.89E+01	AC-228
	36	991.97	989 -	997	991.99	2.10E+01	21.71	6.20E+01	.....
	37	1002.17	997 -	1007	1002.19	3.17E+01	28.07	8.86E+01	.....
	38	1055.45	1052 -	1059	1055.46	2.70E+01	23.24	7.20E+01	.....
	39	1077.59	1073 -	1082	1077.58	3.51E+01	24.43	6.58E+01	.....
	40	1121.95	1116 -	1128	1121.93	1.24E+02	38.58	1.16E+02	TA-182
	41	1378.82	1375 -	1382	1378.71	2.09E+01	17.32	3.62E+01	.....
	42	1409.67	1406 -	1414	1409.54	1.60E+01	16.42	3.21E+01	.....
	43	1442.08	1437 -	1446	1441.95	2.37E+01	14.11	1.46E+01	.....
	44	1461.65	1455 -	1468	1461.50	9.64E+02	66.03	5.69E+01	K-40
	45	1513.29	1510 -	1517	1513.13	8.57E+00	10.95	1.09E+01	.....
	46	1578.80	1575 -	1582	1578.61	9.23E+00	10.39	1.15E+01	.....
	47	1588.19	1584 -	1591	1588.00	2.80E+01	14.42	1.60E+01	.....
	48	1600.29	1597 -	1603	1600.10	8.12E+00	9.42	9.77E+00	.....
	49	1661.02	1653 -	1670	1660.81	3.10E+01	11.14	0.00E+00	.....
	50	1765.38	1759 -	1769	1765.13	5.66E+01	19.82	2.28E+01	BI-214
	51	1847.81	1844 -	1850	1847.52	1.05E+01	8.97	7.00E+00	.....
	52	1917.76	1913 -	1920	1917.44	9.00E+00	6.00	0.00E+00	.....
	53	1951.42	1948 -	1953	1951.09	6.56E+00	6.40	2.88E+00	.....
	54	2104.17	2099 -	2109	2103.79	2.90E+01	12.58	6.06E+00	.....
	55	2151.33	2148 -	2153	2150.92	8.65E+00	7.00	2.70E+00	.....
	56	2204.61	2199 -	2207	2204.19	2.48E+01	14.73	1.84E+01	BI-214
	57	2296.50	2294 -	2298	2296.04	7.00E+00	6.18	2.00E+00	.....
	58	2315.78	2311 -	2318	2315.32	8.00E+00	8.94	8.00E+00	.....
	59	2448.63	2444 -	2452	2448.11	2.00E+01	10.40	3.95E+00	.....
	60	2615.25	2611 -	2619	2614.67	1.02E+02	20.20	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

Analysis Report for 1606065-04

CP-5013 10-15

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/17/2016 11:09:03AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	76.86	9.95E+02	170.82	2.77E-02	2.36E-03
	2	93.82	3.06E+02	101.52	2.86E-02	2.63E-03
	3	106.40	6.06E+01	70.41	2.82E-02	2.38E-03
	4	177.94	6.28E+01	58.69	2.30E-02	2.09E-03
	5	186.57	2.54E+02	81.51	2.23E-02	2.02E-03
	6	209.63	1.38E+02	71.30	2.09E-02	1.85E-03
M	7	239.17	9.98E+02	76.76	1.92E-02	1.63E-03
m	8	242.50	2.01E+02	72.46	1.90E-02	1.61E-03
	9	258.42	5.62E+01	61.01	1.82E-02	1.49E-03
	10	270.55	1.21E+02	52.51	1.77E-02	1.40E-03
	11	277.48	6.35E+01	44.97	1.74E-02	1.35E-03
M	12	295.72	2.43E+02	46.92	1.67E-02	1.31E-03
m	13	300.81	6.50E+01	38.44	1.65E-02	1.30E-03
	14	327.79	5.87E+01	49.88	1.55E-02	1.24E-03
M	15	336.05	2.97E+01	16.09	1.53E-02	1.23E-03
m	16	339.09	2.03E+02	44.75	1.52E-02	1.22E-03
	17	352.55	3.82E+02	65.08	1.47E-02	1.19E-03
	18	387.51	3.06E+01	34.07	1.38E-02	1.12E-03
	19	463.89	5.26E+01	47.70	1.21E-02	1.04E-03
	20	511.64	1.89E+02	57.31	1.12E-02	9.90E-04
	21	584.03	3.17E+02	52.24	1.02E-02	9.15E-04
	22	609.90	2.59E+02	50.16	9.82E-03	8.88E-04
	23	727.94	6.10E+01	41.40	8.55E-03	7.75E-04
	24	757.81	2.72E+01	26.91	8.28E-03	7.48E-04
	25	770.81	4.61E+01	48.29	8.17E-03	7.36E-04
	26	786.50	4.06E+01	30.83	8.04E-03	7.22E-04
	27	796.76	7.01E+01	40.02	7.96E-03	7.13E-04
	28	838.75	5.74E+01	33.76	7.64E-03	6.75E-04
	29	861.14	3.35E+01	34.73	7.48E-03	6.55E-04
M	30	904.75	3.55E+01	20.49	7.19E-03	6.19E-04
m	31	911.95	2.36E+02	34.07	7.14E-03	6.15E-04
	32	920.67	1.35E+01	14.54	7.09E-03	6.11E-04
	33	934.69	2.35E+01	21.93	7.00E-03	6.03E-04
M	34	965.77	5.04E+01	25.77	6.82E-03	5.87E-04
m	35	970.03	1.27E+02	28.71	6.80E-03	5.85E-04
	36	991.97	2.10E+01	21.71	6.68E-03	5.73E-04
	37	1002.17	3.17E+01	28.07	6.62E-03	5.68E-04
	38	1055.45	2.70E+01	23.24	6.36E-03	5.40E-04
	39	1077.59	3.51E+01	24.43	6.25E-03	5.29E-04
	40	1121.95	1.24E+02	38.58	6.06E-03	5.06E-04
	41	1378.82	2.09E+01	17.32	5.18E-03	4.40E-04
	42	1409.67	1.60E+01	16.42	5.10E-03	4.32E-04
	43	1442.08	2.37E+01	14.11	5.02E-03	4.24E-04
	44	1461.65	9.64E+02	66.03	4.97E-03	4.19E-04
	45	1513.29	8.57E+00	10.95	4.85E-03	4.06E-04

Analysis Report for 1606065-04
CP-5013 10-15

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
46	1578.80	9.23E+00	10.39	4.71E-03	3.90E-04
47	1588.19	2.80E+01	14.42	4.69E-03	3.88E-04
48	1600.29	8.12E+00	9.42	4.67E-03	3.85E-04
49	1661.02	3.10E+01	11.14	4.56E-03	3.69E-04
50	1765.38	5.66E+01	19.82	4.39E-03	3.43E-04
51	1847.81	1.05E+01	8.97	4.28E-03	3.26E-04
52	1917.76	9.00E+00	6.00	4.20E-03	3.26E-04
53	1951.42	6.56E+00	6.40	4.16E-03	3.26E-04
54	2104.17	2.90E+01	12.58	4.02E-03	3.26E-04
55	2151.33	8.65E+00	7.00	3.98E-03	3.26E-04
56	2204.61	2.48E+01	14.73	3.95E-03	3.26E-04
57	2296.50	7.00E+00	6.18	3.90E-03	3.26E-04
58	2315.78	8.00E+00	8.94	3.89E-03	3.26E-04
59	2448.63	2.00E+01	10.40	3.83E-03	3.26E-04
60	2615.25	1.02E+02	20.20	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 : 6/17/2016 11:09:03AM

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	76.86	9.95E+02	170.82			9.95E+02	1.71E+02
2	93.82	3.06E+02	101.52	1.29E+02	7.14E+00	1.77E+02	1.02E+02
3	106.40	6.06E+01	70.41			6.06E+01	7.04E+01
4	177.94	6.28E+01	58.69			6.28E+01	5.87E+01
5	186.57	2.54E+02	81.51	5.81E+01	8.50E+00	1.96E+02	8.20E+01
6	209.63	1.38E+02	71.30			1.38E+02	7.13E+01
M	7	239.17	9.98E+02	76.76	1.81E+01	9.80E+02	7.70E+01
m	8	242.50	2.01E+02	72.46		2.01E+02	7.25E+01
	9	258.42	5.62E+01	61.01		5.62E+01	6.10E+01
	10	270.55	1.21E+02	52.51		1.21E+02	5.25E+01
	11	277.48	6.35E+01	44.97		6.35E+01	4.50E+01
M	12	295.72	2.43E+02	46.92	1.02E+00	2.42E+02	4.72E+01
m	13	300.81	6.50E+01	38.44		6.50E+01	3.84E+01
	14	327.79	5.87E+01	49.88		5.87E+01	4.99E+01
M	15	336.05	2.97E+01	16.09		2.97E+01	1.61E+01

: 00354

Analysis Report for 1606065-04

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	16	339.09	2.03E+02	44.75	3.86E+00	4.98E+00	1.99E+02	4.50E+01
	17	352.55	3.82E+02	65.08	7.25E+00	4.86E+00	3.74E+02	6.53E+01
	18	387.51	3.06E+01	34.07			3.06E+01	3.41E+01
	19	463.89	5.26E+01	47.70			5.26E+01	4.77E+01
	20	511.64	1.89E+02	57.31	7.58E+01	5.38E+00	1.13E+02	5.76E+01
	21	584.03	3.17E+02	52.24	6.11E+00	3.78E+00	3.11E+02	5.24E+01
	22	609.90	2.59E+02	50.16	6.74E+00	3.64E+00	2.52E+02	5.03E+01
	23	727.94	6.10E+01	41.40			6.10E+01	4.14E+01
	24	757.81	2.72E+01	26.91			2.72E+01	2.69E+01
	25	770.81	4.61E+01	48.29			4.61E+01	4.83E+01
	26	786.50	4.06E+01	30.83			4.06E+01	3.08E+01
	27	796.76	7.01E+01	40.02			7.01E+01	4.00E+01
	28	838.75	5.74E+01	33.76			5.74E+01	3.38E+01
	29	861.14	3.35E+01	34.73			3.35E+01	3.47E+01
M	30	904.75	3.55E+01	20.49			3.55E+01	2.05E+01
m	31	911.95	2.36E+02	34.07	4.21E+00	2.98E+00	2.32E+02	3.42E+01
	32	920.67	1.35E+01	14.54			1.35E+01	1.45E+01
	33	934.69	2.35E+01	21.93			2.35E+01	2.19E+01
M	34	965.77	5.04E+01	25.77			5.04E+01	2.58E+01
m	35	970.03	1.27E+02	28.71			1.27E+02	2.87E+01
	36	991.97	2.10E+01	21.71			2.10E+01	2.17E+01
	37	1002.17	3.17E+01	28.07	4.72E+00	2.83E+00	2.70E+01	2.82E+01
	38	1055.45	2.70E+01	23.24			2.70E+01	2.32E+01
	39	1077.59	3.51E+01	24.43			3.51E+01	2.44E+01
	40	1121.95	1.24E+02	38.58			1.24E+02	3.86E+01
	41	1378.82	2.09E+01	17.32			2.09E+01	1.73E+01
	42	1409.67	1.60E+01	16.42			1.60E+01	1.64E+01
	43	1442.08	2.37E+01	14.11			2.37E+01	1.41E+01
	44	1461.65	9.64E+02	66.03	6.83E+00	2.10E+00	9.57E+02	6.61E+01
	45	1513.29	8.57E+00	10.95			8.57E+00	1.10E+01
	46	1578.80	9.23E+00	10.39			9.23E+00	1.04E+01
	47	1588.19	2.80E+01	14.42			2.80E+01	1.44E+01
	48	1600.29	8.12E+00	9.42			8.12E+00	9.42E+00
	49	1661.02	3.10E+01	11.14			3.10E+01	1.11E+01
	50	1765.38	5.66E+01	19.82	1.66E+00	1.65E+00	5.49E+01	1.99E+01
	51	1847.81	1.05E+01	8.97			1.05E+01	8.97E+00
	52	1917.76	9.00E+00	6.00			9.00E+00	6.00E+00
	53	1951.42	6.56E+00	6.40			6.56E+00	6.40E+00
	54	2104.17	2.90E+01	12.58			2.90E+01	1.26E+01
	55	2151.33	8.65E+00	7.00			8.65E+00	7.00E+00
	56	2204.61	2.48E+01	14.73			2.48E+01	1.47E+01
	57	2296.50	7.00E+00	6.18			7.00E+00	6.18E+00
	58	2315.78	8.00E+00	8.94			8.00E+00	8.94E+00
	59	2448.63	2.00E+01	10.40			2.00E+01	1.04E+01
	60	2615.25	1.02E+02	20.20	4.95E+00	1.35E+00	9.70E+01	2.02E+01

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.00sigma

Analysis Report for 1606065-04
CP-5013 10-15

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/17/2016 11:09:03AM
 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	76.86	9.95E+02	170.82			9.95E+02	1.71E+02	
2	93.82	3.06E+02	101.52	1.29E+02	7.14E+00	1.77E+02	1.02E+02	
3	106.40	6.06E+01	70.41			6.06E+01	7.04E+01	
4	177.94	6.28E+01	58.69			6.28E+01	5.87E+01	
5	186.57	2.54E+02	81.51	5.81E+01	8.50E+00	1.96E+02	8.20E+01	
6	209.63	1.38E+02	71.30			1.38E+02	7.13E+01	
M	7	239.17	9.98E+02	76.76	1.81E+01	5.76E+00	9.80E+02	7.70E+01
m	8	242.50	2.01E+02	72.46			2.01E+02	7.25E+01
	9	258.42	5.62E+01	61.01			5.62E+01	6.10E+01
	10	270.55	1.21E+02	52.51			1.21E+02	5.25E+01
	11	277.48	6.35E+01	44.97			6.35E+01	4.50E+01
M	12	295.72	2.43E+02	46.92	1.02E+00	5.38E+00	2.42E+02	4.72E+01
m	13	300.81	6.50E+01	38.44			6.50E+01	3.84E+01
	14	327.79	5.87E+01	49.88			5.87E+01	4.99E+01
M	15	336.05	2.97E+01	16.09			2.97E+01	1.61E+01
m	16	339.09	2.03E+02	44.75	3.86E+00	4.98E+00	1.99E+02	4.50E+01
	17	352.55	3.82E+02	65.08	7.25E+00	4.86E+00	3.74E+02	6.53E+01
	18	387.51	3.06E+01	34.07			3.06E+01	3.41E+01
	19	463.89	5.26E+01	47.70			5.26E+01	4.77E+01
	20	511.64	1.89E+02	57.31	7.58E+01	5.38E+00	1.13E+02	5.76E+01
	21	584.03	3.17E+02	52.24	6.11E+00	3.78E+00	3.11E+02	5.24E+01
	22	609.90	2.59E+02	50.16	6.74E+00	3.64E+00	2.52E+02	5.03E+01
	23	727.94	6.10E+01	41.40			6.10E+01	4.14E+01
	24	757.81	2.72E+01	26.91			2.72E+01	2.69E+01
	25	770.81	4.61E+01	48.29			4.61E+01	4.83E+01
	26	786.50	4.06E+01	30.83			4.06E+01	3.08E+01
	27	796.76	7.01E+01	40.02			7.01E+01	4.00E+01
	28	838.75	5.74E+01	33.76			5.74E+01	3.38E+01
	29	861.14	3.35E+01	34.73			3.35E+01	3.47E+01
M	30	904.75	3.55E+01	20.49			3.55E+01	2.05E+01
m	31	911.95	2.36E+02	34.07	4.21E+00	2.98E+00	2.32E+02	3.42E+01
	32	920.67	1.35E+01	14.54			1.35E+01	1.45E+01
	33	934.69	2.35E+01	21.93			2.35E+01	2.19E+01
M	34	965.77	5.04E+01	25.77			5.04E+01	2.58E+01
m	35	970.03	1.27E+02	28.71			1.27E+02	2.87E+01
	36	991.97	2.10E+01	21.71			2.10E+01	2.17E+01
	37	1002.17	3.17E+01	28.07	4.72E+00	2.83E+00	2.70E+01	2.82E+01
	38	1055.45	2.70E+01	23.24			2.70E+01	2.32E+01
	39	1077.59	3.51E+01	24.43			3.51E+01	2.44E+01

Analysis Report for 1606065-04

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Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
40	1121.95	1.24E+02	38.58			1.24E+02	3.86E+01
41	1378.82	2.09E+01	17.32			2.09E+01	1.73E+01
42	1409.67	1.60E+01	16.42			1.60E+01	1.64E+01
43	1442.08	2.37E+01	14.11			2.37E+01	1.41E+01
44	1461.65	9.64E+02	66.03	6.83E+00	2.10E+00	9.57E+02	6.61E+01
45	1513.29	8.57E+00	10.95			8.57E+00	1.10E+01
46	1578.80	9.23E+00	10.39			9.23E+00	1.04E+01
47	1588.19	2.80E+01	14.42			2.80E+01	1.44E+01
48	1600.29	8.12E+00	9.42			8.12E+00	9.42E+00
49	1661.02	3.10E+01	11.14			3.10E+01	1.11E+01
50	1765.38	5.66E+01	19.82	1.66E+00	1.65E+00	5.49E+01	1.99E+01
51	1847.81	1.05E+01	8.97			1.05E+01	8.97E+00
52	1917.76	9.00E+00	6.00			9.00E+00	6.00E+00
53	1951.42	6.56E+00	6.40			6.56E+00	6.40E+00
54	2104.17	2.90E+01	12.58			2.90E+01	1.26E+01
55	2151.33	8.65E+00	7.00			8.65E+00	7.00E+00
56	2204.61	2.48E+01	14.73			2.48E+01	1.47E+01
57	2296.50	7.00E+00	6.18			7.00E+00	6.18E+00
58	2315.78	8.00E+00	8.94			8.00E+00	8.94E+00
59	2448.63	2.00E+01	10.40			2.00E+01	1.04E+01
60	2615.25	1.02E+02	20.20	4.95E+00	1.35E+00	9.70E+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	0.894	1460.81 *	10.67	2.49E+01	2.76E+00
GA-67	0.917	93.31 *	35.70	1.65E+00	2.85E+00
		208.95 *	2.24	2.82E+01	3.64E+01
		300.22 *	16.00	2.34E+00	4.07E+00
		583.14 *	30.22	1.40E+00	2.67E-01
TL-208	0.915	860.37 *	4.48	1.38E+00	1.44E+00
		2614.66 *	35.85	9.85E-01	2.22E-01
BI-212	0.691	727.17 *	11.80	8.35E-01	5.72E-01
		1620.62	2.75		
PB-212	0.952	238.63 *	44.60	1.58E+00	1.83E-01

: 00357

Analysis Report for 1606065-04
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Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-212	0.952	300.09 *	3.41	1.60E+00	9.54E-01
BI-214	0.681	609.31 *	46.30	7.66E-01	1.68E-01
		1120.29	15.10		
		1764.49 *	15.80	1.09E+00	4.05E-01
		2204.22 *	4.98	1.74E+00	1.04E+00
PB-214	0.946	295.21 *	19.19	1.05E+00	2.20E-01
		351.92 *	37.19	9.43E-01	1.81E-01
RA-226	0.980	186.21 *	3.28	3.70E+00	6.95E+00
AC-228	0.886	338.32 *	11.40	1.59E+00	3.82E-01
		911.07 *	27.70	1.62E+00	2.76E-01
		969.11 *	16.60	1.55E+00	3.76E-01
CM-243	0.373	209.75 *	3.29	2.79E+00	1.46E+00
		228.14	10.60		
		277.60 *	14.00	3.60E-01	2.57E-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 : 6/17/2016 11:09:03AM
 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	76.86	2.76336E-01	8.59		
3	106.40	1.68282E-02	58.11	Tol.	NP-239
4	177.94	1.74523E-02	46.70		
m 8	242.50	5.57910E-02	18.04		
9	258.42	1.56059E-02	54.30		
10	270.55	3.35942E-02	21.71		
14	327.79	1.62986E-02	42.51	Tol.	LA-140
M 15	336.05	8.25727E-03	27.07		
18	387.51	8.50823E-03	55.62		
19	463.89	1.46174E-02	45.32	Sum	
20	511.64	3.13739E-02	25.48		
24	757.81	7.56076E-03	49.44		
25	770.81	1.27997E-02	52.40	Sum	
26	786.50	1.12803E-02	37.96		
27	796.76	1.94832E-02	28.53	Sum	

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CP-5013 10-15

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	28	838.75	1.59576E-02		
M	30	904.75	9.86488E-03	29.39	
	32	920.67	3.75000E-03	28.85	Sum
	33	934.69	6.52307E-03	53.86	
M	34	965.77	1.39955E-02	46.70	
	36	991.97	5.83867E-03	25.57	
	37	1002.17	7.49340E-03	51.64	
	38	1055.45	7.50000E-03	52.29	
	39	1077.59	9.75082E-03	43.03	
	40	1121.95	3.44826E-02	34.80	Sum
	41	1378.82	5.80484E-03	15.54	
	42	1409.67	4.43142E-03	41.44	
	43	1442.08	6.58154E-03	51.48	
	45	1513.29	2.38095E-03	29.77	
	46	1578.80	2.56481E-03	63.90	
	47	1588.19	7.77778E-03	56.28	Sum
	48	1600.29	2.25427E-03	25.75	
	49	1661.02	8.61111E-03	58.04	
	51	1847.81	2.91667E-03	17.96	
	52	1917.76	2.50000E-03	42.72	
	53	1951.42	1.82292E-03	33.33	Sum
	54	2104.17	8.04687E-03	48.79	S-Esc
	55	2151.33	2.40278E-03	21.71	
	57	2296.50	1.94444E-03	40.46	
	58	2315.78	2.22222E-03	44.18	
	59	2448.63	5.56187E-03	55.90	
				25.98	

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	2.49E+01	2.76E+00
GA-67	0.91	93.31 *	35.70	1.65E+00	2.85E+00

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CP-5013 10-15

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
GA-67	0.91	208.95 *	2.24	2.82E+01	3.64E+01
		300.22 *	16.00	2.34E+00	4.07E+00
TL-208	0.91	583.14 *	30.22	1.40E+00	2.67E-01
		860.37 *	4.48	1.38E+00	1.44E+00
		2614.66 *	35.85	9.85E-01	2.22E-01
BI-212	0.69	727.17 *	11.80	8.35E-01	5.72E-01
		1620.62	2.75		
PB-212	0.95	238.63 *	44.60	1.58E+00	1.83E-01
		300.09 *	3.41	1.60E+00	9.54E-01
BI-214	0.68	609.31 *	46.30	7.66E-01	1.68E-01
		1120.29	15.10		
		1764.49 *	15.80	1.09E+00	4.05E-01
		2204.22 *	4.98	1.74E+00	1.04E+00
PB-214	0.94	295.21 *	19.19	1.05E+00	2.20E-01
		351.92 *	37.19	9.43E-01	1.81E-01
RA-226	0.98	186.21 *	3.28	3.70E+00	6.95E+00
AC-228	0.88	338.32 *	11.40	1.59E+00	3.82E-01
		911.07 *	27.70	1.62E+00	2.76E-01
		969.11 *	16.60	1.55E+00	3.76E-01
CM-243	0.37	209.75 *	3.29	2.79E+00	1.46E+00
		228.14	10.60		
		277.60 *	14.00	3.60E-01	2.57E-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	0.894	2.49E+01	2.76E+00	
GA-67	0.917	1.21E+00	1.63E+00	
TL-208	0.915	1.16E+00	1.70E-01	
BI-212	0.691	8.35E-01	5.72E-01	
PB-212	0.952	1.55E+00	1.81E-01	

Analysis Report for 1606065-04
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	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	BI-214	0.681	8.34E-01	1.53E-01	
	PB-214	0.946	9.85E-01	1.40E-01	
	RA-226	0.980	3.70E+00	6.95E+00	
	AC-228	0.886	1.59E+00	1.92E-01	
X	NP-239	0.610			
	CM-243	0.373	4.30E-01	2.53E-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

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 11:09:03AM
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	76.86	2.76336E-01	8.59		
3	106.40	1.68282E-02	58.11	Tol.	NP-239
4	177.94	1.74523E-02	46.70		
m 8	242.50	5.57910E-02	18.04		
9	258.42	1.56059E-02	54.30		
10	270.55	3.35942E-02	21.71		
14	327.79	1.62986E-02	42.51	Tol.	LA-140
M 15	336.05	8.25727E-03	27.07		
18	387.51	8.50823E-03	55.62		
19	463.89	1.46174E-02	45.32	Sum	
20	511.64	3.13739E-02	25.48		
24	757.81	7.56076E-03	49.44		
25	770.81	1.27997E-02	52.40	Sum	
26	786.50	1.12803E-02	37.96		
27	796.76	1.94832E-02	28.53	Sum	
28	838.75	1.59576E-02	29.39		
M 30	904.75	9.86488E-03	28.85	Sum	
32	920.67	3.75000E-03	53.86		
33	934.69	6.52307E-03	46.70		
M 34	965.77	1.39955E-02	25.57		
36	991.97	5.83867E-03	51.64		
37	1002.17	7.49340E-03	52.29		
38	1055.45	7.50000E-03	43.03		
39	1077.59	9.75082E-03	34.80		
40	1121.95	3.44826E-02	15.54	Sum	
41	1378.82	5.80484E-03	41.44		
42	1409.67	4.43142E-03	51.48		
43	1442.08	6.58154E-03	29.77		
45	1513.29	2.38095E-03	63.90		
46	1578.80	2.56481E-03	56.28		
47	1588.19	7.77778E-03	25.75	Sum	
48	1600.29	2.25427E-03	58.04		
49	1661.02	8.61111E-03	17.96		
51	1847.81	2.91667E-03	42.72		
52	1917.76	2.50000E-03	33.33		

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
53	1951.42	1.82292E-03	48.79	Sum	
54	2104.17	8.04687E-03	21.71	S-Esc	
55	2151.33	2.40278E-03	40.46		
57	2296.50	1.94444E-03	44.18		
58	2315.78	2.22222E-03	55.90		
59	2448.63	5.56187E-03	25.98		

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	3.29E-03	6.63E-01	6.63E-01
+	NA-22	1274.54	99.94	2.66E-02	8.32E-02	8.32E-02
+	NA-24	1368.53	99.99	4.26E+02	9.23E+02	1.46E+03
		2754.09	99.86	-4.29E+02		9.23E+02
+	AL-26	1808.65	99.76	3.05E-03	5.79E-02	5.79E-02
+	K-40	1460.81	* 10.67	2.49E+01	1.06E+00	1.06E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-8.26E-02	6.64E-02	6.64E-02
		78.34	96.00	1.30E-01		8.73E-02
+	SC-46	889.25	99.98	-8.68E-03	7.67E-02	7.67E-02
		1120.51	99.99	1.74E-01		1.35E-01
+	V-48	983.52	99.98	3.78E-02	9.67E-02	9.67E-02
		1312.10	97.50	8.07E-02		1.20E-01
+	CR-51	320.08	9.83	1.28E-01	6.47E-01	6.47E-01
+	MN-54	834.83	99.97	-4.90E-03	7.50E-02	7.50E-02
+	CO-56	846.75	99.96	4.86E-03	7.22E-02	7.22E-02
		1037.75	14.03	1.77E-01		6.11E-01
		1238.25	67.00	5.13E-02		1.71E-01
		1771.40	15.51	-5.50E-02		3.49E-01
		2598.48	16.90	4.66E-02		3.06E-01
+	CO-57	122.06	85.51	-4.19E-03	5.66E-02	5.66E-02
		136.48	10.60	2.35E-01		4.98E-01
+	CO-58	810.76	99.40	-2.43E-02	7.14E-02	7.14E-02

Analysis Report for 1606065-04
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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>
+	FE-59	1099.22	56.50	-5.53E-02	1.58E-01	1.58E-01
		1291.56	43.20	9.46E-03		2.15E-01
+	CO-60	1173.22	100.00	-1.62E-02	7.46E-02	8.59E-02
		1332.49	100.00	6.27E-03		7.46E-02
+	ZN-65	1115.52	50.75	2.41E-03	1.62E-01	1.62E-01
+	GA-67	93.31	* 35.70	1.65E+00	1.53E+00	1.53E+00
		208.95	* 2.24	2.82E+01		2.31E+01
		300.22	* 16.00	2.34E+00		4.70E+00
+	SE-75	121.11	16.70	-2.66E-02	8.22E-02	2.93E-01
		136.00	59.20	6.18E-02		9.21E-02
		264.65	59.80	-3.05E-03		8.22E-02
		279.53	25.20	-1.94E-02		2.25E-01
		400.65	11.40	5.14E-02		5.11E-01
+	RB-82	776.52	13.00	2.39E-01	6.87E-01	6.87E-01
+	RB-83	520.41	46.00	4.22E-02	1.40E-01	1.40E-01
		529.64	30.30	6.95E-02		2.16E-01
		552.65	16.40	-6.64E-02		3.72E-01
+	KR-85	513.99	0.43	3.92E+01	2.18E+01	2.18E+01
+	SR-85	513.99	99.27	1.89E-01	1.05E-01	1.05E-01
+	Y-88	898.02	93.40	-4.23E-04	4.84E-02	7.36E-02
		1836.01	99.38	-8.29E-03		4.84E-02
+	NB-93M	16.57	9.43	-8.12E+01	5.93E+01	5.93E+01
+	NB-94	702.63	100.00	1.23E-02	6.64E-02	7.44E-02
		871.10	100.00	1.54E-02		6.64E-02
+	NB-95	765.79	99.81	3.02E-02	9.49E-02	9.49E-02
+	NB-95M	235.69	25.00	-1.88E+01	1.28E+00	1.28E+00
+	ZR-95	724.18	43.70	5.58E-02	1.47E-01	1.91E-01
		756.72	55.30	3.95E-02		1.47E-01
+	MO-99	181.06	6.20	2.58E+00	5.02E+00	8.32E+00
		739.58	12.80	4.13E-02		5.02E+00
		778.00	4.50	3.36E+00		1.49E+01
+	RU-103	497.08	89.00	-3.16E-02	7.19E-02	7.19E-02
+	RU-106	621.84	9.80	1.62E-01	6.87E-01	6.87E-01
+	AG-108M	433.93	89.90	5.61E-02	6.70E-02	6.70E-02
		614.37	90.40	4.81E-03		7.25E-02
		722.95	90.50	2.65E-02		7.39E-02
+	CD-109	88.03	3.72	-1.60E+00	1.81E+00	1.81E+00
+	AG-110M	657.75	93.14	1.36E-02	7.77E-02	7.77E-02
		677.61	10.53	-1.27E-01		6.35E-01
		706.67	16.46	-1.77E-01		4.48E-01
		763.93	21.98	2.66E-02		3.19E-01
		884.67	71.63	-5.00E-05		9.97E-02
		1384.27	23.94	-2.51E-03		2.87E-01
+	CD-113M	263.70	0.02	5.89E+01	2.04E+02	2.04E+02
+	SN-113	255.12	1.93	-3.71E-01	8.24E-02	2.60E+00
		391.69	64.90	-1.64E-03		8.24E-02
+	TE123M	159.00	84.10	-2.86E-02	5.92E-02	5.92E-02

Analysis Report for 1606065-04
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-124	602.71	97.87	1.54E-02	8.25E-02	8.25E-02
		645.85	7.26	-4.65E-03		9.67E-01
		722.78	11.10	2.40E-01		6.69E-01
		1691.02	49.00	-2.08E-03		9.10E-02
+	I-125	35.49	6.49	-2.06E+00	2.27E+00	2.27E+00
+	SB-125	176.33	6.89	6.78E-02	1.83E-01	7.47E-01
		427.89	29.33	-1.44E-01		1.83E-01
		463.38	10.35	6.62E-01		6.79E-01
		600.56	17.80	-8.06E-02		3.92E-01
		635.90	11.32	2.09E-01		5.59E-01
+	SB-126	414.70	83.30	-4.40E-02	1.16E-01	1.19E-01
		666.33	99.60	3.77E-02		1.16E-01
		695.00	99.60	1.54E-02		1.20E-01
		720.50	53.80	5.25E-02		2.05E-01
+	SN-126	87.57	37.00	-1.59E-01	1.80E-01	1.80E-01
+	SB-127	473.00	25.00	-5.49E-01	9.62E-01	1.16E+00
		685.20	35.70	-4.64E-01		9.62E-01
		783.80	14.70	-5.13E-01		2.55E+00
+	I-129	29.78	57.00	-4.51E-01	4.63E-01	4.63E-01
		33.60	13.20	3.39E-01		1.30E+00
		39.58	7.52	-3.73E-01		1.34E+00
+	I-131	284.30	6.05	-3.21E-01	1.31E-01	1.76E+00
		364.48	81.20	-1.89E-02		1.31E-01
		636.97	7.26	7.12E-01		1.92E+00
		722.89	1.80	2.91E+00		8.13E+00
+	TE-132	49.72	13.10	-4.32E+00	4.01E-01	3.92E+00
		228.16	88.00	1.82E-02		4.01E-01
+	BA-133	81.00	33.00	-1.04E+00	9.28E-02	1.91E-01
		302.84	17.80	2.44E-01		3.22E-01
		356.01	60.00	-3.14E-01		9.28E-02
+	I-133	529.87	86.30	3.22E+01	1.00E+02	1.00E+02
+	XE-133	81.00	38.00	-3.01E+00	5.50E-01	5.50E-01
+	CS-134	563.23	8.38	3.92E-01	7.47E-02	7.84E-01
		569.32	15.43	-5.07E-03		4.49E-01
		604.70	97.60	1.40E-02		7.47E-02
		795.84	85.40	9.70E-02		1.01E-01
		801.93	8.73	-7.34E-01		7.24E-01
+	CS-135	268.24	16.00	2.03E-01	3.63E-01	3.63E-01
+	I-135	1131.51	22.50	-1.06E+09	2.29E+09	2.80E+09
		1260.41	28.60	-2.61E+08		2.29E+09
		1678.03	9.54	0.00E+00		3.97E+09
+	CS-136	153.22	7.46	2.59E-01	9.43E-02	1.06E+00
		163.89	4.61	1.67E+00		1.73E+00
		176.55	13.56	5.53E-02		6.09E-01
		273.65	12.66	-7.99E-01		6.71E-01
		340.57	48.50	5.38E-01		2.49E-01
		818.50	99.70	-7.21E-02		9.43E-02
		1048.07	79.60	3.28E-02		1.50E-01
		1235.34	19.70	-2.04E-01		8.26E-01

Analysis Report for 1606065-04
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CS-137	661.65	85.12	-1.99E-02	8.08E-02	8.08E-02
+	LA-138	788.74	34.00	4.34E-02	8.62E-02	2.24E-01
		1435.80	66.00	2.08E-03		8.62E-02
+	CE-139	165.85	80.35	4.34E-02	6.30E-02	6.30E-02
+	BA-140	162.64	6.70	-6.14E-01	4.03E-01	1.17E+00
		304.84	4.50	-1.31E-01		1.82E+00
		423.70	3.20	1.80E+00		2.97E+00
		437.55	2.00	9.11E-01		4.82E+00
		537.32	25.00	8.41E-02		4.03E-01
+	LA-140	328.77	20.50	2.02E-01	1.11E-01	4.57E-01
		487.03	45.50	7.60E-03		2.12E-01
		815.85	23.50	1.12E-01		4.50E-01
		1596.49	95.49	3.03E-02		1.11E-01
+	CE-141	145.44	48.40	6.05E-02	1.21E-01	1.21E-01
+	CE-143	57.36	11.80	-1.65E+01	1.65E+01	5.39E+01
		293.26	42.00	3.00E+01		1.65E+01
		664.55	5.20	-2.30E+00		1.29E+02
+	CE-144	133.54	10.80	-1.60E-01	4.62E-01	4.62E-01
+	PM-144	476.78	42.00	-3.34E-02	7.19E-02	1.46E-01
		618.01	98.60	3.51E-02		7.19E-02
		696.49	99.49	-1.41E-03		7.36E-02
+	PM-145	36.85	21.70	7.79E-02	2.92E-01	5.56E-01
		37.36	39.70	-2.36E-01		2.92E-01
		42.30	15.10	4.24E-01		6.24E-01
		72.40	2.31	-1.06E+01		2.96E+00
+	PM-146	453.90	39.94	3.22E-02	1.47E-01	1.47E-01
		735.90	14.01	7.67E-02		4.89E-01
		747.13	13.10	1.39E-01		5.29E-01
+	ND-147	91.11	28.90	1.36E-01	4.10E-01	4.10E-01
		531.02	13.10	-1.38E-01		8.06E-01
+	PM-149	285.90	3.10	5.12E+00	2.74E+01	2.74E+01
+	EU-152	121.78	20.50	-1.71E-02	2.31E-01	2.31E-01
		244.69	5.40	4.98E-01		1.15E+00
		344.27	19.13	-5.73E-03		2.45E-01
		778.89	9.20	-5.42E-02		7.02E-01
		964.01	10.40	-2.63E-01		8.73E-01
		1085.78	7.22	1.72E-01		1.11E+00
		1112.02	9.60	2.48E-01		8.64E-01
		1407.95	14.94	-9.07E-03		4.63E-01
+	GD-153	97.43	31.30	6.35E-02	1.70E-01	1.70E-01
		103.18	22.20	6.76E-03		2.20E-01
+	EU-154	123.07	40.50	-2.32E-04	1.20E-01	1.20E-01
		723.30	19.70	1.22E-01		3.40E-01
		873.19	11.50	-6.44E-02		5.63E-01
		996.32	10.30	-3.21E-01		6.10E-01
		1004.76	17.90	2.52E-01		4.31E-01
		1274.45	35.50	7.45E-02		2.33E-01
+	EU-155	86.50	30.90	2.11E-01	2.20E-01	2.20E-01
		105.30	20.70	2.43E-01		2.43E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	EU-156	811.77	10.40	2.26E-01	9.70E-01	9.70E-01
		1153.47	7.20	4.82E-01		1.97E+00
		1230.71	8.90	-2.13E-01		1.70E+00
+	HO-166M	184.41	72.60	1.31E-01	9.27E-02	9.27E-02
		280.45	29.60	-1.71E-02		1.71E-01
		410.94	11.10	2.50E-01		5.80E-01
		711.69	54.10	2.54E-02		1.30E-01
+	TM-171	66.72	0.14	-4.83E+01	4.80E+01	4.80E+01
+	HF-172	81.75	4.52	-3.93E+00	4.38E-01	1.32E+00
		125.81	11.30	8.20E-02		4.38E-01
+	LU-172	181.53	20.60	-4.42E-01	3.37E-01	6.28E-01
		810.06	16.63	-4.38E-01		9.98E-01
		912.12	15.25	7.61E+00		2.58E+00
		1093.66	62.50	1.88E-02		3.37E-01
+	LU-173	100.72	5.24	4.04E-01	2.89E-01	9.50E-01
		272.11	21.20	2.53E-01		2.89E-01
+	HF-175	343.40	84.00	1.03E-03	6.38E-02	6.38E-02
+	LU-176	88.34	13.30	7.92E-01	5.31E-02	5.12E-01
		201.83	86.00	1.95E-02		6.05E-02
		306.78	94.00	5.72E-03		5.31E-02
+	TA-182	67.75	41.20	-2.00E-01	1.61E-01	1.61E-01
		1121.30	34.90	4.75E-01		3.89E-01
		1189.05	16.23	2.43E-02		5.27E-01
		1221.41	26.98	4.77E-02		3.55E-01
		1231.02	11.44	-1.16E-01		9.23E-01
+	IR-192	308.46	29.68	-5.03E-02	1.40E-01	1.78E-01
		468.07	48.10	1.17E-02		1.40E-01
+	HG-203	279.19	77.30	3.32E-02	7.99E-02	7.99E-02
+	BI-207	569.67	97.72	-1.40E-02	6.98E-02	6.98E-02
		1063.62	74.90	4.53E-02		1.01E-01
+	TL-208	583.14	* 30.22	1.40E+00	1.05E-01	2.99E-01
		860.37	* 4.48	1.38E+00		2.33E+00
		2614.66	* 35.85	9.85E-01		1.05E-01
+	BI-210M	262.00	45.00	-4.16E-02	1.07E-01	1.07E-01
		300.00	23.00	-6.41E-01		2.47E-01
+	PB-210	46.50	4.25	1.07E+00	2.03E+00	2.03E+00
+	PB-211	404.84	2.90	5.82E-01	1.89E+00	1.89E+00
		831.96	2.90	-1.57E-01		2.36E+00
+	BI-212	727.17	* 11.80	8.35E-01	9.01E-01	9.01E-01
		1620.62	2.75	8.62E-01		2.49E+00
+	PB-212	238.63	* 44.60	1.58E+00	2.47E-01	2.47E-01
		300.09	* 3.41	1.60E+00		3.20E+00
+	BI-214	609.31	* 46.30	7.66E-01	2.03E-01	2.03E-01
		1120.29	15.10	1.07E+00		8.28E-01
		1764.49	* 15.80	1.09E+00		4.88E-01
		2204.22	* 4.98	1.74E+00		1.44E+00
+	PB-214	295.21	* 19.19	1.05E+00	2.24E-01	5.63E-01
		351.92	* 37.19	9.43E-01		2.24E-01

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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>
+	RN-219	401.80	6.50	4.42E-01	8.85E-01	8.85E-01
+	RA-223	323.87	3.88	3.46E-01	1.30E+00	1.30E+00
+	RA-224	240.98	3.95	1.92E+01	3.14E+00	3.14E+00
+	RA-225	40.00	31.00	-1.35E-01	4.84E-01	4.84E-01
+	RA-226	186.21	* 3.28	3.70E+00	2.44E+00	2.44E+00
+	TH-227	50.10	8.40	-9.67E-01	4.87E-01	8.77E-01
		236.00	11.50	-7.18E+00		4.87E-01
		256.20	6.30	-5.65E-01		7.59E-01
+	AC-228	338.32	* 11.40	1.59E+00	4.49E-01	6.44E-01
		911.07	* 27.70	1.62E+00		4.49E-01
		969.11	* 16.60	1.55E+00		6.38E-01
+	TH-230	48.44	16.90	4.04E-01	4.86E-01	4.86E-01
		62.85	4.60	2.80E+00		1.64E+00
		67.67	0.37	-2.11E+01		1.70E+01
+	PA-231	283.67	1.60	-6.95E-01	2.49E+00	2.99E+00
		302.67	2.30	1.89E+00		2.49E+00
+	TH-231	25.64	14.70	-4.26E+01	9.64E-01	4.22E+00
		84.21	6.40	-1.16E+00		9.64E-01
+	PA-233	311.98	38.60	5.71E-02	1.62E-01	1.62E-01
+	PA-234	131.20	20.40	5.61E-02	2.46E-01	2.46E-01
		733.99	8.80	3.51E-02		7.69E-01
		946.00	12.00	-3.06E-02		6.28E-01
+	PA-234M	1001.03	0.92	5.16E+00	8.50E+00	8.50E+00
+	TH-234	63.29	3.80	2.94E+00	1.97E+00	1.97E+00
+	U-235	143.76	10.50	9.64E-03	4.66E-01	4.66E-01
		163.35	4.70	1.01E+00		1.05E+00
		205.31	4.70	3.10E-02		1.10E+00
+	NP-237	86.50	12.60	5.16E-01	5.37E-01	5.37E-01
+	NP-239	106.10	* 22.70	1.89E+00	3.61E+00	3.61E+00
		228.18	10.70	3.14E-01		6.91E+00
		277.60	* 14.10	5.16E+00		5.85E+00
+	AM-241	59.54	35.90	5.29E-02	1.88E-01	1.88E-01
+	AM-243	74.67	66.00	-5.87E-01	1.20E-01	1.20E-01
+	CM-243	209.75	* 3.29	2.79E+00	4.08E-01	2.28E+00
		228.14	10.60	2.20E-02		4.83E-01
		277.60	* 14.00	3.60E-01		4.08E-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

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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	6.63E-01	6.63E-01	3.29E-03	3.15E-01
NA-22	1274.54	99.94	8.32E-02	8.32E-02	2.66E-02	3.82E-02
NA-24	1368.53	99.99	1.46E+03	9.23E+02	4.26E+02	6.47E+02
	2754.09	99.86	9.23E+02		-4.29E+02	3.45E+02
AL-26	1808.65	99.76	5.79E-02	5.79E-02	3.05E-03	2.47E-02
+ K-40	1460.81	*	10.67	1.06E+00	2.49E+01	4.97E-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	6.64E-02	6.64E-02	-8.26E-02	3.24E-02
	78.34	96.00	8.73E-02		1.30E-01	4.30E-02
SC-46	889.25	99.98	7.67E-02	7.67E-02	-8.68E-03	3.56E-02
	1120.51	99.99	1.35E-01		1.74E-01	6.41E-02
V-48	983.52	99.98	9.67E-02	9.67E-02	3.78E-02	4.42E-02
	1312.10	97.50	1.20E-01		8.07E-02	5.46E-02
CR-51	320.08	9.83	6.47E-01	6.47E-01	1.28E-01	3.09E-01
MN-54	834.83	99.97	7.50E-02	7.50E-02	-4.90E-03	3.50E-02
CO-56	846.75	99.96	7.22E-02	7.22E-02	4.86E-03	3.34E-02
	1037.75	14.03	6.11E-01		1.77E-01	2.83E-01
	1238.25	67.00	1.71E-01		5.13E-02	8.01E-02
	1771.40	15.51	3.49E-01		-5.50E-02	1.45E-01
	2598.48	16.90	3.06E-01		4.66E-02	1.21E-01
CO-57	122.06	85.51	5.66E-02	5.66E-02	-4.19E-03	2.75E-02
	136.48	10.60	4.98E-01		2.35E-01	2.42E-01
CO-58	810.76	99.40	7.14E-02	7.14E-02	-2.43E-02	3.31E-02
FE-59	1099.22	56.50	1.58E-01	1.58E-01	-5.53E-02	7.29E-02
	1291.56	43.20	2.15E-01		9.46E-03	9.83E-02
CO-60	1173.22	100.00	8.59E-02	7.46E-02	-1.62E-02	3.97E-02
	1332.49	100.00	7.46E-02		6.27E-03	3.38E-02
ZN-65	1115.52	50.75	1.62E-01	1.62E-01	2.41E-03	7.47E-02
+ GA-67	93.31	*	35.70	1.53E+00	1.65E+00	7.53E-01
	208.95	*	2.24	2.31E+01	2.82E+01	1.13E+01
	300.22	*	16.00	4.70E+00	2.34E+00	2.30E+00
SE-75	121.11	16.70	2.93E-01	8.22E-02	-2.66E-02	1.42E-01
	136.00	59.20	9.21E-02		6.18E-02	4.48E-02
	264.65	59.80	8.22E-02		-3.05E-03	3.92E-02
	279.53	25.20	2.25E-01		-1.94E-02	1.08E-01
	400.65	11.40	5.11E-01		5.14E-02	2.43E-01
RB-82	776.52	13.00	6.87E-01	6.87E-01	2.39E-01	3.21E-01
RB-83	520.41	46.00	1.40E-01	1.40E-01	4.22E-02	6.61E-02
	529.64	30.30	2.16E-01		6.95E-02	1.02E-01
	552.65	16.40	3.72E-01		-6.64E-02	1.75E-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)
KR-85	513.99	0.43	2.18E+01	2.18E+01	3.92E+01	1.05E+01
SR-85	513.99	99.27	1.05E-01	1.05E-01	1.89E-01	5.05E-02
Y-88	898.02	93.40	7.36E-02	4.84E-02	-4.23E-04	3.39E-02
	1836.01	99.38	4.84E-02		-8.29E-03	1.96E-02
NB-93M	16.57	9.43	5.93E+01	5.93E+01	-8.12E+01	2.72E+01
NB-94	702.63	100.00	7.44E-02	6.64E-02	1.23E-02	3.51E-02
	871.10	100.00	6.64E-02		1.54E-02	3.07E-02
NB-95	765.79	99.81	9.49E-02	9.49E-02	3.02E-02	4.47E-02
NB-95M	235.69	25.00	1.28E+00	1.28E+00	-1.88E+01	6.17E-01
ZR-95	724.18	43.70	1.91E-01	1.47E-01	5.58E-02	9.01E-02
	756.72	55.30	1.47E-01		3.95E-02	6.92E-02
MO-99	181.06	6.20	8.32E+00	5.02E+00	2.58E+00	4.03E+00
	739.58	12.80	5.02E+00		4.13E-02	2.34E+00
	778.00	4.50	1.49E+01		3.36E+00	6.93E+00
RU-103	497.08	89.00	7.19E-02	7.19E-02	-3.16E-02	3.38E-02
RU-106	621.84	9.80	6.87E-01	6.87E-01	1.62E-01	3.23E-01
AG-108M	433.93	89.90	6.70E-02	6.70E-02	5.61E-02	3.19E-02
	614.37	90.40	7.25E-02		4.81E-03	3.42E-02
	722.95	90.50	7.39E-02		2.65E-02	3.46E-02
CD-109	88.03	3.72	1.81E+00	1.81E+00	-1.60E+00	8.87E-01
AG-110M	657.75	93.14	7.77E-02	7.77E-02	1.36E-02	3.66E-02
	677.61	10.53	6.35E-01		-1.27E-01	2.98E-01
	706.67	16.46	4.48E-01		-1.77E-01	2.11E-01
	763.93	21.98	3.19E-01		2.66E-02	1.49E-01
	884.67	71.63	9.97E-02		-5.00E-05	4.62E-02
	1384.27	23.94	2.87E-01		-2.51E-03	1.28E-01
CD-113M	263.70	0.02	2.04E+02	2.04E+02	5.89E+01	9.76E+01
SN-113	255.12	1.93	2.60E+00	8.24E-02	-3.71E-01	1.24E+00
	391.69	64.90	8.24E-02		-1.64E-03	3.90E-02
TE123M	159.00	84.10	5.92E-02	5.92E-02	-2.86E-02	2.86E-02
SB-124	602.71	97.87	8.25E-02	8.25E-02	1.54E-02	3.91E-02
	645.85	7.26	9.67E-01		-4.65E-03	4.53E-01
	722.78	11.10	6.69E-01		2.40E-01	3.13E-01
	1691.02	49.00	9.10E-02		-2.08E-03	3.61E-02
I-125	35.49	6.49	2.27E+00	2.27E+00	-2.06E+00	1.10E+00
SB-125	176.33	6.89	7.47E-01	1.83E-01	6.78E-02	3.62E-01
	427.89	29.33	1.83E-01		-1.44E-01	8.64E-02
	463.38	10.35	6.79E-01		6.62E-01	3.25E-01
	600.56	17.80	3.92E-01		-8.06E-02	1.86E-01
	635.90	11.32	5.59E-01		2.09E-01	2.62E-01
SB-126	414.70	83.30	1.19E-01	1.16E-01	-4.40E-02	5.65E-02
	666.33	99.60	1.16E-01		3.77E-02	5.48E-02
	695.00	99.60	1.20E-01		1.54E-02	5.67E-02
	720.50	53.80	2.05E-01		5.25E-02	9.56E-02
SN-126	87.57	37.00	1.80E-01	1.80E-01	-1.59E-01	8.80E-02
SB-127	473.00	25.00	1.16E+00	9.62E-01	-5.49E-01	5.50E-01
	685.20	35.70	9.62E-01		-4.64E-01	4.51E-01
	783.80	14.70	2.55E+00		-5.13E-01	1.19E+00
I-129	29.78	57.00	4.63E-01	4.63E-01	-4.51E-01	2.24E-01
	33.60	13.20	1.30E+00		3.39E-01	6.31E-01
	39.58	7.52	1.34E+00		-3.73E-01	6.49E-01
I-131	284.30	6.05	1.76E+00	1.31E-01	-3.21E-01	8.39E-01
	364.48	81.20	1.31E-01		-1.89E-02	6.18E-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)
I-131	636.97	7.26	1.92E+00	1.31E-01	7.12E-01	9.00E-01
	722.89	1.80	8.13E+00		2.91E+00	3.80E+00
TE-132	49.72	13.10	3.92E+00	4.01E-01	-4.32E+00	1.91E+00
	228.16	88.00	4.01E-01		1.82E-02	1.93E-01
BA-133	81.00	33.00	1.91E-01	9.28E-02	-1.04E+00	9.35E-02
	302.84	17.80	3.22E-01		2.44E-01	1.55E-01
	356.01	60.00	9.28E-02		-3.14E-01	4.43E-02
I-133	529.87	86.30	1.00E+02	1.00E+02	3.22E+01	4.73E+01
XE-133	81.00	38.00	5.50E-01	5.50E-01	-3.01E+00	2.69E-01
CS-134	563.23	8.38	7.84E-01	7.47E-02	3.92E-01	3.70E-01
	569.32	15.43	4.49E-01		-5.07E-03	2.13E-01
	604.70	97.60	7.47E-02		1.40E-02	3.54E-02
	795.84	85.40	1.01E-01		9.70E-02	4.79E-02
	801.93	8.73	7.24E-01		-7.34E-01	3.35E-01
CS-135	268.24	16.00	3.63E-01	3.63E-01	2.03E-01	1.75E-01
I-135	1131.51	22.50	2.80E+09	2.29E+09	-1.06E+09	1.29E+09
	1260.41	28.60	2.29E+09		-2.61E+08	1.05E+09
	1678.03	9.54	3.97E+09		0.00E+00	1.63E+09
CS-136	153.22	7.46	1.06E+00	9.43E-02	2.59E-01	5.15E-01
	163.89	4.61	1.73E+00		1.67E+00	8.39E-01
	176.55	13.56	6.09E-01		5.53E-02	2.95E-01
	273.65	12.66	6.71E-01		-7.99E-01	3.22E-01
	340.57	48.50	2.49E-01		5.38E-01	1.20E-01
	818.50	99.70	9.43E-02		-7.21E-02	4.33E-02
	1048.07	79.60	1.50E-01		3.28E-02	6.91E-02
	1235.34	19.70	8.26E-01		-2.04E-01	3.86E-01
CS-137	661.65	85.12	8.08E-02	8.08E-02	-1.99E-02	3.80E-02
LA-138	788.74	34.00	2.24E-01	8.62E-02	4.34E-02	1.05E-01
	1435.80	66.00	8.62E-02		2.08E-03	3.75E-02
CE-139	165.85	80.35	6.30E-02	6.30E-02	4.34E-02	3.05E-02
BA-140	162.64	6.70	1.17E+00	4.03E-01	-6.14E-01	5.64E-01
	304.84	4.50	1.82E+00		-1.31E-01	8.67E-01
	423.70	3.20	2.97E+00		1.80E+00	1.41E+00
	437.55	2.00	4.82E+00		9.11E-01	2.29E+00
	537.32	25.00	4.03E-01		8.41E-02	1.90E-01
LA-140	328.77	20.50	4.57E-01	1.11E-01	2.02E-01	2.19E-01
	487.03	45.50	2.12E-01		7.60E-03	1.00E-01
	815.85	23.50	4.50E-01		1.12E-01	2.08E-01
	1596.49	95.49	1.11E-01		3.03E-02	4.85E-02
CE-141	145.44	48.40	1.21E-01	1.21E-01	6.05E-02	5.87E-02
CE-143	57.36	11.80	5.39E+01	1.65E+01	-1.65E+01	2.63E+01
	293.26	42.00	1.65E+01		3.00E+01	8.00E+00
	664.55	5.20	1.29E+02		-2.30E+00	6.08E+01
CE-144	133.54	10.80	4.62E-01	4.62E-01	-1.60E-01	2.25E-01
PM-144	476.78	42.00	1.46E-01	7.19E-02	-3.34E-02	6.89E-02
	618.01	98.60	7.19E-02		3.51E-02	3.39E-02
	696.49	99.49	7.36E-02		-1.41E-03	3.46E-02
PM-145	36.85	21.70	5.56E-01	2.92E-01	7.79E-02	2.69E-01
	37.36	39.70	2.92E-01		-2.36E-01	1.41E-01
	42.30	15.10	6.24E-01		4.24E-01	3.03E-01
	72.40	2.31	2.96E+00		-1.06E+01	1.45E+00
PM-146	453.90	39.94	1.47E-01	1.47E-01	3.22E-02	6.95E-02
	735.90	14.01	4.89E-01		7.67E-02	2.29E-01

Analysis Report for 1606065-04
CP-5013 10-15

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-146	747.13	13.10	5.29E-01	1.47E-01	1.39E-01	2.48E-01
ND-147	91.11	28.90	4.10E-01	4.10E-01	1.36E-01	2.01E-01
	531.02	13.10	8.06E-01		-1.38E-01	3.80E-01
PM-149	285.90	3.10	2.74E+01	2.74E+01	5.12E+00	1.31E+01
EU-152	121.78	20.50	2.31E-01	2.31E-01	-1.71E-02	1.12E-01
	244.69	5.40	1.15E+00		4.98E-01	5.55E-01
	344.27	19.13	2.45E-01		-5.73E-03	1.16E-01
	778.89	9.20	7.02E-01		-5.42E-02	3.26E-01
	964.01	10.40	8.73E-01		-2.63E-01	4.10E-01
	1085.78	7.22	1.11E+00		1.72E-01	5.12E-01
	1112.02	9.60	8.64E-01		2.48E-01	4.00E-01
	1407.95	14.94	4.63E-01		-9.07E-03	2.07E-01
GD-153	97.43	31.30	1.70E-01	1.70E-01	6.35E-02	8.27E-02
	103.18	22.20	2.20E-01		6.76E-03	1.07E-01
EU-154	123.07	40.50	1.20E-01	1.20E-01	-2.32E-04	5.82E-02
	723.30	19.70	3.40E-01		1.22E-01	1.59E-01
	873.19	11.50	5.63E-01		-6.44E-02	2.60E-01
	996.32	10.30	6.10E-01		-3.21E-01	2.78E-01
	1004.76	17.90	4.31E-01		2.52E-01	2.00E-01
	1274.45	35.50	2.33E-01		7.45E-02	1.07E-01
EU-155	86.50	30.90	2.20E-01	2.20E-01	2.11E-01	1.08E-01
	105.30	20.70	2.43E-01		2.43E-01	1.18E-01
EU-156	811.77	10.40	9.70E-01	9.70E-01	2.26E-01	4.50E-01
	1153.47	7.20	1.97E+00		4.82E-01	9.18E-01
	1230.71	8.90	1.70E+00		-2.13E-01	7.93E-01
HO-166M	184.41	72.60	9.27E-02	9.27E-02	1.31E-01	4.52E-02
	280.45	29.60	1.71E-01		-1.71E-02	8.19E-02
	410.94	11.10	5.80E-01		2.50E-01	2.77E-01
	711.69	54.10	1.30E-01		2.54E-02	6.10E-02
TM-171	66.72	0.14	4.80E+01	4.80E+01	-4.83E+01	2.35E+01
HF-172	81.75	4.52	1.32E+00	4.38E-01	-3.93E+00	6.43E-01
	125.81	11.30	4.38E-01		8.20E-02	2.13E-01
LU-172	181.53	20.60	6.28E-01	3.37E-01	-4.42E-01	3.04E-01
	810.06	16.63	9.98E-01		-4.38E-01	4.62E-01
	912.12	15.25	2.58E+00		7.61E+00	1.25E+00
	1093.66	62.50	3.37E-01		1.88E-02	1.56E-01
LU-173	100.72	5.24	9.50E-01	2.89E-01	4.04E-01	4.62E-01
	272.11	21.20	2.89E-01		2.53E-01	1.40E-01
HF-175	343.40	84.00	6.38E-02	6.38E-02	1.03E-03	3.03E-02
LU-176	88.34	13.30	5.12E-01	5.31E-02	7.92E-01	2.51E-01
	201.83	86.00	6.05E-02		1.95E-02	2.92E-02
	306.78	94.00	5.31E-02		5.72E-03	2.53E-02
TA-182	67.75	41.20	1.61E-01	1.61E-01	-2.00E-01	7.86E-02
	1121.30	34.90	3.89E-01		4.75E-01	1.85E-01
	1189.05	16.23	5.27E-01		2.43E-02	2.42E-01
	1221.41	26.98	3.55E-01		4.77E-02	1.64E-01
	1231.02	11.44	9.23E-01		-1.16E-01	4.31E-01
IR-192	308.46	29.68	1.78E-01	1.40E-01	-5.03E-02	8.49E-02
	468.07	48.10	1.40E-01		1.17E-02	6.64E-02
HG-203	279.19	77.30	7.99E-02	7.99E-02	3.32E-02	3.83E-02
BI-207	569.67	97.72	6.98E-02	6.98E-02	-1.40E-02	3.30E-02
	1063.62	74.90	1.01E-01		4.53E-02	4.66E-02
+ TL-208	583.14 *	30.22	2.99E-01	1.05E-01	1.40E+00	1.43E-01

Analysis Report for 1606065-04

CP-5013 10-15

Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TL-208	860.37	*	4.48	2.33E+00	1.05E-01	1.38E+00	1.11E+00
	2614.66	*	35.85	1.05E-01		9.85E-01	3.88E-02
BI-210M	262.00		45.00	1.07E-01	1.07E-01	-4.16E-02	5.12E-02
	300.00		23.00	2.47E-01		-6.41E-01	1.19E-01
PB-210	46.50		4.25	2.03E+00	2.03E+00	1.07E+00	9.90E-01
PB-211	404.84		2.90	1.89E+00	1.89E+00	5.82E-01	8.97E-01
	831.96		2.90	2.36E+00		-1.57E-01	1.10E+00
+ BI-212	727.17	*	11.80	9.01E-01	9.01E-01	8.35E-01	4.32E-01
	1620.62		2.75	2.49E+00		8.62E-01	1.10E+00
+ PB-212	238.63	*	44.60	2.47E-01	2.47E-01	1.58E+00	1.21E-01
	300.09	*	3.41	3.20E+00		1.60E+00	1.57E+00
+ BI-214	609.31	*	46.30	2.03E-01	2.03E-01	7.66E-01	9.75E-02
	1120.29		15.10	8.28E-01		1.07E+00	3.94E-01
	1764.49	*	15.80	4.88E-01		1.09E+00	2.17E-01
	2204.22	*	4.98	1.44E+00		1.74E+00	6.27E-01
+ PB-214	295.21	*	19.19	5.63E-01	2.24E-01	1.05E+00	2.76E-01
	351.92	*	37.19	2.24E-01		9.43E-01	1.09E-01
RN-219	401.80		6.50	8.85E-01	8.85E-01	4.42E-01	4.21E-01
RA-223	323.87		3.88	1.30E+00	1.30E+00	3.46E-01	6.17E-01
RA-224	240.98		3.95	3.14E+00	3.14E+00	1.92E+01	1.55E+00
RA-225	40.00		31.00	4.84E-01	4.84E-01	-1.35E-01	2.34E-01
+ RA-226	186.21	*	3.28	2.44E+00	2.44E+00	3.70E+00	1.19E+00
TH-227	50.10		8.40	8.77E-01	4.87E-01	-9.67E-01	4.27E-01
	236.00		11.50	4.87E-01		-7.18E+00	2.35E-01
	256.20		6.30	7.59E-01		-5.65E-01	3.63E-01
+ AC-228	338.32	*	11.40	6.44E-01	4.49E-01	1.59E+00	3.11E-01
	911.07	*	27.70	4.49E-01		1.62E+00	2.15E-01
	969.11	*	16.60	6.38E-01		1.55E+00	3.02E-01
TH-230	48.44		16.90	4.86E-01	4.86E-01	4.04E-01	2.37E-01
	62.85		4.60	1.64E+00		2.80E+00	8.06E-01
	67.67		0.37	1.70E+01		-2.11E+01	8.29E+00
PA-231	283.67		1.60	2.99E+00	2.49E+00	-6.95E-01	1.42E+00
	302.67		2.30	2.49E+00		1.89E+00	1.20E+00
TH-231	25.64		14.70	4.22E+00	9.64E-01	-4.26E+01	2.05E+00
	84.21		6.40	9.64E-01		-1.16E+00	4.72E-01
PA-233	311.98		38.60	1.62E-01	1.62E-01	5.71E-02	7.74E-02
PA-234	131.20		20.40	2.46E-01	2.46E-01	5.61E-02	1.20E-01
	733.99		8.80	7.69E-01		3.51E-02	3.60E-01
	946.00		12.00	6.28E-01		-3.06E-02	2.91E-01
PA-234M	1001.03		0.92	8.50E+00	8.50E+00	5.16E+00	3.94E+00
TH-234	63.29		3.80	1.97E+00	1.97E+00	2.94E+00	9.66E-01
U-235	143.76		10.50	4.66E-01	4.66E-01	9.64E-03	2.26E-01
	163.35		4.70	1.05E+00		1.01E+00	5.10E-01
	205.31		4.70	1.10E+00		3.10E-02	5.29E-01
NP-237	86.50		12.60	5.37E-01	5.37E-01	5.16E-01	2.63E-01
NP-239	106.10	*	22.70	3.61E+00	3.61E+00	1.89E+00	1.76E+00
	228.18		10.70	6.91E+00		3.14E-01	3.33E+00
	277.60	*	14.10	5.85E+00		5.16E+00	2.81E+00
AM-241	59.54		35.90	1.88E-01	1.88E-01	5.29E-02	9.17E-02
AM-243	74.67		66.00	1.20E-01	1.20E-01	-5.87E-01	5.91E-02
+ CM-243	209.75	*	3.29	2.28E+00	4.08E-01	2.79E+00	1.12E+00
	228.14		10.60	4.83E-01		2.20E-02	2.33E-01
	277.60	*	14.00	4.08E-01		3.60E-01	1.96E-01

Analysis Report for 1606065-04
CP-5013 10-15

- + = 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

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

369: 25 23 19 15 25 13 28 16

Sample Title: CP-5013 10-15

Channel	1	2	3	4	5	6	7	8
377:	11	23	26	26	22	18	26	13
385:	19	13	33	19	33	18	19	25
393:	22	20	21	18	22	27	13	28
401:	26	26	28	23	21	21	24	19
409:	14	37	28	22	20	20	13	20
417:	15	24	19	10	12	15	24	16
425:	19	20	17	12	11	9	13	21
433:	19	20	14	21	20	15	11	21
441:	19	14	12	16	21	16	19	21
449:	13	14	16	14	15	23	15	19
457:	10	15	15	12	13	12	37	37
465:	20	23	16	15	14	18	14	12
473:	14	12	17	12	17	22	14	16
481:	17	25	13	16	15	15	14	15
489:	13	14	12	10	12	14	6	14
497:	9	16	10	15	13	23	19	12
505:	22	12	18	11	19	40	70	70
513:	42	20	18	15	16	12	11	13
521:	11	15	16	17	7	16	16	17
529:	17	10	11	17	8	11	12	14
537:	14	19	3	16	18	18	11	26
545:	10	14	15	11	12	14	9	10
553:	15	15	7	7	14	11	10	10
561:	16	12	10	21	17	14	13	9
569:	16	23	22	13	12	14	22	9
577:	13	11	16	11	13	10	66	186
585:	97	16	20	10	13	12	14	12
593:	13	15	18	9	13	15	15	10
601:	19	17	16	11	20	20	6	21
609:	59	180	75	11	9	13	10	17
617:	19	9	11	19	14	9	12	12
625:	11	10	8	10	13	9	10	6
633:	7	10	11	13	11	15	9	9
641:	9	12	7	8	7	12	10	15
649:	16	11	11	15	9	9	17	11
657:	8	18	17	12	9	13	15	9
665:	11	18	11	10	14	14	6	15
673:	10	12	9	11	8	8	10	13
681:	15	9	16	14	11	6	13	8
689:	15	13	11	16	8	11	12	10
697:	13	18	10	13	10	16	14	13
705:	12	14	14	7	12	13	19	10
713:	7	9	10	12	8	9	7	9
721:	14	15	6	9	8	9	30	43
729:	30	12	11	8	13	11	10	7
737:	10	9	11	8	10	10	6	14
745:	5	11	8	13	10	10	5	13
753:	13	11	11	11	12	19	14	2
761:	7	8	15	9	10	9	9	18
769:	21	18	10	23	16	11	10	7
777:	8	10	11	11	7	3	11	7
785:	10	23	13	11	9	11	6	7
793:	6	16	20	23	16	12	8	6

801: 11 6 9 7 4 13 10 9

Sample Title: CP-5013 10-15

Channel	1	2	3	4	5	6	7	8	9
809:	5	9	9	7	5	10	12	4	
817:	5	11	6	3	7	6	7	10	
825:	6	6	5	13	5	7	14	10	
833:	5	5	12	14	15	6	10	9	
841:	10	16	5	6	6	3	6	11	
849:	7	14	14	5	6	6	8	8	
857:	5	11	4	13	17	21	9	4	
865:	8	6	7	6	8	4	6	11	
873:	5	10	4	7	11	4	8	8	
881:	8	12	3	8	7	5	10	9	
889:	9	6	6	11	9	10	9	4	
897:	5	12	3	8	4	6	11	9	
905:	23	7	4	11	8	11	52	134	
913:	54	8	6	4	4	4	3	11	
921:	7	7	3	4	8	11	7	8	
929:	6	8	5	4	9	9	16	10	
937:	5	6	5	8	6	9	11	7	
945:	8	10	8	5	8	8	10	9	
953:	7	14	7	7	7	6	11	1	
961:	6	4	8	12	16	28	8	8	
969:	37	65	26	6	7	3	6	6	
977:	8	6	4	9	5	6	7	7	
985:	6	4	4	2	2	8	3	15	
993:	6	4	7	3	4	5	6	6	
1001:	6	11	15	7	6	6	4	5	
1009:	3	5	6	11	1	8	11	6	
1017:	8	8	6	8	4	5	3	4	
1025:	5	6	9	2	3	6	8	4	
1033:	8	10	7	9	10	12	7	5	
1041:	4	3	6	5	6	6	8	6	
1049:	8	8	4	5	6	10	13	10	
1057:	8	8	3	6	4	7	6	3	
1065:	11	7	9	5	4	7	8	1	
1073:	4	6	7	5	14	3	7	8	
1081:	8	6	2	8	7	13	3	7	
1089:	11	7	5	3	10	9	11	11	
1097:	5	8	4	8	7	4	9	6	
1105:	5	9	8	6	4	14	12	4	
1113:	8	7	4	6	5	9	10	28	
1121:	39	23	12	12	10	14	9	5	
1129:	3	7	10	6	8	4	9	10	
1137:	9	8	7	8	9	3	5	5	
1145:	7	8	10	7	7	11	8	7	
1153:	12	12	8	7	9	8	6	6	
1161:	4	6	8	9	9	7	6	13	
1169:	9	6	9	11	3	6	12	5	
1177:	9	4	14	11	9	8	7	5	
1185:	8	6	7	8	7	6	5	6	
1193:	8	4	6	9	8	9	7	13	
1201:	6	12	6	6	10	9	5	4	
1209:	8	13	6	8	6	11	6	7	
1217:	9	8	7	6	11	9	7	7	
1225:	4	9	11	11	11	10	9	10	

1233: 10 6 10 11 10 11 17 8

Sample Title: CP-5013 10-15

Channel	1	2	3	4	5	6	7	8
1241:	8	13	6	10	5	7	11	6
1249:	5	10	6	6	9	4	7	11
1257:	2	8	9	3	9	5	3	8
1265:	0	7	10	3	2	7	8	7
1273:	3	6	7	6	5	6	3	6
1281:	12	8	6	4	6	10	3	6
1289:	5	7	3	6	5	7	7	2
1297:	5	5	6	1	4	3	4	6
1305:	7	6	2	3	8	8	1	3
1313:	8	2	6	3	1	4	3	11
1321:	6	3	8	4	3	2	3	4
1329:	4	4	5	5	6	5	2	3
1337:	6	5	4	1	3	1	2	2
1345:	3	5	2	5	5	2	1	1
1353:	6	0	4	1	5	2	4	3
1361:	2	3	2	3	5	4	1	3
1369:	1	2	4	2	1	3	1	2
1377:	3	14	7	5	4	3	2	2
1385:	4	3	5	3	3	0	3	3
1393:	2	3	0	1	1	1	3	4
1401:	4	6	3	4	2	1	4	3
1409:	11	2	1	4	3	3	1	4
1417:	4	2	1	2	2	3	6	4
1425:	4	3	4	0	0	2	2	3
1433:	4	2	2	1	1	3	2	3
1441:	3	8	5	3	3	0	1	2
1449:	0	3	5	3	1	2	1	2
1457:	4	4	16	111	353	370	97	15
1465:	6	4	4	5	0	3	2	2
1473:	2	2	3	1	2	4	2	3
1481:	3	0	1	0	2	1	1	3
1489:	1	1	0	1	1	2	1	2
1497:	3	2	2	1	1	2	2	1
1505:	2	3	2	4	1	3	0	3
1513:	3	3	1	1	0	0	4	0
1521:	1	2	1	2	1	3	2	3
1529:	2	1	1	3	2	0	4	2
1537:	2	3	1	2	0	2	0	2
1545:	2	2	0	1	1	3	1	2
1553:	0	2	2	2	2	1	0	1
1561:	2	1	1	3	1	1	1	1
1569:	1	1	2	3	2	0	2	0
1577:	2	4	1	4	1	1	0	2
1585:	4	4	3	4	14	5	0	2
1593:	4	5	0	1	1	1	5	0
1601:	5	1	0	1	0	1	3	1
1609:	2	1	1	2	1	1	1	1
1617:	3	3	1	3	4	4	1	3
1625:	1	2	1	0	3	1	4	2
1633:	4	1	2	1	1	0	3	0
1641:	1	3	3	1	0	3	1	0
1649:	0	4	1	0	0	1	4	2
1657:	3	3	2	1	2	2	1	1

1665: 1 3 1 3 1 0 0 1

Sample Title: CP-5013 10-15

Channel	1	2	3	4	5	6	7	8
1673:	1	1	1	2	0	0	2	1
1681:	1	1	1	4	0	0	1	0
1689:	0	0	0	2	0	3	0	3
1697:	2	2	1	1	0	1	0	1
1705:	1	1	0	1	0	1	1	1
1713:	0	1	1	1	0	2	0	2
1721:	1	0	0	1	1	1	1	1
1729:	0	5	5	0	3	4	0	1
1737:	0	3	1	2	1	1	2	2
1745:	0	2	1	3	1	0	1	0
1753:	1	2	0	2	2	1	2	1
1761:	0	0	6	11	26	14	5	3
1769:	0	1	0	1	1	2	2	1
1777:	0	2	2	3	0	0	0	1
1785:	2	2	1	0	2	0	1	1
1793:	1	1	0	3	2	1	2	0
1801:	0	0	0	1	2	2	1	1
1809:	4	0	1	2	2	0	0	2
1817:	0	3	0	2	1	1	0	1
1825:	0	3	1	2	2	0	2	0
1833:	0	0	1	2	0	1	2	2
1841:	1	2	0	1	2	0	2	6
1849:	3	0	1	1	0	0	0	1
1857:	0	0	0	3	1	0	2	1
1865:	1	1	4	1	2	0	1	3
1873:	2	0	4	1	1	0	0	0
1881:	1	1	0	2	0	2	2	1
1889:	2	0	2	2	2	2	1	1
1897:	2	2	0	3	2	0	1	0
1905:	0	1	0	0	0	1	0	0
1913:	0	1	0	1	2	2	3	0
1921:	0	0	1	0	1	1	2	3
1929:	2	1	0	2	1	1	3	0
1937:	0	1	3	0	1	1	1	1
1945:	3	0	0	1	0	2	1	4
1953:	0	0	0	1	0	0	2	3
1961:	1	1	1	1	2	1	1	0
1969:	1	1	1	1	0	0	1	1
1977:	1	3	1	1	0	0	0	0
1985:	1	3	0	0	2	2	0	0
1993:	2	1	2	2	0	4	0	1
2001:	0	0	1	0	1	2	1	1
2009:	0	0	1	1	0	2	2	0
2017:	1	0	2	0	1	0	0	0
2025:	0	2	1	0	1	0	0	2
2033:	1	0	0	0	0	1	2	1
2041:	0	2	1	1	0	1	2	3
2049:	1	0	2	1	2	2	2	0
2057:	1	0	0	0	0	1	1	1
2065:	1	0	1	0	0	1	0	0
2073:	0	0	1	1	0	2	1	0
2081:	0	0	3	1	0	2	2	1
2089:	1	0	1	4	0	2	2	3

2097: 0 0 0 1 2 2 6 10

Sample Title: CP-5013 10-15

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

2529: 1 0 1 0 0 0 0 1

Sample Title: CP-5013 10-15

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2537:	0	0	0	1	0	0	0	1
2545:	2	0	0	0	0	0	0	1
2553:	0	0	0	0	0	1	0	1
2561:	1	0	0	0	0	0	1	0
2569:	1	0	1	0	1	0	1	0
2577:	0	0	0	1	0	1	0	0
2585:	0	1	0	1	0	1	0	0
2593:	0	0	1	0	0	0	0	1
2601:	1	2	1	1	1	0	0	0
2609:	0	0	0	3	15	26	34	19
2617:	3	2	0	0	1	0	0	0
2625:	1	1	0	0	0	0	1	0
2633:	0	0	0	0	1	0	0	0
2641:	0	0	0	0	0	0	0	0
2649:	2	0	0	0	0	0	0	0
2657:	0	0	1	1	0	1	1	0
2665:	1	0	0	1	0	0	0	0
2673:	0	0	1	0	0	0	0	0
2681:	0	0	0	1	0	1	1	0
2689:	1	0	0	0	2	0	0	1
2697:	0	0	0	2	0	1	0	0
2705:	0	0	0	0	0	1	0	1
2713:	0	0	0	0	0	0	0	1
2721:	0	1	0	1	0	0	0	0
2729:	0	0	0	1	1	0	0	0
2737:	0	0	0	0	0	0	1	0
2745:	1	1	0	0	0	1	0	1
2753:	0	0	0	0	1	2	0	2
2761:	0	0	3	1	0	1	0	0
2769:	1	0	1	0	2	0	0	0
2777:	0	0	1	0	0	0	0	0
2785:	0	0	0	0	0	1	0	1
2793:	0	0	0	1	0	0	1	1
2801:	0	0	0	2	0	0	1	0
2809:	0	1	0	0	0	0	1	0
2817:	0	0	1	0	0	0	0	0
2825:	0	0	1	0	0	0	0	0
2833:	0	0	0	1	0	0	1	0
2841:	0	0	0	0	1	1	0	0
2849:	0	0	0	0	0	1	0	0
2857:	0	1	0	0	1	1	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	1	0	0	0	1
2881:	0	0	0	0	1	0	0	0
2889:	0	0	0	0	0	0	1	1
2897:	0	0	0	0	0	0	1	0
2905:	0	0	1	0	0	0	0	0
2913:	0	0	0	0	0	1	0	0
2921:	0	1	0	0	1	0	0	1
2929:	0	1	1	0	0	0	0	0
2937:	0	0	0	0	1	0	0	0
2945:	1	1	0	0	0	0	0	0
2953:	0	0	1	0	0	0	1	1

2961: 0 0 0 0 0 0 0 1

Sample Title: CP-5013 10-15

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

3393: 0 0 0 1 0 0 0 0

Sample Title: CP-5013 10-15

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	1	0	0	0	0	0
3425:	0	0	0	0	0	0	1	0
3433:	0	0	0	0	1	0	1	0
3441:	0	0	0	0	0	0	1	1
3449:	0	0	0	0	0	0	0	0
3457:	0	2	0	0	0	0	1	0
3465:	0	1	0	0	0	0	0	0
3473:	0	2	0	0	0	0	0	1
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	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	0	0	0	0	0	0
3529:	1	0	1	0	2	0	0	0
3537:	1	0	0	1	0	1	0	0
3545:	0	0	1	0	1	0	0	0
3553:	1	0	0	1	0	0	0	1
3561:	0	0	1	0	1	0	0	0
3569:	0	0	0	1	0	0	0	2
3577:	0	0	0	1	0	0	0	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	1	0
3617:	0	0	0	0	0	1	0	0
3625:	0	0	2	0	0	0	0	0
3633:	0	0	0	0	0	0	0	0
3641:	0	0	0	0	0	0	0	0
3649:	0	0	0	0	0	0	0	0
3657:	0	0	1	0	0	0	0	0
3665:	1	0	0	0	0	1	0	0
3673:	0	0	0	1	0	0	0	0
3681:	0	0	0	0	0	0	0	0
3689:	0	1	0	0	1	0	0	0
3697:	0	1	0	0	0	0	0	0
3705:	0	0	0	1	0	1	0	0
3713:	0	0	0	1	1	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	0	0	0	0	0	0
3745:	2	0	0	1	0	0	0	0
3753:	0	0	0	0	1	0	0	0
3761:	1	0	1	0	0	0	1	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	1	0	1	0	0	1
3809:	0	0	2	0	0	0	0	0
3817:	0	0	0	0	0	1	0	0

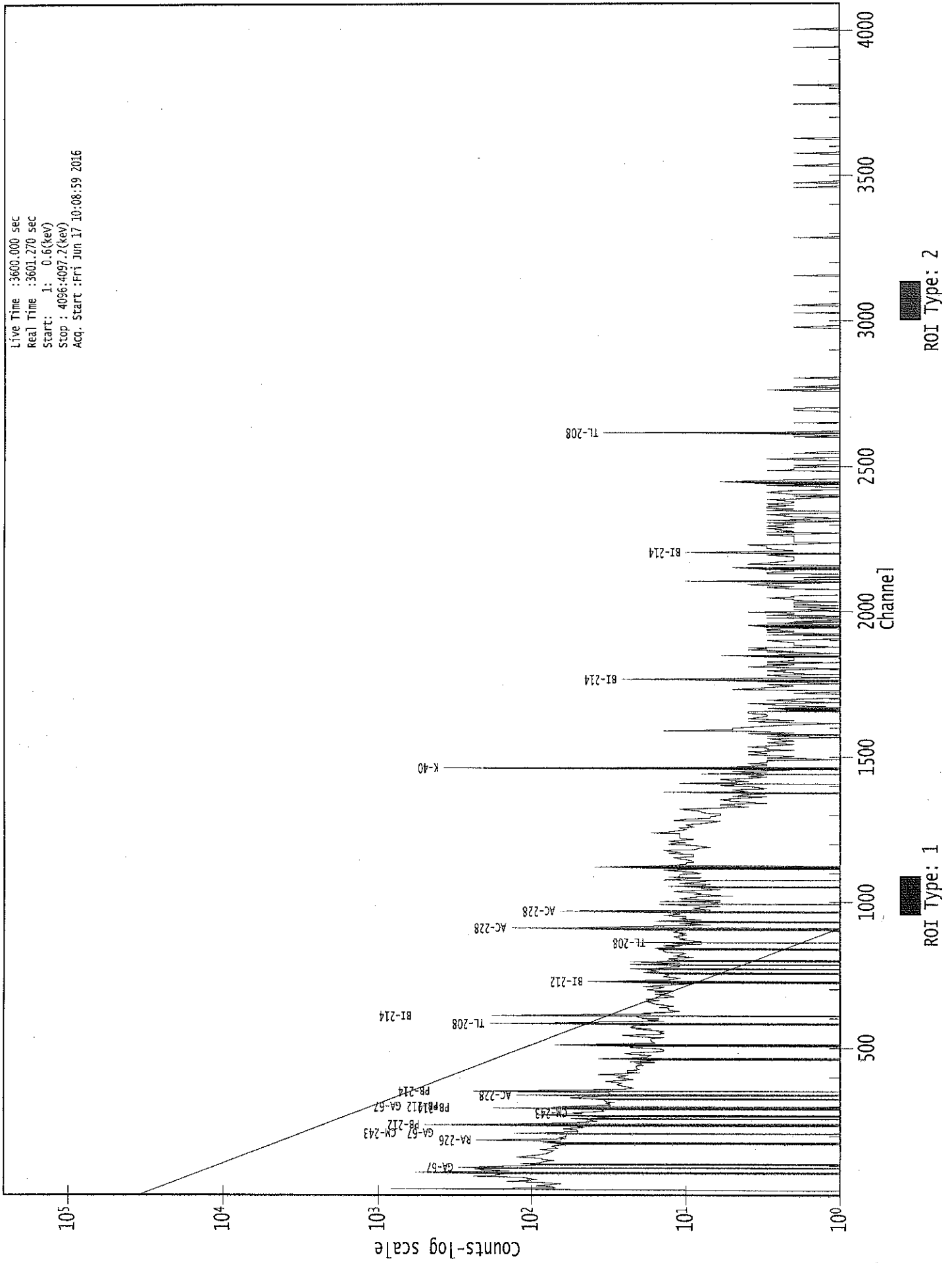
3825: 0 0 0 0 0 0 1 0

Sample Title: CP-5013 10-15

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

0000039076.CNF

Live Time : 3600.000 sec
Real Time : 3601.270 sec
Start : 1: 0.6 (keV)
Stop : 4096.4097.2 (keV)
Acq. Start : Fri Jun 17 10:08:59 2016



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Analysis Report for 1606065-05
CP-5011 00-02

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606065-05
Sample Description : CP-5011 00-02
Sample Type : SOIL

Sample Size : 4.406E+02 grams
Facility : Countroom

Sample Taken On : 6/8/2016 8:53:03AM
Acquisition Started : 6/17/2016 8:56:58AM

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 : 39073

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606065-05
CP-5011 00-02

PEAK LOCATE REPORT

Peak Locate Performed on : 6/17/2016 9:57:14AM
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	13.00	0.0000	0.00
2	46.77	46.88	0.0000	0.00
3	63.16	63.26	0.0000	0.00
4	76.19	76.28	0.0000	0.00
5	92.47	92.55	0.0000	0.00
6	115.67	115.74	0.0000	0.00
7	186.03	186.06	0.0000	0.00
8	209.73	209.75	0.0000	0.00
9	236.13	236.13	0.0000	0.00
10	239.13	239.13	0.0000	0.00
11	269.66	269.64	0.0000	0.00
12	278.12	278.10	0.0000	0.00
13	295.25	295.22	0.0000	0.00
14	300.02	299.98	0.0000	0.00
15	327.81	327.76	0.0000	0.00
16	333.91	333.86	0.0000	0.00
17	338.20	338.14	0.0000	0.00
18	351.97	351.90	0.0000	0.00
19	409.60	409.51	0.0000	0.00
20	463.05	462.93	0.0000	0.00
21	466.12	466.00	0.0000	0.00
22	510.88	510.74	0.0000	0.00
23	583.34	583.16	0.0000	0.00
24	605.36	605.17	0.0000	0.00
25	609.36	609.17	0.0000	0.00
26	691.52	691.29	0.0000	0.00
27	697.86	697.63	0.0000	0.00
28	728.45	728.20	0.0000	0.00
29	767.97	767.70	0.0000	0.00
30	794.84	794.57	0.0000	0.00
31	860.82	860.51	0.0000	0.00
32	911.39	911.06	0.0000	0.00
33	935.71	935.38	0.0000	0.00
34	948.75	948.41	0.0000	0.00
35	953.33	952.99	0.0000	0.00
36	969.29	968.94	0.0000	0.00
37	989.42	989.06	0.0000	0.00
38	997.95	997.59	0.0000	0.00
39	1066.18	1065.79	0.0000	0.00
40	1120.62	1120.21	0.0000	0.00
41	1124.62	1124.21	0.0000	0.00
42	1154.96	1154.54	0.0000	0.00

Analysis Report for 1606065-05
CP-5011 00-02

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1207.66	1207.22	0.0000	0.00
44	1239.33	1238.88	0.0000	0.00
45	1321.39	1320.91	0.0000	0.00
46	1338.59	1338.11	0.0000	0.00
47	1376.66	1376.16	0.0000	0.00
48	1385.09	1384.59	0.0000	0.00
49	1409.66	1409.15	0.0000	0.00
50	1461.18	1460.66	0.0000	0.00
51	1508.94	1508.40	0.0000	0.00
52	1605.62	1605.06	0.0000	0.00
53	1612.69	1612.13	0.0000	0.00
54	1730.28	1729.68	0.0000	0.00
55	1764.60	1763.99	0.0000	0.00
56	1847.13	1846.51	0.0000	0.00
57	2090.61	2089.93	0.0000	0.00
58	2105.24	2104.56	0.0000	0.00
59	2118.83	2118.15	0.0000	0.00
60	2614.77	2614.02	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606065-05

CP-5011 00-02

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 9:57:14AM

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	13.00	1.91E+03	119.97	1.52E+03	0.99
2	46.77	44 -	50	46.88	1.06E+02	75.42	9.65E+02	1.04
3	63.16	59 -	67	63.26	1.84E+02	111.32	1.80E+03	2.10
4	76.19	71 -	81	76.28	1.01E+03	145.44	2.27E+03	3.41
5	92.47	89 -	96	92.55	3.18E+02	102.94	1.49E+03	1.42
6	115.67	113 -	119	115.74	6.51E+01	66.84	7.56E+02	2.88
7	186.03	183 -	188	186.06	1.80E+02	58.89	5.46E+02	1.13
8	209.73	207 -	213	209.75	1.29E+02	56.27	4.86E+02	1.41
M	9	235 -	245	236.13	2.70E+01	22.16	1.51E+02	1.41
m	10	235 -	245	239.13	5.78E+02	60.10	2.81E+02	1.41
	11	266 -	272	269.64	1.05E+02	45.13	2.95E+02	1.81
	12	274 -	282	278.10	6.47E+01	56.08	4.41E+02	1.42
M	13	291 -	304	295.22	2.88E+02	42.38	1.76E+02	1.47
m	14	291 -	304	299.98	6.25E+01	34.89	2.05E+02	1.66
	15	324 -	330	327.76	4.45E+01	43.57	3.09E+02	1.25
M	16	331 -	343	333.86	2.79E+01	32.21	1.91E+02	1.55
m	17	331 -	343	338.14	1.81E+02	40.07	1.93E+02	1.56
	18	348 -	355	351.90	4.46E+02	61.42	3.30E+02	1.23
	19	407 -	411	409.51	2.88E+01	28.49	1.54E+02	1.70
M	20	459 -	471	462.93	5.58E+01	27.41	1.27E+02	1.71
m	21	459 -	471	466.00	1.79E+01	25.52	1.02E+02	1.56
	22	505 -	516	510.74	1.70E+02	51.88	2.50E+02	1.99
	23	579 -	586	583.16	1.98E+02	44.90	2.04E+02	1.35
M	24	604 -	613	605.17	1.76E+01	12.08	4.10E+01	1.87
m	25	604 -	613	609.17	3.87E+02	44.56	9.05E+01	1.87
M	26	689 -	703	691.29	2.54E+01	16.25	4.13E+01	2.15
m	27	689 -	703	697.63	1.90E+01	20.93	6.70E+01	2.15
	28	721 -	734	728.20	6.51E+01	44.63	1.80E+02	2.22
	29	764 -	771	767.70	2.62E+01	30.98	1.40E+02	1.73
	30	792 -	798	794.57	3.73E+01	22.01	6.35E+01	1.74
	31	857 -	864	860.51	3.60E+01	27.71	1.04E+02	2.06
	32	908 -	915	911.06	1.76E+02	36.22	1.04E+02	1.72
	33	931 -	940	935.38	3.76E+01	25.26	6.87E+01	6.31
M	34	945 -	955	948.41	1.94E+01	19.07	5.18E+01	2.90
m	35	945 -	955	952.99	1.48E+01	13.40	2.76E+01	2.90
	36	965 -	973	968.94	5.91E+01	39.03	1.88E+02	1.78
	37	985 -	994	989.06	2.98E+01	24.62	6.83E+01	5.50
	38	995 -	1000	997.59	1.36E+01	16.31	4.29E+01	2.78
	39	1061 -	1069	1065.79	2.86E+01	21.42	5.09E+01	2.27
M	40	1115 -	1130	1120.21	7.60E+01	25.22	5.81E+01	2.31

Analysis Report for 1606065-05

CP-5011 00-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	1124.62	1115 -	1130	1124.21	1.66E+01	22.18	4.87E+01	2.31
	42	1154.96	1152 -	1157	1154.54	2.12E+01	17.64	4.55E+01	2.70
	43	1207.66	1204 -	1211	1207.22	2.24E+01	23.24	7.33E+01	2.60
	44	1239.33	1234 -	1243	1238.88	3.23E+01	31.78	1.15E+02	2.48
	45	1321.39	1318 -	1324	1320.91	1.24E+01	14.77	2.92E+01	2.34
m	46	1338.59	1330 -	1342	1338.11	1.58E+01	15.92	2.31E+01	4.36
	47	1376.66	1370 -	1380	1376.16	2.57E+01	15.06	1.66E+01	2.68
	48	1385.09	1381 -	1389	1384.59	2.15E+01	12.02	9.00E+00	4.34
	49	1409.66	1405 -	1417	1409.15	1.98E+01	18.95	3.43E+01	6.82
	50	1461.18	1455 -	1464	1460.66	5.63E+02	51.05	5.23E+01	2.12
	51	1508.94	1505 -	1511	1508.40	1.93E+01	9.81	3.33E+00	4.67
	52	1605.62	1602 -	1607	1605.06	7.61E+00	6.71	2.78E+00	1.38
	53	1612.69	1609 -	1615	1612.13	8.00E+00	5.66	0.00E+00	2.92
	54	1730.28	1727 -	1733	1729.68	9.31E+00	9.42	7.38E+00	1.25
	55	1764.60	1759 -	1767	1763.99	6.05E+01	18.13	1.30E+01	2.35
	56	1847.13	1842 -	1849	1846.51	1.02E+01	10.58	1.17E+01	2.07
	57	2090.61	2086 -	2092	2089.93	4.50E+00	6.02	3.00E+00	2.70
	58	2105.24	2100 -	2110	2104.56	2.50E+01	10.00	0.00E+00	6.59
	59	2118.83	2114 -	2122	2118.15	1.22E+01	10.22	7.63E+00	1.55
	60	2614.77	2609 -	2617	2614.02	8.10E+01	18.00	0.00E+00	3.19

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 : 6/17/2016 9:57:14AM

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	1.91E+03	119.97	1.52E+03	6.76E+01
2	46.77	44 -	50	1.06E+02	75.42	9.65E+02	5.96E+01
3	63.16	59 -	67	1.84E+02	111.32	1.80E+03	8.87E+01
4	76.19	71 -	81	1.01E+03	145.44	2.27E+03	1.08E+02
5	92.47	89 -	96	3.18E+02	102.94	1.49E+03	7.94E+01
6	115.67	113 -	119	6.51E+01	66.84	7.56E+02	5.33E+01
7	186.03	183 -	188	1.80E+02	58.89	5.46E+02	4.31E+01
8	209.73	207 -	213	1.29E+02	56.27	4.86E+02	4.23E+01

Analysis Report for 1606065-05

CP-5011 00-02

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	9	236.13	235 -	245	2.70E+01	22.16	1.51E+02	2.02E+01
m	10	239.13	235 -	245	5.78E+02	60.10	2.81E+02	2.75E+01
	11	269.66	266 -	272	1.05E+02	45.13	2.95E+02	3.31E+01
	12	278.12	274 -	282	6.47E+01	56.08	4.41E+02	4.42E+01
M	13	295.25	291 -	304	2.88E+02	42.38	1.76E+02	2.18E+01
m	14	300.02	291 -	304	6.25E+01	34.89	2.05E+02	2.35E+01
	15	327.81	324 -	330	4.45E+01	43.57	3.09E+02	3.41E+01
M	16	333.91	331 -	343	2.79E+01	32.21	1.91E+02	2.27E+01
m	17	338.20	331 -	343	1.81E+02	40.07	1.93E+02	2.28E+01
	18	351.97	348 -	355	4.46E+02	61.42	3.30E+02	3.67E+01
	19	409.60	407 -	411	2.88E+01	28.49	1.54E+02	2.17E+01
M	20	463.05	459 -	471	5.58E+01	27.41	1.27E+02	1.85E+01
m	21	466.12	459 -	471	1.79E+01	25.52	1.02E+02	1.66E+01
	22	510.88	505 -	516	1.70E+02	51.88	2.50E+02	3.69E+01
	23	583.34	579 -	586	1.98E+02	44.90	2.04E+02	2.88E+01
M	24	605.36	604 -	613	1.76E+01	12.08	4.10E+01	1.05E+01
m	25	609.36	604 -	613	3.87E+02	44.56	9.05E+01	1.56E+01
M	26	691.52	689 -	703	2.54E+01	16.25	4.13E+01	1.06E+01
m	27	697.86	689 -	703	1.90E+01	20.93	6.70E+01	1.35E+01
	28	728.45	721 -	734	6.51E+01	44.63	1.80E+02	3.42E+01
	29	767.97	764 -	771	2.62E+01	30.98	1.40E+02	2.40E+01
	30	794.84	792 -	798	3.73E+01	22.01	6.35E+01	1.50E+01
	31	860.82	857 -	864	3.60E+01	27.71	1.04E+02	2.05E+01
	32	911.39	908 -	915	1.76E+02	36.22	1.04E+02	2.03E+01
	33	935.71	931 -	940	3.76E+01	25.26	6.87E+01	1.81E+01
M	34	948.75	945 -	955	1.94E+01	19.07	5.18E+01	1.18E+01
m	35	953.33	945 -	955	1.48E+01	13.40	2.76E+01	8.64E+00
	36	969.29	965 -	973	5.91E+01	39.03	1.88E+02	2.95E+01
	37	989.42	985 -	994	2.98E+01	24.62	6.83E+01	1.81E+01
	38	997.95	995 -	1000	1.36E+01	16.31	4.29E+01	1.20E+01
	39	1066.18	1061 -	1069	2.86E+01	21.42	5.09E+01	1.53E+01
M	40	1120.62	1115 -	1130	7.60E+01	25.22	5.81E+01	1.25E+01
m	41	1124.62	1115 -	1130	1.66E+01	22.18	4.87E+01	1.15E+01
	42	1154.96	1152 -	1157	2.12E+01	17.64	4.55E+01	1.24E+01
	43	1207.66	1204 -	1211	2.24E+01	23.24	7.33E+01	1.74E+01
	44	1239.33	1234 -	1243	3.23E+01	31.78	1.15E+02	2.44E+01
	45	1321.39	1318 -	1324	1.24E+01	14.77	2.92E+01	1.07E+01
m	46	1338.59	1330 -	1342	1.58E+01	15.92	2.31E+01	7.90E+00
	47	1376.66	1370 -	1380	2.57E+01	15.06	1.66E+01	9.16E+00
	48	1385.09	1381 -	1389	2.15E+01	12.02	9.00E+00	6.29E+00
	49	1409.66	1405 -	1417	1.98E+01	18.95	3.43E+01	1.38E+01
	50	1461.18	1455 -	1464	5.63E+02	51.05	5.23E+01	1.55E+01
	51	1508.94	1505 -	1511	1.93E+01	9.81	3.33E+00	3.58E+00
	52	1605.62	1602 -	1607	7.61E+00	6.71	2.78E+00	3.14E+00
	53	1612.69	1609 -	1615	8.00E+00	5.66	0.00E+00	0.00E+00
	54	1730.28	1727 -	1733	9.31E+00	9.42	7.38E+00	5.90E+00
	55	1764.60	1759 -	1767	6.05E+01	18.13	1.30E+01	7.66E+00
	56	1847.13	1842 -	1849	1.02E+01	10.58	1.17E+01	6.94E+00
	57	2090.61	2086 -	2092	4.50E+00	6.02	3.00E+00	3.51E+00
	58	2105.24	2100 -	2110	2.50E+01	10.00	0.00E+00	0.00E+00
	59	2118.83	2114 -	2122	1.22E+01	10.22	7.63E+00	6.14E+00

Analysis Report for 1606065-05

CP-5011 00-02

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
60	2614.77	2609 -	2617	8.10E+01	18.00	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 : 6/17/2016 9:57:14AM

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	13.00	1.91E+03	119.97	1.52E+03	.....
2	46.77	44 -	50	46.88	1.06E+02	75.42	9.65E+02	PB-210
3	63.16	59 -	67	63.26	1.84E+02	111.32	1.80E+03	TH-234 TH-230
4	76.19	71 -	81	76.28	1.01E+03	145.44	2.27E+03	.....
5	92.47	89 -	96	92.55	3.18E+02	102.94	1.49E+03	GA-67
6	115.67	113 -	119	115.74	6.51E+01	66.84	7.56E+02	.....
7	186.03	183 -	188	186.06	1.80E+02	58.89	5.46E+02	RA-226
8	209.73	207 -	213	209.75	1.29E+02	56.27	4.86E+02	CM-243 GA-67
M 9	236.13	235 -	245	236.13	2.70E+01	22.16	1.51E+02	TH-227 NB-95M
m 10	239.13	235 -	245	239.13	5.78E+02	60.10	2.81E+02	PB-212
11	269.66	266 -	272	269.64	1.05E+02	45.13	2.95E+02	.....
12	278.12	274 -	282	278.10	6.47E+01	56.08	4.41E+02	CM-243 NP-239
M 13	295.25	291 -	304	295.22	2.88E+02	42.38	1.76E+02	PB-214
m 14	300.02	291 -	304	299.98	6.25E+01	34.89	2.05E+02	BI-210M PB-212 GA-67
15	327.81	324 -	330	327.76	4.45E+01	43.57	3.09E+02	LA-140
M 16	333.91	331 -	343	333.86	2.79E+01	32.21	1.91E+02	.....
m 17	338.20	331 -	343	338.14	1.81E+02	40.07	1.93E+02	AC-228
18	351.97	348 -	355	351.90	4.46E+02	61.42	3.30E+02	PB-214
19	409.60	407 -	411	409.51	2.88E+01	28.49	1.54E+02	.....

Analysis Report for 1606065-05

CP-5011 00-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	20	463.05	459 -	471	462.93	5.58E+01	27.41	1.27E+02	SB-125
m	21	466.12	459 -	471	466.00	1.79E+01	25.52	1.02E+02	.....
	22	510.88	505 -	516	510.74	1.70E+02	51.88	2.50E+02	.....
	23	583.34	579 -	586	583.16	1.98E+02	44.90	2.04E+02	TL-208
M	24	605.36	604 -	613	605.17	1.76E+01	12.08	4.10E+01	CS-134
m	25	609.36	604 -	613	609.17	3.87E+02	44.56	9.05E+01	BI-214
M	26	691.52	689 -	703	691.29	2.54E+01	16.25	4.13E+01	.....
m	27	697.86	689 -	703	697.63	1.90E+01	20.93	6.70E+01	.....
	28	728.45	721 -	734	728.20	6.51E+01	44.63	1.80E+02	.....
	29	767.97	764 -	771	767.70	2.62E+01	30.98	1.40E+02	.....
	30	794.84	792 -	798	794.57	3.73E+01	22.01	6.35E+01	.....
	31	860.82	857 -	864	860.51	3.60E+01	27.71	1.04E+02	TL-208
	32	911.39	908 -	915	911.06	1.76E+02	36.22	1.04E+02	AC-228 LU-172
	33	935.71	931 -	940	935.38	3.76E+01	25.26	6.87E+01	.....
M	34	948.75	945 -	955	948.41	1.94E+01	19.07	5.18E+01	.....
m	35	953.33	945 -	955	952.99	1.48E+01	13.40	2.76E+01	.....
	36	969.29	965 -	973	968.94	5.91E+01	39.03	1.88E+02	AC-228
	37	989.42	985 -	994	989.06	2.98E+01	24.62	6.83E+01	.....
	38	997.95	995 -	1000	997.59	1.36E+01	16.31	4.29E+01	.....
	39	1066.18	1061 -	1069	1065.79	2.86E+01	21.42	5.09E+01	.....
M	40	1120.62	1115 -	1130	1120.21	7.60E+01	25.22	5.81E+01	SC-46 BI-214 TA-182
m	41	1124.62	1115 -	1130	1124.21	1.66E+01	22.18	4.87E+01	.....
	42	1154.96	1152 -	1157	1154.54	2.12E+01	17.64	4.55E+01	.....
	43	1207.66	1204 -	1211	1207.22	2.24E+01	23.24	7.33E+01	.....
	44	1239.33	1234 -	1243	1238.88	3.23E+01	31.78	1.15E+02	.....
	45	1321.39	1318 -	1324	1320.91	1.24E+01	14.77	2.92E+01	.....
m	46	1338.59	1330 -	1342	1338.11	1.58E+01	15.92	2.31E+01	.....
	47	1376.66	1370 -	1380	1376.16	2.57E+01	15.06	1.66E+01	.....
	48	1385.09	1381 -	1389	1384.59	2.15E+01	12.02	9.00E+00	AG-110M
	49	1409.66	1405 -	1417	1409.15	1.98E+01	18.95	3.43E+01	.....
	50	1461.18	1455 -	1464	1460.66	5.63E+02	51.05	5.23E+01	K-40
	51	1508.94	1505 -	1511	1508.40	1.93E+01	9.81	3.33E+00	.....
	52	1605.62	1602 -	1607	1605.06	7.61E+00	6.71	2.78E+00	.....
	53	1612.69	1609 -	1615	1612.13	8.00E+00	5.66	0.00E+00	.....
	54	1730.28	1727 -	1733	1729.68	9.31E+00	9.42	7.38E+00	.....
	55	1764.60	1759 -	1767	1763.99	6.05E+01	18.13	1.30E+01	BI-214
	56	1847.13	1842 -	1849	1846.51	1.02E+01	10.58	1.17E+01	.....
	57	2090.61	2086 -	2092	2089.93	4.50E+00	6.02	3.00E+00	.....
	58	2105.24	2100 -	2110	2104.56	2.50E+01	10.00	0.00E+00	.....
	59	2118.83	2114 -	2122	2118.15	1.22E+01	10.22	7.63E+00	.....
	60	2614.77	2609 -	2617	2614.02	8.10E+01	18.00	0.00E+00	TL-208

Analysis Report for 1606065-05
CP-5011 00-02

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 : 6/17/2016 9:57:14AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	12.87	1.91E+03	119.97	1.12E-05	1.66E-03
	2	46.77	1.06E+02	75.42	1.72E-02	1.66E-03
	3	63.16	1.84E+02	111.32	2.36E-02	1.74E-03
	4	76.19	1.01E+03	145.44	2.56E-02	2.02E-03
	5	92.47	3.18E+02	102.94	2.60E-02	2.27E-03
	6	115.67	6.51E+01	66.84	2.49E-02	2.26E-03
	7	186.03	1.80E+02	58.89	1.99E-02	2.40E-03
	8	209.73	1.29E+02	56.27	1.85E-02	2.36E-03
M	9	236.13	2.70E+01	22.16	1.71E-02	2.32E-03
m	10	239.13	5.78E+02	60.10	1.70E-02	2.31E-03
	11	269.66	1.05E+02	45.13	1.57E-02	2.26E-03
	12	278.12	6.47E+01	56.08	1.53E-02	2.24E-03
M	13	295.25	2.88E+02	42.38	1.47E-02	2.21E-03
m	14	300.02	6.25E+01	34.89	1.46E-02	2.21E-03
	15	327.81	4.45E+01	43.57	1.37E-02	2.16E-03
M	16	333.91	2.79E+01	32.21	1.35E-02	2.15E-03
m	17	338.20	1.81E+02	40.07	1.34E-02	2.14E-03
	18	351.97	4.46E+02	61.42	1.30E-02	2.12E-03
	19	409.60	2.88E+01	28.49	1.16E-02	1.96E-03
M	20	463.05	5.58E+01	27.41	1.05E-02	1.68E-03
m	21	466.12	1.79E+01	25.52	1.05E-02	1.66E-03
	22	510.88	1.70E+02	51.88	9.77E-03	1.43E-03
	23	583.34	1.98E+02	44.90	8.79E-03	1.06E-03
M	24	605.36	1.76E+01	12.08	8.53E-03	9.43E-04
m	25	609.36	3.87E+02	44.56	8.48E-03	9.22E-04
M	26	691.52	2.54E+01	16.25	7.65E-03	6.90E-04
m	27	697.86	1.90E+01	20.93	7.60E-03	6.98E-04
	28	728.45	6.51E+01	44.63	7.33E-03	7.38E-04
	29	767.97	2.62E+01	30.98	7.02E-03	7.88E-04
	30	794.84	3.73E+01	22.01	6.82E-03	8.23E-04
	31	860.82	3.60E+01	27.71	6.39E-03	9.08E-04
	32	911.39	1.76E+02	36.22	6.09E-03	9.28E-04
	33	935.71	3.76E+01	25.26	5.96E-03	8.79E-04
M	34	948.75	1.94E+01	19.07	5.89E-03	8.53E-04

Analysis Report for 1606065-05
CP-5011 00-02

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	35	953.33	1.48E+01	13.40	5.87E-03	8.44E-04
	36	969.29	5.91E+01	39.03	5.79E-03	8.11E-04
	37	989.42	2.98E+01	24.62	5.70E-03	7.71E-04
	38	997.95	1.36E+01	16.31	5.66E-03	7.53E-04
	39	1066.18	2.86E+01	21.42	5.36E-03	6.15E-04
M	40	1120.62	7.60E+01	25.22	5.15E-03	5.05E-04
m	41	1124.62	1.66E+01	22.18	5.14E-03	4.97E-04
	42	1154.96	2.12E+01	17.64	5.03E-03	4.36E-04
	43	1207.66	2.24E+01	23.24	4.86E-03	3.91E-04
	44	1239.33	3.23E+01	31.78	4.77E-03	3.84E-04
	45	1321.39	1.24E+01	14.77	4.54E-03	3.65E-04
m	46	1338.59	1.58E+01	15.92	4.50E-03	3.63E-04
	47	1376.66	2.57E+01	15.06	4.41E-03	3.66E-04
	48	1385.09	2.15E+01	12.02	4.39E-03	3.67E-04
	49	1409.66	1.98E+01	18.95	4.34E-03	3.68E-04
	50	1461.18	5.63E+02	51.05	4.23E-03	3.72E-04
	51	1508.94	1.93E+01	9.81	4.14E-03	3.76E-04
	52	1605.62	7.61E+00	6.71	3.98E-03	3.83E-04
	53	1612.69	8.00E+00	5.66	3.97E-03	3.84E-04
	54	1730.28	9.31E+00	9.42	3.81E-03	3.93E-04
	55	1764.60	6.05E+01	18.13	3.77E-03	3.96E-04
	56	1847.13	1.02E+01	10.58	3.69E-03	4.01E-04
	57	2090.61	4.50E+00	6.02	3.51E-03	4.01E-04
	58	2105.24	2.50E+01	10.00	3.50E-03	4.01E-04
	59	2118.83	1.22E+01	10.22	3.49E-03	4.01E-04
	60	2614.77	8.10E+01	18.00	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 : 6/17/2016 9:57:14AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038677.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	12.87	1.91E+03	119.97			1.91E+03	1.20E+02
2	46.77	1.06E+02	75.42	2.17E+01	5.74E+00	8.47E+01	7.56E+01
3	63.16	1.84E+02	111.32	2.91E+01	8.34E+00	1.55E+02	1.12E+02
4	76.19	1.01E+03	145.44			1.01E+03	1.45E+02

Analysis Report for 1606065-05

CP-5011 00-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	5	92.47	3.18E+02	102.94	4.47E+01	7.30E+00	2.73E+02	1.03E+02
	6	115.67	6.51E+01	66.84			6.51E+01	6.68E+01
	7	186.03	1.80E+02	58.89	3.13E+01	6.95E+00	1.49E+02	5.93E+01
	8	209.73	1.29E+02	56.27			1.29E+02	5.63E+01
M	9	236.13	2.70E+01	22.16			2.70E+01	2.22E+01
m	10	239.13	5.78E+02	60.10	1.19E+01	7.10E+00	5.66E+02	6.05E+01
	11	269.66	1.05E+02	45.13			1.05E+02	4.51E+01
	12	278.12	6.47E+01	56.08			6.47E+01	5.61E+01
M	13	295.25	2.88E+02	42.38			2.88E+02	4.24E+01
m	14	300.02	6.25E+01	34.89			6.25E+01	3.49E+01
	15	327.81	4.45E+01	43.57			4.45E+01	4.36E+01
M	16	333.91	2.79E+01	32.21			2.79E+01	3.22E+01
m	17	338.20	1.81E+02	40.07			1.81E+02	4.01E+01
	18	351.97	4.46E+02	61.42	9.12E+00	4.79E+00	4.37E+02	6.16E+01
	19	409.60	2.88E+01	28.49			2.88E+01	2.85E+01
M	20	463.05	5.58E+01	27.41			5.58E+01	2.74E+01
m	21	466.12	1.79E+01	25.52			1.79E+01	2.55E+01
	22	510.88	1.70E+02	51.88	6.97E+01	5.00E+00	1.00E+02	5.21E+01
	23	583.34	1.98E+02	44.90	3.98E+00	3.57E+00	1.94E+02	4.50E+01
M	24	605.36	1.76E+01	12.08			1.76E+01	1.21E+01
m	25	609.36	3.87E+02	44.56	8.66E+00	3.90E+00	3.79E+02	4.47E+01
M	26	691.52	2.54E+01	16.25			2.54E+01	1.62E+01
m	27	697.86	1.90E+01	20.93			1.90E+01	2.09E+01
	28	728.45	6.51E+01	44.63			6.51E+01	4.46E+01
	29	767.97	2.62E+01	30.98			2.62E+01	3.10E+01
	30	794.84	3.73E+01	22.01			3.73E+01	2.20E+01
	31	860.82	3.60E+01	27.71			3.60E+01	2.77E+01
	32	911.39	1.76E+02	36.22	2.01E+00	2.72E+00	1.74E+02	3.63E+01
	33	935.71	3.76E+01	25.26			3.76E+01	2.53E+01
M	34	948.75	1.94E+01	19.07			1.94E+01	1.91E+01
m	35	953.33	1.48E+01	13.40			1.48E+01	1.34E+01
	36	969.29	5.91E+01	39.03			5.91E+01	3.90E+01
	37	989.42	2.98E+01	24.62			2.98E+01	2.46E+01
	38	997.95	1.36E+01	16.31			1.36E+01	1.63E+01
	39	1066.18	2.86E+01	21.42			2.86E+01	2.14E+01
M	40	1120.62	7.60E+01	25.22			7.60E+01	2.52E+01
m	41	1124.62	1.66E+01	22.18			1.66E+01	2.22E+01
	42	1154.96	2.12E+01	17.64			2.12E+01	1.76E+01
	43	1207.66	2.24E+01	23.24			2.24E+01	2.32E+01
	44	1239.33	3.23E+01	31.78			3.23E+01	3.18E+01
	45	1321.39	1.24E+01	14.77			1.24E+01	1.48E+01
m	46	1338.59	1.58E+01	15.92			1.58E+01	1.59E+01
	47	1376.66	2.57E+01	15.06			2.57E+01	1.51E+01
	48	1385.09	2.15E+01	12.02			2.15E+01	1.20E+01
	49	1409.66	1.98E+01	18.95			1.98E+01	1.90E+01
	50	1461.18	5.63E+02	51.05	3.09E+00	1.97E+00	5.60E+02	5.11E+01
	51	1508.94	1.93E+01	9.81			1.93E+01	9.81E+00
	52	1605.62	7.61E+00	6.71			7.61E+00	6.71E+00
	53	1612.69	8.00E+00	5.66			8.00E+00	5.66E+00
	54	1730.28	9.31E+00	9.42			9.31E+00	9.42E+00
	55	1764.60	6.05E+01	18.13			6.05E+01	1.81E+01
	56	1847.13	1.02E+01	10.58			1.02E+01	1.06E+01
	57	2090.61	4.50E+00	6.02			4.50E+00	6.02E+00
	58	2105.24	2.50E+01	10.00			2.50E+01	1.00E+01

Analysis Report for 1606065-05

CP-5011 00-02

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
59	2118.83	1.22E+01	10.22			1.22E+01	1.02E+01
60	2614.77	8.10E+01	18.00	3.07E+00	1.34E+00	7.79E+01	1.80E+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 : 6/17/2016 9:57:14AM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038677.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	1.91E+03	119.97			1.91E+03	1.20E+02
2	46.77	1.06E+02	75.42	2.17E+01	5.74E+00	8.47E+01	7.56E+01
3	63.16	1.84E+02	111.32	2.91E+01	8.34E+00	1.55E+02	1.12E+02
4	76.19	1.01E+03	145.44			1.01E+03	1.45E+02
5	92.47	3.18E+02	102.94	4.47E+01	7.30E+00	2.73E+02	1.03E+02
6	115.67	6.51E+01	66.84			6.51E+01	6.68E+01
7	186.03	1.80E+02	58.89	3.13E+01	6.95E+00	1.49E+02	5.93E+01
8	209.73	1.29E+02	56.27			1.29E+02	5.63E+01
M	9	236.13	2.70E+01			2.70E+01	2.22E+01
m	10	239.13	5.78E+02	1.19E+01	7.10E+00	5.66E+02	6.05E+01
	11	269.66	1.05E+02			1.05E+02	4.51E+01
	12	278.12	6.47E+01			6.47E+01	5.61E+01
M	13	295.25	2.88E+02			2.88E+02	4.24E+01
m	14	300.02	6.25E+01			6.25E+01	3.49E+01
	15	327.81	4.45E+01			4.45E+01	4.36E+01
M	16	333.91	2.79E+01			2.79E+01	3.22E+01
m	17	338.20	1.81E+02			1.81E+02	4.01E+01
	18	351.97	4.46E+02	9.12E+00	4.79E+00	4.37E+02	6.16E+01
	19	409.60	2.88E+01			2.88E+01	2.85E+01
M	20	463.05	5.58E+01			5.58E+01	2.74E+01
m	21	466.12	1.79E+01			1.79E+01	2.55E+01
	22	510.88	1.70E+02	6.97E+01	5.00E+00	1.00E+02	5.21E+01
	23	583.34	1.98E+02	3.98E+00	3.57E+00	1.94E+02	4.50E+01
M	24	605.36	1.76E+01			1.76E+01	1.21E+01
m	25	609.36	3.87E+02	8.66E+00	3.90E+00	3.79E+02	4.47E+01
M	26	691.52	2.54E+01			2.54E+01	1.62E+01

Analysis Report for 1606065-05

CP-5011 00-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	27	697.86	1.90E+01	20.93			1.90E+01	2.09E+01
	28	728.45	6.51E+01	44.63			6.51E+01	4.46E+01
	29	767.97	2.62E+01	30.98			2.62E+01	3.10E+01
	30	794.84	3.73E+01	22.01			3.73E+01	2.20E+01
	31	860.82	3.60E+01	27.71			3.60E+01	2.77E+01
	32	911.39	1.76E+02	36.22	2.01E+00	2.72E+00	1.74E+02	3.63E+01
	33	935.71	3.76E+01	25.26			3.76E+01	2.53E+01
M	34	948.75	1.94E+01	19.07			1.94E+01	1.91E+01
m	35	953.33	1.48E+01	13.40			1.48E+01	1.34E+01
	36	969.29	5.91E+01	39.03			5.91E+01	3.90E+01
	37	989.42	2.98E+01	24.62			2.98E+01	2.46E+01
	38	997.95	1.36E+01	16.31			1.36E+01	1.63E+01
	39	1066.18	2.86E+01	21.42			2.86E+01	2.14E+01
M	40	1120.62	7.60E+01	25.22			7.60E+01	2.52E+01
m	41	1124.62	1.66E+01	22.18			1.66E+01	2.22E+01
	42	1154.96	2.12E+01	17.64			2.12E+01	1.76E+01
	43	1207.66	2.24E+01	23.24			2.24E+01	2.32E+01
	44	1239.33	3.23E+01	31.78			3.23E+01	3.18E+01
	45	1321.39	1.24E+01	14.77			1.24E+01	1.48E+01
m	46	1338.59	1.58E+01	15.92			1.58E+01	1.59E+01
	47	1376.66	2.57E+01	15.06			2.57E+01	1.51E+01
	48	1385.09	2.15E+01	12.02			2.15E+01	1.20E+01
	49	1409.66	1.98E+01	18.95			1.98E+01	1.90E+01
	50	1461.18	5.63E+02	51.05	3.09E+00	1.97E+00	5.60E+02	5.11E+01
	51	1508.94	1.93E+01	9.81			1.93E+01	9.81E+00
	52	1605.62	7.61E+00	6.71			7.61E+00	6.71E+00
	53	1612.69	8.00E+00	5.66			8.00E+00	5.66E+00
	54	1730.28	9.31E+00	9.42			9.31E+00	9.42E+00
	55	1764.60	6.05E+01	18.13			6.05E+01	1.81E+01
	56	1847.13	1.02E+01	10.58			1.02E+01	1.06E+01
	57	2090.61	4.50E+00	6.02			4.50E+00	6.02E+00
	58	2105.24	2.50E+01	10.00			2.50E+01	1.00E+01
	59	2118.83	1.22E+01	10.22			1.22E+01	1.02E+01
	60	2614.77	8.10E+01	18.00	3.07E+00	1.34E+00	7.79E+01	1.80E+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 1606065-05
CP-5011 00-02

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.978	1460.81 *	10.67	2.11E+01	2.71E+00
GA-67	0.888	93.31 *	35.70	3.41E+00	5.69E+00
		208.95 *	2.24	3.61E+01	4.55E+01
		300.22 *	16.00	3.12E+00	5.38E+00
NB-95M	0.940	235.69 *	25.00	6.08E-01	5.05E-01
TL-208	0.994	583.14 *	30.22	1.24E+00	3.25E-01
		860.37 *	4.48	2.14E+00	1.68E+00
		2614.66 *	35.85	1.09E+00	2.83E-01
PB-210	0.988	46.50 *	4.25	1.98E+00	1.77E+00
PB-212	0.963	238.63 *	44.60	1.27E+00	2.20E-01
		300.09 *	3.41	2.15E+00	1.24E+00
BI-214	0.925	609.31 *	46.30	1.64E+00	2.64E-01
		1120.29 *	15.10	1.67E+00	5.76E-01
		1764.49 *	15.80	1.73E+00	5.49E-01
		2204.22	4.98		
PB-214	1.000	295.21 *	19.19	1.74E+00	3.65E-01
		351.92 *	37.19	1.54E+00	3.33E-01
RA-226	0.995	186.21 *	3.28	3.89E+00	7.29E+00
AC-228	0.990	338.32 *	11.40	2.03E+00	5.54E-01
		911.07 *	27.70	1.76E+00	4.54E-01
		969.11 *	16.60	1.05E+00	7.07E-01
TH-234	0.997	63.29 *	3.80	2.94E+00	2.13E+00
CM-243	0.352	209.75 *	3.29	3.61E+00	1.64E+00
		228.14	10.60		
		277.60 *	14.00	5.14E-01	4.51E-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 : 6/17/2016 9:57:14AM
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	5.29235E-01	3.15		
4	76.19	2.81296E-01	7.18		
6	115.67	1.80941E-02	51.30		
11	269.66	2.90366E-02	21.59		

Analysis Report for 1606065-05

CP-5011 00-02

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide	
	15	327.81	1.23730E-02	48.91	Sum	
M	16	333.91	7.76046E-03	57.64		
	19	409.60	8.00839E-03	49.40		
M	20	463.05	1.55064E-02	24.55	Tol.	SB-125
m	21	466.12	4.97612E-03	71.24		
	22	510.88	2.78673E-02	25.98		
M	24	605.36	4.87825E-03	34.40	Tol.	CS-134
M	26	691.52	7.04942E-03	32.01		
m	27	697.86	5.27697E-03	55.08		
	28	728.45	1.80842E-02	34.28		
	29	767.97	7.28299E-03	59.09		
	30	794.84	1.03502E-02	29.53	Sum	
	33	935.71	1.04552E-02	33.55	Sum	
M	34	948.75	5.38609E-03	49.16		
m	35	953.33	4.09922E-03	45.39	Sum	
	37	989.42	8.28993E-03	41.24		
	38	997.95	3.76984E-03	60.09		
	39	1066.18	7.93210E-03	37.51		
m	41	1124.62	4.61060E-03	66.82		
	42	1154.96	5.89962E-03	41.52	Sum	
	43	1207.66	6.21469E-03	51.93	Sum	
	44	1239.33	8.97531E-03	49.18		
	45	1321.39	3.44136E-03	59.62	Sum	
m	46	1338.59	4.37869E-03	50.50		
	47	1376.66	7.13235E-03	29.32		
	48	1385.09	5.97222E-03	27.96	Tol.	AG-110M
	49	1409.66	5.51051E-03	47.77		
	51	1508.94	5.37037E-03	25.37	Sum	
	52	1605.62	2.11420E-03	44.07		
	53	1612.69	2.22222E-03	35.36		
	54	1730.28	2.58547E-03	50.61	Sum	
	56	1847.13	2.82118E-03	52.10		
	57	2090.61	1.25000E-03	66.90	Sum	
	58	2105.24	6.94444E-03	20.00		
	59	2118.83	3.38542E-03	41.94		

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 1606065-05
 CP-5011 00-02

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.97	1460.81 *	10.67	2.11E+01	2.71E+00
GA-67	0.88	93.31 *	35.70	3.41E+00	5.69E+00
		208.95 *	2.24	3.61E+01	4.55E+01
		300.22 *	16.00	3.12E+00	5.38E+00
		235.69 *	25.00	6.08E-01	5.05E-01
NB-95M	0.94	583.14 *	30.22	1.24E+00	3.25E-01
TL-208	0.99	860.37 *	4.48	2.14E+00	1.68E+00
		2614.66 *	35.85	1.09E+00	2.83E-01
		46.50 *	4.25	1.98E+00	1.77E+00
PB-210	0.98	238.63 *	44.60	1.27E+00	2.20E-01
PB-212	0.96	300.09 *	3.41	2.15E+00	1.24E+00
		609.31 *	46.30	1.64E+00	2.64E-01
BI-214	0.92	1120.29 *	15.10	1.67E+00	5.76E-01
		1764.49 *	15.80	1.73E+00	5.49E-01
		2204.22	4.98		
		295.21 *	19.19	1.74E+00	3.65E-01
PB-214	1.00	351.92 *	37.19	1.54E+00	3.33E-01
		186.21 *	3.28	3.89E+00	7.29E+00
RA-226	0.99	338.32 *	11.40	2.03E+00	5.54E-01
AC-228	0.99	911.07 *	27.70	1.76E+00	4.54E-01
		969.11 *	16.60	1.05E+00	7.07E-01
		63.29 *	3.80	2.94E+00	2.13E+00
TH-234	0.99	209.75 *	3.29	3.61E+00	1.64E+00
CM-243	0.35	228.14	10.60		
		277.60 *	14.00	5.14E-01	4.51E-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 1606065-05
CP-5011 00-02

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.978	2.11E+01	2.71E+00	
GA-67	0.888	2.79E+00	3.44E+00	
NB-95M	0.940	6.08E-01	5.05E-01	
TL-208	0.994	1.17E+00	2.12E-01	
PB-210	0.988	1.98E+00	1.77E+00	
PB-212	0.963	1.24E+00	2.18E-01	
BI-214	0.925	1.66E+00	2.20E-01	
PB-214	1.000	1.63E+00	2.46E-01	
RA-226	0.995	3.89E+00	7.29E+00	
AC-228	0.990	1.70E+00	3.14E-01	
TH-234	0.997	2.94E+00	2.13E+00	
CM-243	0.352	7.12E-01	4.35E-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 1606065-05
CP-5011 00-02

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 9:57:14AM
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	5.29235E-01	3.15		
4	76.19	2.81296E-01	7.18		
6	115.67	1.80941E-02	51.30		
11	269.66	2.90366E-02	21.59		
15	327.81	1.23730E-02	48.91	Sum	
M 16	333.91	7.76046E-03	57.64		
19	409.60	8.00839E-03	49.40		
M 20	463.05	1.55064E-02	24.55	Tol.	SB-125
m 21	466.12	4.97612E-03	71.24		
22	510.88	2.78673E-02	25.98		
M 24	605.36	4.87825E-03	34.40	Tol.	CS-134
M 26	691.52	7.04942E-03	32.01		
m 27	697.86	5.27697E-03	55.08		
28	728.45	1.80842E-02	34.28		
29	767.97	7.28299E-03	59.09		
30	794.84	1.03502E-02	29.53	Sum	
33	935.71	1.04552E-02	33.55	Sum	
M 34	948.75	5.38609E-03	49.16		
m 35	953.33	4.09922E-03	45.39	Sum	
37	989.42	8.28993E-03	41.24		
38	997.95	3.76984E-03	60.09		
39	1066.18	7.93210E-03	37.51		
m 41	1124.62	4.61060E-03	66.82		
42	1154.96	5.89962E-03	41.52	Sum	
43	1207.66	6.21469E-03	51.93	Sum	
44	1239.33	8.97531E-03	49.18		
45	1321.39	3.44136E-03	59.62	Sum	
m 46	1338.59	4.37869E-03	50.50		
47	1376.66	7.13235E-03	29.32		
48	1385.09	5.97222E-03	27.96	Tol.	AG-110M
49	1409.66	5.51051E-03	47.77		
51	1508.94	5.37037E-03	25.37	Sum	
52	1605.62	2.11420E-03	44.07		
53	1612.69	2.22222E-03	35.36		
54	1730.28	2.58547E-03	50.61	Sum	

Analysis Report for 1606065-05
CP-5011 00-02

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
56	1847.13	2.82118E-03	52.10		
57	2090.61	1.25000E-03	66.90	Sum	
58	2105.24	6.94444E-03	20.00		
59	2118.83	3.38542E-03	41.94		

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	1.03E-02	7.23E-01	7.23E-01
+	NA-22	1274.54	99.94	-1.98E-02	9.89E-02	9.89E-02
+	NA-24	1368.53	99.99	2.86E+02	1.19E+03	1.66E+03
		2754.09	99.86	0.00E+00		1.19E+03
+	AL-26	1808.65	99.76	-6.11E-03	6.47E-02	6.47E-02
+	K-40	1460.81	* 10.67	2.11E+01	1.30E+00	1.30E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-5.77E-03	6.12E-02	6.12E-02
		78.34	96.00	3.77E-01		9.60E-02
+	SC-46	889.25	99.98	3.21E-02	1.03E-01	1.03E-01
		1120.51	99.99	1.97E-01		1.83E-01
+	V-48	983.52	99.98	7.67E-02	1.27E-01	1.51E-01
		1312.10	97.50	-4.59E-02		1.27E-01
+	CR-51	320.08	9.83	2.10E-01	8.22E-01	8.22E-01
+	MN-54	834.83	99.97	-5.85E-02	9.62E-02	9.62E-02
+	CO-56	846.75	99.96	-7.47E-02	9.05E-02	9.05E-02
		1037.75	14.03	-6.93E-01		7.62E-01
		1238.25	67.00	1.49E-01		2.45E-01
		1771.40	15.51	-7.11E-02		5.01E-01
		2598.48	16.90	-1.18E-01		3.86E-01
+	CO-57	122.06	85.51	2.45E-02	6.90E-02	6.90E-02
		136.48	10.60	-6.82E-03		5.82E-01
+	CO-58	810.76	99.40	5.58E-03	1.05E-01	1.05E-01
+	FE-59	1099.22	56.50	-1.97E-02	2.15E-01	2.15E-01
		1291.56	43.20	3.39E-02		2.73E-01

Analysis Report for 1606065-05
CP-5011 00-02

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CO-60	1173.22	100.00	1.38E-02	9.65E-02	1.18E-01
		1332.49	100.00	1.80E-02		9.65E-02
+	ZN-65	1115.52	50.75	-6.66E-03	2.26E-01	2.26E-01
+	GA-67	93.31	* 35.70	3.41E+00	2.04E+00	2.04E+00
		208.95	* 2.24	3.61E+01		2.45E+01
		300.22	* 16.00	3.12E+00		5.71E+00
+	SE-75	121.11	16.70	-1.10E-01	1.07E-01	3.51E-01
		136.00	59.20	-3.43E-04		1.08E-01
		264.65	59.80	1.64E-02		1.07E-01
		279.53	25.20	-1.40E-01		2.75E-01
		400.65	11.40	-1.67E-02		6.55E-01
+	RB-82	776.52	13.00	-7.43E-02	9.18E-01	9.18E-01
+	RB-83	520.41	46.00	2.39E-02	1.55E-01	1.55E-01
		529.64	30.30	-1.69E-01		2.37E-01
		552.65	16.40	1.02E-01		4.86E-01
+	KR-85	513.99	0.43	-1.92E+01	1.85E+01	1.85E+01
+	SR-85	513.99	99.27	-9.21E-02	8.92E-02	8.92E-02
+	Y-88	898.02	93.40	-2.05E-02	9.58E-02	1.02E-01
		1836.01	99.38	3.58E-02		9.58E-02
+	NB-93M	16.57	9.43	5.53E+01	1.10E+02	1.10E+02
+	NB-94	702.63	100.00	-4.51E-03	8.39E-02	8.39E-02
		871.10	100.00	-5.31E-02		8.95E-02
+	NB-95	765.79	99.81	1.58E-01	1.41E-01	1.41E-01
+	NB-95M	235.69	* 25.00	6.08E-01	2.54E+00	2.54E+00
+	ZR-95	724.18	43.70	6.96E-02	1.95E-01	2.82E-01
		756.72	55.30	6.93E-02		1.95E-01
+	MO-99	181.06	6.20	1.38E+00	7.53E+00	1.01E+01
		739.58	12.80	3.71E+00		7.53E+00
		778.00	4.50	9.37E+00		2.07E+01
+	RU-103	497.08	89.00	-1.50E-02	8.08E-02	8.08E-02
+	RU-106	621.84	9.80	8.15E-02	8.94E-01	8.94E-01
+	AG-108M	433.93	89.90	-2.28E-02	7.35E-02	7.35E-02
		614.37	90.40	-1.61E-03		9.50E-02
		722.95	90.50	-1.02E-01		1.12E-01
+	CD-109	88.03	3.72	2.85E+00	2.28E+00	2.28E+00
+	AG-110M	657.75	93.14	-1.82E-02	1.02E-01	1.02E-01
		677.61	10.53	-4.43E-02		9.23E-01
		706.67	16.46	5.43E-02		5.68E-01
		763.93	21.98	-5.32E-02		4.76E-01
		884.67	71.63	3.64E-02		1.42E-01
		1384.27	23.94	2.71E-01		4.31E-01
+	CD-113M	263.70	0.02	6.76E+01	2.69E+02	2.69E+02
+	SN-113	255.12	1.93	-1.61E+00	1.05E-01	3.46E+00
		391.69	64.90	-3.81E-02		1.05E-01
+	TE123M	159.00	84.10	-8.06E-03	7.96E-02	7.96E-02
+	SB-124	602.71	97.87	3.85E-03	1.10E-01	1.10E-01
		645.85	7.26	4.00E-01		1.37E+00
		722.78	11.10	-9.26E-01		1.01E+00

Analysis Report for 1606065-05
CP-5011 00-02

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	1691.02	49.00	6.99E-03	1.10E-01	1.74E-01
+	I-125	35.49	6.49	7.42E-01	1.91E+00	1.91E+00
+	SB-125	176.33	6.89	4.24E-01	2.27E-01	9.37E-01
		427.89	29.33	-6.18E-02		2.27E-01
		463.38	10.35	6.44E-01		8.37E-01
		600.56	17.80	2.26E-02		5.23E-01
		635.90	11.32	1.85E-01		7.49E-01
+	SB-126	414.70	83.30	-1.67E-02	1.34E-01	1.34E-01
		666.33	99.60	4.66E-02		1.71E-01
		695.00	99.60	-1.13E-02		1.56E-01
		720.50	53.80	8.86E-02		2.87E-01
+	SN-126	87.57	37.00	2.82E-01	2.26E-01	2.26E-01
+	SB-127	473.00	25.00	-3.52E-01	1.13E+00	1.13E+00
		685.20	35.70	3.92E-01		1.29E+00
		783.80	14.70	4.49E-01		3.09E+00
+	I-129	29.78	57.00	1.22E-02	3.47E-01	3.47E-01
		33.60	13.20	-1.77E-02		1.02E+00
		39.58	7.52	1.96E-01		1.17E+00
+	I-131	284.30	6.05	-1.46E-01	1.63E-01	2.13E+00
		364.48	81.20	-3.22E-03		1.63E-01
		636.97	7.26	4.68E-01		2.55E+00
		722.89	1.80	-1.12E+01		1.22E+01
+	TE-132	49.72	13.10	-7.02E-01	4.97E-01	3.30E+00
		228.16	88.00	2.61E-01		4.97E-01
+	BA-133	81.00	33.00	-2.20E-02	1.03E-01	1.64E-01
		302.84	17.80	-2.88E-01		3.64E-01
		356.01	60.00	-2.37E-03		1.03E-01
+	I-133	529.87	86.30	-2.45E+01	1.10E+02	1.10E+02
+	XE-133	81.00	38.00	-6.28E-02	4.70E-01	4.70E-01
+	CS-134	563.23	8.38	2.69E-01	1.12E-01	9.19E-01
		569.32	15.43	2.00E-02		4.62E-01
		604.70	97.60	-1.62E-03		1.12E-01
		795.84	85.40	1.37E-01		1.28E-01
		801.93	8.73	-6.54E-01		9.44E-01
+	CS-135	268.24	16.00	9.26E-02	4.47E-01	4.47E-01
+	I-135	1131.51	22.50	8.29E+08	2.79E+09	3.55E+09
		1260.41	28.60	5.11E+08		2.79E+09
		1678.03	9.54	1.40E+09		6.32E+09
+	CS-136	153.22	7.46	5.74E-01	1.26E-01	1.38E+00
		163.89	4.61	1.95E-01		2.25E+00
		176.55	13.56	-1.10E-01		7.53E-01
		273.65	12.66	-1.99E+00		7.64E-01
		340.57	48.50	-3.65E-01		2.66E-01
		818.50	99.70	1.86E-02		1.26E-01
		1048.07	79.60	0.00E+00		1.73E-01
		1235.34	19.70	1.04E-01		1.22E+00
+	CS-137	661.65	85.12	-1.54E-02	1.18E-01	1.18E-01
+	LA-138	788.74	34.00	8.82E-02	1.13E-01	2.53E-01
		1435.80	66.00	-3.27E-03		1.13E-01

Analysis Report for 1606065-05
CP-5011 00-02

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-139	165.85	80.35	-7.14E-02	7.77E-02	7.77E-02
+	BA-140	162.64	6.70	1.22E+00	4.76E-01	1.58E+00
		304.84	4.50	2.97E-01		2.15E+00
		423.70	3.20	2.28E+00		3.64E+00
		437.55	2.00	-1.30E-01		5.81E+00
		537.32	25.00	2.12E-01		4.76E-01
+	LA-140	328.77	20.50	2.10E-01	1.93E-01	5.95E-01
		487.03	45.50	4.26E-02		2.56E-01
		815.85	23.50	4.45E-02		5.69E-01
		1596.49	95.49	1.48E-01		1.93E-01
+	CE-141	145.44	48.40	5.54E-02	1.61E-01	1.61E-01
+	CE-143	57.36	11.80	-2.14E+00	2.16E+01	4.85E+01
		293.26	42.00	3.72E+00		2.16E+01
		664.55	5.20	8.23E+01		1.91E+02
+	CE-144	133.54	10.80	-1.84E-01	5.66E-01	5.66E-01
+	PM-144	476.78	42.00	2.30E-03	8.96E-02	1.62E-01
		618.01	98.60	5.53E-02		8.96E-02
		696.49	99.49	-4.32E-02		9.28E-02
+	PM-145	36.85	21.70	3.71E-02	2.37E-01	4.49E-01
		37.36	39.70	1.96E-02		2.37E-01
		42.30	15.10	-7.11E-02		5.14E-01
		72.40	2.31	-2.46E+00		2.54E+00
+	PM-146	453.90	39.94	-4.24E-02	1.63E-01	1.63E-01
		735.90	14.01	3.95E-02		6.40E-01
		747.13	13.10	2.81E-02		7.31E-01
+	ND-147	91.11	28.90	-1.59E-01	5.26E-01	5.26E-01
		531.02	13.10	1.93E-01		9.69E-01
+	PM-149	285.90	3.10	1.18E+00	3.29E+01	3.29E+01
+	EU-152	121.78	20.50	1.00E-01	2.81E-01	2.81E-01
		244.69	5.40	2.05E-01		1.22E+00
		344.27	19.13	4.59E-03		3.31E-01
		778.89	9.20	6.09E-02		9.86E-01
		964.01	10.40	-9.78E-02		1.11E+00
		1085.78	7.22	1.57E-01		1.45E+00
		1112.02	9.60	3.02E-01		1.21E+00
		1407.95	14.94	-6.19E-02		6.71E-01
+	GD-153	97.43	31.30	1.22E-01	2.01E-01	2.01E-01
		103.18	22.20	-2.84E-01		2.72E-01
+	EU-154	123.07	40.50	-1.71E-02	1.45E-01	1.45E-01
		723.30	19.70	-4.71E-01		5.15E-01
		873.19	11.50	3.21E-02		8.75E-01
		996.32	10.30	1.43E-01		9.40E-01
		1004.76	17.90	6.66E-02		5.51E-01
		1274.45	35.50	-5.55E-02		2.77E-01
+	EU-155	86.50	30.90	1.47E-01	2.53E-01	2.53E-01
		105.30	20.70	1.97E-01		2.98E-01
+	EU-156	811.77	10.40	-3.73E-01	1.31E+00	1.31E+00
		1153.47	7.20	-7.09E-02		2.57E+00
		1230.71	8.90	2.39E-01		2.00E+00

Analysis Report for 1606065-05
CP-5011 00-02

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	HO-166M	184.41	72.60	1.37E-01	1.13E-01	1.13E-01
		280.45	29.60	-1.14E-01		2.23E-01
		410.94	11.10	-3.32E-03		6.96E-01
		711.69	54.10	9.27E-02		1.75E-01
+	TM-171	66.72	0.14	4.73E+00	4.30E+01	4.30E+01
+	HF-172	81.75	4.52	-1.31E+00	5.54E-01	1.22E+00
		125.81	11.30	-1.05E-01		5.54E-01
+	LU-172	181.53	20.60	2.09E-01	3.88E-01	7.81E-01
		810.06	16.63	7.76E-02		1.46E+00
		912.12	15.25	8.77E+00		3.37E+00
		1093.66	62.50	-1.44E-01		3.88E-01
+	LU-173	100.72	5.24	8.65E-02	3.48E-01	1.17E+00
		272.11	21.20	3.22E-01		3.48E-01
+	HF-175	343.40	84.00	2.53E-02	8.72E-02	8.72E-02
+	LU-176	88.34	13.30	7.85E-01	6.52E-02	6.29E-01
		201.83	86.00	-2.88E-02		7.20E-02
		306.78	94.00	2.72E-02		6.52E-02
+	TA-182	67.75	41.20	-1.40E-02	1.48E-01	1.48E-01
		1121.30	34.90	6.72E-01		5.31E-01
		1189.05	16.23	-1.28E-01		7.41E-01
		1221.41	26.98	1.89E-01		4.65E-01
		1231.02	11.44	2.43E-01		1.16E+00
+	IR-192	308.46	29.68	-1.53E-01	1.58E-01	2.20E-01
		468.07	48.10	3.99E-02		1.58E-01
+	HG-203	279.19	77.30	8.59E-02	1.08E-01	1.08E-01
+	BI-207	569.67	97.72	3.13E-03	7.25E-02	7.25E-02
		1063.62	74.90	-2.93E-02		1.39E-01
+	TL-208	583.14	* 30.22	1.24E+00	1.24E-01	3.91E-01
		860.37	* 4.48	2.14E+00		2.61E+00
		2614.66	* 35.85	1.09E+00		1.24E-01
+	BI-210M	262.00	45.00	7.66E-02	1.49E-01	1.49E-01
		300.00	23.00	2.75E-01		3.23E-01
+	PB-210	46.50	* 4.25	1.98E+00	2.88E+00	2.88E+00
+	PB-211	404.84	2.90	-7.20E-01	2.25E+00	2.25E+00
		831.96	2.90	-2.37E-01		3.13E+00
+	BI-212	727.17	11.80	1.22E+00	9.95E-01	9.95E-01
		1620.62	2.75	2.87E-01		3.24E+00
+	PB-212	238.63	* 44.60	1.27E+00	2.64E-01	2.64E-01
		300.09	* 3.41	2.15E+00		3.93E+00
+	BI-214	609.31	* 46.30	1.64E+00	2.35E-01	2.35E-01
		1120.29	* 15.10	1.67E+00		1.28E+00
		1764.49	* 15.80	1.73E+00		5.16E-01
		2204.22	4.98	1.34E+00		2.05E+00
+	PB-214	295.21	* 19.19	1.74E+00	2.73E-01	6.87E-01
		351.92	* 37.19	1.54E+00		2.73E-01
+	RN-219	401.80	6.50	4.03E-01	1.10E+00	1.10E+00
+	RA-223	323.87	3.88	-2.95E-01	1.69E+00	1.69E+00
+	RA-224	240.98	3.95	1.03E+01	3.40E+00	3.40E+00

Analysis Report for 1606065-05
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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-225	40.00		31.00	7.10E-02	4.23E-01	4.23E-01
+	RA-226	186.21	*	3.28	3.89E+00	2.39E+00	2.39E+00
+	TH-227	50.10		8.40	-1.59E-01	7.48E-01	7.48E-01
		236.00		11.50	-5.67E+00		8.22E-01
		256.20		6.30	-3.91E-01		1.02E+00
+	AC-228	338.32	*	11.40	2.03E+00	4.42E-01	1.14E+00
		911.07	*	27.70	1.76E+00		4.42E-01
		969.11	*	16.60	1.05E+00		1.09E+00
+	TH-230	48.44		16.90	-7.12E-01	3.80E-01	3.80E-01
		62.85		4.60	1.47E+00		1.60E+00
		67.67		0.37	-1.47E+00		1.56E+01
+	PA-231	283.67		1.60	-2.53E-01	2.81E+00	3.69E+00
		302.67		2.30	-2.22E+00		2.81E+00
+	TH-231	25.64		14.70	1.98E+00	9.25E-01	2.87E+00
		84.21		6.40	7.37E-01		9.25E-01
+	PA-233	311.98		38.60	3.93E-03	2.03E-01	2.03E-01
+	PA-234	131.20		20.40	1.09E-01	3.16E-01	3.16E-01
		733.99		8.80	-2.92E-01		9.01E-01
		946.00		12.00	6.21E-02		8.56E-01
+	PA-234M	1001.03		0.92	2.30E+00	1.11E+01	1.11E+01
+	TH-234	63.29	*	3.80	2.94E+00	3.45E+00	3.45E+00
+	U-235	143.76		10.50	-8.60E-02	5.95E-01	5.95E-01
		163.35		4.70	1.07E+00		1.39E+00
		205.31		4.70	2.81E-01		1.29E+00
+	NP-237	86.50		12.60	3.60E-01	6.19E-01	6.19E-01
+	NP-239	106.10		22.70	-1.45E+00	3.83E+00	3.83E+00
		228.18		10.70	4.48E+00		8.54E+00
		277.60		14.10	1.86E+00		7.20E+00
+	AM-241	59.54		35.90	-6.51E-03	1.78E-01	1.78E-01
+	AM-243	74.67		66.00	-3.33E-01	1.33E-01	1.33E-01
+	CM-243	209.75	*	3.29	3.61E+00	6.06E-01	2.45E+00
		228.14		10.60	3.18E-01		6.06E-01
		277.60	*	14.00	5.14E-01		7.23E-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 1606065-05
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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	7.23E-01	7.23E-01	1.03E-02	3.37E-01
NA-22	1274.54	99.94	9.89E-02	9.89E-02	-1.98E-02	4.45E-02
NA-24	1368.53	99.99	1.66E+03	1.19E+03	2.86E+02	7.16E+02
	2754.09	99.86	1.19E+03		0.00E+00	4.46E+02
AL-26	1808.65	99.76	6.47E-02	6.47E-02	-6.11E-03	2.61E-02
+ K-40	1460.81	* 10.67	1.30E+00	1.30E+00	2.11E+01	5.98E-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	6.12E-02	6.12E-02	-5.77E-03	2.96E-02
	78.34	96.00	9.60E-02		3.77E-01	4.71E-02
SC-46	889.25	99.98	1.03E-01	1.03E-01	3.21E-02	4.76E-02
	1120.51	99.99	1.83E-01		1.97E-01	8.69E-02
V-48	983.52	99.98	1.51E-01	1.27E-01	7.67E-02	6.95E-02
	1312.10	97.50	1.27E-01		-4.59E-02	5.59E-02
CR-51	320.08	9.83	8.22E-01	8.22E-01	2.10E-01	3.90E-01
MN-54	834.83	99.97	9.62E-02	9.62E-02	-5.85E-02	4.45E-02
CO-56	846.75	99.96	9.05E-02	9.05E-02	-7.47E-02	4.14E-02
	1037.75	14.03	7.62E-01		-6.93E-01	3.49E-01
	1238.25	67.00	2.45E-01		1.49E-01	1.15E-01
	1771.40	15.51	5.01E-01		-7.11E-02	2.08E-01
	2598.48	16.90	3.86E-01		-1.18E-01	1.50E-01
CO-57	122.06	85.51	6.90E-02	6.90E-02	2.45E-02	3.34E-02
	136.48	10.60	5.82E-01		-6.82E-03	2.82E-01
CO-58	810.76	99.40	1.05E-01	1.05E-01	5.58E-03	4.86E-02
FE-59	1099.22	56.50	2.15E-01	2.15E-01	-1.97E-02	9.88E-02
	1291.56	43.20	2.73E-01		3.39E-02	1.23E-01
CO-60	1173.22	100.00	1.18E-01	9.65E-02	1.38E-02	5.43E-02
	1332.49	100.00	9.65E-02		1.80E-02	4.31E-02
ZN-65	1115.52	50.75	2.26E-01	2.26E-01	-6.66E-03	1.04E-01
+ GA-67	93.31	* 35.70	2.04E+00	2.04E+00	3.41E+00	1.00E+00
	208.95	* 2.24	2.45E+01		3.61E+01	1.19E+01
	300.22	* 16.00	5.71E+00		3.12E+00	2.79E+00
SE-75	121.11	16.70	3.51E-01	1.07E-01	-1.10E-01	1.70E-01
	136.00	59.20	1.08E-01		-3.43E-04	5.24E-02
	264.65	59.80	1.07E-01		1.64E-02	5.07E-02
	279.53	25.20	2.75E-01		-1.40E-01	1.31E-01
	400.65	11.40	6.55E-01		-1.67E-02	3.09E-01
RB-82	776.52	13.00	9.18E-01	9.18E-01	-7.43E-02	4.26E-01
RB-83	520.41	46.00	1.55E-01	1.55E-01	2.39E-02	7.20E-02
	529.64	30.30	2.37E-01		-1.69E-01	1.10E-01
	552.65	16.40	4.86E-01		1.02E-01	2.27E-01
KR-85	513.99	0.43	1.85E+01	1.85E+01	-1.92E+01	8.73E+00
SR-85	513.99	99.27	8.92E-02	8.92E-02	-9.21E-02	4.19E-02
Y-88	898.02	93.40	1.02E-01	9.58E-02	-2.05E-02	4.67E-02
	1836.01	99.38	9.58E-02		3.58E-02	4.12E-02
NB-93M	16.57	9.43	1.10E+02	1.10E+02	5.53E+01	5.32E+01

Analysis Report for 1606065-05
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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	8.39E-02	8.39E-02	-4.51E-03	3.89E-02
	871.10	100.00	8.95E-02		-5.31E-02	4.11E-02
NB-95	765.79	99.81	1.41E-01	1.41E-01	1.58E-01	6.68E-02
+ NB-95M	235.69	* 25.00	2.54E+00	2.54E+00	6.08E-01	1.24E+00
ZR-95	724.18	43.70	2.82E-01	1.95E-01	6.96E-02	1.33E-01
	756.72	55.30	1.95E-01		6.93E-02	9.11E-02
MO-99	181.06	6.20	1.01E+01	7.53E+00	1.38E+00	4.88E+00
	739.58	12.80	7.53E+00		3.71E+00	3.53E+00
	778.00	4.50	2.07E+01		9.37E+00	9.63E+00
RU-103	497.08	89.00	8.08E-02	8.08E-02	-1.50E-02	3.74E-02
RU-106	621.84	9.80	8.94E-01	8.94E-01	8.15E-02	4.18E-01
AG-108M	433.93	89.90	7.35E-02	7.35E-02	-2.28E-02	3.44E-02
	614.37	90.40	9.50E-02		-1.61E-03	4.45E-02
	722.95	90.50	1.12E-01		-1.02E-01	5.24E-02
CD-109	88.03	3.72	2.28E+00	2.28E+00	2.85E+00	1.12E+00
AG-110M	657.75	93.14	1.02E-01	1.02E-01	-1.82E-02	4.80E-02
	677.61	10.53	9.23E-01		-4.43E-02	4.32E-01
	706.67	16.46	5.68E-01		5.43E-02	2.65E-01
	763.93	21.98	4.76E-01		-5.32E-02	2.23E-01
	884.67	71.63	1.42E-01		3.64E-02	6.55E-02
	1384.27	23.94	4.31E-01		2.71E-01	1.93E-01
CD-113M	263.70	0.02	2.69E+02	2.69E+02	6.76E+01	1.28E+02
SN-113	255.12	1.93	3.46E+00	1.05E-01	-1.61E+00	1.65E+00
	391.69	64.90	1.05E-01		-3.81E-02	4.96E-02
TE123M	159.00	84.10	7.96E-02	7.96E-02	-8.06E-03	3.85E-02
SB-124	602.71	97.87	1.10E-01	1.10E-01	3.85E-03	5.20E-02
	645.85	7.26	1.37E+00		4.00E-01	6.44E-01
	722.78	11.10	1.01E+00		-9.26E-01	4.74E-01
	1691.02	49.00	1.74E-01		6.99E-03	7.35E-02
I-125	35.49	6.49	1.91E+00	1.91E+00	7.42E-01	9.14E-01
SB-125	176.33	6.89	9.37E-01	2.27E-01	4.24E-01	4.52E-01
	427.89	29.33	2.27E-01		-6.18E-02	1.06E-01
	463.38	10.35	8.37E-01		6.44E-01	3.97E-01
	600.56	17.80	5.23E-01		2.26E-02	2.46E-01
	635.90	11.32	7.49E-01		1.85E-01	3.49E-01
SB-126	414.70	83.30	1.34E-01	1.34E-01	-1.67E-02	6.29E-02
	666.33	99.60	1.71E-01		4.66E-02	8.06E-02
	695.00	99.60	1.56E-01		-1.13E-02	7.29E-02
	720.50	53.80	2.87E-01		8.86E-02	1.34E-01
SN-126	87.57	37.00	2.26E-01	2.26E-01	2.82E-01	1.11E-01
SB-127	473.00	25.00	1.13E+00	1.13E+00	-3.52E-01	5.20E-01
	685.20	35.70	1.29E+00		3.92E-01	6.03E-01
	783.80	14.70	3.09E+00		4.49E-01	1.43E+00
I-129	29.78	57.00	3.47E-01	3.47E-01	1.22E-02	1.66E-01
	33.60	13.20	1.02E+00		-1.77E-02	4.87E-01
	39.58	7.52	1.17E+00		1.96E-01	5.61E-01
I-131	284.30	6.05	2.13E+00	1.63E-01	-1.46E-01	1.01E+00
	364.48	81.20	1.63E-01		-3.22E-03	7.66E-02
	636.97	7.26	2.55E+00		4.68E-01	1.19E+00
	722.89	1.80	1.22E+01		-1.12E+01	5.74E+00
TE-132	49.72	13.10	3.30E+00	4.97E-01	-7.02E-01	1.59E+00
BA-133	228.16	88.00	4.97E-01		2.61E-01	2.38E-01
	81.00	33.00	1.64E-01	1.03E-01	-2.20E-02	7.95E-02

Analysis Report for 1606065-05

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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-133	302.84	17.80	3.64E-01	1.03E-01	-2.88E-01	1.73E-01
	356.01	60.00	1.03E-01		-2.37E-03	4.85E-02
I-133	529.87	86.30	1.10E+02	1.10E+02	-2.45E+01	5.11E+01
XE-133	81.00	38.00	4.70E-01	4.70E-01	-6.28E-02	2.27E-01
CS-134	563.23	8.38	9.19E-01	1.12E-01	2.69E-01	4.29E-01
	569.32	15.43	4.62E-01		2.00E-02	2.14E-01
	604.70	97.60	1.12E-01		-1.62E-03	5.30E-02
	795.84	85.40	1.28E-01		1.37E-01	5.99E-02
	801.93	8.73	9.44E-01		-6.54E-01	4.33E-01
CS-135	268.24	16.00	4.47E-01	4.47E-01	9.26E-02	2.14E-01
I-135	1131.51	22.50	3.55E+09	2.79E+09	8.29E+08	1.63E+09
	1260.41	28.60	2.79E+09		5.11E+08	1.27E+09
	1678.03	9.54	6.32E+09		1.40E+09	2.70E+09
CS-136	153.22	7.46	1.38E+00	1.26E-01	5.74E-01	6.65E-01
	163.89	4.61	2.25E+00		1.95E-01	1.09E+00
	176.55	13.56	7.53E-01		-1.10E-01	3.63E-01
	273.65	12.66	7.64E-01		-1.99E+00	3.63E-01
	340.57	48.50	2.66E-01		-3.65E-01	1.27E-01
	818.50	99.70	1.26E-01		1.86E-02	5.76E-02
	1048.07	79.60	1.73E-01		0.00E+00	7.80E-02
	1235.34	19.70	1.22E+00		1.04E-01	5.71E-01
CS-137	661.65	85.12	1.18E-01	1.18E-01	-1.54E-02	5.57E-02
LA-138	788.74	34.00	2.53E-01	1.13E-01	8.82E-02	1.16E-01
	1435.80	66.00	1.13E-01		-3.27E-03	4.86E-02
CE-139	165.85	80.35	7.77E-02	7.77E-02	-7.14E-02	3.74E-02
BA-140	162.64	6.70	1.58E+00	4.76E-01	1.22E+00	7.64E-01
	304.84	4.50	2.15E+00		2.97E-01	1.02E+00
	423.70	3.20	3.64E+00		2.28E+00	1.72E+00
	437.55	2.00	5.81E+00		-1.30E-01	2.74E+00
	537.32	25.00	4.76E-01		2.12E-01	2.22E-01
LA-140	328.77	20.50	5.95E-01	1.93E-01	2.10E-01	2.84E-01
	487.03	45.50	2.56E-01		4.26E-02	1.20E-01
	815.85	23.50	5.69E-01		4.45E-02	2.61E-01
	1596.49	95.49	1.93E-01		1.48E-01	8.64E-02
CE-141	145.44	48.40	1.61E-01	1.61E-01	5.54E-02	7.77E-02
CE-143	57.36	11.80	4.85E+01	2.16E+01	-2.14E+00	2.34E+01
	293.26	42.00	2.16E+01		3.72E+00	1.04E+01
	664.55	5.20	1.91E+02		8.23E+01	9.02E+01
CE-144	133.54	10.80	5.66E-01	5.66E-01	-1.84E-01	2.74E-01
PM-144	476.78	42.00	1.62E-01	8.96E-02	2.30E-03	7.57E-02
	618.01	98.60	8.96E-02		5.53E-02	4.19E-02
	696.49	99.49	9.28E-02		-4.32E-02	4.33E-02
PM-145	36.85	21.70	4.49E-01	2.37E-01	3.71E-02	2.14E-01
	37.36	39.70	2.37E-01		1.96E-02	1.13E-01
	42.30	15.10	5.14E-01		-7.11E-02	2.46E-01
	72.40	2.31	2.54E+00		-2.46E+00	1.23E+00
PM-146	453.90	39.94	1.63E-01	1.63E-01	-4.24E-02	7.61E-02
	735.90	14.01	6.40E-01		3.95E-02	2.97E-01
	747.13	13.10	7.31E-01		2.81E-02	3.41E-01
ND-147	91.11	28.90	5.26E-01	5.26E-01	-1.59E-01	2.57E-01
	531.02	13.10	9.69E-01		1.93E-01	4.52E-01
PM-149	285.90	3.10	3.29E+01	3.29E+01	1.18E+00	1.56E+01
EU-152	121.78	20.50	2.81E-01	2.81E-01	1.00E-01	1.36E-01

Analysis Report for 1606065-05

CP-5011 00-02

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	1.22E+00	2.81E-01	2.05E-01	5.86E-01
	344.27	19.13	3.31E-01		4.59E-03	1.57E-01
	778.89	9.20	9.86E-01		6.09E-02	4.57E-01
	964.01	10.40	1.11E+00		-9.78E-02	5.16E-01
	1085.78	7.22	1.45E+00		1.57E-01	6.66E-01
	1112.02	9.60	1.21E+00		3.02E-01	5.58E-01
	1407.95	14.94	6.71E-01		-6.19E-02	3.00E-01
GD-153	97.43	31.30	2.01E-01	2.01E-01	1.22E-01	9.78E-02
	103.18	22.20	2.72E-01		-2.84E-01	1.32E-01
EU-154	123.07	40.50	1.45E-01	1.45E-01	-1.71E-02	7.00E-02
	723.30	19.70	5.15E-01		-4.71E-01	2.41E-01
	873.19	11.50	8.75E-01		3.21E-02	4.06E-01
	996.32	10.30	9.40E-01		1.43E-01	4.31E-01
	1004.76	17.90	5.51E-01		6.66E-02	2.53E-01
EU-155	1274.45	35.50	2.77E-01	2.53E-01	-5.55E-02	1.25E-01
	86.50	30.90	2.53E-01		1.47E-01	1.24E-01
	105.30	20.70	2.98E-01		1.97E-01	1.45E-01
EU-156	811.77	10.40	1.31E+00	1.31E+00	-3.73E-01	6.07E-01
	1153.47	7.20	2.57E+00		-7.09E-02	1.19E+00
	1230.71	8.90	2.00E+00		2.39E-01	9.20E-01
HO-166M	184.41	72.60	1.13E-01	1.13E-01	1.37E-01	5.49E-02
	280.45	29.60	2.23E-01		-1.14E-01	1.06E-01
	410.94	11.10	6.96E-01		-3.32E-03	3.30E-01
	711.69	54.10	1.75E-01		9.27E-02	8.20E-02
TM-171	66.72	0.14	4.30E+01	4.30E+01	4.73E+00	2.08E+01
HF-172	81.75	4.52	1.22E+00	5.54E-01	-1.31E+00	5.88E-01
	125.81	11.30	5.54E-01		-1.05E-01	2.68E-01
LU-172	181.53	20.60	7.81E-01	3.88E-01	2.09E-01	3.76E-01
	810.06	16.63	1.46E+00		7.76E-02	6.76E-01
	912.12	15.25	3.37E+00		8.77E+00	1.62E+00
	1093.66	62.50	3.88E-01		-1.44E-01	1.76E-01
LU-173	100.72	5.24	1.17E+00	3.48E-01	8.65E-02	5.66E-01
	272.11	21.20	3.48E-01		3.22E-01	1.67E-01
HF-175	343.40	84.00	8.72E-02	8.72E-02	2.53E-02	4.13E-02
LU-176	88.34	13.30	6.29E-01	6.52E-02	7.85E-01	3.08E-01
	201.83	86.00	7.20E-02		-2.88E-02	3.46E-02
	306.78	94.00	6.52E-02		2.72E-02	3.09E-02
TA-182	67.75	41.20	1.48E-01	1.48E-01	-1.40E-02	7.17E-02
	1121.30	34.90	5.31E-01		6.72E-01	2.52E-01
	1189.05	16.23	7.41E-01		-1.28E-01	3.40E-01
	1221.41	26.98	4.65E-01		1.89E-01	2.14E-01
	1231.02	11.44	1.16E+00		2.43E-01	5.35E-01
IR-192	308.46	29.68	2.20E-01	1.58E-01	-1.53E-01	1.04E-01
	468.07	48.10	1.58E-01		3.99E-02	7.42E-02
HG-203	279.19	77.30	1.08E-01	1.08E-01	8.59E-02	5.16E-02
BI-207	569.67	97.72	7.25E-02	7.25E-02	3.13E-03	3.36E-02
	1063.62	74.90	1.39E-01		-2.93E-02	6.39E-02
+ TL-208	583.14	*	30.22	1.24E-01	1.24E+00	1.87E-01
	860.37	*	4.48		2.14E+00	1.22E+00
	2614.66	*	35.85		1.09E+00	4.32E-02
BI-210M	262.00		1.49E-01	1.49E-01	7.66E-02	7.14E-02
	300.00		3.23E-01		2.75E-01	1.54E-01
+ PB-210	46.50	*	4.25	2.88E+00	2.88E+00	1.41E+00

Analysis Report for 1606065-05

CP-5011 00-02

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	2.25E+00	2.25E+00	-7.20E-01	1.06E+00
	831.96	2.90	3.13E+00		-2.37E-01	1.44E+00
BI-212	727.17	11.80	9.95E-01	9.95E-01	1.22E+00	4.71E-01
	1620.62	2.75	3.24E+00		2.87E-01	1.41E+00
+ PB-212	238.63 *	44.60	2.64E-01	2.64E-01	1.27E+00	1.29E-01
	300.09 *	3.41	3.93E+00		2.15E+00	1.92E+00
+ BI-214	609.31 *	46.30	2.35E-01	2.35E-01	1.64E+00	1.12E-01
	1120.29 *	15.10	1.28E+00		1.67E+00	6.08E-01
	1764.49 *	15.80	5.16E-01		1.73E+00	2.19E-01
	2204.22	4.98	2.05E+00		1.34E+00	8.93E-01
+ PB-214	295.21 *	19.19	6.87E-01	2.73E-01	1.74E+00	3.35E-01
	351.92 *	37.19	2.73E-01		1.54E+00	1.31E-01
RN-219	401.80	6.50	1.10E+00	1.10E+00	4.03E-01	5.19E-01
RA-223	323.87	3.88	1.69E+00	1.69E+00	-2.95E-01	8.02E-01
RA-224	240.98	3.95	3.40E+00	3.40E+00	1.03E+01	1.67E+00
RA-225	40.00	31.00	4.23E-01	4.23E-01	7.10E-02	2.03E-01
+ RA-226	186.21 *	3.28	2.39E+00	2.39E+00	3.89E+00	1.16E+00
TH-227	50.10	8.40	7.48E-01	7.48E-01	-1.59E-01	3.60E-01
	236.00	11.50	8.22E-01		-5.67E+00	3.99E-01
	256.20	6.30	1.02E+00		-3.91E-01	4.87E-01
+ AC-228	338.32 *	11.40	1.14E+00	4.42E-01	2.03E+00	5.55E-01
	911.07 *	27.70	4.42E-01		1.76E+00	2.07E-01
	969.11 *	16.60	1.09E+00		1.05E+00	5.23E-01
TH-230	48.44	16.90	3.80E-01	3.80E-01	-7.12E-01	1.83E-01
	62.85	4.60	1.60E+00		1.47E+00	7.77E-01
	67.67	0.37	1.56E+01		-1.47E+00	7.57E+00
PA-231	283.67	1.60	3.69E+00	2.81E+00	-2.53E-01	1.75E+00
	302.67	2.30	2.81E+00		-2.22E+00	1.34E+00
TH-231	25.64	14.70	2.87E+00	9.25E-01	1.98E+00	1.38E+00
	84.21	6.40	9.25E-01		7.37E-01	4.49E-01
PA-233	311.98	38.60	2.03E-01	2.03E-01	3.93E-03	9.64E-02
PA-234	131.20	20.40	3.16E-01	3.16E-01	1.09E-01	1.53E-01
	733.99	8.80	9.01E-01		-2.92E-01	4.15E-01
	946.00	12.00	8.56E-01		6.21E-02	3.95E-01
PA-234M	1001.03	0.92	1.11E+01	1.11E+01	2.30E+00	5.12E+00
+ TH-234	63.29 *	3.80	3.45E+00	3.45E+00	2.94E+00	1.70E+00
U-235	143.76	10.50	5.95E-01	5.95E-01	-8.60E-02	2.88E-01
	163.35	4.70	1.39E+00		1.07E+00	6.70E-01
	205.31	4.70	1.29E+00		2.81E-01	6.17E-01
NP-237	86.50	12.60	6.19E-01	6.19E-01	3.60E-01	3.03E-01
NP-239	106.10	22.70	3.83E+00	3.83E+00	-1.45E+00	1.86E+00
	228.18	10.70	8.54E+00		4.48E+00	4.09E+00
	277.60	14.10	7.20E+00		1.86E+00	3.45E+00
AM-241	59.54	35.90	1.78E-01	1.78E-01	-6.51E-03	8.63E-02
AM-243	74.67	66.00	1.33E-01	1.33E-01	-3.33E-01	6.51E-02
+ CM-243	209.75 *	3.29	2.45E+00	6.06E-01	3.61E+00	1.19E+00
	228.14	10.60	6.06E-01		3.18E-01	2.90E-01
	277.60 *	14.00	7.23E-01		5.14E-01	3.51E-01

Analysis Report for 1606065-05
CP-5011 00-02

-
- + = 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

<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-5011 00-02

Elapsed Live time: 3600

Elapsed Real Time: 3601

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	61	706
9:	1002	698	363	280	2111	148	128	160
17:	117	105	105	115	75	51	65	65
25:	67	80	67	50	67	52	48	57
33:	63	57	56	60	51	43	47	77
41:	55	63	65	57	73	83	177	59
49:	59	81	69	83	98	93	85	76
57:	87	100	91	101	122	109	169	174
65:	118	109	90	117	94	115	102	106
73:	119	149	463	150	486	271	106	95
81:	103	95	99	155	101	94	172	173
89:	88	197	107	117	255	150	87	64
97:	71	78	90	76	65	64	67	67
105:	77	94	64	60	87	67	68	58
113:	63	65	70	73	72	49	51	48
121:	67	57	54	70	55	72	68	71
129:	82	87	63	49	70	60	57	61
137:	66	58	54	59	70	45	54	83
145:	70	51	58	65	57	56	55	51
153:	67	67	57	50	67	60	56	54
161:	46	63	70	52	58	39	60	28
169:	56	50	48	53	45	50	43	60
177:	55	49	44	54	51	55	48	33
185:	61	208	66	37	44	38	45	44
193:	46	45	48	37	50	42	60	31
201:	32	48	51	40	35	32	30	33
209:	105	68	49	48	39	36	44	52
217:	26	44	37	42	45	33	40	35
225:	32	45	37	43	33	27	29	29
233:	38	42	34	54	51	213	450	50
241:	111	129	48	39	23	40	28	30
249:	30	31	44	34	34	26	30	37
257:	27	38	38	28	40	37	33	30
265:	20	20	30	33	34	68	49	18
273:	26	28	22	31	57	37	21	29
281:	37	23	22	29	21	19	24	25
289:	24	28	18	27	23	36	195	109
297:	22	25	28	55	42	20	24	14
305:	26	23	17	22	22	20	29	23
313:	18	21	22	30	18	17	26	25
321:	22	25	22	30	22	18	26	57
329:	30	16	22	30	29	38	19	23
337:	32	129	75	22	26	26	17	22
345:	21	13	19	26	17	24	96	349
353:	65	14	20	18	17	20	18	23
361:	13	13	13	16	18	23	20	10

369: 19 17 17 24 17 13 17 18

Sample Title: CP-5011 00-02

377:	19	21	13	16	26	21	21	27
385:	13	22	17	14	24	7	16	22
393:	20	20	17	18	15	23	17	20
401:	19	27	16	18	16	16	16	10
409:	33	34	13	17	17	14	16	20
417:	17	21	19	8	9	19	17	19
425:	24	13	14	16	18	16	17	13
433:	17	13	14	18	18	19	18	24
441:	15	15	15	11	15	15	10	11
449:	6	15	19	12	15	13	12	15
457:	13	16	13	12	14	16	46	28
465:	14	21	14	14	16	10	9	8
473:	9	10	9	13	13	15	16	12
481:	20	20	12	15	17	11	21	13
489:	11	13	13	8	9	13	7	7
497:	11	15	11	11	13	11	14	11
505:	12	14	19	14	21	54	75	28
513:	19	18	13	8	11	11	5	13
521:	12	15	13	8	15	17	8	16
529:	10	9	12	13	20	9	12	15
537:	11	14	13	5	7	14	12	13
545:	16	16	12	14	13	12	12	12
553:	18	10	8	11	11	12	9	12
561:	12	18	19	8	9	10	12	5
569:	17	10	11	9	14	15	11	6
577:	12	13	13	8	13	31	150	62
585:	13	10	15	8	17	13	7	12
593:	8	19	8	12	9	12	12	13
601:	15	16	12	9	20	13	10	42
609:	221	125	18	14	2	7	8	10
617:	14	13	10	11	8	7	10	11
625:	15	8	5	9	9	7	7	9
633:	8	7	6	11	8	11	15	9
641:	7	10	14	7	11	12	13	9
649:	8	11	7	10	5	11	7	11
657:	12	14	9	13	11	16	15	12
665:	13	18	13	10	12	7	13	10
673:	10	10	13	13	8	9	12	11
681:	11	13	12	8	6	13	10	6
689:	4	8	19	13	6	7	9	10
697:	10	16	8	8	9	8	7	5
705:	10	9	9	9	16	11	10	6
713:	10	8	4	7	13	8	8	13
721:	9	8	7	11	9	21	31	19
729:	9	6	3	8	13	1	5	10
737:	5	13	11	11	8	14	9	13
745:	7	10	8	13	9	5	8	7
753:	11	9	10	15	8	6	8	9
761:	6	9	12	9	15	11	10	23
769:	18	6	4	11	9	7	12	9
777:	10	7	4	11	8	5	5	7
785:	11	12	4	4	8	5	3	1
793:	8	15	25	7	8	5	8	5

801: 6 2 7 6 7 13 9 5

Sample Title: CP-5011 00-02

Channel	1	2	3	4	5	6	7	8	9
809:	8	10	9	9	6	3	9	5	
817:	5	5	7	2	3	6	3	8	
825:	7	8	9	6	5	3	10	7	
833:	7	10	6	11	3	8	13	14	
841:	8	9	6	4	5	5	7	4	
849:	8	8	12	4	8	9	9	8	
857:	5	9	9	19	22	10	8	6	
865:	7	5	7	5	6	5	6	7	
873:	7	7	7	16	14	6	7	8	
881:	8	6	10	5	5	9	9	4	
889:	6	9	5	6	6	5	2	4	
897:	10	5	9	2	9	8	8	11	
905:	7	10	5	5	11	42	98	47	
913:	8	5	12	3	7	7	12	6	
921:	4	8	7	4	8	6	3	8	
929:	5	6	2	5	11	11	16	5	
937:	4	5	11	2	4	7	7	5	
945:	4	5	9	8	12	6	4	3	
953:	10	3	3	2	5	7	7	9	
961:	2	6	8	17	14	7	8	33	
969:	52	24	4	6	5	9	4	8	
977:	9	4	1	12	8	8	6	3	
985:	5	4	11	9	8	7	5	7	
993:	5	3	3	5	9	8	7	3	
1001:	5	5	10	7	3	7	4	6	
1009:	5	10	3	4	4	6	8	7	
1017:	8	6	5	3	8	7	6	10	
1025:	5	4	7	4	6	5	3	10	
1033:	10	7	8	4	6	3	5	6	
1041:	7	12	2	4	4	3	1	5	
1049:	5	2	8	5	5	6	7	8	
1057:	5	6	7	4	5	4	8	3	
1065:	6	12	11	4	1	2	4	7	
1073:	5	3	5	10	5	7	4	5	
1081:	8	7	8	3	3	6	8	6	
1089:	6	3	5	6	3	5	7	4	
1097:	5	8	7	6	7	4	6	7	
1105:	5	3	5	3	6	11	6	12	
1113:	4	5	5	9	4	6	22	36	
1121:	30	6	6	11	6	9	6	10	
1129:	6	4	2	7	8	5	2	3	
1137:	8	6	4	5	5	7	9	6	
1145:	3	9	5	5	10	6	4	3	
1153:	7	12	12	8	2	6	7	5	
1161:	7	8	6	10	10	10	10	6	
1169:	6	5	9	7	5	5	9	6	
1177:	4	8	5	5	6	6	6	10	
1185:	6	9	5	4	9	5	1	9	
1193:	7	5	10	4	9	14	5	7	
1201:	13	8	4	7	6	8	13	12	
1209:	8	2	3	5	4	2	10	6	
1217:	6	6	2	9	10	5	5	7	
1225:	3	3	2	8	2	7	5	7	

1233: 12 8 9 8 13 14 17 7

Sample Title: CP-5011 00-02

Channel	1	2	3	4	5	6	7	8	9
1241:	5	7	2	4	7	7	9	7	
1249:	8	8	5	8	2	11	6	3	
1257:	8	2	2	9	5	5	4	3	
1265:	5	8	4	4	6	7	8	2	
1273:	3	2	6	3	3	4	3	7	
1281:	5	5	5	7	4	4	4	10	
1289:	5	1	6	3	0	4	2	5	
1297:	4	3	5	3	3	4	4	3	
1305:	4	5	2	3	3	0	2	3	
1313:	3	3	4	6	4	2	5	5	
1321:	5	7	2	1	2	7	2	1	
1329:	3	1	0	7	6	4	3	4	
1337:	4	7	3	4	3	1	1	4	
1345:	2	1	3	2	2	1	2	2	
1353:	3	4	1	2	2	1	3	1	
1361:	1	2	0	2	2	3	2	2	
1369:	1	1	2	3	2	3	2	4	
1377:	8	5	4	0	1	2	5	4	
1385:	6	4	3	1	0	1	1	2	
1393:	1	3	2	4	2	0	7	3	
1401:	4	4	4	1	1	3	5	6	
1409:	5	3	4	3	4	1	1	1	
1417:	0	3	2	1	1	1	3	0	
1425:	2	3	1	1	4	1	2	2	
1433:	2	1	2	1	3	1	2	2	
1441:	2	4	2	1	5	3	2	5	
1449:	1	1	1	2	4	4	3	4	
1457:	4	6	41	197	248	76	10	0	
1465:	3	1	0	1	0	2	2	1	
1473:	0	2	0	1	3	1	5	0	
1481:	0	2	0	2	0	1	3	0	
1489:	1	2	1	5	1	1	2	2	
1497:	2	6	2	3	4	2	0	1	
1505:	0	5	2	2	5	7	0	0	
1513:	2	1	2	2	3	1	2	2	
1521:	1	1	1	2	0	2	1	2	
1529:	3	0	2	2	2	1	2	0	
1537:	4	1	4	4	1	1	4	2	
1545:	3	1	2	0	2	2	1	2	
1553:	1	0	2	0	1	1	0	2	
1561:	3	4	0	4	0	1	3	0	
1569:	1	0	2	0	1	2	2	1	
1577:	1	2	1	1	4	2	1	5	
1585:	2	2	1	9	4	0	2	8	
1593:	7	3	0	2	2	0	3	1	
1601:	0	1	1	1	2	4	0	0	
1609:	0	0	3	2	2	1	0	0	
1617:	1	1	4	1	1	4	2	1	
1625:	2	3	2	2	1	4	4	3	
1633:	1	1	2	1	1	4	1	0	
1641:	1	1	2	1	0	3	0	2	
1649:	0	1	0	1	1	1	1	1	
1657:	3	0	2	3	0	1	3	1	

1665: 3 2 0 0 3 1 0 1

Sample Title: CP-5011 00-02

Channel	1	2	3	4	5	6	7	8
1673:	1	0	0	1	0	1	5	2
1681:	2	1	2	1	2	0	2	0
1689:	0	3	1	0	3	1	1	0
1697:	3	2	3	0	2	1	1	2
1705:	0	2	2	1	0	2	1	1
1713:	1	1	4	0	1	1	0	0
1721:	1	2	2	0	5	2	1	0
1729:	7	3	1	1	0	0	2	1
1737:	1	1	1	1	1	3	2	2
1745:	2	0	0	0	0	0	0	2
1753:	1	1	3	0	1	1	0	2
1761:	3	1	12	25	20	4	0	2
1769:	2	1	1	0	1	1	0	0
1777:	2	0	0	0	1	1	0	3
1785:	0	2	3	1	3	0	3	3
1793:	0	1	2	0	2	1	0	2
1801:	1	0	0	0	0	2	0	0
1809:	2	1	0	1	1	2	1	2
1817:	0	0	1	2	0	0	0	1
1825:	2	2	1	2	0	1	1	2
1833:	2	2	0	0	3	1	2	0
1841:	0	1	0	1	1	4	6	3
1849:	0	2	3	0	1	2	1	3
1857:	1	0	0	1	1	1	3	1
1865:	1	3	1	1	1	0	0	4
1873:	1	1	2	0	1	0	1	0
1881:	1	0	0	1	2	0	2	0
1889:	0	0	3	1	1	2	1	1
1897:	1	0	2	0	1	0	4	1
1905:	1	0	1	1	2	0	1	3
1913:	1	1	1	1	1	1	0	3
1921:	2	0	1	1	2	0	0	1
1929:	1	2	0	1	0	1	0	1
1937:	2	0	1	0	2	1	0	1
1945:	1	0	0	0	0	0	0	0
1953:	1	0	1	2	0	2	0	0
1961:	2	0	0	2	2	2	3	1
1969:	2	2	2	1	0	1	0	0
1977:	1	1	1	1	0	0	1	1
1985:	2	0	2	0	0	0	0	2
1993:	0	0	0	1	0	0	0	0
2001:	0	0	1	1	0	0	2	1
2009:	0	1	1	0	0	1	1	0
2017:	2	0	1	1	1	1	0	0
2025:	1	1	1	1	0	0	3	0
2033:	3	1	2	1	1	1	1	1
2041:	1	0	3	1	1	1	0	0
2049:	0	0	0	0	0	0	2	1
2057:	0	1	0	0	0	0	0	0
2065:	2	0	0	0	0	1	1	1
2073:	1	4	0	0	1	0	0	1
2081:	0	1	1	0	0	0	0	0
2089:	2	2	2	0	1	0	1	1

2097: 0 1 0 0 2 3 4 4

Sample Title: CP-5011 00-02

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

2529: 0 0 0 0 0 0 0 0

Sample Title: CP-5011 00-02

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2537:	0	0	0	1	1	0	0	1
2545:	0	0	0	0	1	0	0	0
2553:	0	2	0	0	1	1	0	0
2561:	0	1	0	0	1	0	0	1
2569:	0	0	0	0	1	1	0	0
2577:	2	0	0	2	0	0	0	0
2585:	1	2	0	0	1	0	0	1
2593:	2	0	1	0	0	1	0	0
2601:	1	1	1	0	1	0	1	0
2609:	0	0	0	5	23	25	21	7
2617:	0	0	0	0	0	1	0	0
2625:	0	0	0	0	0	0	0	0
2633:	0	1	0	1	0	0	1	0
2641:	0	0	0	0	0	0	1	1
2649:	0	0	0	0	0	0	0	2
2657:	0	0	0	0	1	0	0	0
2665:	0	1	0	0	0	0	0	1
2673:	0	0	0	0	0	0	0	0
2681:	0	0	0	0	1	0	0	1
2689:	0	0	0	1	0	0	0	0
2697:	0	0	0	0	0	0	1	1
2705:	0	0	1	0	0	0	0	0
2713:	0	1	1	0	0	1	0	1
2721:	0	1	0	0	0	0	0	0
2729:	0	0	0	0	0	1	1	0
2737:	0	0	0	0	0	0	0	0
2745:	0	1	0	0	0	0	0	0
2753:	1	0	1	0	1	0	0	1
2761:	0	0	0	0	1	1	0	0
2769:	0	0	1	0	0	0	0	1
2777:	1	0	0	1	0	1	0	1
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	1	1	0	0	1	0	1	0
2809:	0	0	0	0	0	0	0	0
2817:	0	1	0	0	0	0	0	1
2825:	0	2	0	0	0	0	1	0
2833:	0	0	0	0	0	0	0	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	1	1	0
2865:	0	0	0	1	0	1	0	0
2873:	0	1	0	0	1	0	1	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	0	0	0	1	0	0
2897:	0	0	0	0	1	0	0	0
2905:	1	0	0	0	0	1	0	0
2913:	0	0	1	0	1	0	0	0
2921:	0	0	0	0	1	0	0	0
2929:	0	0	0	0	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	2

2961: 0 1 1 0 0 0 0 0

Sample Title: CP-5011 00-02

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

3393: 0 1 0 0 0 0 0 1

Sample Title: CP-5011 00-02

Channel	1	2	3	4	5	6	7	8
3401:	0	0	0	1	0	0	0	1
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	1	0	0	0	0	0	0	0
3433:	0	1	1	0	0	1	0	0
3441:	0	0	0	1	0	0	0	0
3449:	0	0	1	0	0	0	1	1
3457:	0	0	0	0	0	0	0	0
3465:	1	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	1	0	0	0	0	0	0
3489:	0	0	0	0	0	1	1	0
3497:	1	0	0	0	0	1	1	0
3505:	0	0	0	0	0	0	0	1
3513:	0	1	0	0	0	0	0	0
3521:	0	0	0	0	0	2	0	0
3529:	0	0	0	0	0	0	0	0
3537:	0	0	1	0	0	0	0	0
3545:	1	0	0	0	0	0	0	0
3553:	0	1	0	0	0	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	1	0	0	0	0	0	0	0
3577:	0	0	0	0	0	0	0	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	0	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	1	0	0	0	0	0
3633:	0	0	0	0	0	0	0	0
3641:	0	0	0	0	0	0	0	0
3649:	0	0	0	0	0	0	0	0
3657:	0	0	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	1	0	0	0	0	0
3689:	0	0	0	0	0	0	0	1
3697:	0	0	0	1	1	0	0	0
3705:	0	0	0	0	0	0	0	0
3713:	0	1	0	0	0	0	0	0
3721:	1	0	0	0	0	0	1	0
3729:	0	1	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	0	1	0	1
3761:	0	0	1	0	0	0	0	0
3769:	0	0	0	0	0	0	0	0
3777:	0	1	0	1	0	2	0	1
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	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0

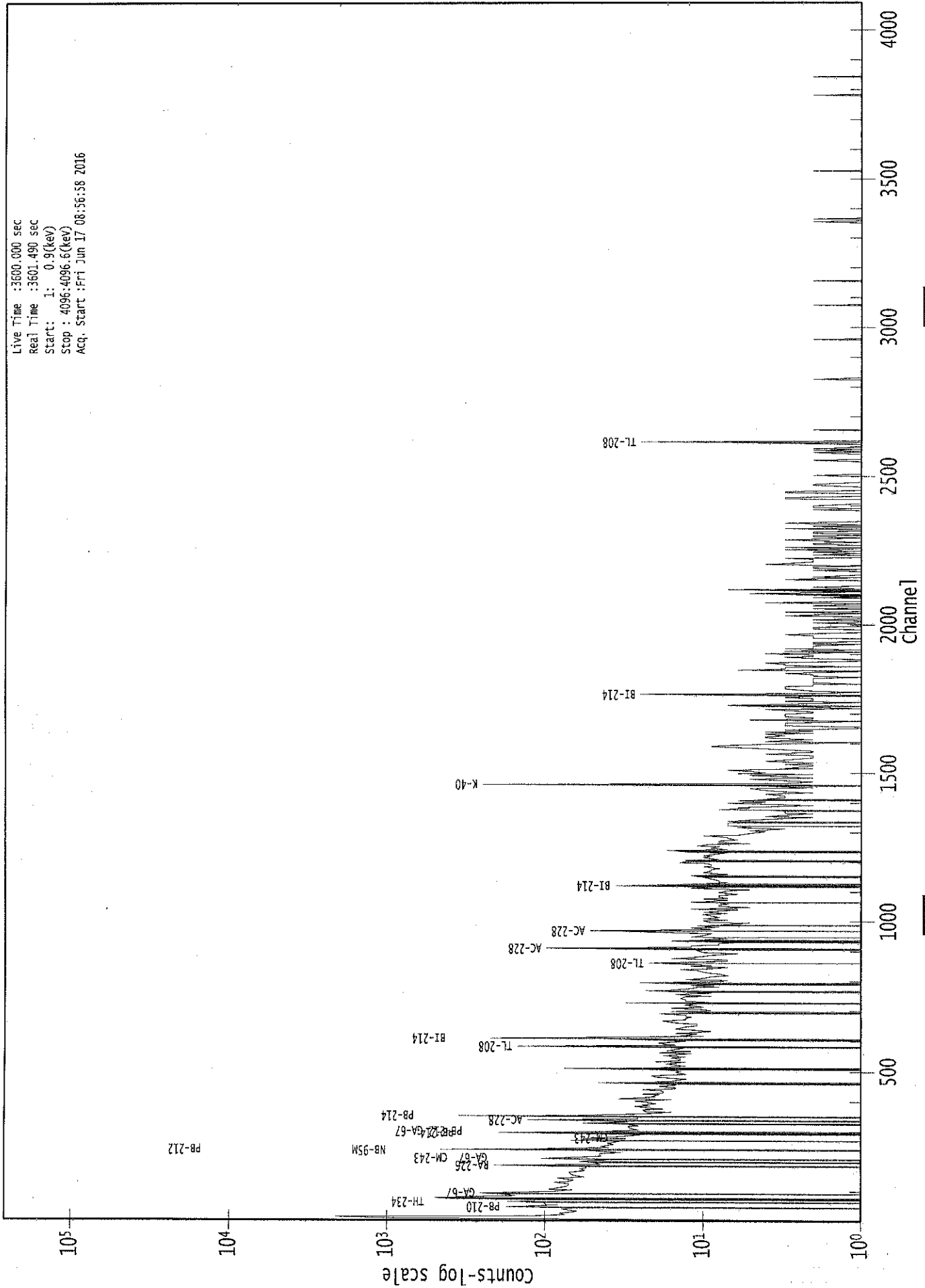
3825: 0 0 0 0 0 0 0 0

Sample Title: CP-5011 00-02

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	1	0	0	0	0	0
3841:	1	0	2	0	0	0	0	0
3849:	1	0	1	0	0	0	0	0
3857:	0	1	1	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	1
3881:	0	0	0	1	0	0	0	0
3889:	0	0	0	1	1	0	0	0
3897:	0	0	0	1	0	0	0	0
3905:	1	0	0	0	1	0	1	0
3913:	0	0	1	0	1	0	1	0
3921:	0	1	0	0	0	0	0	1
3929:	0	1	1	0	0	0	0	0
3937:	0	0	0	0	0	0	0	0
3945:	0	1	1	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	1	0	0	0	0	0	0
3993:	1	0	0	0	0	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	0	1	0	1	0
4017:	1	0	0	1	0	0	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	1	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	0	0	0

0000039073.CNF

Live Time : 3600.000 sec
Real Time : 3601.490 sec
Start : 1: 0.9 (keV)
Stop : 4096.4096.6 (keV)
Acq. Start : Fri Jun 17 08:56:58 2016



ROI Type: 2

ROI Type: 1

Analysis Report for 1606065-06
CP-5011 02-05

6117

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606065-06
Sample Description : CP-5011 02-05
Sample Type : SOIL

Sample Size : 4.995E+02 grams
Facility : Countroom

Sample Taken On : 6/8/2016 8:53:28AM
Acquisition Started : 6/17/2016 8:57:06AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE3
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3613.2 seconds

Dead Time : 0.37 %

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 : 39074

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606065-06
CP-5011 02-05

PEAK LOCATE REPORT

Peak Locate Performed on : 6/17/2016 9:57:31AM
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	63.89	64.11	0.0000	0.00
2	74.90	75.11	0.0000	0.00
3	77.52	77.74	0.0000	0.00
4	87.98	88.19	0.0000	0.00
5	93.34	93.55	0.0000	0.00
6	128.75	128.94	0.0000	0.00
7	186.08	186.23	0.0000	0.00
8	210.16	210.30	0.0000	0.00
9	238.97	239.10	0.0000	0.00
10	242.21	242.33	0.0000	0.00
11	270.27	270.39	0.0000	0.00
12	277.43	277.54	0.0000	0.00
13	295.55	295.65	0.0000	0.00
14	300.71	300.80	0.0000	0.00
15	328.10	328.18	0.0000	0.00
16	338.90	338.98	0.0000	0.00
17	352.44	352.51	0.0000	0.00
18	463.73	463.75	0.0000	0.00
19	511.91	511.90	0.0000	0.00
20	572.11	572.08	0.0000	0.00
21	583.68	583.63	0.0000	0.00
22	609.59	609.53	0.0000	0.00
23	619.76	619.69	0.0000	0.00
24	645.46	645.38	0.0000	0.00
25	727.39	727.28	0.0000	0.00
26	755.38	755.26	0.0000	0.00
27	795.71	795.57	0.0000	0.00
28	911.79	911.59	0.0000	0.00
29	920.99	920.79	0.0000	0.00
30	933.48	933.28	0.0000	0.00
31	969.48	969.26	0.0000	0.00
32	1120.60	1120.31	0.0000	0.00
33	1237.88	1237.55	0.0000	0.00
34	1318.67	1318.31	0.0000	0.00
35	1323.46	1323.09	0.0000	0.00
36	1376.59	1376.20	0.0000	0.00
37	1429.95	1429.54	0.0000	0.00
38	1461.18	1460.76	0.0000	0.00
39	1508.95	1508.51	0.0000	0.00
40	1521.64	1521.20	0.0000	0.00
41	1588.28	1587.82	0.0000	0.00
42	1592.56	1592.09	0.0000	0.00

Analysis Report for 1606065-06

CP-5011 02-05

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1621.02	1620.54	0.0000	0.00
44	1707.34	1706.83	0.0000	0.00
45	1729.75	1729.23	0.0000	0.00
46	1764.49	1763.96	0.0000	0.00
47	1791.09	1790.55	0.0000	0.00
48	1810.72	1810.17	0.0000	0.00
49	2103.64	2103.00	0.0000	0.00
50	2197.08	2196.42	0.0000	0.00
51	2204.81	2204.14	0.0000	0.00
52	2295.39	2294.69	0.0000	0.00
53	2330.81	2330.10	0.0000	0.00
54	2448.11	2447.38	0.0000	0.00
55	2614.64	2613.86	0.0000	0.00

? = Adjacent peak noted

Errors quoted at 2.000sigma

Analysis Report for 1606065-06
CP-5011 02-05

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 9:57:31AM

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)
M	1	63.89	61 - 67	64.11	1.63E+02	96.21	1.56E+03	1.36
m	2	74.90	71 - 83	75.11	4.40E+02	84.15	1.13E+03	1.83
	3	77.52	71 - 83	77.74	6.13E+02	95.57	1.13E+03	1.83
	4	87.98	86 - 91	88.19	1.32E+02	92.34	1.60E+03	1.31
	5	93.34	91 - 99	93.55	1.82E+02	115.37	1.82E+03	1.98
	6	128.75	124 - 133	128.94	8.09E+01	96.57	1.29E+03	1.44
	7	186.08	182 - 189	186.23	1.90E+02	74.54	7.97E+02	1.96
	8	210.16	206 - 214	210.30	1.11E+02	72.06	7.24E+02	1.71
M	9	238.97	234 - 246	239.10	7.90E+02	65.71	3.11E+02	1.80
m	10	242.21	234 - 246	242.33	2.02E+02	78.54	4.41E+02	2.52
	11	270.27	268 - 274	270.39	6.85E+01	45.64	3.35E+02	2.53
	12	277.43	275 - 280	277.54	4.02E+01	42.39	3.28E+02	1.60
	13	295.55	293 - 298	295.65	1.85E+02	46.35	3.07E+02	1.67
	14	300.71	299 - 304	300.80	4.97E+01	39.27	2.67E+02	2.05
M	15	328.10	325 - 343	328.18	4.48E+01	36.22	2.41E+02	1.84
m	16	338.90	325 - 343	338.98	1.83E+02	43.08	2.20E+02	1.99
	17	352.44	348 - 357	352.51	3.31E+02	65.46	4.18E+02	1.98
	18	463.73	459 - 469	463.75	5.10E+01	49.33	2.98E+02	1.87
	19	511.91	507 - 518	511.90	1.42E+02	46.22	1.91E+02	2.21
	20	572.11	568 - 575	572.08	3.15E+01	30.53	1.31E+02	4.09
	21	583.68	580 - 589	583.63	2.09E+02	47.59	2.02E+02	2.06
	22	609.59	606 - 615	609.53	2.64E+02	50.13	2.17E+02	1.91
	23	619.76	616 - 622	619.69	2.16E+01	27.51	1.15E+02	2.00
	24	645.46	642 - 648	645.38	1.92E+01	24.05	9.15E+01	3.57
	25	727.39	723 - 732	727.28	5.12E+01	38.74	1.86E+02	1.97
	26	755.38	752 - 759	755.26	2.60E+01	26.08	9.60E+01	3.75
	27	795.71	792 - 799	795.57	2.64E+01	27.50	1.09E+02	3.19
	28	911.79	907 - 917	911.59	1.57E+02	32.81	5.77E+01	2.30
	29	920.99	918 - 925	920.79	2.90E+01	18.97	4.19E+01	3.10
	30	933.48	927 - 938	933.28	4.41E+01	31.50	1.02E+02	2.23
	31	969.48	966 - 973	969.26	3.71E+01	38.21	2.00E+02	1.57
	32	1120.60	1116 - 1125	1120.31	6.85E+01	30.10	9.11E+01	2.26
	33	1237.88	1234 - 1240	1237.55	4.10E+01	21.73	5.60E+01	3.66
M	34	1318.67	1317 - 1326	1318.31	6.73E+00	8.26	1.63E+01	2.92
m	35	1323.46	1317 - 1326	1323.09	1.88E+01	16.61	3.27E+01	3.45
	36	1376.59	1372 - 1382	1376.20	2.18E+01	17.07	2.63E+01	5.99
	37	1429.95	1425 - 1434	1429.54	1.59E+01	11.40	8.30E+00	0.99
	38	1461.18	1457 - 1466	1460.76	5.15E+02	48.41	4.24E+01	2.29
	39	1508.95	1505 - 1512	1508.51	1.07E+01	9.59	8.53E+00	4.00
	40	1521.64	1516 - 1524	1521.20	1.30E+01	13.00	1.80E+01	1.77

Analysis Report for 1606065-06

CP-5011 02-05

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	41	1588.28	1585 -	1597	1587.82	2.42E+01	11.09	7.69E+00	3.28
m	42	1592.56	1585 -	1597	1592.09	1.30E+01	13.74	1.59E+01	2.99
	43	1621.02	1616 -	1626	1620.54	1.65E+01	12.19	1.10E+01	1.38
	44	1707.34	1703 -	1709	1706.83	6.44E+00	6.65	3.13E+00	2.05
	45	1729.75	1725 -	1732	1729.23	8.15E+00	7.48	3.70E+00	2.83
	46	1764.49	1759 -	1768	1763.96	5.30E+01	14.56	0.00E+00	2.69
	47	1791.09	1787 -	1794	1790.55	1.19E+01	8.49	4.21E+00	1.84
	48	1810.72	1805 -	1813	1810.17	6.56E+00	7.50	4.89E+00	3.62
	49	2103.64	2099 -	2107	2103.00	1.45E+01	10.79	9.00E+00	3.37
	50	2197.08	2192 -	2200	2196.42	1.20E+01	6.93	0.00E+00	3.48
	51	2204.81	2201 -	2207	2204.14	1.40E+01	7.48	0.00E+00	2.88
	52	2295.39	2290 -	2298	2294.69	1.30E+01	7.21	0.00E+00	1.00
	53	2330.81	2325 -	2335	2330.10	9.21E+00	8.85	5.58E+00	2.92
	54	2448.11	2443 -	2450	2447.38	9.23E+00	7.75	3.55E+00	1.54
	55	2614.64	2609 -	2618	2613.86	6.40E+01	16.00	0.00E+00	2.78

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 : 6/17/2016 9:57:31AM

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	63.89	61 -	67	1.63E+02	96.21	1.56E+03	7.62E+01
M	2	74.90	71 -	83	4.40E+02	84.15	1.13E+03	5.52E+01
m	3	77.52	71 -	83	6.13E+02	95.57	1.13E+03	5.53E+01
	4	87.98	86 -	91	1.32E+02	92.34	1.60E+03	7.35E+01
	5	93.34	91 -	99	1.82E+02	115.37	1.82E+03	9.22E+01
	6	128.75	124 -	133	8.09E+01	96.57	1.29E+03	7.80E+01
	7	186.08	182 -	189	1.90E+02	74.54	7.97E+02	5.69E+01
	8	210.16	206 -	214	1.11E+02	72.06	7.24E+02	5.66E+01
M	9	238.97	234 -	246	7.90E+02	65.71	3.11E+02	2.90E+01
m	10	242.21	234 -	246	2.02E+02	78.54	4.41E+02	3.45E+01
	11	270.27	268 -	274	6.85E+01	45.64	3.35E+02	3.50E+01
	12	277.43	275 -	280	4.02E+01	42.39	3.28E+02	3.32E+01
	13	295.55	293 -	298	1.85E+02	46.35	3.07E+02	4.24E+01

: 00431

Analysis Report for 1606065-06

CP-5011 02-05

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	14	300.71	299 -	304	4.97E+01	39.27	2.67E+02	3.01E+01
M	15	328.10	325 -	343	4.48E+01	36.22	2.41E+02	2.55E+01
m	16	338.90	325 -	343	1.83E+02	43.08	2.20E+02	2.44E+01
	17	352.44	348 -	357	3.31E+02	65.46	4.18E+02	4.47E+01
	18	463.73	459 -	469	5.10E+01	49.33	2.98E+02	3.88E+01
	19	511.91	507 -	518	1.42E+02	46.22	1.91E+02	3.26E+01
	20	572.11	568 -	575	3.15E+01	30.53	1.31E+02	2.33E+01
	21	583.68	580 -	589	2.09E+02	47.59	2.02E+02	3.11E+01
	22	609.59	606 -	615	2.64E+02	50.13	2.17E+02	3.14E+01
	23	619.76	616 -	622	2.16E+01	27.51	1.15E+02	2.13E+01
	24	645.46	642 -	648	1.92E+01	24.05	9.15E+01	1.84E+01
	25	727.39	723 -	732	5.12E+01	38.74	1.86E+02	1.21E+01
	26	755.38	752 -	759	2.60E+01	26.08	9.60E+01	1.97E+01
	27	795.71	792 -	799	2.64E+01	27.50	1.09E+02	2.10E+01
	28	911.79	907 -	917	1.57E+02	32.81	5.77E+01	1.74E+01
	29	920.99	918 -	925	2.90E+01	18.97	4.19E+01	1.28E+01
	30	933.48	927 -	938	4.41E+01	31.50	1.02E+02	2.35E+01
	31	969.48	966 -	973	3.71E+01	38.21	2.00E+02	2.98E+01
	32	1120.60	1116 -	1125	6.85E+01	30.10	9.11E+01	2.07E+01
	33	1237.88	1234 -	1240	4.10E+01	21.73	5.60E+01	1.44E+01
M	34	1318.67	1317 -	1326	6.73E+00	8.26	1.63E+01	6.63E+00
m	35	1323.46	1317 -	1326	1.88E+01	16.61	3.27E+01	9.40E+00
	36	1376.59	1372 -	1382	2.18E+01	17.07	2.63E+01	1.17E+01
	37	1429.95	1425 -	1434	1.59E+01	11.40	8.30E+00	6.71E+00
	38	1461.18	1457 -	1466	5.15E+02	48.41	4.24E+01	1.39E+01
	39	1508.95	1505 -	1512	1.07E+01	9.59	8.53E+00	5.76E+00
	40	1521.64	1516 -	1524	1.30E+01	13.00	1.80E+01	8.89E+00
M	41	1588.28	1585 -	1597	2.42E+01	11.09	7.69E+00	4.56E+00
m	42	1592.56	1585 -	1597	1.30E+01	13.74	1.59E+01	6.55E+00
	43	1621.02	1616 -	1626	1.65E+01	12.19	1.10E+01	7.47E+00
	44	1707.34	1703 -	1709	6.44E+00	6.65	3.13E+00	3.54E+00
	45	1729.75	1725 -	1732	8.15E+00	7.48	3.70E+00	3.98E+00
	46	1764.49	1759 -	1768	5.30E+01	14.56	0.00E+00	0.00E+00
	47	1791.09	1787 -	1794	1.19E+01	8.49	4.21E+00	4.06E+00
	48	1810.72	1805 -	1813	6.56E+00	7.50	4.89E+00	4.50E+00
	49	2103.64	2099 -	2107	1.45E+01	10.79	9.00E+00	6.29E+00
	50	2197.08	2192 -	2200	1.20E+01	6.93	0.00E+00	0.00E+00
	51	2204.81	2201 -	2207	1.40E+01	7.48	0.00E+00	0.00E+00
	52	2295.39	2290 -	2298	1.30E+01	7.21	0.00E+00	0.00E+00
	53	2330.81	2325 -	2335	9.21E+00	8.85	5.58E+00	5.29E+00
	54	2448.11	2443 -	2450	9.23E+00	7.75	3.55E+00	3.95E+00
	55	2614.64	2609 -	2618	6.40E+01	16.00	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 1606065-06
CP-5011 02-05

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/17/2016 9:57:31AM

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	63.89	61 - 67	64.11	1.63E+02	96.21	1.56E+03	TH-234
m	2	74.90	71 - 83	75.11	4.40E+02	84.15	1.13E+03	AM-243
	3	77.52	71 - 83	77.74	6.13E+02	95.57	1.13E+03	TI-44
	4	87.98	86 - 91	88.19	1.32E+02	92.34	1.60E+03	CD-109 LU-176 SN-126
	5	93.34	91 - 99	93.55	1.82E+02	115.37	1.82E+03	GA-67
	6	128.75	124 - 133	128.94	8.09E+01	96.57	1.29E+03	.....
	7	186.08	182 - 189	186.23	1.90E+02	74.54	7.97E+02	RA-226
	8	210.16	206 - 214	210.30	1.11E+02	72.06	7.24E+02	CM-243
M	9	238.97	234 - 246	239.10	7.90E+02	65.71	3.11E+02	PB-212
m	10	242.21	234 - 246	242.33	2.02E+02	78.54	4.41E+02	.....
	11	270.27	268 - 274	270.39	6.85E+01	45.64	3.35E+02	.....
	12	277.43	275 - 280	277.54	4.02E+01	42.39	3.28E+02	CM-243 NP-239
	13	295.55	293 - 298	295.65	1.85E+02	46.35	3.07E+02	PB-214
	14	300.71	299 - 304	300.80	4.97E+01	39.27	2.67E+02	GA-67 PB-212 BI-210M
M	15	328.10	325 - 343	328.18	4.48E+01	36.22	2.41E+02	LA-140
m	16	338.90	325 - 343	338.98	1.83E+02	43.08	2.20E+02	AC-228
	17	352.44	348 - 357	352.51	3.31E+02	65.46	4.18E+02	PB-214
	18	463.73	459 - 469	463.75	5.10E+01	49.33	2.98E+02	SB-125
	19	511.91	507 - 518	511.90	1.42E+02	46.22	1.91E+02	.....
	20	572.11	568 - 575	572.08	3.15E+01	30.53	1.31E+02	.....
	21	583.68	580 - 589	583.63	2.09E+02	47.59	2.02E+02	TL-208
	22	609.59	606 - 615	609.53	2.64E+02	50.13	2.17E+02	BI-214
	23	619.76	616 - 622	619.69	2.16E+01	27.51	1.15E+02	.....
	24	645.46	642 - 648	645.38	1.92E+01	24.05	9.15E+01	SB-124
	25	727.39	723 - 732	727.28	5.12E+01	38.74	1.86E+02	BI-212
	26	755.38	752 - 759	755.26	2.60E+01	26.08	9.60E+01	.....
	27	795.71	792 - 799	795.57	2.64E+01	27.50	1.09E+02	CS-134
	28	911.79	907 - 917	911.59	1.57E+02	32.81	5.77E+01	LU-172 AC-228
	29	920.99	918 - 925	920.79	2.90E+01	18.97	4.19E+01	.....
	30	933.48	927 - 938	933.28	4.41E+01	31.50	1.02E+02	.....
	31	969.48	966 - 973	969.26	3.71E+01	38.21	2.00E+02	AC-228
	32	1120.60	1116 - 1125	1120.31	6.85E+01	30.10	9.11E+01	SC-46

Analysis Report for 1606065-06

CP-5011 02-05

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									BI-214
									TA-182
	33	1237.88	1234 -	1240	1237.55	4.10E+01	21.73	5.60E+01	CO-56
M	34	1318.67	1317 -	1326	1318.31	6.73E+00	8.26	1.63E+01	.....
m	35	1323.46	1317 -	1326	1323.09	1.88E+01	16.61	3.27E+01	.....
	36	1376.59	1372 -	1382	1376.20	2.18E+01	17.07	2.63E+01	.....
	37	1429.95	1425 -	1434	1429.54	1.59E+01	11.40	8.30E+00	.....
	38	1461.18	1457 -	1466	1460.76	5.15E+02	48.41	4.24E+01	K-40
	39	1508.95	1505 -	1512	1508.51	1.07E+01	9.59	8.53E+00	.....
	40	1521.64	1516 -	1524	1521.20	1.30E+01	13.00	1.80E+01	.....
M	41	1588.28	1585 -	1597	1587.82	2.42E+01	11.09	7.69E+00	.....
m	42	1592.56	1585 -	1597	1592.09	1.30E+01	13.74	1.59E+01	.....
	43	1621.02	1616 -	1626	1620.54	1.65E+01	12.19	1.10E+01	BI-212
	44	1707.34	1703 -	1709	1706.83	6.44E+00	6.65	3.13E+00	.....
	45	1729.75	1725 -	1732	1729.23	8.15E+00	7.48	3.70E+00	.....
	46	1764.49	1759 -	1768	1763.96	5.30E+01	14.56	0.00E+00	BI-214
	47	1791.09	1787 -	1794	1790.55	1.19E+01	8.49	4.21E+00	.....
	48	1810.72	1805 -	1813	1810.17	6.56E+00	7.50	4.89E+00	.....
	49	2103.64	2099 -	2107	2103.00	1.45E+01	10.79	9.00E+00	.....
	50	2197.08	2192 -	2200	2196.42	1.20E+01	6.93	0.00E+00	.....
	51	2204.81	2201 -	2207	2204.14	1.40E+01	7.48	0.00E+00	BI-214
	52	2295.39	2290 -	2298	2294.69	1.30E+01	7.21	0.00E+00	.....
	53	2330.81	2325 -	2335	2330.10	9.21E+00	8.85	5.58E+00	.....
	54	2448.11	2443 -	2450	2447.38	9.23E+00	7.75	3.55E+00	.....
	55	2614.64	2609 -	2618	2613.86	6.40E+01	16.00	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 : 6/17/2016 9:57:31AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.89	1.63E+02	96.21	2.17E-02	1.73E-03
M	2	74.90	4.40E+02	84.15	2.36E-02	2.09E-03
m	3	77.52	6.13E+02	95.57	2.39E-02	2.18E-03
	4	87.98	1.32E+02	92.34	2.44E-02	2.52E-03
	5	93.34	1.82E+02	115.37	2.44E-02	2.40E-03

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	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	6	128.75	8.09E+01	96.57	2.25E-02	1.70E-03
	7	186.08	1.90E+02	74.54	1.83E-02	1.42E-03
	8	210.16	1.11E+02	72.06	1.68E-02	1.31E-03
M	9	238.97	7.90E+02	65.71	1.52E-02	1.18E-03
m	10	242.21	2.02E+02	78.54	1.50E-02	1.16E-03
	11	270.27	6.85E+01	45.64	1.38E-02	1.04E-03
	12	277.43	4.02E+01	42.39	1.35E-02	1.00E-03
	13	295.55	1.85E+02	46.35	1.28E-02	9.74E-04
	14	300.71	4.97E+01	39.27	1.26E-02	9.66E-04
M	15	328.10	4.48E+01	36.22	1.17E-02	9.27E-04
m	16	338.90	1.83E+02	43.08	1.14E-02	9.12E-04
	17	352.44	3.31E+02	65.46	1.10E-02	8.93E-04
	18	463.73	5.10E+01	49.33	8.72E-03	7.65E-04
	19	511.91	1.42E+02	46.22	8.00E-03	7.17E-04
	20	572.11	3.15E+01	30.53	7.26E-03	6.57E-04
	21	583.68	2.09E+02	47.59	7.13E-03	6.46E-04
	22	609.59	2.64E+02	50.13	6.87E-03	6.20E-04
	23	619.76	2.16E+01	27.51	6.77E-03	6.10E-04
	24	645.46	1.92E+01	24.05	6.53E-03	5.84E-04
	25	727.39	5.12E+01	38.74	5.89E-03	5.14E-04
	26	755.38	2.60E+01	26.08	5.70E-03	4.91E-04
	27	795.71	2.64E+01	27.50	5.45E-03	4.58E-04
	28	911.79	1.57E+02	32.81	4.85E-03	3.72E-04
	29	920.99	2.90E+01	18.97	4.81E-03	3.70E-04
	30	933.48	4.41E+01	31.50	4.75E-03	3.68E-04
	31	969.48	3.71E+01	38.21	4.60E-03	3.61E-04
	32	1120.60	6.85E+01	30.10	4.08E-03	3.33E-04
	33	1237.88	4.10E+01	21.73	3.76E-03	3.09E-04
M	34	1318.67	6.73E+00	8.26	3.57E-03	2.92E-04
m	35	1323.46	1.88E+01	16.61	3.56E-03	2.91E-04
	36	1376.59	2.18E+01	17.07	3.45E-03	2.82E-04
	37	1429.95	1.59E+01	11.40	3.35E-03	2.74E-04
	38	1461.18	5.15E+02	48.41	3.29E-03	2.69E-04
	39	1508.95	1.07E+01	9.59	3.21E-03	2.62E-04
	40	1521.64	1.30E+01	13.00	3.19E-03	2.60E-04
M	41	1588.28	2.42E+01	11.09	3.09E-03	2.50E-04
m	42	1592.56	1.30E+01	13.74	3.08E-03	2.50E-04
	43	1621.02	1.65E+01	12.19	3.04E-03	2.45E-04
	44	1707.34	6.44E+00	6.65	2.93E-03	2.32E-04
	45	1729.75	8.15E+00	7.48	2.90E-03	2.29E-04
	46	1764.49	5.30E+01	14.56	2.86E-03	2.24E-04
	47	1791.09	1.19E+01	8.49	2.83E-03	2.20E-04
	48	1810.72	6.56E+00	7.50	2.81E-03	2.17E-04
	49	2103.64	1.45E+01	10.79	2.54E-03	2.13E-04
	50	2197.08	1.20E+01	6.93	2.47E-03	2.13E-04
	51	2204.81	1.40E+01	7.48	2.46E-03	2.13E-04
	52	2295.39	1.30E+01	7.21	2.40E-03	2.13E-04
	53	2330.81	9.21E+00	8.85	2.38E-03	2.13E-04
	54	2448.11	9.23E+00	7.75	2.32E-03	2.13E-04
	55	2614.64	6.40E+01	16.00	2.24E-03	2.13E-04

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CP-5011 02-05

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 : 6/17/2016 9:57:31AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038678.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	1.63E+02	96.21	4.47E+01	1.66E+01	1.19E+02	9.76E+01
M	2	4.40E+02	84.15			4.40E+02	8.41E+01
m	3	6.13E+02	95.57	6.70E+00	3.28E+00	6.06E+02	9.56E+01
	4	1.32E+02	92.34	1.07E+01	3.99E+00	1.22E+02	9.24E+01
	5	1.82E+02	115.37	8.20E+01	2.30E+01	1.00E+02	1.18E+02
	6	8.09E+01	96.57			8.09E+01	9.66E+01
	7	1.90E+02	74.54	3.45E+01	5.92E+00	1.56E+02	7.48E+01
	8	1.11E+02	72.06			1.11E+02	7.21E+01
M	9	7.90E+02	65.71	1.33E+01	5.09E+00	7.76E+02	6.59E+01
m	10	2.02E+02	78.54			2.02E+02	7.85E+01
	11	6.85E+01	45.64			6.85E+01	4.56E+01
	12	4.02E+01	42.39			4.02E+01	4.24E+01
	13	1.85E+02	46.35	1.94E+00	4.39E+00	1.83E+02	4.66E+01
	14	4.97E+01	39.27			4.97E+01	3.93E+01
M	15	4.48E+01	36.22			4.48E+01	3.62E+01
m	16	1.83E+02	43.08			1.83E+02	4.31E+01
	17	3.31E+02	65.46	4.00E+00	3.58E+00	3.27E+02	6.56E+01
	18	5.10E+01	49.33			5.10E+01	4.93E+01
	19	1.42E+02	46.22	6.05E+01	4.93E+00	8.12E+01	4.65E+01
	20	3.15E+01	30.53			3.15E+01	3.05E+01
	21	2.09E+02	47.59	5.50E+00	3.61E+00	2.04E+02	4.77E+01
	22	2.64E+02	50.13	5.07E+00	3.83E+00	2.58E+02	5.03E+01
	23	2.16E+01	27.51			2.16E+01	2.75E+01
	24	1.92E+01	24.05			1.92E+01	2.41E+01
	25	5.12E+01	38.74			5.12E+01	3.87E+01
	26	2.60E+01	26.08			2.60E+01	2.61E+01
	27	2.64E+01	27.50			2.64E+01	2.75E+01
	28	1.57E+02	32.81			1.57E+02	3.28E+01
	29	2.90E+01	18.97			2.90E+01	1.90E+01
	30	4.41E+01	31.50			4.41E+01	3.15E+01
	31	3.71E+01	38.21			3.71E+01	3.82E+01
	32	6.85E+01	30.10	1.09E+00	2.08E+00	6.74E+01	3.02E+01
	33	4.10E+01	21.73			4.10E+01	2.17E+01
M	34	6.73E+00	8.26			6.73E+00	8.26E+00
m	35	1.88E+01	16.61			1.88E+01	1.66E+01

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Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
36	1376.59	2.18E+01	17.07			2.18E+01	1.71E+01
37	1429.95	1.59E+01	11.40			1.59E+01	1.14E+01
38	1461.18	5.15E+02	48.41	4.33E+00	2.02E+00	5.10E+02	4.85E+01
39	1508.95	1.07E+01	9.59			1.07E+01	9.59E+00
40	1521.64	1.30E+01	13.00			1.30E+01	1.30E+01
M 41	1588.28	2.42E+01	11.09			2.42E+01	1.11E+01
m 42	1592.56	1.30E+01	13.74			1.30E+01	1.37E+01
43	1621.02	1.65E+01	12.19			1.65E+01	1.22E+01
44	1707.34	6.44E+00	6.65			6.44E+00	6.65E+00
45	1729.75	8.15E+00	7.48			8.15E+00	7.48E+00
46	1764.49	5.30E+01	14.56			5.30E+01	1.46E+01
47	1791.09	1.19E+01	8.49			1.19E+01	8.49E+00
48	1810.72	6.56E+00	7.50			6.56E+00	7.50E+00
49	2103.64	1.45E+01	10.79			1.45E+01	1.08E+01
50	2197.08	1.20E+01	6.93			1.20E+01	6.93E+00
51	2204.81	1.40E+01	7.48			1.40E+01	7.48E+00
52	2295.39	1.30E+01	7.21			1.30E+01	7.21E+00
53	2330.81	9.21E+00	8.85			9.21E+00	8.85E+00
54	2448.11	9.23E+00	7.75			9.23E+00	7.75E+00
55	2614.64	6.40E+01	16.00	2.52E+00	1.44E+00	6.15E+01	1.61E+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 : 6/17/2016 9:57:31AM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038678.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.
M 1	63.89	1.63E+02	96.21	4.47E+01	1.66E+01	1.19E+02	9.76E+01
2	74.90	4.40E+02	84.15			4.40E+02	8.41E+01
m 3	77.52	6.13E+02	95.57	6.70E+00	3.28E+00	6.06E+02	9.56E+01
4	87.98	1.32E+02	92.34	1.07E+01	3.99E+00	1.22E+02	9.24E+01
5	93.34	1.82E+02	115.37	8.20E+01	2.30E+01	1.00E+02	1.18E+02
6	128.75	8.09E+01	96.57			8.09E+01	9.66E+01
7	186.08	1.90E+02	74.54	3.45E+01	5.92E+00	1.56E+02	7.48E+01
8	210.16	1.11E+02	72.06			1.11E+02	7.21E+01

: 00437

Analysis Report for 1606065-06

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	9	238.97	7.90E+02	65.71	1.33E+01	5.09E+00	7.76E+02	6.59E+01
m	10	242.21	2.02E+02	78.54			2.02E+02	7.85E+01
	11	270.27	6.85E+01	45.64			6.85E+01	4.56E+01
	12	277.43	4.02E+01	42.39			4.02E+01	4.24E+01
	13	295.55	1.85E+02	46.35	1.94E+00	4.39E+00	1.83E+02	4.66E+01
	14	300.71	4.97E+01	39.27			4.97E+01	3.93E+01
M	15	328.10	4.48E+01	36.22			4.48E+01	3.62E+01
m	16	338.90	1.83E+02	43.08			1.83E+02	4.31E+01
	17	352.44	3.31E+02	65.46	4.00E+00	3.58E+00	3.27E+02	6.56E+01
	18	463.73	5.10E+01	49.33			5.10E+01	4.93E+01
	19	511.91	1.42E+02	46.22	6.05E+01	4.93E+00	8.12E+01	4.65E+01
	20	572.11	3.15E+01	30.53			3.15E+01	3.05E+01
	21	583.68	2.09E+02	47.59	5.50E+00	3.61E+00	2.04E+02	4.77E+01
	22	609.59	2.64E+02	50.13	5.07E+00	3.83E+00	2.58E+02	5.03E+01
	23	619.76	2.16E+01	27.51			2.16E+01	2.75E+01
	24	645.46	1.92E+01	24.05			1.92E+01	2.41E+01
	25	727.39	5.12E+01	38.74			5.12E+01	3.87E+01
	26	755.38	2.60E+01	26.08			2.60E+01	2.61E+01
	27	795.71	2.64E+01	27.50			2.64E+01	2.75E+01
	28	911.79	1.57E+02	32.81			1.57E+02	3.28E+01
	29	920.99	2.90E+01	18.97			2.90E+01	1.90E+01
	30	933.48	4.41E+01	31.50			4.41E+01	3.15E+01
	31	969.48	3.71E+01	38.21			3.71E+01	3.82E+01
	32	1120.60	6.85E+01	30.10	1.09E+00	2.08E+00	6.74E+01	3.02E+01
	33	1237.88	4.10E+01	21.73			4.10E+01	2.17E+01
M	34	1318.67	6.73E+00	8.26			6.73E+00	8.26E+00
m	35	1323.46	1.88E+01	16.61			1.88E+01	1.66E+01
	36	1376.59	2.18E+01	17.07			2.18E+01	1.71E+01
	37	1429.95	1.59E+01	11.40			1.59E+01	1.14E+01
	38	1461.18	5.15E+02	48.41	4.33E+00	2.02E+00	5.10E+02	4.85E+01
	39	1508.95	1.07E+01	9.59			1.07E+01	9.59E+00
	40	1521.64	1.30E+01	13.00			1.30E+01	1.30E+01
M	41	1588.28	2.42E+01	11.09			2.42E+01	1.11E+01
m	42	1592.56	1.30E+01	13.74			1.30E+01	1.37E+01
	43	1621.02	1.65E+01	12.19			1.65E+01	1.22E+01
	44	1707.34	6.44E+00	6.65			6.44E+00	6.65E+00
	45	1729.75	8.15E+00	7.48			8.15E+00	7.48E+00
	46	1764.49	5.30E+01	14.56			5.30E+01	1.46E+01
	47	1791.09	1.19E+01	8.49			1.19E+01	8.49E+00
	48	1810.72	6.56E+00	7.50			6.56E+00	7.50E+00
	49	2103.64	1.45E+01	10.79			1.45E+01	1.08E+01
	50	2197.08	1.20E+01	6.93			1.20E+01	6.93E+00
	51	2204.81	1.40E+01	7.48			1.40E+01	7.48E+00
	52	2295.39	1.30E+01	7.21			1.30E+01	7.21E+00
	53	2330.81	9.21E+00	8.85			9.21E+00	8.85E+00
	54	2448.11	9.23E+00	7.75			9.23E+00	7.75E+00
	55	2614.64	6.40E+01	16.00	2.52E+00	1.44E+00	6.15E+01	1.61E+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 1606065-06
CP-5011 02-05

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	0.978	1460.81 *	10.67	2.18E+01	2.77E+00
CD-109	1.000	88.03 *	3.72	2.04E+00	1.57E+00
SN-126	0.973	87.57 *	37.00	2.02E-01	1.55E-01
TL-208	0.868	583.14 *	30.22	1.42E+00	3.57E-01
		860.37	4.48		
		2614.66 *	35.85	1.15E+00	3.20E-01
BI-212	0.989	727.17 *	11.80	1.11E+00	8.43E-01
		1620.62 *	2.75	2.97E+00	2.20E+00
PB-212	0.979	238.63 *	44.60	1.72E+00	1.98E-01
		300.09 *	3.41	1.73E+00	1.38E+00
BI-214	0.987	609.31 *	46.30	1.22E+00	2.62E-01
		1120.29 *	15.10	1.65E+00	7.49E-01
		1764.49 *	15.80	1.76E+00	5.04E-01
		2204.22 *	4.98	1.72E+00	9.29E-01
PB-214	0.966	295.21 *	19.19	1.12E+00	2.97E-01
		351.92 *	37.19	1.20E+00	2.59E-01
RA-226	0.997	186.21 *	3.28	3.90E+00	7.39E+00
AC-228	0.943	338.32 *	11.40	2.11E+00	5.25E-01
		911.07 *	27.70	1.76E+00	3.91E-01
		969.11 *	16.60	7.31E-01	7.54E-01
TH-234	0.945	63.29 *	3.80	2.16E+00	1.79E+00
AM-243	0.992	74.67 *	66.00	4.24E-01	8.93E-02
CM-243	0.365	209.75 *	3.29	3.03E+00	1.98E+00
		228.14	10.60		
		277.60 *	14.00	3.20E-01	3.38E-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

Analysis Report for 1606065-06
CP-5011 02-05

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 9:57:31AM
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	3	77.52	1.68424E-01		
	5	93.34	2.78711E-02		
	6	128.75	2.24753E-02		
				Sum	GA-67
m	10	242.21	5.62350E-02		
	11	270.27	1.90231E-02		
M	15	328.10	1.24510E-02		
	18	463.73	1.41806E-02		
				Sum	LA-140
	19	511.91	2.25674E-02		
	20	572.11	8.75716E-03		
				Sum	
	23	619.76	6.00563E-03		
	24	645.46	5.34188E-03		
				Sum	SB-124
	26	755.38	7.22222E-03		
	27	795.71	7.34568E-03		
				Sum	
	29	920.99	8.06667E-03		
	30	933.48	1.22471E-02		
	33	1237.88	1.13889E-02		
M	34	1318.67	1.86924E-03		
m	35	1323.46	5.20853E-03		
	36	1376.59	6.06746E-03		
	37	1429.95	4.40278E-03		
	39	1508.95	2.98148E-03		
				Sum	
	40	1521.64	3.61111E-03		
M	41	1588.28	6.73380E-03		
m	42	1592.56	3.61356E-03		
				D-Esc	
	44	1707.34	1.78819E-03		
	45	1729.75	2.26389E-03		
				Sum	
	47	1791.09	3.30357E-03		
	48	1810.72	1.82099E-03		
				Sum	
	49	2103.64	4.02778E-03		
				S-Esc	
	50	2197.08	3.33333E-03		
	52	2295.39	3.61111E-03		
	53	2330.81	2.55787E-03		
	54	2448.11	2.56313E-03		

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 1606065-06
CP-5011 02-05

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	0.97	1460.81	*	10.67	2.18E+01	2.77E+00
CD-109	1.00	88.03	*	3.72	2.04E+00	1.57E+00
SN-126	0.97	87.57	*	37.00	2.02E-01	1.55E-01
TL-208	0.86	583.14	*	30.22	1.42E+00	3.57E-01
		860.37		4.48		
		2614.66	*	35.85	1.15E+00	3.20E-01
BI-212	0.98	727.17	*	11.80	1.11E+00	8.43E-01
		1620.62	*	2.75	2.97E+00	2.20E+00
PB-212	0.97	238.63	*	44.60	1.72E+00	1.98E-01
		300.09	*	3.41	1.73E+00	1.38E+00
BI-214	0.98	609.31	*	46.30	1.22E+00	2.62E-01
		1120.29	*	15.10	1.65E+00	7.49E-01
		1764.49	*	15.80	1.76E+00	5.04E-01
		2204.22	*	4.98	1.72E+00	9.29E-01
PB-214	0.96	295.21	*	19.19	1.12E+00	2.97E-01
		351.92	*	37.19	1.20E+00	2.59E-01
RA-226	0.99	186.21	*	3.28	3.90E+00	7.39E+00
AC-228	0.94	338.32	*	11.40	2.11E+00	5.25E-01
		911.07	*	27.70	1.76E+00	3.91E-01
		969.11	*	16.60	7.31E-01	7.54E-01
TH-234	0.94	63.29	*	3.80	2.16E+00	1.79E+00
AM-243	0.99	74.67	*	66.00	4.24E-01	8.93E-02
CM-243	0.36	209.75	*	3.29	3.03E+00	1.98E+00
		228.14		10.60		
		277.60	*	14.00	3.20E-01	3.38E-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

Analysis Report for 1606065-06
CP-5011 02-05

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.978	2.18E+01	2.77E+00	
X	GA-67	0.893			
?	CD-109	1.000	2.04E+00	1.57E+00	
?	SN-126	0.973	2.02E-01	1.55E-01	
	TL-208	0.868	1.27E+00	2.38E-01	
	BI-212	0.989	1.35E+00	7.88E-01	
	PB-212	0.979	1.72E+00	1.96E-01	
	BI-214	0.987	1.38E+00	2.16E-01	
	PB-214	0.966	1.16E+00	1.95E-01	
	RA-226	0.997	3.90E+00	7.39E+00	
	AC-228	0.943	1.71E+00	2.90E-01	
	TH-234	0.945	2.16E+00	1.79E+00	
	AM-243	0.992	4.24E-01	8.93E-02	
	CM-243	0.365	3.97E-01	3.33E-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 1606065-06
CP-5011 02-05

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 9:57:31AM
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	3	77.52	1.68424E-01		
	5	93.34	2.78711E-02	Tol.	GA-67
	6	128.75	2.24753E-02	Sum	
m	10	242.21	5.62350E-02		
	11	270.27	1.90231E-02		
M	15	328.10	1.24510E-02	Tol.	LA-140
	18	463.73	1.41806E-02	Sum	
	19	511.91	2.25674E-02		
	20	572.11	8.75716E-03	Sum	
	23	619.76	6.00563E-03		
	24	645.46	5.34188E-03	Tol.	SB-124
	26	755.38	7.22222E-03		
	27	795.71	7.34568E-03	Sum	
	29	920.99	8.06667E-03		
	30	933.48	1.22471E-02		
	33	1237.88	1.13889E-02		
M	34	1318.67	1.86924E-03		
m	35	1323.46	5.20853E-03		
	36	1376.59	6.06746E-03		
	37	1429.95	4.40278E-03		
	39	1508.95	2.98148E-03		
	40	1521.64	3.61111E-03	Sum	
M	41	1588.28	6.73380E-03		
m	42	1592.56	3.61356E-03	D-Esc	
	44	1707.34	1.78819E-03		
	45	1729.75	2.26389E-03	Sum	
	47	1791.09	3.30357E-03		
	48	1810.72	1.82099E-03		
	49	2103.64	4.02778E-03	S-Esc	
	50	2197.08	3.33333E-03		
	52	2295.39	3.61111E-03		
	53	2330.81	2.55787E-03		
	54	2448.11	2.56313E-03		

Analysis Report for 1606065-06
CP-5011 02-05

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	-5.88E-01	9.03E-01	9.03E-01
+	NA-22	1274.54	99.94	-7.02E-02	1.28E-01	1.28E-01
+	NA-24	1368.53	99.99	-4.96E+02	1.42E+03	2.26E+03
		2754.09	99.86	1.27E+02		1.42E+03
+	AL-26	1808.65	99.76	1.11E-02	8.94E-02	8.94E-02
+	K-40	1460.81	* 10.67	2.18E+01	1.35E+00	1.35E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-9.17E-03	8.03E-02	8.03E-02
		78.34	96.00	2.48E-01		1.05E-01
+	SC-46	889.25	99.98	-1.63E-03	1.11E-01	1.11E-01
		1120.51	99.99	2.75E-01		1.97E-01
+	V-48	983.52	99.98	-5.82E-02	1.44E-01	1.44E-01
		1312.10	97.50	-3.74E-04		1.90E-01
+	CR-51	320.08	9.83	1.19E-01	1.00E+00	1.00E+00
+	MN-54	834.83	99.97	3.02E-03	1.05E-01	1.05E-01
+	CO-56	846.75	99.96	2.56E-03	1.07E-01	1.07E-01
		1037.75	14.03	1.12E-01		8.38E-01
		1238.25	67.00	1.61E-01		2.69E-01
		1771.40	15.51	-2.70E-01		4.83E-01
		2598.48	16.90	-2.14E-01		3.15E-01
+	CO-57	122.06	85.51	1.88E-02	6.53E-02	6.53E-02
		136.48	10.60	8.94E-03		5.56E-01
+	CO-58	810.76	99.40	-5.85E-02	1.11E-01	1.11E-01
+	FE-59	1099.22	56.50	1.07E-01	2.70E-01	2.70E-01
		1291.56	43.20	-2.26E-01		3.06E-01
+	CO-60	1173.22	100.00	2.81E-02	1.20E-01	1.41E-01
		1332.49	100.00	5.00E-02		1.20E-01
+	ZN-65	1115.52	50.75	3.38E-03	2.39E-01	2.39E-01
+	GA-67	93.31	* 35.70	1.18E+00	2.27E+00	2.27E+00
		208.95	2.24	1.81E+01		2.56E+01
		300.22	* 16.00	2.52E+00		3.19E+00
+	SE-75	121.11	16.70	6.50E-02	1.02E-01	3.45E-01

Analysis Report for 1606065-06
CP-5011 02-05

<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	4.06E-03	1.02E-01
		264.65	59.80	-6.17E-03	1.18E-01
		279.53	25.20	-3.10E-02	3.43E-01
		400.65	11.40	-2.16E-02	7.71E-01
+	RB-82	776.52	13.00	-2.44E-01	9.70E-01
+	RB-83	520.41	46.00	-5.55E-02	1.97E-01
		529.64	30.30	1.48E-01	3.13E-01
		552.65	16.40	-1.88E-01	5.66E-01
+	KR-85	513.99	0.43	2.92E+01	2.63E+01
+	SR-85	513.99	99.27	1.41E-01	1.26E-01
+	Y-88	898.02	93.40	-1.50E-02	9.62E-02
		1836.01	99.38	2.69E-02	9.62E-02
+	NB-93M	16.57	9.43	8.40E+01	9.75E+01
+	NB-94	702.63	100.00	6.79E-02	9.79E-02
		871.10	100.00	-1.81E-03	9.79E-02
+	NB-95	765.79	99.81	3.13E-02	1.34E-01
+	NB-95M	235.69	25.00	6.28E+00	2.95E+00
+	ZR-95	724.18	43.70	-4.43E-03	2.13E-01
		756.72	55.30	5.37E-02	2.13E-01
+	MO-99	181.06	6.20	4.75E-01	7.73E+00
		739.58	12.80	1.28E-01	7.73E+00
		778.00	4.50	-4.96E+00	2.10E+01
+	RU-103	497.08	89.00	-1.55E-03	1.06E-01
+	RU-106	621.84	9.80	1.13E-01	9.81E-01
+	AG-108M	433.93	89.90	-2.09E-02	9.44E-02
		614.37	90.40	-6.27E-01	1.18E-01
		722.95	90.50	1.08E-02	1.21E-01
+	CD-109	88.03	* 3.72	2.04E+00	2.52E+00
+	AG-110M	657.75	93.14	-7.42E-02	9.58E-02
		677.61	10.53	3.74E-02	9.73E-01
		706.67	16.46	-2.21E-01	6.87E-01
		763.93	21.98	-1.49E-01	4.81E-01
		884.67	71.63	-3.83E-03	1.45E-01
		1384.27	23.94	2.25E-01	4.50E-01
+	CD-113M	263.70	0.02	-7.81E+01	2.98E+02
+	SN-113	255.12	1.93	4.96E-01	1.35E-01
		391.69	64.90	-4.57E-02	1.35E-01
+	TE123M	159.00	84.10	-2.18E-03	7.94E-02
+	SB-124	602.71	97.87	-4.56E-03	1.05E-01
		645.85	7.26	-1.59E-01	1.42E+00
		722.78	11.10	9.72E-02	1.09E+00
		1691.02	49.00	-1.28E-02	1.63E-01
+	I-125	35.49	6.49	-9.02E-01	2.65E+00
+	SB-125	176.33	6.89	-3.53E-01	2.97E-01
		427.89	29.33	1.46E-01	2.97E-01
		463.38	10.35	7.10E-01	9.77E-01
		600.56	17.80	3.44E-01	5.57E-01
		635.90	11.32	1.05E-01	8.12E-01

Analysis Report for 1606065-06
CP-5011 02-05

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70	83.30	-8.40E-02	1.66E-01	1.66E-01
		666.33	99.60	7.35E-02		1.69E-01
		695.00	99.60	5.89E-02		1.72E-01
		720.50	53.80	-1.50E-02		2.97E-01
+	SN-126	87.57 *	37.00	2.02E-01	2.50E-01	2.50E-01
+	SB-127	473.00	25.00	7.83E-01	1.32E+00	1.81E+00
		685.20	35.70	-6.74E-02		1.32E+00
		783.80	14.70	1.43E+00		3.67E+00
+	I-129	29.78	57.00	-3.03E-01	4.66E-01	4.66E-01
		33.60	13.20	6.14E-01		1.40E+00
		39.58	7.52	-4.03E-01		1.59E+00
+	I-131	284.30	6.05	-3.48E-01	2.15E-01	2.81E+00
		364.48	81.20	-3.38E-02		2.15E-01
		636.97	7.26	2.08E-01		2.68E+00
		722.89	1.80	1.18E+00		1.32E+01
+	TE-132	49.72	13.10	-9.88E+00	5.94E-01	4.51E+00
		228.16	88.00	-1.04E-01		5.94E-01
+	BA-133	81.00	33.00	-1.10E+00	1.86E-01	2.15E-01
		302.84	17.80	-2.87E-03		4.64E-01
		356.01	60.00	-1.37E-02		1.86E-01
+	I-133	529.87	86.30	6.57E+01	1.39E+02	1.39E+02
+	XE-133	81.00	38.00	-3.15E+00	6.15E-01	6.15E-01
+	CS-134	563.23	8.38	-3.17E-01	1.07E-01	1.08E+00
		569.32	15.43	2.25E-02		6.07E-01
		604.70	97.60	8.98E-03		1.07E-01
		795.84	85.40	5.27E-02		1.42E-01
		801.93	8.73	-2.69E-01		1.14E+00
+	CS-135	268.24	16.00	-1.02E-02	5.02E-01	5.02E-01
+	I-135	1131.51	22.50	-1.80E+09	2.92E+09	4.16E+09
		1260.41	28.60	-9.57E+08		2.92E+09
		1678.03	9.54	-1.16E+09		5.46E+09
+	CS-136	153.22	7.46	2.47E-01	1.67E-01	1.36E+00
		163.89	4.61	2.76E-01		2.21E+00
		176.55	13.56	2.28E-02		7.22E-01
		273.65	12.66	-1.23E+00		1.02E+00
		340.57	48.50	6.17E-01		3.58E-01
		818.50	99.70	6.05E-02		1.67E-01
		1048.07	79.60	-3.28E-02		2.21E-01
		1235.34	19.70	1.78E-02		1.27E+00
+	CS-137	661.65	85.12	3.93E-02	1.18E-01	1.18E-01
+	LA-138	788.74	34.00	4.31E-02	1.37E-01	2.79E-01
		1435.80	66.00	2.05E-02		1.37E-01
+	CE-139	165.85	80.35	-1.39E-02	8.10E-02	8.10E-02
+	BA-140	162.64	6.70	-6.10E-02	5.07E-01	1.53E+00
		304.84	4.50	1.07E-01		2.71E+00
		423.70	3.20	3.74E-02		4.26E+00
		437.55	2.00	5.47E-01		6.82E+00
		537.32	25.00	-4.96E-01		5.07E-01
+	LA-140	328.77	20.50	3.61E-01	1.87E-01	6.70E-01

Analysis Report for 1606065-06
CP-5011 02-05

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-140	487.03	45.50	-2.72E-02	1.87E-01	3.02E-01
		815.85	23.50	3.63E-01		7.58E-01
		1596.49	95.49	2.09E-02		1.87E-01
+	CE-141	145.44	48.40	-2.68E-02	1.54E-01	1.54E-01
+	CE-143	57.36	11.80	-2.39E+01	2.39E+01	6.32E+01
		293.26	42.00	1.60E+00		2.39E+01
		664.55	5.20	-8.46E+00		1.81E+02
+	CE-144	133.54	10.80	1.59E-01	5.53E-01	5.53E-01
+	PM-144	476.78	42.00	1.10E-02	1.06E-01	2.11E-01
		618.01	98.60	7.32E-02		1.06E-01
		696.49	99.49	1.34E-02		1.06E-01
+	PM-145	36.85	21.70	2.34E-01	3.44E-01	6.58E-01
		37.36	39.70	-8.81E-02		3.44E-01
		42.30	15.10	-8.98E-02		7.26E-01
		72.40	2.31	-4.50E+00		3.98E+00
+	PM-146	453.90	39.94	2.74E-02	2.21E-01	2.21E-01
		735.90	14.01	1.65E-01		7.37E-01
		747.13	13.10	1.82E-01		7.87E-01
+	ND-147	91.11	28.90	-5.44E-01	4.86E-01	4.86E-01
		531.02	13.10	-1.35E-01		1.10E+00
+	PM-149	285.90	3.10	-3.43E-01	4.31E+01	4.31E+01
+	EU-152	121.78	20.50	7.66E-02	2.66E-01	2.66E-01
		244.69	5.40	-7.47E-03		1.66E+00
		344.27	19.13	1.54E-02		4.11E-01
		778.89	9.20	-4.83E-01		1.03E+00
		964.01	10.40	3.05E-01		1.39E+00
		1085.78	7.22	-2.05E-01		1.62E+00
		1112.02	9.60	2.74E-01		1.30E+00
		1407.95	14.94	-3.02E-01		7.58E-01
+	GD-153	97.43	31.30	-3.27E-01	1.89E-01	1.89E-01
		103.18	22.20	-9.51E-02		2.61E-01
+	EU-154	123.07	40.50	2.17E-02	1.35E-01	1.35E-01
		723.30	19.70	4.95E-02		5.55E-01
		873.19	11.50	1.09E-01		8.27E-01
		996.32	10.30	-8.51E-01		9.43E-01
		1004.76	17.90	4.67E-02		6.39E-01
		1274.45	35.50	-1.97E-01		3.59E-01
+	EU-155	86.50	30.90	2.65E-01	2.68E-01	2.68E-01
		105.30	20.70	9.73E-03		2.79E-01
+	EU-156	811.77	10.40	-6.56E-01	1.48E+00	1.48E+00
		1153.47	7.20	8.74E-01		2.95E+00
		1230.71	8.90	8.21E-01		2.36E+00
+	HO-166M	184.41	72.60	2.18E-01	1.13E-01	1.13E-01
		280.45	29.60	7.89E-03		2.76E-01
		410.94	11.10	4.53E-02		8.13E-01
		711.69	54.10	5.29E-02		1.85E-01
+	TM-171	66.72	0.14	4.60E+00	5.67E+01	5.67E+01
+	HF-172	81.75	4.52	-6.33E+00	5.15E-01	1.55E+00
		125.81	11.30	-5.40E-01		5.15E-01

Analysis Report for 1606065-06
CP-5011 02-05

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53	20.60	-8.16E-02	5.24E-01	7.51E-01
		810.06	16.63	1.04E-01		1.57E+00
		912.12	15.25	7.79E+00		3.30E+00
		1093.66	62.50	-4.21E-02		5.24E-01
+	LU-173	100.72	5.24	1.94E-02	4.05E-01	1.09E+00
		272.11	21.20	4.29E-01		4.05E-01
+	HF-175	343.40	84.00	-1.54E-02	1.03E-01	1.03E-01
+	LU-176	88.34	13.30	6.24E-01	7.83E-02	6.25E-01
		201.83	86.00	1.12E-02		8.80E-02
		306.78	94.00	4.44E-03		7.83E-02
+	TA-182	67.75	41.20	-2.22E-02	1.94E-01	1.94E-01
		1121.30	34.90	7.52E-01		5.52E-01
		1189.05	16.23	-3.74E-01		8.28E-01
		1221.41	26.98	1.39E-01		5.57E-01
		1231.02	11.44	4.33E-01		1.23E+00
+	IR-192	308.46	29.68	4.23E-02	2.05E-01	2.74E-01
		468.07	48.10	1.02E-02		2.05E-01
+	HG-203	279.19	77.30	3.92E-03	1.21E-01	1.21E-01
+	BI-207	569.67	97.72	6.41E-02	1.00E-01	1.00E-01
		1063.62	74.90	-3.58E-02		1.57E-01
+	TL-208	583.14	* 30.22	1.42E+00	1.58E-01	4.58E-01
		860.37	4.48	4.63E-01		2.37E+00
		2614.66	* 35.85	1.15E+00		1.58E-01
+	BI-210M	262.00	45.00	-3.64E-02	1.54E-01	1.54E-01
		300.00	23.00	-1.02E+00		3.78E-01
+	PB-210	46.50	4.25	1.62E-01	2.47E+00	2.47E+00
+	PB-211	404.84	2.90	-3.02E+00	2.73E+00	2.73E+00
		831.96	2.90	5.35E-01		3.58E+00
+	BI-212	727.17	* 11.80	1.11E+00	1.34E+00	1.34E+00
		1620.62	* 2.75	2.97E+00		3.17E+00
+	PB-212	238.63	* 44.60	1.72E+00	2.83E-01	2.83E-01
		300.09	* 3.41	1.73E+00		2.20E+00
+	BI-214	609.31	* 46.30	1.22E+00	9.01E-02	3.13E-01
		1120.29	* 15.10	1.65E+00		1.08E+00
		1764.49	* 15.80	1.76E+00		9.01E-02
		2204.22	* 4.98	1.72E+00		3.32E-01
+	PB-214	295.21	* 19.19	1.12E+00	3.39E-01	5.38E-01
		351.92	* 37.19	1.20E+00		3.39E-01
+	RN-219	401.80	6.50	-5.84E-01	1.21E+00	1.21E+00
+	RA-223	323.87	3.88	1.51E-01	1.95E+00	1.95E+00
+	RA-224	240.98	3.95	2.28E+01	4.00E+00	4.00E+00
+	RA-225	40.00	31.00	-1.46E-01	5.75E-01	5.75E-01
+	RA-226	186.21	* 3.28	3.90E+00	2.97E+00	2.97E+00
+	TH-227	50.10	8.40	-2.24E+00	1.02E+00	1.02E+00
		236.00	11.50	2.42E+00		1.14E+00
		256.20	6.30	2.27E-01		1.18E+00
+	AC-228	338.32	* 11.40	2.11E+00	4.20E-01	1.65E+00
		911.07	* 27.70	1.76E+00		4.20E-01

Analysis Report for 1606065-06
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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	7.31E-01	4.20E-01	1.22E+00
+	TH-230	48.44		16.90	9.26E-01	5.99E-01	5.99E-01
		62.85		4.60	2.00E+00		1.93E+00
		67.67		0.37	-2.34E+00		2.05E+01
+	PA-231	283.67		1.60	-6.03E-01	3.58E+00	4.88E+00
		302.67		2.30	-2.21E-02		3.58E+00
+	TH-231	25.64		14.70	-2.26E+00	1.13E+00	3.58E+00
		84.21		6.40	1.79E-01		1.13E+00
+	PA-233	311.98		38.60	-7.26E-02	2.45E-01	2.45E-01
+	PA-234	131.20		20.40	2.08E-01	3.13E-01	3.13E-01
		733.99		8.80	-1.22E-01		1.15E+00
		946.00		12.00	-2.60E-01		8.56E-01
+	PA-234M	1001.03		0.92	5.04E+00	1.26E+01	1.26E+01
+	TH-234	63.29	*	3.80	2.16E+00	2.90E+00	2.90E+00
+	U-235	143.76		10.50	4.10E-01	6.07E-01	6.07E-01
		163.35		4.70	1.68E-01		1.35E+00
		205.31		4.70	3.79E-01		1.63E+00
+	NP-237	86.50		12.60	6.49E-01	6.54E-01	6.54E-01
+	NP-239	106.10		22.70	5.41E-02	3.62E+00	3.62E+00
		228.18		10.70	-1.79E+00		1.02E+01
		277.60		14.10	8.43E+00		8.38E+00
+	AM-241	59.54		35.90	8.77E-02	2.20E-01	2.20E-01
+	AM-243	74.67	*	66.00	4.24E-01	2.34E-01	2.34E-01
+	CM-243	209.75	*	3.29	3.03E+00	5.51E-01	3.16E+00
		228.14		10.60	-1.27E-01		7.24E-01
		277.60	*	14.00	3.20E-01		5.51E-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 1606065-06

CP-5011 02-05

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	9.03E-01	9.03E-01	-5.88E-01	4.26E-01
NA-22	1274.54	99.94	1.28E-01	1.28E-01	-7.02E-02	5.84E-02
NA-24	1368.53	99.99	2.26E+03	1.42E+03	-4.96E+02	1.00E+03
	2754.09	99.86	1.42E+03		1.27E+02	5.03E+02
AL-26	1808.65	99.76	8.94E-02	8.94E-02	1.11E-02	3.74E-02
+ K-40	1460.81	*	10.67	1.35E+00	2.18E+01	6.16E-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	8.03E-02	8.03E-02	-9.17E-03	3.92E-02
	78.34	96.00	1.05E-01		2.48E-01	5.18E-02
SC-46	889.25	99.98	1.11E-01	1.11E-01	-1.63E-03	5.10E-02
	1120.51	99.99	1.97E-01		2.75E-01	9.29E-02
V-48	983.52	99.98	1.44E-01	1.44E-01	-5.82E-02	6.54E-02
	1312.10	97.50	1.90E-01		-3.74E-04	8.63E-02
CR-51	320.08	9.83	1.00E+00	1.00E+00	1.19E-01	4.79E-01
MN-54	834.83	99.97	1.05E-01	1.05E-01	3.02E-03	4.87E-02
CO-56	846.75	99.96	1.07E-01	1.07E-01	2.56E-03	4.92E-02
	1037.75	14.03	8.38E-01		1.12E-01	3.83E-01
	1238.25	67.00	2.69E-01		1.61E-01	1.26E-01
	1771.40	15.51	4.83E-01		-2.70E-01	1.92E-01
	2598.48	16.90	3.15E-01		-2.14E-01	9.97E-02
CO-57	122.06	85.51	6.53E-02	6.53E-02	1.88E-02	3.16E-02
	136.48	10.60	5.56E-01		8.94E-03	2.69E-01
CO-58	810.76	99.40	1.11E-01	1.11E-01	-5.85E-02	5.12E-02
FE-59	1099.22	56.50	2.70E-01	2.70E-01	1.07E-01	1.25E-01
	1291.56	43.20	3.06E-01		-2.26E-01	1.38E-01
CO-60	1173.22	100.00	1.41E-01	1.20E-01	2.81E-02	6.51E-02
	1332.49	100.00	1.20E-01		5.00E-02	5.43E-02
ZN-65	1115.52	50.75	2.39E-01	2.39E-01	3.38E-03	1.09E-01
GA-67	93.31	*	35.70	2.27E+00	2.27E+00	1.12E+00
	208.95	2.24	2.56E+01		1.81E+01	1.24E+01
	300.22	*	16.00	3.19E+00	2.52E+00	1.53E+00
SE-75	121.11	16.70	3.45E-01	1.02E-01	6.50E-02	1.67E-01
	136.00	59.20	1.02E-01		4.06E-03	4.95E-02
	264.65	59.80	1.18E-01		-6.17E-03	5.64E-02
	279.53	25.20	3.43E-01		-3.10E-02	1.65E-01
	400.65	11.40	7.71E-01		-2.16E-02	3.67E-01
RB-82	776.52	13.00	9.70E-01	9.70E-01	-2.44E-01	4.49E-01
RB-83	520.41	46.00	1.97E-01	1.97E-01	-5.55E-02	9.27E-02
	529.64	30.30	3.13E-01		1.48E-01	1.47E-01
	552.65	16.40	5.66E-01		-1.88E-01	2.65E-01
KR-85	513.99	0.43	2.63E+01	2.63E+01	2.92E+01	1.26E+01
SR-85	513.99	99.27	1.26E-01	1.26E-01	1.41E-01	6.04E-02
Y-88	898.02	93.40	1.20E-01	9.62E-02	-1.50E-02	5.54E-02
	1836.01	99.38	9.62E-02		2.69E-02	4.03E-02
NB-93M	16.57	9.43	9.75E+01	9.75E+01	8.40E+01	4.75E+01
NB-94	702.63	100.00	1.17E-01	9.79E-02	6.79E-02	5.49E-02
	871.10	100.00	9.79E-02		-1.81E-03	4.49E-02
NB-95	765.79	99.81	1.34E-01	1.34E-01	3.13E-02	6.26E-02
NB-95M	235.69	25.00	2.95E+00	2.95E+00	6.28E+00	1.45E+00
ZR-95	724.18	43.70	3.07E-01	2.13E-01	-4.43E-03	1.45E-01
	756.72	55.30	2.13E-01		5.37E-02	9.95E-02

Analysis Report for 1606065-06

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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	9.81E+00	7.73E+00	4.75E-01	4.73E+00
	739.58	12.80	7.73E+00		1.28E-01	3.60E+00
	778.00	4.50	2.10E+01		-4.96E+00	9.70E+00
RU-103	497.08	89.00	1.06E-01	1.06E-01	-1.55E-03	4.96E-02
RU-106	621.84	9.80	9.81E-01	9.81E-01	1.13E-01	4.59E-01
AG-108M	433.93	89.90	9.44E-02	9.44E-02	-2.09E-02	4.48E-02
	614.37	90.40	1.18E-01		-6.27E-01	5.58E-02
	722.95	90.50	1.21E-01		1.08E-02	5.65E-02
+ CD-109	88.03	*	2.52E+00	2.52E+00	2.04E+00	1.24E+00
AG-110M	657.75	93.14	9.58E-02	9.58E-02	-7.42E-02	4.44E-02
	677.61	10.53	9.73E-01		3.74E-02	4.55E-01
	706.67	16.46	6.87E-01		-2.21E-01	3.23E-01
	763.93	21.98	4.81E-01		-1.49E-01	2.24E-01
	884.67	71.63	1.45E-01		-3.83E-03	6.67E-02
	1384.27	23.94	4.50E-01		2.25E-01	2.00E-01
	263.70	0.02	2.98E+02		2.98E+02	-7.81E+01	1.43E+02
SN-113	255.12	1.93	4.12E+00	1.35E-01	4.96E-01	1.98E+00
TE123M	391.69	64.90	1.35E-01	7.94E-02	-4.57E-02	6.43E-02
	159.00	84.10	7.94E-02		-2.18E-03	3.84E-02
SB-124	602.71	97.87	1.05E-01	1.05E-01	-4.56E-03	4.92E-02
	645.85	7.26	1.42E+00		-1.59E-01	6.65E-01
	722.78	11.10	1.09E+00		9.72E-02	5.11E-01
	1691.02	49.00	1.63E-01		-1.28E-02	6.58E-02
I-125	35.49	6.49	2.65E+00	2.65E+00	-9.02E-01	1.29E+00
SB-125	176.33	6.89	8.71E-01	2.97E-01	-3.53E-01	4.20E-01
	427.89	29.33	2.97E-01		1.46E-01	1.41E-01
	463.38	10.35	9.77E-01		7.10E-01	4.66E-01
	600.56	17.80	5.57E-01		3.44E-01	2.62E-01
	635.90	11.32	8.12E-01		1.05E-01	3.78E-01
	414.70	83.30	1.66E-01		1.66E-01	-8.40E-02	7.86E-02
SB-126	666.33	99.60	1.69E-01	1.66E-01	7.35E-02	7.92E-02
	695.00	99.60	1.72E-01		5.89E-02	8.05E-02
	720.50	53.80	2.97E-01		-1.50E-02	1.38E-01
	87.57	*	2.50E-01		2.50E-01	2.02E-01
SN-126	87.57	*	2.50E-01	2.50E-01	2.02E-01	1.23E-01
SB-127	473.00	25.00	1.81E+00	1.32E+00	7.83E-01	8.57E-01
	685.20	35.70	1.32E+00		-6.74E-02	6.16E-01
	783.80	14.70	3.67E+00		1.43E+00	1.71E+00
I-129	29.78	57.00	4.66E-01	4.66E-01	-3.03E-01	2.26E-01
	33.60	13.20	1.40E+00		6.14E-01	6.78E-01
	39.58	7.52	1.59E+00		-4.03E-01	7.71E-01
I-131	284.30	6.05	2.81E+00	2.15E-01	-3.48E-01	1.35E+00
	364.48	81.20	2.15E-01		-3.38E-02	1.03E-01
	636.97	7.26	2.68E+00		2.08E-01	1.25E+00
	722.89	1.80	1.32E+01		1.18E+00	6.18E+00
TE-132	49.72	13.10	4.51E+00	5.94E-01	-9.88E+00	2.19E+00
	228.16	88.00	5.94E-01		-1.04E-01	2.87E-01
BA-133	81.00	33.00	2.15E-01	1.86E-01	-1.10E+00	1.05E-01
	302.84	17.80	4.64E-01		-2.87E-03	2.23E-01
	356.01	60.00	1.86E-01		-1.37E-02	9.00E-02
I-133	529.87	86.30	1.39E+02	1.39E+02	6.57E+01	6.55E+01
XE-133	81.00	38.00	6.15E-01	6.15E-01	-3.15E+00	3.00E-01
CS-134	563.23	8.38	1.08E+00	1.07E-01	-3.17E-01	5.05E-01
	569.32	15.43	6.07E-01		2.25E-02	2.86E-01

: 00451

Analysis Report for 1606065-06

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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	1.07E-01	1.07E-01	8.98E-03	5.04E-02		
	795.84	85.40	1.42E-01		5.27E-02	6.65E-02		
	801.93	8.73	1.14E+00		-2.69E-01	5.27E-01		
CS-135	268.24	16.00	5.02E-01	5.02E-01	-1.02E-02	2.42E-01		
	I-135	1131.51	22.50		4.16E+09	2.92E+09	-1.80E+09	1.92E+09
CS-136	1260.41	28.60	2.92E+09	1.67E-01	-9.57E+08	1.32E+09		
	1678.03	9.54	5.46E+09		-1.16E+09	2.21E+09		
	153.22	7.46	1.36E+00		2.47E-01	6.59E-01		
	163.89	4.61	2.21E+00		2.76E-01	1.07E+00		
	176.55	13.56	7.22E-01		2.28E-02	3.48E-01		
	273.65	12.66	1.02E+00		-1.23E+00	4.89E-01		
	340.57	48.50	3.58E-01		6.17E-01	1.73E-01		
	818.50	99.70	1.67E-01		6.05E-02	7.72E-02		
CS-137	1048.07	79.60	2.21E-01	1.18E-01	-3.28E-02	1.01E-01		
	1235.34	19.70	1.27E+00		1.78E-02	5.93E-01		
LA-138	661.65	85.12	1.18E-01	1.37E-01	3.93E-02	5.53E-02		
	788.74	34.00	2.79E-01		4.31E-02	1.28E-01		
CE-139	1435.80	66.00	1.37E-01	8.10E-02	2.05E-02	5.94E-02		
	165.85	80.35	8.10E-02		-1.39E-02	3.91E-02		
	BA-140	162.64	6.70		1.53E+00	5.07E-01	-6.10E-02	7.43E-01
	304.84	4.50	2.71E+00		1.07E-01	1.30E+00		
	423.70	3.20	4.26E+00		3.74E-02	2.02E+00		
LA-140	437.55	2.00	6.82E+00	1.87E-01	5.47E-01	3.23E+00		
	537.32	25.00	5.07E-01		-4.96E-01	2.36E-01		
	328.77	20.50	6.70E-01		3.61E-01	3.21E-01		
	487.03	45.50	3.02E-01		-2.72E-02	1.42E-01		
	815.85	23.50	7.58E-01		3.63E-01	3.52E-01		
CE-141	1596.49	95.49	1.87E-01	1.54E-01	2.09E-02	8.24E-02		
	145.44	48.40	1.54E-01		-2.68E-02	7.47E-02		
CE-143	57.36	11.80	6.32E+01	2.39E+01	-2.39E+01	3.08E+01		
	293.26	42.00	2.39E+01		1.60E+00	1.16E+01		
	664.55	5.20	1.81E+02		-8.46E+00	8.46E+01		
CE-144	133.54	10.80	5.53E-01	5.53E-01	1.59E-01	2.68E-01		
	PM-144	476.78	42.00		2.11E-01	1.06E-01	9.95E-02	
PM-145	618.01	98.60	1.06E-01	3.44E-01	7.32E-02	5.01E-02		
	696.49	99.49	1.06E-01		1.34E-02	4.96E-02		
	36.85	21.70	6.58E-01		2.34E-01	3.19E-01		
	37.36	39.70	3.44E-01		-8.81E-02	1.67E-01		
	42.30	15.10	7.26E-01		-8.98E-02	3.52E-01		
PM-146	72.40	2.31	3.98E+00	2.21E-01	-4.50E+00	1.95E+00		
	453.90	39.94	2.21E-01		2.74E-02	1.05E-01		
	735.90	14.01	7.37E-01		1.65E-01	3.43E-01		
ND-147	747.13	13.10	7.87E-01	4.86E-01	1.82E-01	3.66E-01		
	91.11	28.90	4.86E-01		-5.44E-01	2.38E-01		
	531.02	13.10	1.10E+00		-1.35E-01	5.17E-01		
PM-149	285.90	3.10	4.31E+01	4.31E+01	-3.43E-01	2.07E+01		
EU-152	121.78	20.50	2.66E-01	2.66E-01	7.66E-02	1.29E-01		
	244.69	5.40	1.66E+00		-7.47E-03	8.06E-01		
	344.27	19.13	4.11E-01		1.54E-02	1.96E-01		
	778.89	9.20	1.03E+00		-4.83E-01	4.75E-01		
	964.01	10.40	1.39E+00		3.05E-01	6.55E-01		
	1085.78	7.22	1.62E+00		-2.05E-01	7.42E-01		
	1112.02	9.60	1.30E+00	2.74E-01	5.96E-01			

Analysis Report for 1606065-06

CP-5011 02-05

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	7.58E-01	2.66E-01	-3.02E-01	3.39E-01	
GD-153	97.43	31.30	1.89E-01	1.89E-01	-3.27E-01	9.17E-02	
	103.18	22.20	2.61E-01		-9.51E-02	1.27E-01	
EU-154	123.07	40.50	1.35E-01	1.35E-01	2.17E-02	6.53E-02	
	723.30	19.70	5.55E-01		4.95E-02	2.60E-01	
	873.19	11.50	8.27E-01		1.09E-01	3.78E-01	
	996.32	10.30	9.43E-01		-8.51E-01	4.28E-01	
	1004.76	17.90	6.39E-01		4.67E-02	2.94E-01	
	1274.45	35.50	3.59E-01		-1.97E-01	1.64E-01	
EU-155	86.50	30.90	2.68E-01	2.68E-01	2.65E-01	1.31E-01	
	105.30	20.70	2.79E-01		9.73E-03	1.36E-01	
EU-156	811.77	10.40	1.48E+00	1.48E+00	-6.56E-01	6.83E-01	
	1153.47	7.20	2.95E+00		8.74E-01	1.37E+00	
	1230.71	8.90	2.36E+00		8.21E-01	1.09E+00	
HO-166M	184.41	72.60	1.13E-01	1.13E-01	2.18E-01	5.49E-02	
	280.45	29.60	2.76E-01		7.89E-03	1.33E-01	
	410.94	11.10	8.13E-01		4.53E-02	3.88E-01	
	711.69	54.10	1.85E-01		5.29E-02	8.61E-02	
TM-171	66.72	0.14	5.67E+01	5.67E+01	4.60E+00	2.77E+01	
HF-172	81.75	4.52	1.55E+00	5.15E-01	-6.33E+00	7.57E-01	
	125.81	11.30	5.15E-01		-5.40E-01	2.50E-01	
LU-172	181.53	20.60	7.51E-01	5.24E-01	-8.16E-02	3.62E-01	
	810.06	16.63	1.57E+00		1.04E-01	7.25E-01	
	912.12	15.25	3.30E+00		7.79E+00	1.58E+00	
	1093.66	62.50	5.24E-01		-4.21E-02	2.42E-01	
LU-173	100.72	5.24	1.09E+00	4.05E-01	1.94E-02	5.31E-01	
	272.11	21.20	4.05E-01		4.29E-01	1.96E-01	
HF-175	343.40	84.00	1.03E-01	1.03E-01	-1.54E-02	4.90E-02	
LU-176	88.34	13.30	6.25E-01	7.83E-02	6.24E-01	3.06E-01	
	201.83	86.00	8.80E-02		1.12E-02	4.26E-02	
	306.78	94.00	7.83E-02		4.44E-03	3.74E-02	
TA-182	67.75	41.20	1.94E-01	1.94E-01	-2.22E-02	9.49E-02	
	1121.30	34.90	5.52E-01		7.52E-01	2.61E-01	
	1189.05	16.23	8.28E-01		-3.74E-01	3.80E-01	
	1221.41	26.98	5.57E-01		1.39E-01	2.57E-01	
	1231.02	11.44	1.23E+00		4.33E-01	5.67E-01	
IR-192	308.46	29.68	2.74E-01	2.05E-01	4.23E-02	1.31E-01	
	468.07	48.10	2.05E-01		1.02E-02	9.72E-02	
HG-203	279.19	77.30	1.21E-01	1.21E-01	3.92E-03	5.81E-02	
BI-207	569.67	97.72	1.00E-01	1.00E-01	6.41E-02	4.71E-02	
	1063.62	74.90	1.57E-01		-3.58E-02	7.19E-02	
+ TL-208	583.14	*	30.22	4.58E-01	1.58E-01	1.42E+00	2.19E-01
	860.37	*	4.48	2.37E+00		4.63E-01	1.09E+00
	2614.66	*	35.85	1.58E-01		1.15E+00	5.37E-02
BI-210M	262.00	45.00	1.54E-01	1.54E-01	-3.64E-02	7.39E-02	
	300.00	23.00	3.78E-01		-1.02E+00	1.82E-01	
PB-210	46.50	4.25	2.47E+00	2.47E+00	1.62E-01	1.20E+00	
PB-211	404.84	2.90	2.73E+00	2.73E+00	-3.02E+00	1.30E+00	
	831.96	2.90	3.58E+00		5.35E-01	1.66E+00	
+ BI-212	727.17	*	11.80	1.34E+00	1.34E+00	1.11E+00	6.40E-01
	1620.62	*	2.75	3.17E+00		2.97E+00	1.34E+00
+ PB-212	238.63	*	44.60	2.83E-01	2.83E-01	1.72E+00	1.38E-01
	300.09	*	3.41	2.20E+00		1.73E+00	1.05E+00

Analysis Report for 1606065-06

CP-5011 02-05

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	3.13E-01	9.01E-02	1.22E+00	1.50E-01
	1120.29 *	15.10	1.08E+00		1.65E+00	5.08E-01
	1764.49 *	15.80	9.01E-02		1.76E+00	0.00E+00
	2204.22 *	4.98	3.32E-01		1.72E+00	0.00E+00
+ PB-214	295.21 *	19.19	5.38E-01	3.39E-01	1.12E+00	2.61E-01
	351.92 *	37.19	3.39E-01		1.20E+00	1.65E-01
RN-219	401.80	6.50	1.21E+00	1.21E+00	-5.84E-01	5.74E-01
RA-223	323.87	3.88	1.95E+00	1.95E+00	1.51E-01	9.33E-01
RA-224	240.98	3.95	4.00E+00	4.00E+00	2.28E+01	1.96E+00
RA-225	40.00	31.00	5.75E-01	5.75E-01	-1.46E-01	2.79E-01
+ RA-226	186.21 *	3.28	2.97E+00	2.97E+00	3.90E+00	1.45E+00
	TH-227	50.10	8.40		1.02E+00	-2.24E+00	4.96E-01
	236.00	11.50	1.14E+00		2.42E+00	5.56E-01
	256.20	6.30	1.18E+00		2.27E-01	5.69E-01
+ AC-228	338.32 *	11.40	1.65E+00	4.20E-01	2.11E+00	8.11E-01
	911.07 *	27.70	4.20E-01		1.76E+00	1.95E-01
	969.11 *	16.60	1.22E+00		7.31E-01	5.86E-01
TH-230	48.44	16.90	5.99E-01	5.99E-01	9.26E-01	2.92E-01
	62.85	4.60	1.93E+00		2.00E+00	9.45E-01
	67.67	0.37	2.05E+01		-2.34E+00	1.00E+01
PA-231	283.67	1.60	4.88E+00	3.58E+00	-6.03E-01	2.34E+00
	302.67	2.30	3.58E+00		-2.21E-02	1.72E+00
TH-231	25.64	14.70	3.58E+00	1.13E+00	-2.26E+00	1.74E+00
	84.21	6.40	1.13E+00		1.79E-01	5.50E-01
PA-233	311.98	38.60	2.45E-01	2.45E-01	-7.26E-02	1.17E-01
PA-234	131.20	20.40	3.13E-01	3.13E-01	2.08E-01	1.52E-01
	733.99	8.80	1.15E+00		-1.22E-01	5.35E-01
	946.00	12.00	8.56E-01		-2.60E-01	3.92E-01
PA-234M	1001.03	0.92	1.26E+01	1.26E+01	5.04E+00	5.82E+00
+ TH-234	63.29 *	3.80	2.90E+00	2.90E+00	2.16E+00	1.42E+00
U-235	143.76	10.50	6.07E-01	6.07E-01	4.10E-01	2.94E-01
	163.35	4.70	1.35E+00		1.68E-01	6.52E-01
	205.31	4.70	1.63E+00		3.79E-01	7.91E-01
NP-237	86.50	12.60	6.54E-01	6.54E-01	6.49E-01	3.21E-01
NP-239	106.10	22.70	3.62E+00	3.62E+00	5.41E-02	1.76E+00
	228.18	10.70	1.02E+01		-1.79E+00	4.93E+00
	277.60	14.10	8.38E+00		8.43E+00	4.04E+00
AM-241	59.54	35.90	2.20E-01	2.20E-01	8.77E-02	1.07E-01
+ AM-243	74.67 *	66.00	2.34E-01	2.34E-01	4.24E-01	1.16E-01
+ CM-243	209.75 *	3.29	3.16E+00	5.51E-01	3.03E+00	1.55E+00
	228.14	10.60	7.24E-01		-1.27E-01	3.50E-01
	277.60 *	14.00	5.51E-01		3.20E-01	2.65E-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

Analysis Report for 1606065-06
CP-5011 02-05

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-5011 02-05

Elapsed Live time: 3600
 Elapsed Real Time: 3613

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	6	155	173	110	103	114	106	98	
17:	102	90	79	55	75	79	84	68	
25:	80	75	70	49	77	55	57	61	
33:	71	57	67	70	58	65	68	61	
41:	70	64	78	82	73	86	169	75	
49:	77	103	88	60	93	95	99	83	
57:	70	92	111	119	106	85	147	234	
65:	141	114	118	104	127	108	117	137	
73:	136	148	364	279	346	434	154	105	
81:	120	98	94	133	153	120	175	224	
89:	121	145	145	116	213	201	117	78	
97:	80	69	71	81	74	75	62	78	
105:	70	65	95	63	82	73	81	61	
113:	64	67	60	67	66	53	57	62	
121:	62	55	70	54	60	73	73	71	
129:	88	114	66	60	66	67	59	71	
137:	51	58	68	50	65	79	71	71	
145:	73	64	56	65	72	58	60	62	
153:	72	66	66	69	51	64	63	70	
161:	67	59	62	61	54	68	48	56	
169:	65	55	47	51	56	50	44	51	
177:	50	48	60	51	45	60	43	44	
185:	64	145	143	46	44	51	60	60	
193:	49	43	43	57	39	51	40	42	
201:	46	53	49	48	50	41	50	38	
209:	68	88	50	52	48	38	34	39	
217:	43	43	41	45	47	36	47	44	
225:	36	34	47	39	39	42	42	39	
233:	39	28	40	40	40	118	484	210	
241:	84	96	94	38	31	25	28	32	
249:	28	34	31	36	25	37	36	28	
257:	35	27	30	29	23	22	28	25	
265:	24	27	25	14	37	52	57	34	
273:	24	18	36	22	35	52	38	21	
281:	34	25	25	31	30	25	32	27	
289:	34	32	26	25	16	31	89	142	
297:	42	19	28	44	43	23	31	14	
305:	29	18	25	23	24	23	19	28	
313:	21	22	21	30	22	23	21	30	
321:	25	26	19	21	20	19	21	45	
329:	35	17	27	19	16	27	31	21	
337:	33	66	112	29	32	14	18	17	
345:	14	24	27	22	24	16	50	178	
353:	148	34	30	19	19	17	18	25	
361:	17	19	19	20	21	18	19	22	

369: 22 20 20 21 17 19 19 19

Sample Title: CP-5011 02-05

Channel	1	2	3	4	5	6	7	8
377:	11	19	18	27	23	17	13	18
385:	13	17	17	25	13	17	19	19
393:	18	20	24	25	18	25	15	18
401:	20	12	19	17	10	22	14	17
409:	24	32	21	17	15	16	20	22
417:	15	13	14	19	18	18	11	16
425:	14	15	22	17	15	14	24	13
433:	14	18	12	17	15	20	20	12
441:	12	12	16	13	9	16	14	18
449:	18	18	18	15	14	14	26	13
457:	12	15	11	16	20	12	25	33
465:	20	17	15	16	15	13	17	10
473:	16	23	15	13	10	9	16	14
481:	15	14	18	10	11	10	11	14
489:	14	20	11	11	17	12	5	16
497:	13	5	14	13	13	5	8	18
505:	15	8	12	14	15	36	51	28
513:	12	17	16	12	18	6	7	11
521:	13	15	10	13	17	12	16	9
529:	14	7	14	9	16	3	7	11
537:	14	7	9	12	20	13	15	10
545:	8	18	12	12	11	15	9	16
553:	8	9	13	5	8	19	13	11
561:	9	16	15	11	9	7	14	8
569:	11	13	18	12	16	13	6	6
577:	11	14	14	8	15	24	86	104
585:	32	16	9	9	7	12	11	17
593:	10	7	9	8	10	14	12	10
601:	11	15	16	7	8	7	14	26
609:	105	144	31	8	14	10	13	13
617:	8	13	12	17	13	3	7	9
625:	12	6	9	9	10	6	9	11
633:	12	8	7	11	8	11	8	9
641:	6	6	5	13	10	13	11	7
649:	7	15	11	8	12	7	6	8
657:	3	13	10	10	5	14	14	5
665:	16	11	7	11	11	8	6	8
673:	8	8	7	5	9	12	12	15
681:	10	6	17	7	9	11	4	5
689:	5	8	4	8	11	10	9	13
697:	12	9	8	12	12	15	16	14
705:	11	11	10	9	14	11	7	17
713:	5	5	5	7	6	6	6	12
721:	10	11	7	16	6	13	31	31
729:	8	14	11	7	12	8	9	6
737:	9	6	14	6	8	13	7	11
745:	13	7	5	10	9	7	7	5
753:	9	11	14	11	11	7	6	6
761:	6	11	4	7	14	9	9	13
769:	15	11	7	15	11	6	9	6
777:	5	11	5	7	8	6	11	10
785:	7	6	13	9	5	2	8	4
793:	6	12	16	17	13	8	5	10

801: 11 10 6 4 4 11 9 6

Sample Title: CP-5011 02-05

Channel	1	2	3	4	5	6	7	8
809:	6	7	5	13	7	7	7	13
817:	10	11	5	3	4	5	5	9
825:	6	6	9	6	6	7	9	9
833:	5	9	7	6	6	9	6	7
841:	7	6	9	8	7	8	3	7
849:	4	8	5	6	4	5	8	4
857:	7	4	6	9	14	8	3	8
865:	5	9	5	8	6	10	3	3
873:	4	8	4	7	2	5	9	1
881:	7	5	7	4	9	5	7	11
889:	4	6	6	6	8	5	5	7
897:	3	9	10	11	2	8	8	6
905:	5	4	3	4	9	23	59	51
913:	16	6	9	4	2	2	10	11
921:	9	6	4	7	1	5	4	6
929:	6	6	8	9	12	17	9	7
937:	7	4	4	3	6	6	2	5
945:	3	4	10	3	13	7	10	11
953:	9	6	5	6	7	4	4	3
961:	4	8	7	11	22	19	10	19
969:	45	27	5	7	5	11	6	3
977:	5	6	8	2	4	10	4	7
985:	4	2	3	9	5	7	7	9
993:	6	4	5	6	4	6	1	9
1001:	8	8	6	9	7	2	7	6
1009:	5	4	8	3	3	10	5	5
1017:	3	5	5	8	6	2	4	8
1025:	2	3	3	8	4	6	6	4
1033:	3	5	1	8	7	7	3	8
1041:	4	8	3	8	7	4	6	8
1049:	3	4	6	6	7	6	3	5
1057:	4	13	6	4	8	5	7	8
1065:	7	4	5	6	6	6	5	8
1073:	5	8	8	7	3	11	7	3
1081:	11	3	4	7	3	9	6	8
1089:	4	5	7	5	7	9	7	10
1097:	9	9	5	9	5	6	5	3
1105:	5	6	4	10	8	8	7	9
1113:	5	3	5	3	6	9	14	27
1121:	28	7	10	6	4	6	10	9
1129:	4	5	6	9	10	4	10	9
1137:	5	3	8	7	7	6	2	4
1145:	7	8	8	4	3	8	9	7
1153:	3	9	11	8	9	8	3	4
1161:	7	3	9	9	8	5	2	9
1169:	8	2	10	11	8	8	10	4
1177:	5	5	5	4	11	4	8	8
1185:	10	9	6	5	1	10	3	8
1193:	8	7	6	7	3	9	8	6
1201:	9	8	3	3	7	7	9	5
1209:	8	5	7	12	9	8	4	5
1217:	7	11	5	6	7	9	6	7
1225:	10	2	8	4	8	8	9	7

1233: 4 4 5 12 16 13 16 3

Sample Title: CP-5011 02-05

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1241:	5	12	4	5	6	5	3	10
1249:	6	5	10	7	8	6	2	6
1257:	5	6	6	5	1	4	3	9
1265:	4	7	6	8	4	5	3	1
1273:	5	3	5	4	7	4	7	5
1281:	9	7	7	5	6	10	2	7
1289:	2	2	4	1	3	4	4	4
1297:	3	4	6	7	4	5	1	2
1305:	2	3	3	5	1	4	1	3
1313:	7	7	3	3	3	6	3	2
1321:	2	7	5	10	3	1	2	4
1329:	3	4	0	3	2	8	2	4
1337:	1	4	1	4	3	2	4	2
1345:	1	5	2	1	2	0	4	3
1353:	1	4	4	4	2	2	1	0
1361:	2	3	2	2	1	2	2	6
1369:	0	4	2	1	6	0	7	4
1377:	5	6	3	1	2	0	2	4
1385:	3	6	1	2	1	1	2	4
1393:	1	2	4	2	0	4	0	2
1401:	4	6	6	4	1	1	4	3
1409:	4	1	4	2	4	0	3	4
1417:	1	1	4	2	2	1	1	1
1425:	1	2	0	7	1	3	2	3
1433:	1	0	0	3	1	1	3	0
1441:	3	0	3	3	0	0	1	2
1449:	2	0	0	1	3	3	1	3
1457:	0	8	34	163	216	97	15	2
1465:	1	0	5	2	1	2	1	1
1473:	2	2	1	1	0	1	1	3
1481:	0	1	1	0	1	1	2	2
1489:	1	1	1	3	2	1	0	2
1497:	3	0	0	4	0	3	0	0
1505:	0	1	3	2	4	3	2	0
1513:	2	0	1	1	2	0	3	3
1521:	3	4	6	0	2	1	2	0
1529:	1	3	1	0	0	1	3	1
1537:	2	2	3	3	0	3	3	2
1545:	2	0	2	2	1	3	0	3
1553:	2	0	3	1	2	0	3	0
1561:	1	3	0	0	0	0	1	1
1569:	0	3	1	3	2	1	2	0
1577:	3	1	3	1	2	0	3	1
1585:	0	1	6	6	8	3	3	6
1593:	3	1	1	1	0	2	2	2
1601:	1	2	3	5	0	2	3	1
1609:	0	1	1	3	0	2	1	0
1617:	2	2	2	6	2	3	3	1
1625:	1	0	1	1	0	1	3	4
1633:	1	0	1	4	1	2	2	1
1641:	0	0	0	2	2	1	0	2
1649:	2	0	2	1	0	0	1	4
1657:	0	2	0	0	5	2	1	1

1665: 1 0 2 1 1 1 1 2

Sample Title: CP-5011 02-05

Channel	1	2	3	4	5	6	7	8
1673:	0	1	1	1	0	0	1	1
1681:	0	1	2	0	0	3	1	1
1689:	0	0	1	3	0	0	0	2
1697:	0	0	0	1	1	0	0	1
1705:	0	1	3	3	0	1	0	1
1713:	3	1	1	2	0	1	1	1
1721:	1	0	0	0	0	1	1	0
1729:	3	2	3	0	1	2	0	1
1737:	3	0	0	1	1	1	1	4
1745:	1	0	0	0	0	0	1	1
1753:	1	4	1	0	2	0	0	1
1761:	2	5	9	17	12	6	1	0
1769:	0	0	1	1	0	1	1	0
1777:	0	2	1	0	2	1	2	3
1785:	1	0	0	1	1	5	3	2
1793:	1	1	0	2	0	3	1	1
1801:	2	1	0	0	1	0	0	0
1809:	3	0	3	2	0	0	1	0
1817:	1	0	0	0	0	2	0	1
1825:	2	1	0	0	2	0	1	1
1833:	1	0	2	2	0	1	1	0
1841:	0	1	1	1	1	1	2	4
1849:	0	1	1	1	1	2	0	1
1857:	0	0	2	2	1	0	0	2
1865:	1	0	0	0	1	1	0	0
1873:	1	2	0	0	1	0	1	1
1881:	0	1	4	0	0	1	1	1
1889:	1	0	0	0	0	0	1	0
1897:	0	1	1	1	1	1	1	2
1905:	1	0	1	0	1	0	0	1
1913:	0	0	1	1	1	1	2	0
1921:	0	0	2	1	2	0	0	0
1929:	2	0	2	0	2	0	0	1
1937:	0	1	1	0	1	1	2	1
1945:	1	1	1	0	1	1	0	0
1953:	0	0	1	0	0	1	0	0
1961:	0	0	4	0	0	1	3	0
1969:	0	0	0	2	3	0	1	1
1977:	0	2	1	0	0	2	1	1
1985:	0	2	0	0	2	0	0	0
1993:	1	3	0	1	0	1	1	2
2001:	0	1	0	2	0	1	0	0
2009:	0	0	1	1	1	1	1	1
2017:	1	0	0	2	0	1	1	1
2025:	0	0	1	1	1	0	0	1
2033:	1	1	2	0	1	0	0	1
2041:	1	0	1	0	0	0	0	0
2049:	1	0	1	2	1	0	1	0
2057:	0	4	0	2	1	2	1	0
2065:	1	0	2	1	2	1	2	2
2073:	0	2	0	0	0	2	0	0
2081:	1	0	2	1	0	0	0	1
2089:	1	0	2	1	0	0	1	1

2097: 0 1 0 1 2 6 1 6

Sample Title: CP-5011 02-05

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

2529: 1 2 0 1 1 0 0 1

Sample Title: CP-5011 02-05

Channel	1	2	3	4	5	6	7	8	9
2537:	0	1	0	0	1	1	0	1	
2545:	0	0	0	0	0	0	0	0	
2553:	1	1	0	0	0	0	0	1	
2561:	1	0	0	1	0	0	2	0	
2569:	0	1	1	0	1	1	0	2	
2577:	0	0	1	1	0	0	0	0	
2585:	1	1	0	0	1	0	1	1	
2593:	1	1	0	0	0	0	0	0	
2601:	0	0	1	1	0	1	0	0	
2609:	0	0	0	6	19	22	13	3	
2617:	1	0	0	0	0	0	0	0	
2625:	1	0	0	0	1	0	0	0	
2633:	0	0	0	0	0	0	0	0	
2641:	1	0	1	0	0	0	1	0	
2649:	0	1	1	0	1	0	0	0	
2657:	1	0	1	1	1	0	0	1	
2665:	2	0	0	0	0	0	0	0	
2673:	1	0	0	0	0	1	0	2	
2681:	0	0	0	0	0	0	1	2	
2689:	0	0	0	0	0	0	0	0	
2697:	0	0	0	0	1	0	0	0	
2705:	0	0	0	0	0	0	1	0	
2713:	0	0	1	0	0	1	0	0	
2721:	0	0	0	0	1	1	0	0	
2729:	0	0	0	0	0	0	0	0	
2737:	0	0	0	1	0	0	0	0	
2745:	0	0	0	1	1	0	0	0	
2753:	0	0	0	1	0	0	0	0	
2761:	0	0	0	0	0	1	0	0	
2769:	0	0	0	0	0	1	0	0	
2777:	1	1	0	0	0	0	0	0	
2785:	0	2	0	0	0	0	0	0	
2793:	0	0	0	0	0	0	0	0	
2801:	2	0	0	1	0	0	1	0	
2809:	0	1	0	0	0	0	0	0	
2817:	0	0	0	0	1	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	0	0	0	0	
2849:	1	0	0	0	0	0	0	0	
2857:	0	0	0	0	0	0	1	0	
2865:	0	0	0	0	0	0	0	0	
2873:	0	0	0	0	1	0	0	0	
2881:	1	0	0	0	1	0	0	0	
2889:	1	0	0	0	1	0	1	0	
2897:	0	0	0	1	1	0	0	0	
2905:	0	0	0	0	1	0	0	0	
2913:	0	0	0	0	0	0	2	0	
2921:	0	0	0	0	0	0	1	0	
2929:	1	0	0	0	0	0	0	0	
2937:	0	0	0	0	0	0	1	0	
2945:	0	0	0	0	0	0	2	2	
2953:	0	0	0	0	0	0	0	0	

2961: 0 0 0 0 0 0 0 0

Sample Title: CP-5011 02-05

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

3393: 0 0 0 0 0 0 0 0

Sample Title: CP-5011 02-05

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3401:	1	0	0	0	0	0	0	0
3409:	0	1	0	0	0	0	0	0
3417:	0	0	0	0	0	0	1	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	1	0	0	0	0
3441:	0	0	1	1	0	0	0	0
3449:	0	1	0	0	1	0	1	0
3457:	0	0	0	1	0	0	0	0
3465:	0	0	0	0	0	0	0	1
3473:	1	0	0	1	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	1	0
3497:	0	0	1	0	0	0	1	0
3505:	0	0	0	0	0	0	0	1
3513:	0	0	0	0	0	0	0	0
3521:	0	0	1	0	0	0	0	0
3529:	0	0	0	0	0	0	0	1
3537:	0	0	0	0	0	1	0	0
3545:	0	0	0	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	0	0	0
3577:	0	0	0	0	1	0	0	0
3585:	0	0	0	0	0	0	0	0
3593:	1	0	0	0	0	1	0	0
3601:	0	1	0	0	0	0	0	0
3609:	0	0	0	0	0	0	0	0
3617:	0	0	1	1	0	0	0	0
3625:	0	0	0	0	0	0	0	0
3633:	0	1	0	1	0	0	1	0
3641:	0	0	0	0	0	0	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	0	0	0
3673:	1	0	1	0	0	0	0	0
3681:	0	0	0	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	1	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	0	1	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	0	0	0	0	0	0
3745:	0	0	0	0	0	0	1	0
3753:	0	1	0	0	0	1	0	0
3761:	0	0	0	0	0	2	0	0
3769:	0	0	0	0	0	0	0	0
3777:	0	1	0	0	1	0	0	0
3785:	0	1	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	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0

3825: 0 0 0 1 1 1 0 0

Sample Title: CP-5011 02-05

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	1	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	0	0	0	0	0	0	0
3889:	0	0	1	0	1	1	0	0
3897:	0	0	0	0	0	0	1	0
3905:	0	0	1	0	0	0	0	0
3913:	0	0	0	1	0	0	0	0
3921:	0	1	0	0	0	1	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	1	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	1	0	0	0	0
3977:	0	0	0	0	0	0	1	0
3985:	0	0	0	0	0	0	1	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	1	0	0	0	0
4025:	0	0	0	0	0	0	0	0
4033:	1	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	1	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	1	0	0	0	0
4081:	0	0	0	0	0	1	1	0
4089:	0	0	0	0	0	1	0	0

Analysis Report for 1606065-07
CP-5011 05-8 5

✓
6117

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606065-07
Sample Description : CP-5011 05-8 5
Sample Type : SOIL

Sample Size : 3.725E+02 grams
Facility : Countroom

Sample Taken On : 6/8/2016 9:10:02AM
Acquisition Started : 6/17/2016 9:10:18AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE4
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) : 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 : 39075

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606065-07
 CP-5011 05-8 5

PEAK LOCATE REPORT

Peak Locate Performed on : 6/17/2016 10:10:21AM
 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	25.24	24.49	0.0000	0.00
2	76.21	75.48	0.0000	0.00
3	87.27	86.54	0.0000	0.00
4	92.88	92.15	0.0000	0.00
5	186.15	185.46	0.0000	0.00
6	209.88	209.21	0.0000	0.00
7	239.32	238.66	0.0000	0.00
8	295.60	294.96	0.0000	0.00
9	301.66	301.02	0.0000	0.00
10	338.34	337.72	0.0000	0.00
11	351.98	351.36	0.0000	0.00
12	511.24	510.70	0.0000	0.00
13	583.55	583.04	0.0000	0.00
14	609.64	609.15	0.0000	0.00
15	644.00	643.52	0.0000	0.00
16	728.40	727.96	0.0000	0.00
17	911.71	911.37	0.0000	0.00
18	968.02	967.71	0.0000	0.00
19	1113.31	1113.08	0.0000	0.00
20	1120.87	1120.64	0.0000	0.00
21	1334.75	1334.65	0.0000	0.00
22	1382.11	1382.04	0.0000	0.00
23	1461.40	1461.37	0.0000	0.00
24	1591.25	1591.30	0.0000	0.00
25	1629.90	1629.98	0.0000	0.00
26	1684.73	1684.85	0.0000	0.00
27	1764.52	1764.68	0.0000	0.00
28	2144.18	2144.60	0.0000	0.00
29	2615.30	2616.07	0.0000	0.00

? = Adjacent peak noted
 Errors quoted at 2.000sigma

Analysis Report for 1606065-07

CP-5011 05-8 5

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 10:10:21AM

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)
M	1	25.24	22 - 26	24.49	4.32E+01	47.53	4.56E+02	1.75
	2	76.21	69 - 81	75.48	6.87E+02	136.29	1.85E+03	4.04
m	3	87.27	82 - 96	86.54	1.50E+02	89.76	1.12E+03	3.13
	4	92.88	82 - 96	92.15	1.67E+02	81.80	9.70E+02	2.51
	5	186.15	179 - 191	185.46	2.12E+02	82.50	6.98E+02	2.95
	6	209.88	206 - 213	209.21	6.05E+01	50.99	3.95E+02	2.83
	7	239.32	234 - 244	238.66	4.73E+02	73.14	4.59E+02	2.30
M	8	295.60	287 - 304	294.96	1.35E+02	45.35	2.45E+02	3.12
m	9	301.66	287 - 304	301.02	5.50E+01	34.71	1.41E+02	2.92
	10	338.34	333 - 343	337.72	8.01E+01	52.47	3.24E+02	2.12
	11	351.98	345 - 357	351.36	1.79E+02	56.10	2.85E+02	2.64
	12	511.24	505 - 518	510.70	1.16E+02	41.42	1.36E+02	3.79
	13	583.55	578 - 589	583.04	9.76E+01	41.71	1.71E+02	2.32
	14	609.64	605 - 614	609.15	9.98E+01	38.13	1.52E+02	1.86
	15	644.00	626 - 660	643.52	8.16E+01	73.80	2.63E+02	31.00
	16	728.40	723 - 733	727.96	3.85E+01	27.82	8.29E+01	2.54
	17	911.71	906 - 916	911.37	7.10E+01	27.00	5.61E+01	1.84
	18	968.02	961 - 973	967.71	6.08E+01	27.21	5.84E+01	4.65
	19	1113.31	1110 - 1115	1113.08	1.10E+01	13.78	2.79E+01	2.70
	20	1120.87	1117 - 1124	1120.64	2.80E+01	17.44	3.20E+01	2.13
	21	1334.75	1329 - 1338	1334.65	1.97E+01	13.53	1.46E+01	1.73
	22	1382.11	1377 - 1386	1382.04	1.94E+01	12.08	9.17E+00	7.77
	23	1461.40	1456 - 1466	1461.37	2.21E+02	31.06	1.06E+01	2.67
	24	1591.25	1585 - 1596	1591.30	1.83E+01	10.95	5.43E+00	5.06
	25	1629.90	1625 - 1633	1629.98	7.06E+00	7.50	3.89E+00	3.19
	26	1684.73	1680 - 1688	1684.85	6.67E+00	7.50	4.67E+00	6.68
	27	1764.52	1760 - 1767	1764.68	2.50E+01	10.00	0.00E+00	1.76
	28	2144.18	2142 - 2147	2144.60	5.00E+00	4.47	0.00E+00	1.70
	29	2615.30	2611 - 2620	2616.07	4.20E+01	12.96	0.00E+00	3.05

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 1606065-07

CP-5011 05-8 5

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 10:10:21AM

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	25.24	22 - 26	4.32E+01	47.53	4.56E+02	3.75E+01
	2	76.21	69 - 81	6.87E+02	136.29	1.85E+03	1.03E+02
M	3	87.27	82 - 96	1.50E+02	89.76	1.12E+03	5.50E+01
m	4	92.88	82 - 96	1.67E+02	81.80	9.70E+02	5.12E+01
	5	186.15	179 - 191	2.12E+02	82.50	6.98E+02	6.35E+01
	6	209.88	206 - 213	6.05E+01	50.99	3.95E+02	3.99E+01
	7	239.32	234 - 244	4.73E+02	73.14	4.59E+02	4.83E+01
M	8	295.60	287 - 304	1.35E+02	45.35	2.45E+02	2.57E+01
m	9	301.66	287 - 304	5.50E+01	34.71	1.41E+02	1.95E+01
	10	338.34	333 - 343	8.01E+01	52.47	3.24E+02	4.05E+01
	11	351.98	345 - 357	1.79E+02	56.10	2.85E+02	4.05E+01
	12	511.24	505 - 518	1.16E+02	41.42	1.36E+02	2.91E+01
	13	583.55	578 - 589	9.76E+01	41.71	1.71E+02	3.02E+01
	14	609.64	605 - 614	9.98E+01	38.13	1.52E+02	2.67E+01
	15	644.00	626 - 660	8.16E+01	73.80	2.63E+02	5.88E+01
	16	728.40	723 - 733	3.85E+01	27.82	8.29E+01	2.05E+01
	17	911.71	906 - 916	7.10E+01	27.00	5.61E+01	1.73E+01
	18	968.02	961 - 973	6.08E+01	27.21	5.84E+01	1.83E+01
	19	1113.31	1110 - 1115	1.10E+01	13.78	2.79E+01	9.93E+00
	20	1120.87	1117 - 1124	2.80E+01	17.44	3.20E+01	1.14E+01
	21	1334.75	1329 - 1338	1.97E+01	13.53	1.46E+01	8.39E+00
	22	1382.11	1377 - 1386	1.94E+01	12.08	9.17E+00	6.80E+00
	23	1461.40	1456 - 1466	2.21E+02	31.06	1.06E+01	7.43E+00
	24	1591.25	1585 - 1596	1.83E+01	10.95	5.43E+00	5.63E+00
	25	1629.90	1625 - 1633	7.06E+00	7.50	3.89E+00	4.35E+00
	26	1684.73	1680 - 1688	6.67E+00	7.50	4.67E+00	4.47E+00
	27	1764.52	1760 - 1767	2.50E+01	10.00	0.00E+00	0.00E+00
	28	2144.18	2142 - 2147	5.00E+00	4.47	0.00E+00	0.00E+00
	29	2615.30	2611 - 2620	4.20E+01	12.96	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 1606065-07

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PEAK WITH NID REPORT

Peak Analysis Performed on : 6/17/2016 10:10:21AM

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	25.24	22 - 26	24.49	4.32E+01	47.53	4.56E+02	TH-231
	2	76.21	69 - 81	75.48	6.87E+02	136.29	1.85E+03	.....
M	3	87.27	82 - 96	86.54	1.50E+02	89.76	1.12E+03	SN-126 CD-109 NP-237 EU-155
m	4	92.88	82 - 96	92.15	1.67E+02	81.80	9.70E+02	GA-67
	5	186.15	179 - 191	185.46	2.12E+02	82.50	6.98E+02	RA-226
	6	209.88	206 - 213	209.21	6.05E+01	50.99	3.95E+02	CM-243 GA-67
	7	239.32	234 - 244	238.66	4.73E+02	73.14	4.59E+02	PB-212
M	8	295.60	287 - 304	294.96	1.35E+02	45.35	2.45E+02	PB-214
m	9	301.66	287 - 304	301.02	5.50E+01	34.71	1.41E+02	.....
	10	338.34	333 - 343	337.72	8.01E+01	52.47	3.24E+02	AC-228
	11	351.98	345 - 357	351.36	1.79E+02	56.10	2.85E+02	PB-214
	12	511.24	505 - 518	510.70	1.16E+02	41.42	1.36E+02	.....
	13	583.55	578 - 589	583.04	9.76E+01	41.71	1.71E+02	TL-208
	14	609.64	605 - 614	609.15	9.98E+01	38.13	1.52E+02	BI-214
	15	644.00	626 - 660	643.52	8.16E+01	73.80	2.63E+02	.....
	16	728.40	723 - 733	727.96	3.85E+01	27.82	8.29E+01	.....
	17	911.71	906 - 916	911.37	7.10E+01	27.00	5.61E+01	LU-172 AC-228
	18	968.02	961 - 973	967.71	6.08E+01	27.21	5.84E+01	.....
	19	1113.31	1110 - 1115	1113.08	1.10E+01	13.78	2.79E+01	.....
	20	1120.87	1117 - 1124	1120.64	2.80E+01	17.44	3.20E+01	SC-46 TA-182 BI-214
	21	1334.75	1329 - 1338	1334.65	1.97E+01	13.53	1.46E+01	.....
	22	1382.11	1377 - 1386	1382.04	1.94E+01	12.08	9.17E+00	.....
	23	1461.40	1456 - 1466	1461.37	2.21E+02	31.06	1.06E+01	K-40
	24	1591.25	1585 - 1596	1591.30	1.83E+01	10.95	5.43E+00	.....
	25	1629.90	1625 - 1633	1629.98	7.06E+00	7.50	3.89E+00	.....
	26	1684.73	1680 - 1688	1684.85	6.67E+00	7.50	4.67E+00	.....
	27	1764.52	1760 - 1767	1764.68	2.50E+01	10.00	0.00E+00	BI-214
	28	2144.18	2142 - 2147	2144.60	5.00E+00	4.47	0.00E+00	.....
	29	2615.30	2611 - 2620	2616.07	4.20E+01	12.96	0.00E+00	TL-208

Analysis Report for 1606065-07
CP-5011 05-8 5

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 : 6/17/2016 10:10:21AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	25.24	4.32E+01	47.53	3.01E-02	1.78E-03
	2	76.21	6.87E+02	136.29	2.12E-02	1.69E-03
M	3	87.27	1.50E+02	89.76	1.97E-02	1.64E-03
m	4	92.88	1.67E+02	81.80	1.90E-02	1.62E-03
	5	186.15	2.12E+02	82.50	1.16E-02	1.15E-03
	6	209.88	6.05E+01	50.99	1.05E-02	1.08E-03
	7	239.32	4.73E+02	73.14	9.39E-03	9.85E-04
M	8	295.60	1.35E+02	45.35	7.77E-03	8.43E-04
m	9	301.66	5.50E+01	34.71	7.63E-03	8.36E-04
	10	338.34	8.01E+01	52.47	6.86E-03	7.95E-04
	11	351.98	1.79E+02	56.10	6.61E-03	7.80E-04
	12	511.24	1.16E+02	41.42	4.61E-03	5.61E-04
	13	583.55	9.76E+01	41.71	4.04E-03	4.55E-04
	14	609.64	9.98E+01	38.13	3.87E-03	4.17E-04
	15	644.00	8.16E+01	73.80	3.67E-03	3.66E-04
	16	728.40	3.85E+01	27.82	3.25E-03	3.03E-04
	17	911.71	7.10E+01	27.00	2.61E-03	2.06E-04
	18	968.02	6.08E+01	27.21	2.46E-03	1.99E-04
	19	1113.31	1.10E+01	13.78	2.16E-03	1.80E-04
	20	1120.87	2.80E+01	17.44	2.14E-03	1.79E-04
	21	1334.75	1.97E+01	13.53	1.82E-03	2.15E-04
	22	1382.11	1.94E+01	12.08	1.77E-03	2.05E-04
	23	1461.40	2.21E+02	31.06	1.68E-03	1.89E-04
	24	1591.25	1.83E+01	10.95	1.56E-03	1.62E-04
	25	1629.90	7.06E+00	7.50	1.53E-03	1.54E-04
	26	1684.73	6.67E+00	7.50	1.49E-03	1.42E-04
	27	1764.52	2.50E+01	10.00	1.43E-03	1.26E-04
	28	2144.18	5.00E+00	4.47	1.23E-03	1.11E-04
	29	2615.30	4.20E+01	12.96	1.07E-03	1.11E-04

Analysis Report for 1606065-07

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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 : 6/17/2016 10:10:21AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038679.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	4.32E+01	47.53			4.32E+01	4.75E+01
	2	6.87E+02	136.29			6.87E+02	1.36E+02
M	3	1.50E+02	89.76			1.50E+02	8.98E+01
m	4	1.67E+02	81.80	5.93E+01	9.62E+00	1.08E+02	8.24E+01
	5	2.12E+02	82.50	2.90E+01	7.24E+00	1.83E+02	8.28E+01
	6	6.05E+01	50.99			6.05E+01	5.10E+01
	7	4.73E+02	73.14	7.10E+00	5.46E+00	4.66E+02	7.33E+01
M	8	1.35E+02	45.35			1.35E+02	4.54E+01
m	9	5.50E+01	34.71			5.50E+01	3.47E+01
	10	8.01E+01	52.47			8.01E+01	5.25E+01
	11	1.79E+02	56.10	1.61E+00	4.34E+00	1.78E+02	5.63E+01
	12	1.16E+02	41.42	4.57E+01	5.07E+00	7.05E+01	4.17E+01
	13	9.76E+01	41.71	2.37E+00	3.72E+00	9.52E+01	4.19E+01
	14	9.98E+01	38.13			9.98E+01	3.81E+01
	15	8.16E+01	73.80			8.16E+01	7.38E+01
	16	3.85E+01	27.82			3.85E+01	2.78E+01
	17	7.10E+01	27.00			7.10E+01	2.70E+01
	18	6.08E+01	27.21			6.08E+01	2.72E+01
	19	1.10E+01	13.78			1.10E+01	1.38E+01
	20	2.80E+01	17.44			2.80E+01	1.74E+01
	21	1.97E+01	13.53			1.97E+01	1.35E+01
	22	1.94E+01	12.08			1.94E+01	1.21E+01
	23	2.21E+02	31.06	9.79E-01	1.85E+00	2.20E+02	3.11E+01
	24	1.83E+01	10.95			1.83E+01	1.10E+01
	25	7.06E+00	7.50			7.06E+00	7.50E+00
	26	6.67E+00	7.50			6.67E+00	7.50E+00
	27	2.50E+01	10.00			2.50E+01	1.00E+01
	28	5.00E+00	4.47			5.00E+00	4.47E+00
	29	4.20E+01	12.96			4.20E+01	1.30E+01

Analysis Report for 1606065-07
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M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/17/2016 10:10:21AM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038679.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	25.24	4.32E+01	47.53			4.32E+01	4.75E+01
	2	76.21	6.87E+02	136.29			6.87E+02	1.36E+02
M	3	87.27	1.50E+02	89.76			1.50E+02	8.98E+01
m	4	92.88	1.67E+02	81.80	5.93E+01	9.62E+00	1.08E+02	8.24E+01
	5	186.15	2.12E+02	82.50	2.90E+01	7.24E+00	1.83E+02	8.28E+01
	6	209.88	6.05E+01	50.99			6.05E+01	5.10E+01
	7	239.32	4.73E+02	73.14	7.10E+00	5.46E+00	4.66E+02	7.33E+01
M	8	295.60	1.35E+02	45.35			1.35E+02	4.54E+01
m	9	301.66	5.50E+01	34.71			5.50E+01	3.47E+01
	10	338.34	8.01E+01	52.47			8.01E+01	5.25E+01
	11	351.98	1.79E+02	56.10	1.61E+00	4.34E+00	1.78E+02	5.63E+01
	12	511.24	1.16E+02	41.42	4.57E+01	5.07E+00	7.05E+01	4.17E+01
	13	583.55	9.76E+01	41.71	2.37E+00	3.72E+00	9.52E+01	4.19E+01
	14	609.64	9.98E+01	38.13			9.98E+01	3.81E+01
	15	644.00	8.16E+01	73.80			8.16E+01	7.38E+01
	16	728.40	3.85E+01	27.82			3.85E+01	2.78E+01
	17	911.71	7.10E+01	27.00			7.10E+01	2.70E+01
	18	968.02	6.08E+01	27.21			6.08E+01	2.72E+01
	19	1113.31	1.10E+01	13.78			1.10E+01	1.38E+01
	20	1120.87	2.80E+01	17.44			2.80E+01	1.74E+01
	21	1334.75	1.97E+01	13.53			1.97E+01	1.35E+01
	22	1382.11	1.94E+01	12.08			1.94E+01	1.21E+01
	23	1461.40	2.21E+02	31.06	9.79E-01	1.85E+00	2.20E+02	3.11E+01
	24	1591.25	1.83E+01	10.95			1.83E+01	1.10E+01
	25	1629.90	7.06E+00	7.50			7.06E+00	7.50E+00
	26	1684.73	6.67E+00	7.50			6.67E+00	7.50E+00
	27	1764.52	2.50E+01	10.00			2.50E+01	1.00E+01
	28	2144.18	5.00E+00	4.47			5.00E+00	4.47E+00
	29	2615.30	4.20E+01	12.96			4.20E+01	1.30E+01

Analysis Report for 1606065-07
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M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet
 Errors quoted at 2.000sigma

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	0.946	1460.81 *	10.67	2.47E+01	4.48E+00
GA-67	0.609	93.31 *	35.70	2.17E+00	3.90E+00
		208.95 *	2.24	3.52E+01	5.10E+01
		300.22	16.00		
CD-109	0.911	88.03 *	3.72	4.17E+00	2.54E+00
SN-126	0.986	87.57 *	37.00	4.13E-01	2.50E-01
EU-155	0.326	86.50 *	30.90	4.97E-01	3.01E-01
		105.30	20.70		
TL-208	0.843	583.14 *	30.22	1.57E+00	7.13E-01
		860.37	4.48		
		2614.66 *	35.85	2.20E+00	7.17E-01
PB-212	0.828	238.63 *	44.60	2.24E+00	4.24E-01
		300.09	3.41		
BI-214	0.917	609.31 *	46.30	1.12E+00	4.45E-01
		1120.29 *	15.10	1.74E+00	1.10E+00
		1764.49 *	15.80	2.22E+00	9.10E-01
		2204.22	4.98		
PB-214	0.991	295.21 *	19.19	1.82E+00	6.44E-01
		351.92 *	37.19	1.46E+00	4.92E-01
RA-226	0.999	186.21 *	3.28	9.68E+00	1.83E+01
AC-228	0.554	338.32 *	11.40	2.06E+00	1.37E+00
		911.07 *	27.70	1.98E+00	7.69E-01
		969.11	16.60		
TH-231	0.562	25.64 *	14.70	1.97E-01	2.17E-01
		84.21	6.40		
NP-237	0.910	86.50 *	12.60	1.21E+00	7.35E-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

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 10:10:21AM
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	76.21	1.90750E-01	9.92		
9	301.66	1.52757E-02	31.56		
12	511.24	1.95905E-02	29.59		
15	644.00	2.26754E-02	45.20		
16	728.40	1.07083E-02	36.08		
18	968.02	1.68858E-02	22.38		
19	1113.31	3.06667E-03	62.43		
21	1334.75	5.47839E-03	34.30		
22	1382.11	5.39352E-03	31.12		
24	1591.25	5.07937E-03	29.95		
25	1629.90	1.95988E-03	53.15		
26	1684.73	1.85185E-03	56.25		
28	2144.18	1.38889E-03	44.72		

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	0.94	1460.81 *	10.67	2.47E+01	4.48E+00
GA-67	0.60	93.31 *	35.70	2.17E+00	3.90E+00
		208.95 *	2.24	3.52E+01	5.10E+01

Analysis Report for 1606065-07

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Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
GA-67	0.60	300.22	16.00		
CD-109	0.91	88.03 *	3.72	4.17E+00	2.54E+00
SN-126	0.98	87.57 *	37.00	4.13E-01	2.50E-01
EU-155	0.32	86.50 *	30.90	4.97E-01	3.01E-01
		105.30	20.70		
TL-208	0.84	583.14 *	30.22	1.57E+00	7.13E-01
		860.37	4.48		
		2614.66 *	35.85	2.20E+00	7.17E-01
PB-212	0.82	238.63 *	44.60	2.24E+00	4.24E-01
		300.09	3.41		
BI-214	0.91	609.31 *	46.30	1.12E+00	4.45E-01
		1120.29 *	15.10	1.74E+00	1.10E+00
		1764.49 *	15.80	2.22E+00	9.10E-01
		2204.22	4.98		
PB-214	0.99	295.21 *	19.19	1.82E+00	6.44E-01
		351.92 *	37.19	1.46E+00	4.92E-01
RA-226	0.99	186.21 *	3.28	9.68E+00	1.83E+01
AC-228	0.55	338.32 *	11.40	2.06E+00	1.37E+00
		911.07 *	27.70	1.98E+00	7.69E-01
		969.11	16.60		
TH-231	0.56	25.64 *	14.70	1.97E-01	2.17E-01
		84.21	6.40		
NP-237	0.91	86.50 *	12.60	1.21E+00	7.35E-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
K-40	0.946	2.47E+01	4.48E+00	
GA-67	0.609	2.49E+00	4.15E+00	
? CD-109	0.911	4.17E+00	2.54E+00	
? SN-126	0.986	4.13E-01	2.50E-01	

Analysis Report for 1606065-07

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	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
?	EU-155	0.326	4.97E-01	3.01E-01	
	TL-208	0.843	1.88E+00	5.06E-01	
	PB-212	0.828	2.24E+00	4.24E-01	
	BI-214	0.917	1.38E+00	3.76E-01	
	PB-214	0.991	1.59E+00	3.91E-01	
	RA-226	0.999	9.68E+00	1.83E+01	
	AC-228	0.554	2.00E+00	6.71E-01	
	TH-231	0.562	1.97E-01	2.17E-01	
?	NP-237	0.910	1.21E+00	7.35E-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

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 10:10:21AM
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	76.21	1.90750E-01	9.92	
m	9	301.66	1.52757E-02	31.56	
	12	511.24	1.95905E-02	29.59	
	15	644.00	2.26754E-02	45.20	
	16	728.40	1.07083E-02	36.08	
	18	968.02	1.68858E-02	22.38	
	19	1113.31	3.06667E-03	62.43	
	21	1334.75	5.47839E-03	34.30	
	22	1382.11	5.39352E-03	31.12	
	24	1591.25	5.07937E-03	29.95	
	25	1629.90	1.95988E-03	53.15	
	26	1684.73	1.85185E-03	56.25	
	28	2144.18	1.38889E-03	44.72	

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.00sigma

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	-2.50E-02	1.84E+00	1.84E+00
+	NA-22	1274.54	99.94	-1.09E-01	2.62E-01	2.62E-01
+	NA-24	1368.53	99.99	-7.78E+01	4.00E+03	5.18E+03
		2754.09	99.86	2.15E+02		4.00E+03

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	AL-26	1808.65	99.76	4.79E-02	2.16E-01	2.16E-01
+	K-40	1460.81	* 10.67	2.47E+01	2.05E+00	2.05E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	3.06E-02	1.26E-01	1.26E-01
		78.34	96.00	4.18E-01		1.65E-01
+	SC-46	889.25	99.98	-4.11E-02	2.42E-01	2.42E-01
		1120.51	99.99	1.02E-01		3.47E-01
+	V-48	983.52	99.98	4.44E-02	3.41E-01	3.41E-01
		1312.10	97.50	-1.21E-01		3.96E-01
+	CR-51	320.08	9.83	-4.38E-01	2.03E+00	2.03E+00
+	MN-54	834.83	99.97	-1.26E-01	2.19E-01	2.19E-01
+	CO-56	846.75	99.96	-5.06E-02	2.47E-01	2.47E-01
		1037.75	14.03	1.02E+00		1.90E+00
		1238.25	67.00	1.84E-01		6.10E-01
		1771.40	15.51	-2.13E+00		1.29E+00
		2598.48	16.90	5.00E-01		1.69E+00
+	CO-57	122.06	85.51	-3.39E-02	1.43E-01	1.43E-01
		136.48	10.60	-6.58E-01		1.24E+00
+	CO-58	810.76	99.40	-1.29E-01	2.52E-01	2.52E-01
+	FE-59	1099.22	56.50	5.01E-03	4.88E-01	4.88E-01
		1291.56	43.20	3.26E-02		6.86E-01
+	CO-60	1173.22	100.00	7.40E-02	2.92E-01	3.13E-01
		1332.49	100.00	1.02E-01		2.92E-01
+	ZN-65	1115.52	50.75	-6.86E-01	5.49E-01	5.49E-01
+	GA-67	93.31	* 35.70	2.17E+00	4.27E+00	4.27E+00
		208.95	* 2.24	3.52E+01		4.81E+01
		300.22	16.00	-2.17E+00		7.73E+00
+	SE-75	121.11	16.70	-1.99E-01	2.29E-01	7.46E-01
		136.00	59.20	-7.35E-02		2.29E-01
		264.65	59.80	-2.58E-01		2.54E-01
		279.53	25.20	-4.03E-01		6.19E-01
		400.65	11.40	3.39E-02		1.54E+00
+	RB-82	776.52	13.00	4.50E-01	2.22E+00	2.22E+00
+	RB-83	520.41	46.00	8.14E-02	4.12E-01	4.12E-01
		529.64	30.30	-2.05E-01		6.82E-01
		552.65	16.40	3.96E-01		1.32E+00
+	KR-85	513.99	0.43	8.54E+01	5.96E+01	5.96E+01
+	SR-85	513.99	99.27	4.10E-01	2.87E-01	2.87E-01
+	Y-88	898.02	93.40	1.20E-02	2.46E-01	2.96E-01
		1836.01	99.38	-9.42E-02		2.46E-01
+	NB-93M	16.57	9.43	1.41E+00	6.48E-01	6.48E-01
+	NB-94	702.63	100.00	-1.63E-02	2.08E-01	2.17E-01
		871.10	100.00	-2.56E-02		2.08E-01
+	NB-95	765.79	99.81	4.68E-02	2.95E-01	2.95E-01
+	NB-95M	235.69	25.00	-6.70E-01	5.49E+00	5.49E+00
+	ZR-95	724.18	43.70	1.20E-02	4.13E-01	6.26E-01
		756.72	55.30	-2.20E-01		4.13E-01

Analysis Report for 1606065-07

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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
+	MO-99	181.06	6.20	2.72E+00	1.68E+01	2.36E+01
		739.58	12.80	1.06E+00		1.68E+01
		778.00	4.50	1.01E+00		4.59E+01
+	RU-103	497.08	89.00	-3.24E-02	2.38E-01	2.38E-01
+	RU-106	621.84	9.80	-3.61E-01	2.13E+00	2.13E+00
+	AG-108M	433.93	89.90	-1.16E-01	1.84E-01	1.84E-01
		614.37	90.40	-5.91E-02		2.76E-01
		722.95	90.50	-2.38E-02		2.64E-01
+	CD-109	88.03	3.72	4.17E+00	5.89E+00	5.89E+00
+	AG-110M	657.75	93.14	-1.63E-02	2.30E-01	2.30E-01
		677.61	10.53	-5.78E-01		1.97E+00
		706.67	16.46	2.51E-01		1.46E+00
		763.93	21.98	8.35E-02		1.12E+00
		884.67	71.63	5.68E-02		2.93E-01
		1384.27	23.94	1.63E-02		1.17E+00
+	CD-113M	263.70	0.02	-5.65E+02	6.43E+02	6.43E+02
+	SN-113	255.12	1.93	1.06E+00	2.89E-01	8.13E+00
		391.69	64.90	1.18E-01		2.89E-01
+	TE123M	159.00	84.10	-5.07E-02	1.57E-01	1.57E-01
+	SB-124	602.71	97.87	7.78E-02	2.44E-01	2.44E-01
		645.85	7.26	-2.39E-01		3.16E+00
		722.78	11.10	-2.12E-02		2.21E+00
		1691.02	49.00	-2.56E-02		4.87E-01
		35.49	6.49	2.07E-01	1.21E+00	1.21E+00
+	SB-125	176.33	6.89	1.39E-01	5.69E-01	2.03E+00
		427.89	29.33	-1.23E-01		5.69E-01
		463.38	10.35	-1.43E-03		1.72E+00
		600.56	17.80	4.19E-02		1.20E+00
		635.90	11.32	-3.19E-01		1.78E+00
		414.70	83.30	-9.74E-02	3.47E-01	3.59E-01
+	SB-126	666.33	99.60	1.74E-01		3.83E-01
		695.00	99.60	6.21E-02		3.47E-01
		720.50	53.80	5.67E-02		7.15E-01
+	SN-126	87.57	37.00	4.13E-01	5.84E-01	5.84E-01
+	SB-127	473.00	25.00	-1.63E+00	2.96E+00	3.40E+00
		685.20	35.70	-6.20E-02		2.96E+00
		783.80	14.70	-1.09E+00		7.39E+00
+	I-129	29.78	57.00	-3.26E-02	1.20E-01	1.20E-01
		33.60	13.20	2.69E-01		5.31E-01
		39.58	7.52	-9.01E-01		9.75E-01
+	I-131	284.30	6.05	-8.70E-01	4.48E-01	5.36E+00
		364.48	81.20	7.11E-02		4.48E-01
		636.97	7.26	5.43E-01		6.06E+00
		722.89	1.80	-2.56E-01		2.68E+01
+	TE-132	49.72	13.10	2.20E+00	1.21E+00	4.62E+00
		228.16	88.00	2.38E-01		1.21E+00
+	BA-133	81.00	33.00	-3.93E-01	3.84E-01	4.42E-01
		302.84	17.80	-3.24E-02		9.43E-01
		356.01	60.00	-4.34E-02		3.84E-01

Analysis Report for 1606065-07
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	I-133	529.87	86.30	-9.11E+01	3.03E+02	3.03E+02
+	XE-133	81.00	38.00	-1.12E+00	1.26E+00	1.26E+00
+	CS-134	563.23	8.38	6.09E-01	2.55E-01	2.49E+00
		569.32	15.43	1.10E+00		1.53E+00
		604.70	97.60	2.65E-02		2.55E-01
		795.84	85.40	1.16E-01		2.92E-01
	CS-135	801.93	8.73	-8.17E-01		2.59E+00
+		268.24	16.00	6.18E-01	1.03E+00	1.03E+00
+	I-135	1131.51	22.50	2.87E+09	7.71E+09	9.23E+09
		1260.41	28.60	9.51E+08		7.71E+09
		1678.03	9.54	-2.27E+08		1.34E+10
+	CS-136	153.22	7.46	5.68E-01	4.07E-01	2.79E+00
		163.89	4.61	-1.96E+00		4.42E+00
		176.55	13.56	1.13E-01		1.65E+00
		273.65	12.66	1.73E+00		2.19E+00
		340.57	48.50	6.95E-01		6.84E-01
		818.50	99.70	1.38E-01		4.07E-01
		1048.07	79.60	-2.41E-01		4.55E-01
		1235.34	19.70	1.72E+00		3.21E+00
+	CS-137	661.65	85.12	-6.29E-02	2.45E-01	2.45E-01
+	LA-138	788.74	34.00	-1.54E-01	3.91E-01	6.55E-01
		1435.80	66.00	1.69E-01		3.91E-01
+	CE-139	165.85	80.35	2.97E-02	1.72E-01	1.72E-01
+	BA-140	162.64	6.70	-1.41E+00	1.17E+00	3.07E+00
		304.84	4.50	-5.27E-01		6.11E+00
		423.70	3.20	-3.51E+00		8.60E+00
		437.55	2.00	2.30E+00		1.43E+01
		537.32	25.00	-5.99E-02		1.17E+00
		537.32	25.00	-5.99E-02		1.17E+00
+	LA-140	328.77	20.50	1.88E-01	4.44E-01	1.35E+00
		487.03	45.50	-1.95E-01		6.51E-01
		815.85	23.50	-1.76E-02		1.71E+00
		1596.49	95.49	6.13E-02		4.44E-01
+	CE-141	145.44	48.40	-3.77E-02	3.26E-01	3.26E-01
+	CE-143	57.36	11.80	-4.71E+01	4.44E+01	7.96E+01
		293.26	42.00	3.70E+01		4.44E+01
		664.55	5.20	1.32E+02		4.05E+02
+	CE-144	133.54	10.80	1.46E-01	1.24E+00	1.24E+00
+	PM-144	476.78	42.00	-8.73E-02	2.18E-01	4.09E-01
		618.01	98.60	2.93E-02		2.28E-01
		696.49	99.49	6.78E-02		2.18E-01
+	PM-145	36.85	21.70	-8.05E-02	1.80E-01	3.24E-01
		37.36	39.70	-4.84E-02		1.80E-01
		42.30	15.10	-5.21E-02		5.24E-01
		72.40	2.31	9.58E+00		6.48E+00
+	PM-146	453.90	39.94	-4.10E-02	4.33E-01	4.33E-01
		735.90	14.01	1.90E-01		1.63E+00
		747.13	13.10	1.15E+00		1.77E+00
+	ND-147	91.11	28.90	1.50E+00	8.87E-01	8.87E-01
		531.02	13.10	3.09E-01		2.68E+00

Analysis Report for 1606065-07
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PM-149	285.90	3.10	-5.87E+00	8.23E+01	8.23E+01
+	EU-152	121.78	20.50	-1.38E-01	5.83E-01	5.83E-01
		244.69	5.40	3.30E-01		3.28E+00
		344.27	19.13	-3.14E+00		8.59E-01
		778.89	9.20	5.11E-02		2.32E+00
		964.01	10.40	3.71E-01		2.92E+00
		1085.78	7.22	1.20E+00		3.73E+00
		1112.02	9.60	3.57E-01		2.87E+00
		1407.95	14.94	-4.66E-01		1.46E+00
+	GD-153	97.43	31.30	1.97E-01	4.12E-01	4.12E-01
		103.18	22.20	-7.72E-02		5.26E-01
+	EU-154	123.07	40.50	-9.26E-02	3.01E-01	3.01E-01
		723.30	19.70	-1.09E-01		1.21E+00
		873.19	11.50	-4.14E-01		1.71E+00
		996.32	10.30	-6.69E-01		2.47E+00
		1004.76	17.90	4.58E-01		1.45E+00
		1274.45	35.50	-3.07E-01		7.33E-01
+	EU-155	86.50	* 30.90	4.97E-01	5.35E-01	7.02E-01
		105.30	20.70	-2.25E-01		5.35E-01
+	EU-156	811.77	10.40	4.16E-02	3.53E+00	3.53E+00
		1153.47	7.20	-9.68E-01		6.20E+00
		1230.71	8.90	-3.29E-01		5.90E+00
+	HO-166M	184.41	72.60	3.22E-01	2.37E-01	2.37E-01
		280.45	29.60	-1.23E-01		5.05E-01
		410.94	11.10	3.28E-01		1.65E+00
		711.69	54.10	-4.83E-02		4.47E-01
+	TM-171	66.72	0.14	3.93E+01	8.48E+01	8.48E+01
+	HF-172	81.75	4.52	-8.55E+00	1.15E+00	3.02E+00
		125.81	11.30	5.04E-01		1.15E+00
+	LU-172	181.53	20.60	2.02E-01	9.36E-01	1.95E+00
		810.06	16.63	-1.79E+00		3.50E+00
		912.12	15.25	6.35E+00		6.01E+00
		1093.66	62.50	-2.51E-01		9.36E-01
+	LU-173	100.72	5.24	-3.78E-01	7.96E-01	2.20E+00
		272.11	21.20	1.46E-01		7.96E-01
+	HF-175	343.40	84.00	-3.06E-01	2.32E-01	2.32E-01
+	LU-176	88.34	13.30	1.24E+00	1.62E-01	1.06E+00
		201.83	86.00	-1.72E-02		1.70E-01
		306.78	94.00	-2.35E-02		1.62E-01
+	TA-182	67.75	41.20	7.39E-02	3.04E-01	3.04E-01
		1121.30	34.90	4.92E-01		9.76E-01
		1189.05	16.23	2.24E-01		2.10E+00
		1221.41	26.98	-1.03E-01		1.22E+00
		1231.02	11.44	-1.79E-01		3.21E+00
+	IR-192	308.46	29.68	5.64E-02	4.12E-01	5.59E-01
		468.07	48.10	2.09E-01		4.12E-01
+	HG-203	279.19	77.30	-1.43E-01	2.19E-01	2.19E-01
+	BI-207	569.67	97.72	1.73E-01	2.39E-01	2.39E-01
		1063.62	74.90	1.39E-01		3.80E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TL-208	583.14	*	30.22	1.57E+00	1.42E-01	1.05E+00
		860.37		4.48	2.68E-01		5.30E+00
		2614.66	*	35.85	2.20E+00		1.42E-01
+	BI-210M	262.00		45.00	-1.22E-01	3.23E-01	3.23E-01
		300.00		23.00	1.20E+00		8.80E-01
+	PB-210	46.50		4.25	1.53E+00	2.01E+00	2.01E+00
+	PB-211	404.84		2.90	-1.75E+00	5.92E+00	5.92E+00
		831.96		2.90	-2.76E+00		7.17E+00
+	BI-212	727.17		11.80	8.57E-01	2.14E+00	2.14E+00
		1620.62		2.75	1.85E+00		6.71E+00
+	PB-212	238.63	*	44.60	2.24E+00	4.82E-01	4.82E-01
		300.09		3.41	8.07E+00		5.94E+00
+	BI-214	609.31	*	46.30	1.12E+00	2.41E-01	6.31E-01
		1120.29	*	15.10	1.74E+00		1.59E+00
		1764.49	*	15.80	2.22E+00		2.41E-01
		2204.22		4.98	2.24E-01		4.73E+00
+	PB-214	295.21	*	19.19	1.82E+00	6.91E-01	1.56E+00
		351.92	*	37.19	1.46E+00		6.91E-01
+	RN-219	401.80		6.50	-3.71E-01	2.58E+00	2.58E+00
+	RA-223	323.87		3.88	-9.83E-01	4.27E+00	4.27E+00
+	RA-224	240.98		3.95	2.49E+01	6.68E+00	6.68E+00
+	RA-225	40.00		31.00	-3.34E-01	3.62E-01	3.62E-01
+	RA-226	186.21	*	3.28	9.68E+00	6.96E+00	6.96E+00
+	TH-227	50.10		8.40	5.04E-01	1.06E+00	1.06E+00
		236.00		11.50	-2.58E-01		2.12E+00
		256.20		6.30	1.40E+00		2.42E+00
+	AC-228	338.32	*	11.40	2.06E+00	1.04E+00	2.16E+00
		911.07	*	27.70	1.98E+00		1.04E+00
		969.11		16.60	1.93E+00		2.10E+00
+	TH-230	48.44		16.90	2.40E-01	5.19E-01	5.19E-01
		62.85		4.60	1.55E+00		2.47E+00
		67.67		0.37	7.79E+00		3.20E+01
+	PA-231	283.67		1.60	-4.61E+00	7.28E+00	9.07E+00
		302.67		2.30	-2.50E-01		7.28E+00
+	TH-231	25.64	*	14.70	1.97E-01	3.54E-01	3.54E-01
		84.21		6.40	-7.38E+00		2.01E+00
+	PA-233	311.98		38.60	1.29E-01	5.12E-01	5.12E-01
+	PA-234	131.20		20.40	3.63E-01	6.50E-01	6.50E-01
		733.99		8.80	1.01E-01		2.55E+00
		946.00		12.00	1.00E+00		2.19E+00
+	PA-234M	1001.03		0.92	-6.97E-01	2.81E+01	2.81E+01
+	TH-234	63.29		3.80	2.00E+00	3.01E+00	3.01E+00
+	U-235	143.76		10.50	5.10E-01	1.26E+00	1.26E+00
		163.35		4.70	-1.19E+00		2.69E+00
		205.31		4.70	-8.36E-01		3.15E+00
+	NP-237	86.50	*	12.60	1.21E+00	1.71E+00	1.71E+00
+	NP-239	106.10		22.70	-2.92E+00	6.95E+00	6.95E+00

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	NP-239	228.18	10.70	6.37E+00	6.95E+00	2.07E+01
		277.60	14.10	-3.69E+00		1.56E+01
+	AM-241	59.54	35.90	2.97E-01	3.03E-01	3.03E-01
+	AM-243	74.67	66.00	9.29E-01	2.45E-01	2.45E-01
+	CM-243	209.75	3.29	1.59E+00	1.10E+00	4.70E+00
		228.14	10.60	2.90E-01		1.47E+00
		277.60	14.00	-2.62E-01		1.10E+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	1.84E+00	1.84E+00	-2.50E-02	8.59E-01
	NA-22	1274.54	99.94	2.62E-01	2.62E-01	-1.09E-01	1.16E-01
	NA-24	1368.53	99.99	5.18E+03	4.00E+03	-7.78E+01	2.25E+03
		2754.09	99.86	4.00E+03		2.15E+02	1.42E+03
	AL-26	1808.65	99.76	2.16E-01	2.16E-01	4.79E-02	8.85E-02
+	K-40	1460.81	* 10.67	2.05E+00	2.05E+00	2.47E+01	8.71E-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	1.26E-01	1.26E-01	3.06E-02	6.15E-02
		78.34	96.00	1.65E-01		4.18E-01	8.13E-02
	SC-46	889.25	99.98	2.42E-01	2.42E-01	-4.11E-02	1.10E-01
		1120.51	99.99	3.47E-01		1.02E-01	1.60E-01
	V-48	983.52	99.98	3.41E-01	3.41E-01	4.44E-02	1.54E-01
		1312.10	97.50	3.96E-01		-1.21E-01	1.76E-01
	CR-51	320.08	9.83	2.03E+00	2.03E+00	-4.38E-01	9.69E-01
	MN-54	834.83	99.97	2.19E-01	2.19E-01	-1.26E-01	9.96E-02
	CO-56	846.75	99.96	2.47E-01	2.47E-01	-5.06E-02	1.13E-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)		
CO-56	1037.75	14.03	1.90E+00	2.47E-01	1.02E+00	8.60E-01		
	1238.25	67.00	6.10E-01		1.84E-01	2.82E-01		
	1771.40	15.51	1.29E+00		-2.13E+00	5.12E-01		
	2598.48	16.90	1.69E+00		5.00E-01	6.84E-01		
CO-57	122.06	85.51	1.43E-01	1.43E-01	-3.39E-02	6.95E-02		
	136.48	10.60	1.24E+00		-6.58E-01	6.00E-01		
CO-58	810.76	99.40	2.52E-01	2.52E-01	-1.29E-01	1.16E-01		
FE-59	1099.22	56.50	4.88E-01	4.88E-01	5.01E-03	2.19E-01		
	1291.56	43.20	6.86E-01		3.26E-02	3.04E-01		
CO-60	1173.22	100.00	3.13E-01	2.92E-01	7.40E-02	1.43E-01		
	1332.49	100.00	2.92E-01		1.02E-01	1.31E-01		
ZN-65	1115.52	50.75	5.49E-01	5.49E-01	-6.86E-01	2.49E-01		
+ GA-67	93.31	* 35.70	4.27E+00	4.27E+00	2.17E+00	2.11E+00		
	208.95	* 2.24	4.81E+01		3.52E+01	2.33E+01		
	300.22	16.00	7.73E+00		-2.17E+00	3.72E+00		
SE-75	121.11	16.70	7.46E-01	2.29E-01	-1.99E-01	3.62E-01		
	136.00	59.20	2.29E-01		-7.35E-02	1.11E-01		
	264.65	59.80	2.54E-01		-2.58E-01	1.22E-01		
	279.53	25.20	6.19E-01		-4.03E-01	2.95E-01		
	400.65	11.40	1.54E+00		3.39E-02	7.27E-01		
RB-82	776.52	13.00	2.22E+00	2.22E+00	4.50E-01	1.02E+00		
RB-83	520.41	46.00	4.12E-01	4.12E-01	8.14E-02	1.92E-01		
	529.64	30.30	6.82E-01		-2.05E-01	3.19E-01		
	552.65	16.40	1.32E+00		3.96E-01	6.20E-01		
KR-85	513.99	0.43	5.96E+01	5.96E+01	8.54E+01	2.84E+01		
SR-85	513.99	99.27	2.87E-01	2.87E-01	4.10E-01	1.37E-01		
Y-88	898.02	93.40	2.96E-01	2.46E-01	1.20E-02	1.36E-01		
	1836.01	99.38	2.46E-01		-9.42E-02	1.02E-01		
NB-93M	16.57	9.43	6.48E-01	6.48E-01	1.41E+00	3.14E-01		
NB-94	702.63	100.00	2.17E-01	2.08E-01	-1.63E-02	1.00E-01		
	871.10	100.00	2.08E-01		-2.56E-02	9.42E-02		
NB-95	765.79	99.81	2.95E-01	2.95E-01	4.68E-02	1.37E-01		
NB-95M	235.69	25.00	5.49E+00	5.49E+00	-6.70E-01	2.68E+00		
ZR-95	724.18	43.70	6.26E-01	4.13E-01	1.20E-02	2.92E-01		
	756.72	55.30	4.13E-01		-2.20E-01	1.89E-01		
MO-99	181.06	6.20	2.36E+01	1.68E+01	2.72E+00	1.14E+01		
	739.58	12.80	1.68E+01		1.06E+00	7.78E+00		
	778.00	4.50	4.59E+01		1.01E+00	2.10E+01		
RU-103	497.08	89.00	2.38E-01	2.38E-01	-3.24E-02	1.11E-01		
RU-106	621.84	9.80	2.13E+00	2.13E+00	-3.61E-01	9.92E-01		
AG-108M	433.93	89.90	1.84E-01	1.84E-01	-1.16E-01	8.63E-02		
	614.37	90.40	2.76E-01		-5.91E-02	1.30E-01		
	722.95	90.50	2.64E-01		-2.38E-02	1.23E-01		
+ CD-109	88.03	* 3.72	5.89E+00	5.89E+00	4.17E+00	2.91E+00		
	AG-110M	657.75	93.14		2.30E-01	2.30E-01	-1.63E-02	1.07E-01
	677.61	10.53	1.97E+00		-5.78E-01		9.07E-01	
	706.67	16.46	1.46E+00		2.51E-01		6.81E-01	
	763.93	21.98	1.12E+00		8.35E-02		5.18E-01	
	884.67	71.63	2.93E-01		5.68E-02		1.32E-01	
1384.27	23.94	1.17E+00	1.63E-02	5.21E-01				
CD-113M	263.70	0.02	6.43E+02	6.43E+02	-5.65E+02	3.08E+02		
SN-113	255.12	1.93	8.13E+00	2.89E-01	1.06E+00	3.90E+00		
	391.69	64.90	2.89E-01		1.18E-01	1.37E-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)
TE123M	159.00	84.10	1.57E-01	1.57E-01	-5.07E-02	7.58E-02
SB-124	602.71	97.87	2.44E-01	2.44E-01	7.78E-02	1.14E-01
	645.85	7.26	3.16E+00		-2.39E-01	1.47E+00
	722.78	11.10	2.21E+00		-2.12E-02	1.02E+00
	1691.02	49.00	4.87E-01		-2.56E-02	2.02E-01
I-125	35.49	6.49	1.21E+00	1.21E+00	2.07E-01	5.86E-01
SB-125	176.33	6.89	2.03E+00	5.69E-01	1.39E-01	9.83E-01
	427.89	29.33	5.69E-01		-1.23E-01	2.67E-01
	463.38	10.35	1.72E+00		-1.43E-03	8.09E-01
	600.56	17.80	1.20E+00		4.19E-02	5.60E-01
	635.90	11.32	1.78E+00		-3.19E-01	8.24E-01
SB-126	414.70	83.30	3.59E-01	3.47E-01	-9.74E-02	1.70E-01
	666.33	99.60	3.83E-01		1.74E-01	1.79E-01
	695.00	99.60	3.47E-01		6.21E-02	1.60E-01
	720.50	53.80	7.15E-01		5.67E-02	3.32E-01
+ SN-126	87.57 *	37.00	5.84E-01	5.84E-01	4.13E-01	2.88E-01
SB-127	473.00	25.00	3.40E+00	2.96E+00	-1.63E+00	1.59E+00
	685.20	35.70	2.96E+00		-6.20E-02	1.37E+00
	783.80	14.70	7.39E+00		-1.09E+00	3.39E+00
I-129	29.78	57.00	1.20E-01	1.20E-01	-3.26E-02	5.85E-02
	33.60	13.20	5.31E-01		2.69E-01	2.58E-01
	39.58	7.52	9.75E-01		-9.01E-01	4.74E-01
I-131	284.30	6.05	5.36E+00	4.48E-01	-8.70E-01	2.56E+00
	364.48	81.20	4.48E-01		7.11E-02	2.13E-01
	636.97	7.26	6.06E+00		5.43E-01	2.81E+00
	722.89	1.80	2.68E+01		-2.56E-01	1.24E+01
TE-132	49.72	13.10	4.62E+00	1.21E+00	2.20E+00	2.25E+00
	228.16	88.00	1.21E+00		2.38E-01	5.82E-01
BA-133	81.00	33.00	4.42E-01	3.84E-01	-3.93E-01	2.17E-01
	302.84	17.80	9.43E-01		-3.24E-02	4.51E-01
	356.01	60.00	3.84E-01		-4.34E-02	1.85E-01
I-133	529.87	86.30	3.03E+02	3.03E+02	-9.11E+01	1.42E+02
XE-133	81.00	38.00	1.26E+00	1.26E+00	-1.12E+00	6.20E-01
CS-134	563.23	8.38	2.49E+00	2.55E-01	6.09E-01	1.17E+00
	569.32	15.43	1.53E+00		1.10E+00	7.21E-01
	604.70	97.60	2.55E-01		2.65E-02	1.20E-01
	795.84	85.40	2.92E-01		1.16E-01	1.35E-01
	801.93	8.73	2.59E+00		-8.17E-01	1.19E+00
CS-135	268.24	16.00	1.03E+00	1.03E+00	6.18E-01	4.97E-01
I-135	1131.51	22.50	9.23E+09	7.71E+09	2.87E+09	4.20E+09
	1260.41	28.60	7.71E+09		9.51E+08	3.49E+09
	1678.03	9.54	1.34E+10		-2.27E+08	5.32E+09
CS-136	153.22	7.46	2.79E+00	4.07E-01	5.68E-01	1.35E+00
	163.89	4.61	4.42E+00		-1.96E+00	2.13E+00
	176.55	13.56	1.65E+00		1.13E-01	7.99E-01
	273.65	12.66	2.19E+00		1.73E+00	1.05E+00
	340.57	48.50	6.84E-01		6.95E-01	3.29E-01
	818.50	99.70	4.07E-01		1.38E-01	1.88E-01
	1048.07	79.60	4.55E-01		-2.41E-01	2.03E-01
	1235.34	19.70	3.21E+00		1.72E+00	1.49E+00
CS-137	661.65	85.12	2.45E-01	2.45E-01	-6.29E-02	1.13E-01
LA-138	788.74	34.00	6.55E-01	3.91E-01	-1.54E-01	3.01E-01
	1435.80	66.00	3.91E-01		1.69E-01	1.71E-01

Analysis Report for 1606065-07
CP-5011 05-8 5

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CE-139	165.85	80.35	1.72E-01	1.72E-01	2.97E-02	8.32E-02
BA-140	162.64	6.70	3.07E+00	1.17E+00	-1.41E+00	1.49E+00
	304.84	4.50	6.11E+00		-5.27E-01	2.92E+00
	423.70	3.20	8.60E+00		-3.51E+00	4.05E+00
	437.55	2.00	1.43E+01		2.30E+00	6.72E+00
	537.32	25.00	1.17E+00		-5.99E-02	5.44E-01
LA-140	328.77	20.50	1.35E+00	4.44E-01	1.88E-01	6.44E-01
	487.03	45.50	6.51E-01		-1.95E-01	3.05E-01
	815.85	23.50	1.71E+00		-1.76E-02	7.91E-01
	1596.49	95.49	4.44E-01		6.13E-02	1.92E-01
CE-141	145.44	48.40	3.26E-01	3.26E-01	-3.77E-02	1.58E-01
CE-143	57.36	11.80	7.96E+01	4.44E+01	-4.71E+01	3.89E+01
	293.26	42.00	4.44E+01		3.70E+01	2.14E+01
	664.55	5.20	4.05E+02		1.32E+02	1.88E+02
CE-144	133.54	10.80	1.24E+00	1.24E+00	1.46E-01	6.05E-01
PM-144	476.78	42.00	4.09E-01	2.18E-01	-8.73E-02	1.91E-01
	618.01	98.60	2.28E-01		2.93E-02	1.07E-01
	696.49	99.49	2.18E-01		6.78E-02	1.01E-01
PM-145	36.85	21.70	3.24E-01	1.80E-01	-8.05E-02	1.58E-01
	37.36	39.70	1.80E-01		-4.84E-02	8.73E-02
	42.30	15.10	5.24E-01		-5.21E-02	2.55E-01
	72.40	2.31	6.48E+00		9.58E+00	3.19E+00
PM-146	453.90	39.94	4.33E-01	4.33E-01	-4.10E-02	2.03E-01
	735.90	14.01	1.63E+00		1.90E-01	7.53E-01
	747.13	13.10	1.77E+00		1.15E+00	8.17E-01
ND-147	91.11	28.90	8.87E-01	8.87E-01	1.50E+00	4.35E-01
	531.02	13.10	2.68E+00		3.09E-01	1.26E+00
PM-149	285.90	3.10	8.23E+01	8.23E+01	-5.87E+00	3.93E+01
EU-152	121.78	20.50	5.83E-01	5.83E-01	-1.38E-01	2.83E-01
	244.69	5.40	3.28E+00		3.30E-01	1.58E+00
	344.27	19.13	8.59E-01		-3.14E+00	4.08E-01
	778.89	9.20	2.32E+00		5.11E-02	1.06E+00
	964.01	10.40	2.92E+00		3.71E-01	1.35E+00
	1085.78	7.22	3.73E+00		1.20E+00	1.69E+00
	1112.02	9.60	2.87E+00		3.57E-01	1.30E+00
	1407.95	14.94	1.46E+00		-4.66E-01	6.26E-01
GD-153	97.43	31.30	4.12E-01	4.12E-01	1.97E-01	2.01E-01
	103.18	22.20	5.26E-01		-7.72E-02	2.56E-01
EU-154	123.07	40.50	3.01E-01	3.01E-01	-9.26E-02	1.46E-01
	723.30	19.70	1.21E+00		-1.09E-01	5.65E-01
	873.19	11.50	1.71E+00		-4.14E-01	7.66E-01
	996.32	10.30	2.47E+00		-6.69E-01	1.13E+00
	1004.76	17.90	1.45E+00		4.58E-01	6.63E-01
	1274.45	35.50	7.33E-01		-3.07E-01	3.26E-01
+ EU-155	86.50	* 30.90	7.02E-01	5.35E-01	4.97E-01	3.46E-01
	105.30	20.70	5.35E-01		-2.25E-01	2.60E-01
EU-156	811.77	10.40	3.53E+00	3.53E+00	4.16E-02	1.63E+00
	1153.47	7.20	6.20E+00		-9.68E-01	2.83E+00
	1230.71	8.90	5.90E+00		-3.29E-01	2.72E+00
HO-166M	184.41	72.60	2.37E-01	2.37E-01	3.22E-01	1.15E-01
	280.45	29.60	5.05E-01		-1.23E-01	2.41E-01
	410.94	11.10	1.65E+00		3.28E-01	7.81E-01
	711.69	54.10	4.47E-01		-4.83E-02	2.09E-01

Analysis Report for 1606065-07

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TM-171	66.72	0.14	8.48E+01	8.48E+01	3.93E+01	4.15E+01
HF-172	81.75	4.52	3.02E+00	1.15E+00	-8.55E+00	1.48E+00
	125.81	11.30	1.15E+00		5.04E-01	5.61E-01
LU-172	181.53	20.60	1.95E+00	9.36E-01	2.02E-01	9.47E-01
	810.06	16.63	3.50E+00		-1.79E+00	1.61E+00
	912.12	15.25	6.01E+00		6.35E+00	2.83E+00
	1093.66	62.50	9.36E-01		-2.51E-01	4.17E-01
LU-173	100.72	5.24	2.20E+00	7.96E-01	-3.78E-01	1.07E+00
	272.11	21.20	7.96E-01		1.46E-01	3.83E-01
HF-175	343.40	84.00	2.32E-01	2.32E-01	-3.06E-01	1.11E-01
LU-176	88.34	13.30	1.06E+00	1.62E-01	1.24E+00	5.19E-01
	201.83	86.00	1.70E-01		-1.72E-02	8.20E-02
	306.78	94.00	1.62E-01		-2.35E-02	7.71E-02
TA-182	67.75	41.20	3.04E-01	3.04E-01	7.39E-02	1.49E-01
	1121.30	34.90	9.76E-01		4.92E-01	4.49E-01
	1189.05	16.23	2.10E+00		2.24E-01	9.63E-01
	1221.41	26.98	1.22E+00		-1.03E-01	5.57E-01
	1231.02	11.44	3.21E+00		-1.79E-01	1.48E+00
IR-192	308.46	29.68	5.59E-01	4.12E-01	5.64E-02	2.66E-01
	468.07	48.10	4.12E-01		2.09E-01	1.94E-01
HG-203	279.19	77.30	2.19E-01	2.19E-01	-1.43E-01	1.04E-01
BI-207	569.67	97.72	2.39E-01	2.39E-01	1.73E-01	1.13E-01
	1063.62	74.90	3.80E-01		1.39E-01	1.74E-01
+ TL-208	583.14	*	30.22	1.05E+00	1.42E-01	1.57E+00
	860.37	*	4.48	5.30E+00		2.68E-01
	2614.66	*	35.85	1.42E-01		2.20E+00
BI-210M	262.00	45.00	3.23E-01	3.23E-01	-1.22E-01	1.54E-01
	300.00	23.00	8.80E-01		1.20E+00	4.24E-01
PB-210	46.50	4.25	2.01E+00	2.01E+00	1.53E+00	9.80E-01
PB-211	404.84	2.90	5.92E+00	5.92E+00	-1.75E+00	2.80E+00
	831.96	2.90	7.17E+00		-2.76E+00	3.26E+00
BI-212	727.17	11.80	2.14E+00	2.14E+00	8.57E-01	9.99E-01
	1620.62	2.75	6.71E+00		1.85E+00	2.71E+00
+ PB-212	238.63	*	44.60	4.82E-01	2.24E+00	2.35E-01
	300.09	*	3.41	5.94E+00	8.07E+00	2.86E+00
+ BI-214	609.31	*	46.30	6.31E-01	2.41E-01	1.12E+00
	1120.29	*	15.10	1.59E+00		1.74E+00
	1764.49	*	15.80	2.41E-01		2.22E+00
	2204.22	*	4.98	4.73E+00		2.24E-01
+ PB-214	295.21	*	19.19	1.56E+00	6.91E-01	1.82E+00
	351.92	*	37.19	6.91E-01		1.46E+00
RN-219	401.80	6.50	2.58E+00	2.58E+00	-3.71E-01	1.22E+00
RA-223	323.87	3.88	4.27E+00	4.27E+00	-9.83E-01	2.04E+00
RA-224	240.98	3.95	6.68E+00	6.68E+00	2.49E+01	3.26E+00
RA-225	40.00	31.00	3.62E-01	3.62E-01	-3.34E-01	1.76E-01
+ RA-226	186.21	*	3.28	6.96E+00	6.96E+00	9.68E+00
TH-227	50.10	8.40	1.06E+00	1.06E+00	5.04E-01	5.17E-01
	236.00	11.50	2.12E+00		-2.58E-01	1.03E+00
	256.20	6.30	2.42E+00		1.40E+00	1.16E+00
+ AC-228	338.32	*	11.40	2.16E+00	1.04E+00	2.06E+00
	911.07	*	27.70	1.04E+00		1.98E+00
	969.11	*	16.60	2.10E+00		1.93E+00
TH-230	48.44	16.90	5.19E-01	5.19E-01	2.40E-01	2.53E-01

Analysis Report for 1606065-07
CP-5011 05-8 5

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TH-230	62.85	4.60	2.47E+00	5.19E-01	1.55E+00	1.21E+00
	67.67	0.37	3.20E+01		7.79E+00	1.57E+01
PA-231	283.67	1.60	9.07E+00	7.28E+00	-4.61E+00	4.33E+00
	302.67	2.30	7.28E+00		-2.50E-01	3.48E+00
+ TH-231	25.64 *	14.70	3.54E-01	3.54E-01	1.97E-01	1.71E-01
	84.21	6.40	2.01E+00		-7.38E+00	9.83E-01
PA-233	311.98	38.60	5.12E-01	5.12E-01	1.29E-01	2.44E-01
PA-234	131.20	20.40	6.50E-01	6.50E-01	3.63E-01	3.16E-01
	733.99	8.80	2.55E+00		1.01E-01	1.18E+00
	946.00	12.00	2.19E+00		1.00E+00	1.01E+00
PA-234M	1001.03	0.92	2.81E+01	2.81E+01	-6.97E-01	1.28E+01
TH-234	63.29	3.80	3.01E+00	3.01E+00	2.00E+00	1.48E+00
U-235	143.76	10.50	1.26E+00	1.26E+00	5.10E-01	6.13E-01
	163.35	4.70	2.69E+00		-1.19E+00	1.30E+00
	205.31	4.70	3.15E+00		-8.36E-01	1.52E+00
+ NP-237	86.50 *	12.60	1.71E+00	1.71E+00	1.21E+00	8.46E-01
NP-239	106.10	22.70	6.95E+00	6.95E+00	-2.92E+00	3.38E+00
	228.18	10.70	2.07E+01		6.37E+00	9.99E+00
	277.60	14.10	1.56E+01		-3.69E+00	7.45E+00
AM-241	59.54	35.90	3.03E-01	3.03E-01	2.97E-01	1.48E-01
AM-243	74.67	66.00	2.45E-01	2.45E-01	9.29E-01	1.21E-01
CM-243	209.75	3.29	4.70E+00	1.10E+00	1.59E+00	2.27E+00
	228.14	10.60	1.47E+00		2.90E-01	7.09E-01
	277.60	14.00	1.10E+00		-2.62E-01	5.28E-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
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Analysis Report for 1606065-07
CP-5011 05-8 5

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-5011 05-8 5

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	20	79
17:	76	62	78	55	61	47	47	74
25:	69	34	46	48	38	60	48	42
33:	54	35	51	53	57	51	41	38
41:	50	44	57	53	70	92	79	48
49:	50	52	65	52	56	56	71	54
57:	85	81	79	73	80	96	119	81
65:	83	78	85	83	77	76	95	86
73:	130	184	200	239	211	109	73	70
81:	62	65	75	78	91	104	111	67
89:	100	78	83	119	112	75	55	52
97:	67	64	56	55	48	30	42	45
105:	54	49	42	50	45	47	36	43
113:	44	47	51	34	45	36	45	35
121:	45	53	46	46	39	54	39	49
129:	66	48	50	46	45	38	42	44
137:	37	39	46	45	36	40	52	45
145:	36	38	41	35	36	38	48	32
153:	38	36	32	35	32	37	26	32
161:	27	31	28	38	29	35	35	42
169:	36	29	33	34	37	34	25	34
177:	47	30	28	34	41	31	42	54
185:	69	77	49	40	41	33	22	28
193:	35	34	30	33	29	43	35	25
201:	35	23	28	26	23	23	30	35
209:	44	41	31	26	28	24	34	33
217:	33	32	29	30	27	32	24	31
225:	32	32	22	27	30	27	21	24
233:	25	19	24	41	84	185	157	58
241:	57	37	27	13	27	22	19	22
249:	20	15	18	18	24	21	15	32
257:	17	22	25	17	13	14	22	15
265:	20	28	15	16	31	31	21	30
273:	25	20	16	25	18	22	13	15
281:	14	14	15	18	19	19	15	20
289:	18	23	15	11	31	32	61	38
297:	24	16	15	42	22	19	18	10
305:	8	19	17	14	11	19	18	18
313:	13	16	13	18	14	13	22	11
321:	17	12	17	18	15	19	14	26
329:	15	18	8	15	15	18	14	28
337:	29	46	34	16	14	12	16	13
345:	10	18	17	10	14	35	60	68
353:	36	19	12	13	10	11	10	16
361:	13	18	13	12	5	9	18	13

369: 12 15 13 19 8 12 16 14

Sample Title: CP-5011 05-8 5

Channel	1	2	3	4	5	6	7	8
377:	10	18	14	13	16	7	9	7
385:	13	14	17	11	11	10	14	17
393:	13	10	12	8	14	7	14	11
401:	13	9	12	8	9	7	13	18
409:	18	11	12	11	13	8	11	10
417:	16	14	10	12	10	10	7	4
425:	9	12	14	10	11	11	5	6
433:	12	12	5	10	8	14	15	7
441:	6	10	11	10	9	7	9	16
449:	10	6	13	10	5	8	13	5
457:	10	7	10	8	9	7	10	13
465:	7	7	10	9	11	11	8	8
473:	5	6	5	6	10	9	14	6
481:	9	7	6	7	10	8	8	10
489:	9	12	7	13	11	7	4	10
497:	7	13	9	8	4	7	6	9
505:	3	4	13	16	23	32	28	20
513:	12	10	9	4	7	3	5	7
521:	6	9	11	11	7	14	6	10
529:	11	8	2	11	4	12	10	5
537:	6	6	6	4	8	8	3	10
545:	6	3	12	8	13	8	10	8
553:	8	6	4	9	6	7	7	5
561:	9	8	8	3	17	8	10	9
569:	5	7	18	9	12	8	6	7
577:	7	4	8	9	13	29	42	25
585:	13	11	8	11	10	7	7	10
593:	9	8	5	6	4	6	11	6
601:	13	7	9	7	6	6	11	29
609:	55	30	14	6	8	11	6	10
617:	0	8	7	7	12	10	7	4
625:	5	2	7	9	4	3	8	8
633:	9	2	5	5	8	3	6	9
641:	6	8	5	2	5	6	12	9
649:	3	6	9	6	9	7	2	7
657:	8	11	3	1	7	6	7	5
665:	6	11	9	10	7	5	9	6
673:	5	4	6	10	3	5	6	7
681:	2	5	10	4	4	8	9	5
689:	3	4	4	8	7	4	2	7
697:	6	6	5	6	2	8	5	9
705:	7	4	10	5	6	7	3	10
713:	9	9	5	7	10	8	4	9
721:	6	4	3	6	8	3	17	9
729:	11	5	5	7	6	2	6	6
737:	6	8	6	4	4	4	5	4
745:	7	5	6	5	3	6	11	1
753:	3	3	8	4	4	4	7	6
761:	7	1	10	3	7	4	5	11
769:	9	5	5	7	4	5	2	7
777:	5	4	4	8	4	1	3	5
785:	3	7	5	3	6	5	5	4
793:	9	8	7	10	1	6	3	0

801: 6 6 7 6 7 1 7 5

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Channel	1	2	3	4	5	6	7	8
809:	5	4	3	8	6	4	7	6
817:	7	5	4	3	10	6	4	2
825:	4	5	4	5	3	5	4	4
833:	2	3	4	3	5	5	6	7
841:	9	6	4	7	3	4	7	3
849:	3	2	3	6	2	3	4	2
857:	4	7	4	4	3	5	8	4
865:	6	8	3	6	6	2	3	1
873:	3	5	1	5	0	2	2	3
881:	3	4	4	2	5	4	2	1
889:	2	4	4	7	5	8	4	4
897:	6	4	4	3	8	5	5	7
905:	2	7	3	4	5	15	19	32
913:	8	2	3	1	1	8	5	2
921:	4	3	5	2	3	3	6	9
929:	1	2	5	6	1	5	8	2
937:	0	6	2	4	3	5	7	2
945:	6	4	2	5	3	8	2	3
953:	4	4	7	7	1	2	3	3
961:	2	4	4	7	8	9	6	12
969:	15	11	5	5	2	2	5	2
977:	2	5	4	0	6	3	2	3
985:	5	1	5	3	2	3	3	3
993:	5	3	6	6	1	5	4	2
1001:	11	3	5	2	3	3	2	5
1009:	2	5	1	7	5	2	4	1
1017:	7	3	6	7	3	4	0	3
1025:	2	3	2	0	0	1	2	3
1033:	4	1	4	4	2	3	3	1
1041:	8	3	1	0	3	6	1	1
1049:	2	4	5	2	3	4	6	3
1057:	3	6	4	4	3	7	8	2
1065:	2	7	2	2	0	5	4	7
1073:	7	2	7	7	4	6	1	2
1081:	3	7	2	3	2	7	3	4
1089:	5	0	5	3	1	2	1	1
1097:	5	0	4	3	1	4	6	4
1105:	2	5	5	2	4	3	3	6
1113:	6	6	1	2	2	2	4	14
1121:	11	6	3	2	2	4	5	1
1129:	2	8	2	6	2	3	6	1
1137:	6	2	3	2	3	3	6	1
1145:	3	5	7	4	2	3	1	5
1153:	5	4	7	6	3	5	3	3
1161:	2	5	5	6	2	3	5	1
1169:	2	2	5	6	3	6	5	6
1177:	4	3	5	4	4	7	2	3
1185:	4	2	6	4	3	6	5	6
1193:	5	2	8	3	2	1	6	4
1201:	5	4	3	2	7	1	5	4
1209:	2	7	4	2	3	2	6	6
1217:	6	3	5	5	2	2	4	3
1225:	6	3	5	4	4	4	3	7

1233: 8 4 6 7 7 5 11 7

Sample Title: CP-5011 05-8 5

Channel	1	2	3	4	5	6	7	8	9
1241:	2	4	4	4	3	5	1	1	
1249:	4	2	2	1	4	2	6	8	
1257:	4	1	4	2	4	4	4	1	
1265:	5	3	0	4	4	2	4	1	
1273:	3	2	2	3	2	3	3	7	
1281:	3	2	3	1	0	4	2	2	
1289:	3	2	3	2	1	3	3	1	
1297:	4	3	2	0	3	0	3	6	
1305:	5	2	3	3	4	1	3	1	
1313:	0	2	3	4	1	2	6	4	
1321:	1	1	6	1	3	2	3	1	
1329:	2	1	2	2	4	3	4	7	
1337:	2	0	0	0	0	3	3	3	
1345:	2	2	3	3	0	2	0	2	
1353:	3	0	1	2	1	2	0	2	
1361:	0	1	2	3	1	0	1	2	
1369:	1	3	3	1	1	4	2	1	
1377:	1	5	1	3	2	1	2	3	
1385:	6	0	0	4	1	1	0	2	
1393:	1	0	2	2	1	2	1	2	
1401:	1	3	2	2	1	1	2	1	
1409:	2	1	2	0	1	2	3	1	
1417:	1	5	0	1	3	1	1	2	
1425:	1	3	1	1	1	0	0	1	
1433:	1	3	3	1	1	2	1	4	
1441:	1	1	2	1	1	0	3	1	
1449:	3	2	0	2	3	0	2	0	
1457:	2	2	11	39	76	57	29	7	
1465:	3	0	0	1	1	1	0	0	
1473:	4	2	1	1	1	2	2	1	
1481:	0	0	1	0	0	0	2	0	
1489:	3	2	0	2	2	2	0	0	
1497:	5	1	1	0	4	2	1	2	
1505:	1	0	2	0	3	2	0	1	
1513:	0	1	2	0	1	1	1	0	
1521:	1	1	1	0	0	0	2	1	
1529:	0	1	0	2	2	1	0	0	
1537:	0	0	1	3	1	0	2	0	
1545:	0	2	1	0	0	0	1	0	
1553:	1	1	0	1	1	1	0	1	
1561:	0	0	1	0	1	0	1	0	
1569:	0	3	0	1	1	1	3	0	
1577:	1	1	0	0	1	1	0	0	
1585:	0	0	0	1	4	1	5	2	
1593:	5	1	1	1	0	1	2	3	
1601:	0	0	0	1	1	1	1	0	
1609:	0	1	3	1	1	0	0	2	
1617:	1	1	0	0	2	2	0	0	
1625:	0	0	0	1	2	2	3	1	
1633:	0	1	1	1	0	0	2	1	
1641:	1	0	0	1	1	0	2	0	
1649:	0	1	1	0	0	0	0	1	
1657:	1	1	0	0	0	1	0	0	

1665: 1 1 1 2 1 1 1 0

Sample Title: CP-5011 05-8 5

Channel	1	2	3	4	5	6	7	8	9
1673:	0	1	0	1	0	0	1	0	
1681:	2	0	0	1	2	2	2	0	
1689:	0	0	1	0	2	1	2	0	
1697:	0	1	1	2	1	1	1	1	
1705:	1	1	0	1	0	0	1	4	
1713:	0	1	1	1	1	0	1	1	
1721:	0	0	1	0	0	1	1	1	
1729:	2	1	1	0	0	2	2	0	
1737:	1	1	0	0	0	1	0	0	
1745:	0	0	1	0	1	1	0	1	
1753:	1	0	0	2	1	0	0	0	
1761:	0	1	4	3	11	6	0	0	
1769:	1	1	1	0	0	1	0	1	
1777:	0	2	0	0	1	0	0	0	
1785:	0	0	1	1	0	0	1	0	
1793:	1	0	0	2	0	0	0	0	
1801:	0	0	1	1	0	0	0	0	
1809:	1	1	0	1	2	1	0	0	
1817:	1	0	2	0	2	1	0	1	
1825:	0	2	3	0	1	1	2	0	
1833:	1	1	0	1	1	0	1	0	
1841:	1	0	4	1	0	0	1	2	
1849:	2	0	2	0	0	0	1	0	
1857:	2	1	0	1	1	0	0	0	
1865:	0	1	0	0	0	1	0	1	
1873:	0	1	0	2	3	0	0	0	
1881:	1	1	1	0	0	2	0	1	
1889:	0	1	1	2	1	2	1	0	
1897:	0	0	0	0	0	0	1	0	
1905:	1	0	0	1	0	1	1	0	
1913:	1	1	0	0	0	0	0	1	
1921:	1	0	0	0	0	0	1	1	
1929:	0	0	0	0	0	0	1	0	
1937:	0	0	1	0	2	0	1	1	
1945:	3	0	0	1	1	0	0	1	
1953:	1	0	1	2	0	1	0	1	
1961:	0	1	2	1	3	0	0	1	
1969:	0	0	0	0	0	0	3	2	
1977:	0	1	2	0	1	0	2	0	
1985:	0	0	1	0	1	0	0	0	
1993:	0	1	0	1	1	0	1	0	
2001:	0	0	2	0	0	1	0	1	
2009:	0	1	1	0	0	1	0	0	
2017:	1	1	0	0	0	0	0	1	
2025:	0	2	1	0	1	0	1	0	
2033:	1	3	2	1	1	1	2	0	
2041:	0	0	0	1	0	0	0	0	
2049:	0	0	2	1	1	1	0	0	
2057:	0	0	0	0	1	1	1	1	
2065:	2	1	0	0	0	1	1	0	
2073:	0	0	0	0	0	1	1	0	
2081:	0	0	0	0	1	2	0	0	
2089:	1	0	0	0	0	1	0	1	

2097: 1 0 0 0 2 0 0 0

Sample Title: CP-5011 05-8 5

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

2529: 0 0 0 0 2 0 0 0

Sample Title: CP-5011 05-8 5

Channel	1	2	3	4	5	6	7	8
2537:	0	0	0	0	0	0	1	0
2545:	0	0	0	1	0	0	0	0
2553:	0	0	0	0	0	0	0	0
2561:	0	0	0	0	0	0	0	1
2569:	1	1	0	0	0	0	1	0
2577:	0	0	0	0	0	0	1	0
2585:	1	1	0	0	0	1	0	0
2593:	0	1	1	0	0	0	0	1
2601:	0	2	0	1	1	0	0	0
2609:	0	0	0	0	2	3	9	11
2617:	12	3	2	0	0	2	0	1
2625:	0	0	0	0	0	0	1	0
2633:	0	0	0	0	0	0	0	0
2641:	0	1	1	1	0	0	0	1
2649:	0	0	1	0	0	0	0	0
2657:	0	0	0	0	0	0	0	0
2665:	3	0	0	0	0	0	0	0
2673:	0	0	0	0	0	1	0	0
2681:	0	0	0	0	0	0	0	0
2689:	0	0	0	1	0	0	1	0
2697:	1	0	0	1	0	0	0	0
2705:	0	1	0	0	1	0	0	0
2713:	0	0	1	0	0	0	0	0
2721:	0	0	0	0	0	0	1	0
2729:	1	0	0	0	0	1	0	1
2737:	0	0	0	0	0	0	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	1	1	0	0	0
2761:	1	0	0	1	1	0	0	0
2769:	0	0	0	0	0	0	1	0
2777:	1	0	1	0	0	0	0	0
2785:	0	0	0	1	0	1	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	1	0	0	0	0
2809:	0	0	0	1	0	0	0	0
2817:	0	0	0	1	0	0	0	0
2825:	0	0	0	1	0	0	0	0
2833:	0	0	0	0	0	0	2	0
2841:	0	0	0	0	0	0	0	0
2849:	0	1	0	0	0	0	0	0
2857:	0	1	0	0	0	0	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	0	0	0	0	0
2881:	0	0	0	1	0	0	0	0
2889:	2	0	0	0	0	1	0	0
2897:	0	0	0	1	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	0	0	0	0
2929:	0	0	0	0	1	0	0	0
2937:	0	0	0	1	0	0	0	2
2945:	0	0	0	0	1	1	0	0
2953:	0	0	0	1	1	0	0	1

2961: 2 0 0 0 0 1 0 1

Sample Title: CP-5011 05-8 5

Channel	1	2	3	4	5	6	7	8	9
2969:	0	1	0	0	1	0	0	0	0
2977:	0	0	0	1	0	1	1	0	0
2985:	0	0	0	1	0	1	0	0	0
2993:	0	0	0	0	0	0	0	0	0
3001:	0	0	0	0	1	0	0	0	0
3009:	0	0	1	0	0	0	1	0	0
3017:	0	0	0	2	0	1	0	0	0
3025:	0	0	0	0	1	0	0	0	0
3033:	0	0	0	0	0	0	0	0	0
3041:	0	0	0	0	0	1	0	0	0
3049:	0	0	0	0	0	1	0	0	0
3057:	0	1	0	0	0	0	0	0	0
3065:	0	1	0	2	0	0	0	0	0
3073:	0	0	0	0	0	0	0	0	0
3081:	0	0	0	0	0	0	0	0	1
3089:	1	0	0	1	0	0	0	0	0
3097:	0	1	0	0	0	0	0	0	0
3105:	0	0	0	0	0	0	0	0	0
3113:	0	0	0	0	0	0	0	0	0
3121:	0	0	0	0	0	0	1	1	0
3129:	0	0	0	0	0	0	0	0	0
3137:	0	0	0	0	0	0	1	0	0
3145:	0	0	0	0	0	1	0	0	0
3153:	0	0	0	0	0	0	0	0	0
3161:	0	0	0	0	0	0	0	0	0
3169:	0	0	1	0	0	0	1	0	0
3177:	0	1	0	0	0	0	0	0	0
3185:	0	0	1	0	0	0	0	0	0
3193:	0	0	0	0	0	0	0	0	1
3201:	0	0	0	0	0	0	0	0	0
3209:	1	0	0	0	0	0	0	0	0
3217:	0	0	0	0	0	0	0	0	0
3225:	1	0	0	1	0	0	0	0	0
3233:	0	0	0	0	1	0	0	0	0
3241:	0	0	0	0	1	0	1	0	0
3249:	0	0	0	0	0	0	0	0	0
3257:	0	0	0	0	0	0	0	0	0
3265:	0	0	0	0	0	0	1	0	0
3273:	0	0	0	0	0	0	1	0	0
3281:	0	0	0	0	1	0	0	0	0
3289:	0	1	0	0	0	0	0	0	0
3297:	0	0	0	0	0	0	0	0	0
3305:	1	0	0	0	0	0	0	0	0
3313:	1	0	0	1	0	0	0	0	0
3321:	0	0	0	0	0	0	0	0	0
3329:	0	0	0	0	1	0	0	0	0
3337:	0	0	0	1	0	1	0	0	2
3345:	0	0	0	0	1	0	1	0	0
3353:	0	0	1	0	1	0	0	0	0
3361:	0	0	0	0	0	0	0	0	0
3369:	0	0	0	0	0	1	0	0	0
3377:	0	0	0	0	1	0	0	0	0
3385:	0	0	1	0	0	0	0	0	0

3393: 0 0 0 0 0 0 0 0

Sample Title: CP-5011 05-8 5

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

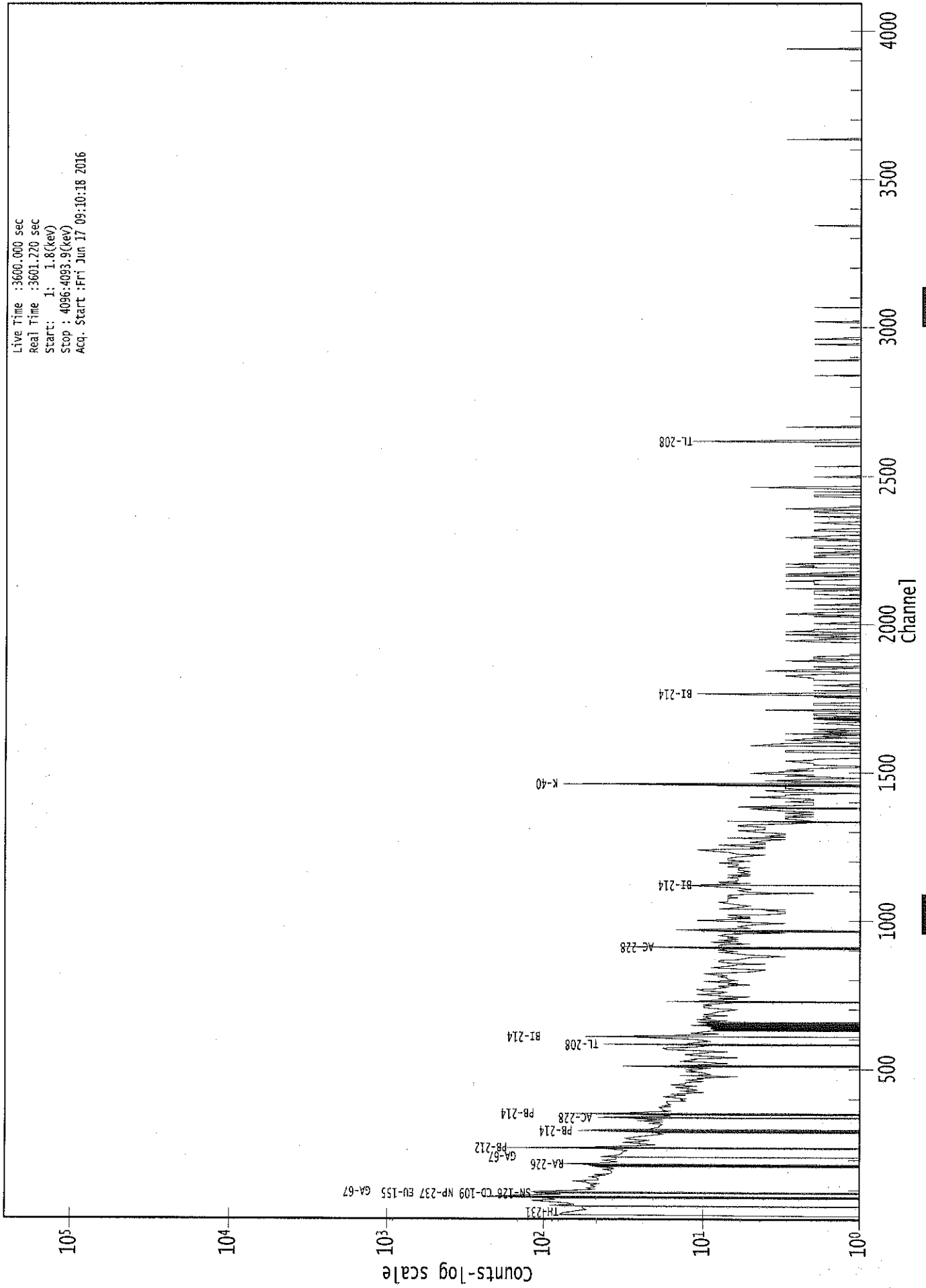
3825: 0 0 0 1 0 0 0 1

Sample Title: CP-5011 05-8 5

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	0	1	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	1	0	0	0	1	1
3873:	0	1	0	0	0	0	1	1
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	1	0	0	0	0	0	0
3905:	0	0	1	0	0	1	0	0
3913:	0	0	0	0	0	0	1	0
3921:	0	1	1	0	0	0	0	0
3929:	0	0	0	0	0	0	0	0
3937:	1	0	3	0	0	0	0	0
3945:	0	0	0	0	0	0	0	1
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	1	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	0	0	0	0
3993:	1	0	0	0	0	0	0	0
4001:	1	0	0	0	0	0	1	0
4009:	0	1	0	0	0	0	0	0
4017:	0	1	0	0	0	0	0	0
4025:	0	0	0	0	0	0	0	0
4033:	0	1	0	0	1	0	0	0
4041:	0	0	1	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	1	0	0	0	0
4065:	1	0	1	0	0	0	0	0
4073:	1	0	0	0	0	0	1	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	1	0	0	0	0	0

0000039075.CNF

Live Time :3600.000 sec
Real Time :3601.220 sec
Start : 1: 1.8(kev)
Stop : 4096.4093.9(kev)
Acq. Start :Fri Jun 17 09:10:18 2016



Analysis Report for 1606065-08
CP-5011 8 5-15

✓
6/17

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606065-08
Sample Description : CP-5011 8 5-15
Sample Type : SOIL

Sample Size : 4.297E+02 grams
Facility : Countroom

Sample Taken On : 6/8/2016 8:53:58AM
Acquisition Started : 6/17/2016 10:09:08AM

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 : 39077

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606065-08
CP-5011 8 5-15

PEAK LOCATE REPORT

Peak Locate Performed on : 6/17/2016 11:09:23AM
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	12.91	13.03	0.0000	0.00
2	46.61	46.72	0.0000	0.00
3	63.28	63.38	0.0000	0.00
4	76.23	76.32	0.0000	0.00
5	90.13	90.21	0.0000	0.00
6	93.10	93.18	0.0000	0.00
7	100.31	100.39	0.0000	0.00
8	144.48	144.53	0.0000	0.00
9	186.12	186.15	0.0000	0.00
10	209.37	209.38	0.0000	0.00
11	236.13	236.13	0.0000	0.00
12	239.13	239.13	0.0000	0.00
13	258.70	258.69	0.0000	0.00
14	270.13	270.11	0.0000	0.00
15	295.16	295.13	0.0000	0.00
16	299.90	299.86	0.0000	0.00
17	328.25	328.20	0.0000	0.00
18	338.26	338.20	0.0000	0.00
19	351.95	351.88	0.0000	0.00
20	408.80	408.71	0.0000	0.00
21	463.04	462.92	0.0000	0.00
22	510.91	510.77	0.0000	0.00
23	514.81	514.66	0.0000	0.00
24	526.89	526.74	0.0000	0.00
25	583.28	583.10	0.0000	0.00
26	609.40	609.20	0.0000	0.00
27	634.09	633.89	0.0000	0.00
28	641.44	641.23	0.0000	0.00
29	648.25	648.04	0.0000	0.00
30	727.37	727.12	0.0000	0.00
31	768.79	768.53	0.0000	0.00
32	786.10	785.82	0.0000	0.00
33	794.56	794.29	0.0000	0.00
34	861.15	860.85	0.0000	0.00
35	911.38	911.05	0.0000	0.00
36	964.72	964.38	0.0000	0.00
37	969.35	969.01	0.0000	0.00
38	1239.70	1239.25	0.0000	0.00
39	1245.15	1244.69	0.0000	0.00
40	1377.72	1377.22	0.0000	0.00
41	1381.82	1381.32	0.0000	0.00
42	1461.08	1460.56	0.0000	0.00

Analysis Report for 1606065-08
CP-5011 8 5-15

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1497.20	1496.66	0.0000	0.00
44	1510.43	1509.89	0.0000	0.00
45	1589.39	1588.83	0.0000	0.00
46	1601.94	1601.38	0.0000	0.00
47	1621.07	1620.50	0.0000	0.00
48	1729.73	1729.13	0.0000	0.00
49	1764.86	1764.25	0.0000	0.00
50	1784.46	1783.85	0.0000	0.00
51	1835.11	1834.49	0.0000	0.00
52	1847.90	1847.28	0.0000	0.00
53	2020.22	2019.56	0.0000	0.00
54	2162.91	2162.22	0.0000	0.00
55	2176.44	2175.75	0.0000	0.00
56	2204.42	2203.72	0.0000	0.00
57	2614.60	2613.86	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606065-08
CP-5011 8 5-15

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 11:09:23AM

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	12.91	12 -	16	13.03	1.99E+03	130.51	1.76E+03	1.00
2	46.61	44 -	50	46.72	1.04E+02	71.95	8.75E+02	1.08
3	63.28	59 -	66	63.38	1.75E+02	95.96	1.42E+03	2.35
4	76.23	72 -	79	76.32	6.50E+02	117.27	2.15E+03	3.15
M 5	90.13	89 -	96	90.21	1.16E+02	37.43	4.18E+02	1.17
m 6	93.10	89 -	96	93.18	2.18E+02	61.61	6.59E+02	1.23
7	100.31	99 -	102	100.39	5.15E+01	45.96	4.69E+02	2.23
8	144.48	143 -	147	144.53	4.79E+01	45.74	4.28E+02	1.35
9	186.12	183 -	188	186.15	1.55E+02	56.36	5.03E+02	1.19
m 10	209.37	202 -	213	209.38	8.61E+01	43.47	3.43E+02	1.65
M 11	236.13	234 -	244	236.13	3.90E+01	33.70	2.68E+02	1.41
m 12	239.13	234 -	244	239.13	7.06E+02	62.42	2.27E+02	1.41
13	258.70	256 -	261	258.69	3.80E+01	39.47	2.80E+02	1.06
14	270.13	267 -	274	270.11	6.98E+01	51.61	4.00E+02	1.53
M 15	295.16	292 -	304	295.13	1.63E+02	37.20	1.77E+02	1.50
m 16	299.90	292 -	304	299.86	3.81E+01	34.52	2.13E+02	1.50
17	328.25	325 -	331	328.20	5.77E+01	41.86	2.71E+02	1.38
18	338.26	334 -	340	338.20	1.68E+02	47.63	2.90E+02	1.66
19	351.95	348 -	355	351.88	3.03E+02	55.10	3.04E+02	1.32
20	408.80	404 -	413	408.71	4.49E+01	48.86	3.16E+02	4.67
21	463.04	459 -	466	462.92	6.07E+01	34.58	1.57E+02	1.35
M 22	510.91	506 -	519	510.77	1.35E+02	35.38	1.19E+02	1.94
m 23	514.81	506 -	519	514.66	2.12E+01	28.21	1.24E+02	1.95
24	526.89	524 -	529	526.74	2.05E+01	24.98	1.09E+02	3.04
25	583.28	579 -	586	583.10	2.13E+02	45.83	2.08E+02	1.36
26	609.40	605 -	612	609.20	2.09E+02	41.18	1.51E+02	1.52
27	634.09	631 -	637	633.89	1.91E+01	22.75	7.98E+01	3.09
28	641.44	638 -	645	641.23	1.84E+01	24.00	8.31E+01	1.62
29	648.25	645 -	652	648.04	2.66E+01	23.32	7.48E+01	1.67
30	727.37	724 -	731	727.12	5.46E+01	29.53	1.11E+02	1.51
31	768.79	767 -	771	768.53	1.59E+01	19.20	6.82E+01	1.76
32	786.10	783 -	789	785.82	2.19E+01	23.54	8.02E+01	3.79
33	794.56	790 -	799	794.29	5.52E+01	28.58	8.56E+01	2.25
34	861.15	857 -	865	860.85	2.74E+01	26.40	9.13E+01	1.68
35	911.38	907 -	915	911.05	1.48E+02	35.97	1.09E+02	1.63
M 36	964.72	960 -	977	964.38	2.53E+01	21.02	7.45E+01	2.06
m 37	969.35	960 -	977	969.01	1.31E+02	28.18	6.44E+01	2.10
38	1239.70	1234 -	1242	1239.25	2.46E+01	29.09	1.11E+02	3.37
39	1245.15	1243 -	1247	1244.69	2.08E+01	16.99	4.65E+01	2.63
M 40	1377.72	1374 -	1383	1377.22	1.55E+01	11.53	1.60E+01	3.31

Analysis Report for 1606065-08

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	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	1381.82	1374 - 1383		1381.32	7.87E+00	10.82	1.32E+01	2.58
	42	1461.08	1455 - 1465		1460.56	6.51E+02	54.94	5.51E+01	2.08
	43	1497.20	1493 - 1502		1496.66	1.31E+01	12.61	1.57E+01	1.83
	44	1510.43	1505 - 1518		1509.89	1.80E+01	16.34	2.40E+01	3.71
	45	1589.39	1584 - 1594		1588.83	3.11E+01	14.44	1.19E+01	5.07
	46	1601.94	1596 - 1606		1601.38	1.15E+01	14.46	2.10E+01	2.53
	47	1621.07	1618 - 1622		1620.50	7.36E+00	7.92	7.27E+00	1.73
	48	1729.73	1725 - 1733		1729.13	1.45E+01	10.79	9.00E+00	2.20
	49	1764.86	1761 - 1769		1764.25	3.13E+01	16.41	2.15E+01	1.91
	50	1784.46	1780 - 1787		1783.85	1.30E+01	7.21	0.00E+00	1.84
	51	1835.11	1831 - 1837		1834.49	6.60E+00	8.03	6.80E+00	2.83
	52	1847.90	1844 - 1850		1847.28	9.18E+00	7.50	3.64E+00	1.18
	53	2020.22	2016 - 2022		2019.56	9.00E+00	6.00	0.00E+00	3.50
	54	2162.91	2159 - 2165		2162.22	5.43E+00	6.34	3.14E+00	1.60
	55	2176.44	2171 - 2179		2175.75	8.00E+00	5.66	0.00E+00	1.33
	56	2204.42	2199 - 2207		2203.72	1.80E+01	8.49	0.00E+00	2.01
	57	2614.60	2609 - 2619		2613.86	8.40E+01	18.33	0.00E+00	2.44

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 : 6/17/2016 11:09:23AM

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	12.91	12 -	16	1.99E+03	130.51	1.76E+03	7.83E+01
	2	46.61	44 -	50	1.04E+02	71.95	8.75E+02	5.67E+01
	3	63.28	59 -	66	1.75E+02	95.96	1.42E+03	7.58E+01
	4	76.23	72 -	79	6.50E+02	117.27	2.15E+03	1.46E+02
M	5	90.13	89 -	96	1.16E+02	37.43	4.18E+02	3.36E+01
m	6	93.10	89 -	96	2.18E+02	61.61	6.59E+02	4.22E+01
	7	100.31	99 -	102	5.15E+01	45.96	4.69E+02	3.59E+01
	8	144.48	143 -	147	4.79E+01	45.74	4.28E+02	3.58E+01
	9	186.12	183 -	188	1.55E+02	56.36	5.03E+02	4.15E+01
m	10	209.37	202 -	213	8.61E+01	43.47	3.43E+02	3.04E+01
M	11	236.13	234 -	244	3.90E+01	33.70	2.68E+02	2.69E+01

Analysis Report for 1606065-08

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	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	12	239.13	234 -	244	7.06E+02	62.42	2.27E+02	2.48E+01
	13	258.70	256 -	261	3.80E+01	39.47	2.80E+02	3.08E+01
	14	270.13	267 -	274	6.98E+01	51.61	4.00E+02	4.01E+01
M	15	295.16	292 -	304	1.63E+02	37.20	1.77E+02	2.18E+01
m	16	299.90	292 -	304	3.81E+01	34.52	2.13E+02	2.40E+01
	17	328.25	325 -	331	5.77E+01	41.86	2.71E+02	3.21E+01
	18	338.26	334 -	340	1.68E+02	47.63	2.90E+02	1.48E+01
	19	351.95	348 -	355	3.03E+02	55.10	3.04E+02	3.51E+01
	20	408.80	404 -	413	4.49E+01	48.86	3.16E+02	2.04E+01
	21	463.04	459 -	466	6.07E+01	34.58	1.57E+02	2.54E+01
M	22	510.91	506 -	519	1.35E+02	35.38	1.19E+02	1.80E+01
m	23	514.81	506 -	519	2.12E+01	28.21	1.24E+02	1.83E+01
	24	526.89	524 -	529	2.05E+01	24.98	1.09E+02	1.91E+01
	25	583.28	579 -	586	2.13E+02	45.83	2.08E+02	2.90E+01
	26	609.40	605 -	612	2.09E+02	41.18	1.51E+02	3.16E+01
	27	634.09	631 -	637	1.91E+01	22.75	7.98E+01	1.73E+01
	28	641.44	638 -	645	1.84E+01	24.00	8.31E+01	1.84E+01
	29	648.25	645 -	652	2.66E+01	23.32	7.48E+01	1.72E+01
	30	727.37	724 -	731	5.46E+01	29.53	1.11E+02	2.10E+01
	31	768.79	767 -	771	1.59E+01	19.20	6.82E+01	1.44E+01
	32	786.10	783 -	789	2.19E+01	23.54	8.02E+01	1.78E+01
	33	794.56	790 -	799	5.52E+01	28.58	8.56E+01	2.01E+01
	34	861.15	857 -	865	2.74E+01	26.40	9.13E+01	1.99E+01
	35	911.38	907 -	915	1.48E+02	35.97	1.09E+02	2.18E+01
M	36	964.72	960 -	977	2.53E+01	21.02	7.45E+01	1.42E+01
m	37	969.35	960 -	977	1.31E+02	28.18	6.44E+01	1.32E+01
	38	1239.70	1234 -	1242	2.46E+01	29.09	1.11E+02	2.25E+01
	39	1245.15	1243 -	1247	2.08E+01	16.99	4.65E+01	1.18E+01
M	40	1377.72	1374 -	1383	1.55E+01	11.53	1.60E+01	6.58E+00
m	41	1381.82	1374 -	1383	7.87E+00	10.82	1.32E+01	5.96E+00
	42	1461.08	1455 -	1465	6.51E+02	54.94	5.51E+01	1.67E+01
	43	1497.20	1493 -	1502	1.31E+01	12.61	1.57E+01	8.48E+00
	44	1510.43	1505 -	1518	1.80E+01	16.34	2.40E+01	1.15E+01
	45	1589.39	1584 -	1594	3.11E+01	14.44	1.19E+01	7.55E+00
	46	1601.94	1596 -	1606	1.15E+01	14.46	2.10E+01	1.05E+01
	47	1621.07	1618 -	1622	7.36E+00	7.92	7.27E+00	4.74E+00
	48	1729.73	1725 -	1733	1.45E+01	10.79	9.00E+00	6.29E+00
	49	1764.86	1761 -	1769	3.13E+01	16.41	2.15E+01	9.87E+00
	50	1784.46	1780 -	1787	1.30E+01	7.21	0.00E+00	0.00E+00
	51	1835.11	1831 -	1837	6.60E+00	8.03	6.80E+00	5.07E+00
	52	1847.90	1844 -	1850	9.18E+00	7.50	3.64E+00	3.63E+00
	53	2020.22	2016 -	2022	9.00E+00	6.00	0.00E+00	0.00E+00
	54	2162.91	2159 -	2165	5.43E+00	6.34	3.14E+00	3.54E+00
	55	2176.44	2171 -	2179	8.00E+00	5.66	0.00E+00	0.00E+00
	56	2204.42	2199 -	2207	1.80E+01	8.49	0.00E+00	0.00E+00
	57	2614.60	2609 -	2619	8.40E+01	18.33	0.00E+00	0.00E+00

Analysis Report for 1606065-08

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/17/2016 11:09:23AM

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	12.91	12 -	16	13.03	1.99E+03	130.51	1.76E+03	.....
2	46.61	44 -	50	46.72	1.04E+02	71.95	8.75E+02	PB-210
3	63.28	59 -	66	63.38	1.75E+02	95.96	1.42E+03	TH-234 TH-230
4	76.23	72 -	79	76.32	6.50E+02	117.27	2.15E+03	.....
M 5	90.13	89 -	96	90.21	1.16E+02	37.43	4.18E+02	ND-147
m 6	93.10	89 -	96	93.18	2.18E+02	61.61	6.59E+02	GA-67
7	100.31	99 -	102	100.39	5.15E+01	45.96	4.69E+02	LU-173
8	144.48	143 -	147	144.53	4.79E+01	45.74	4.28E+02	U-235 CE-141
9	186.12	183 -	188	186.15	1.55E+02	56.36	5.03E+02	RA-226
m 10	209.37	202 -	213	209.38	8.61E+01	43.47	3.43E+02	CM-243 GA-67
M 11	236.13	234 -	244	236.13	3.90E+01	33.70	2.68E+02	TH-227 NB-95M
m 12	239.13	234 -	244	239.13	7.06E+02	62.42	2.27E+02	PB-212
13	258.70	256 -	261	258.69	3.80E+01	39.47	2.80E+02	.....
14	270.13	267 -	274	270.11	6.98E+01	51.61	4.00E+02	.....
M 15	295.16	292 -	304	295.13	1.63E+02	37.20	1.77E+02	PB-214
m 16	299.90	292 -	304	299.86	3.81E+01	34.52	2.13E+02	BI-210M PB-212 GA-67
17	328.25	325 -	331	328.20	5.77E+01	41.86	2.71E+02	LA-140
18	338.26	334 -	340	338.20	1.68E+02	47.63	2.90E+02	AC-228
19	351.95	348 -	355	351.88	3.03E+02	55.10	3.04E+02	PB-214
20	408.80	404 -	413	408.71	4.49E+01	48.86	3.16E+02	.....
21	463.04	459 -	466	462.92	6.07E+01	34.58	1.57E+02	SB-125
M 22	510.91	506 -	519	510.77	1.35E+02	35.38	1.19E+02	.....
m 23	514.81	506 -	519	514.66	2.12E+01	28.21	1.24E+02	KR-85 SR-85

Analysis Report for 1606065-08

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Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide	
24	526.89	524 -	529	526.74	2.05E+01	24.98	1.09E+02	.....
25	583.28	579 -	586	583.10	2.13E+02	45.83	2.08E+02	TL-208	
26	609.40	605 -	612	609.20	2.09E+02	41.18	1.51E+02	BI-214	
27	634.09	631 -	637	633.89	1.91E+01	22.75	7.98E+01	.....
28	641.44	638 -	645	641.23	1.84E+01	24.00	8.31E+01	.....
29	648.25	645 -	652	648.04	2.66E+01	23.32	7.48E+01	.....
30	727.37	724 -	731	727.12	5.46E+01	29.53	1.11E+02	BI-212	
31	768.79	767 -	771	768.53	1.59E+01	19.20	6.82E+01	.....
32	786.10	783 -	789	785.82	2.19E+01	23.54	8.02E+01	.....
33	794.56	790 -	799	794.29	5.52E+01	28.58	8.56E+01	.....
34	861.15	857 -	865	860.85	2.74E+01	26.40	9.13E+01	TL-208	
35	911.38	907 -	915	911.05	1.48E+02	35.97	1.09E+02	AC-228 LU-172	
M	36	964.72	960 -	977	964.38	2.53E+01	21.02	7.45E+01	EU-152
m	37	969.35	960 -	977	969.01	1.31E+02	28.18	6.44E+01	AC-228
	38	1239.70	1234 -	1242	1239.25	2.46E+01	29.09	1.11E+02	.....
	39	1245.15	1243 -	1247	1244.69	2.08E+01	16.99	4.65E+01	.....
M	40	1377.72	1374 -	1383	1377.22	1.55E+01	11.53	1.60E+01	.....
m	41	1381.82	1374 -	1383	1381.32	7.87E+00	10.82	1.32E+01	.....
	42	1461.08	1455 -	1465	1460.56	6.51E+02	54.94	5.51E+01	K-40
	43	1497.20	1493 -	1502	1496.66	1.31E+01	12.61	1.57E+01	.....
	44	1510.43	1505 -	1518	1509.89	1.80E+01	16.34	2.40E+01	.....
	45	1589.39	1584 -	1594	1588.83	3.11E+01	14.44	1.19E+01	.....
	46	1601.94	1596 -	1606	1601.38	1.15E+01	14.46	2.10E+01	.....
	47	1621.07	1618 -	1622	1620.50	7.36E+00	7.92	7.27E+00	BI-212
	48	1729.73	1725 -	1733	1729.13	1.45E+01	10.79	9.00E+00	.....
	49	1764.86	1761 -	1769	1764.25	3.13E+01	16.41	2.15E+01	BI-214
	50	1784.46	1780 -	1787	1783.85	1.30E+01	7.21	0.00E+00	.....
	51	1835.11	1831 -	1837	1834.49	6.60E+00	8.03	6.80E+00	Y-88
	52	1847.90	1844 -	1850	1847.28	9.18E+00	7.50	3.64E+00	.....
	53	2020.22	2016 -	2022	2019.56	9.00E+00	6.00	0.00E+00	.....
	54	2162.91	2159 -	2165	2162.22	5.43E+00	6.34	3.14E+00	.....
	55	2176.44	2171 -	2179	2175.75	8.00E+00	5.66	0.00E+00	.....
	56	2204.42	2199 -	2207	2203.72	1.80E+01	8.49	0.00E+00	BI-214
	57	2614.60	2609 -	2619	2613.86	8.40E+01	18.33	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 : 6/17/2016 11:09:23AM

: 00510

Analysis Report for 1606065-08

CP-5011 8 5-15

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	12.91	1.99E+03	130.51	1.15E-05	1.66E-03
	2	46.61	1.04E+02	71.95	1.71E-02	1.66E-03
	3	63.28	1.75E+02	95.96	2.37E-02	1.74E-03
	4	76.23	6.50E+02	117.27	2.56E-02	2.02E-03
M	5	90.13	1.16E+02	37.43	2.60E-02	2.27E-03
m	6	93.10	2.18E+02	61.61	2.60E-02	2.27E-03
	7	100.31	5.15E+01	45.96	2.58E-02	2.27E-03
	8	144.48	4.79E+01	45.74	2.28E-02	2.35E-03
	9	186.12	1.55E+02	56.36	1.99E-02	2.40E-03
m	10	209.37	8.61E+01	43.47	1.85E-02	2.36E-03
M	11	236.13	3.90E+01	33.70	1.71E-02	2.32E-03
m	12	239.13	7.06E+02	62.42	1.70E-02	2.31E-03
	13	258.70	3.80E+01	39.47	1.61E-02	2.28E-03
	14	270.13	6.98E+01	51.61	1.57E-02	2.26E-03
M	15	295.16	1.63E+02	37.20	1.47E-02	2.21E-03
m	16	299.90	3.81E+01	34.52	1.46E-02	2.21E-03
	17	328.25	5.77E+01	41.86	1.36E-02	2.16E-03
	18	338.26	1.68E+02	47.63	1.34E-02	2.14E-03
	19	351.95	3.03E+02	55.10	1.30E-02	2.12E-03
	20	408.80	4.49E+01	48.86	1.16E-02	1.96E-03
	21	463.04	6.07E+01	34.58	1.05E-02	1.68E-03
M	22	510.91	1.35E+02	35.38	9.77E-03	1.43E-03
m	23	514.81	2.12E+01	28.21	9.71E-03	1.41E-03
	24	526.89	2.05E+01	24.98	9.53E-03	1.35E-03
	25	583.28	2.13E+02	45.83	8.79E-03	1.06E-03
	26	609.40	2.09E+02	41.18	8.48E-03	9.22E-04
	27	634.09	1.91E+01	22.75	8.21E-03	7.94E-04
	28	641.44	1.84E+01	24.00	8.14E-03	7.56E-04
	29	648.25	2.66E+01	23.32	8.07E-03	7.21E-04
	30	727.37	5.46E+01	29.53	7.34E-03	7.36E-04
	31	768.79	1.59E+01	19.20	7.01E-03	7.89E-04
	32	786.10	2.19E+01	23.54	6.88E-03	8.12E-04
	33	794.56	5.52E+01	28.58	6.82E-03	8.23E-04
	34	861.15	2.74E+01	26.40	6.38E-03	9.08E-04
	35	911.38	1.48E+02	35.97	6.09E-03	9.28E-04
M	36	964.72	2.53E+01	21.02	5.81E-03	8.21E-04
m	37	969.35	1.31E+02	28.18	5.79E-03	8.11E-04
	38	1239.70	2.46E+01	29.09	4.76E-03	3.84E-04
	39	1245.15	2.08E+01	16.99	4.75E-03	3.82E-04
M	40	1377.72	1.55E+01	11.53	4.41E-03	3.66E-04
m	41	1381.82	7.87E+00	10.82	4.40E-03	3.66E-04
	42	1461.08	6.51E+02	54.94	4.23E-03	3.72E-04
	43	1497.20	1.31E+01	12.61	4.16E-03	3.75E-04
	44	1510.43	1.80E+01	16.34	4.14E-03	3.76E-04
	45	1589.39	3.11E+01	14.44	4.01E-03	3.82E-04
	46	1601.94	1.15E+01	14.46	3.99E-03	3.83E-04
	47	1621.07	7.36E+00	7.92	3.96E-03	3.85E-04
	48	1729.73	1.45E+01	10.79	3.81E-03	3.93E-04
	49	1764.86	3.13E+01	16.41	3.77E-03	3.96E-04
	50	1784.46	1.30E+01	7.21	3.75E-03	3.97E-04
	51	1835.11	6.60E+00	8.03	3.70E-03	4.01E-04
	52	1847.90	9.18E+00	7.50	3.69E-03	4.01E-04
	53	2020.22	9.00E+00	6.00	3.55E-03	4.01E-04

Analysis Report for 1606065-08

CP-5011 8 5-15

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
54	2162.91	5.43E+00	6.34	3.47E-03	4.01E-04
55	2176.44	8.00E+00	5.66	3.46E-03	4.01E-04
56	2204.42	1.80E+01	8.49	3.45E-03	4.01E-04
57	2614.60	8.40E+01	18.33	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 : 6/17/2016 11:09:23AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038677.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	12.91	1.99E+03	130.51			1.99E+03	1.31E+02
2	46.61	1.04E+02	71.95	2.17E+01	5.74E+00	8.19E+01	7.22E+01
3	63.28	1.75E+02	95.96	2.91E+01	8.34E+00	1.46E+02	9.63E+01
4	76.23	6.50E+02	117.27			6.50E+02	1.17E+02
M 5	90.13	1.16E+02	37.43			1.16E+02	3.74E+01
m 6	93.10	2.18E+02	61.61	4.47E+01	7.30E+00	1.73E+02	6.20E+01
7	100.31	5.15E+01	45.96			5.15E+01	4.60E+01
8	144.48	4.79E+01	45.74	5.98E+00	5.50E+00	4.19E+01	4.61E+01
9	186.12	1.55E+02	56.36	3.13E+01	6.95E+00	1.24E+02	5.68E+01
m 10	209.37	8.61E+01	43.47			8.61E+01	4.35E+01
M 11	236.13	3.90E+01	33.70			3.90E+01	3.37E+01
m 12	239.13	7.06E+02	62.42	1.19E+01	7.10E+00	6.95E+02	6.28E+01
13	258.70	3.80E+01	39.47			3.80E+01	3.95E+01
14	270.13	6.98E+01	51.61			6.98E+01	5.16E+01
M 15	295.16	1.63E+02	37.20			1.63E+02	3.72E+01
m 16	299.90	3.81E+01	34.52			3.81E+01	3.45E+01
17	328.25	5.77E+01	41.86			5.77E+01	4.19E+01
18	338.26	1.68E+02	47.63			1.68E+02	4.76E+01
19	351.95	3.03E+02	55.10	9.12E+00	4.79E+00	2.94E+02	5.53E+01
20	408.80	4.49E+01	48.86			4.49E+01	4.89E+01
21	463.04	6.07E+01	34.58			6.07E+01	3.46E+01
M 22	510.91	1.35E+02	35.38	6.97E+01	5.00E+00	6.58E+01	3.57E+01
m 23	514.81	2.12E+01	28.21			2.12E+01	2.82E+01
24	526.89	2.05E+01	24.98			2.05E+01	2.50E+01
25	583.28	2.13E+02	45.83	3.98E+00	3.57E+00	2.09E+02	4.60E+01
26	609.40	2.09E+02	41.18	8.66E+00	3.90E+00	2.00E+02	4.14E+01

Analysis Report for 1606065-08

CP-5011 8 5-15

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
27	634.09	1.91E+01	22.75			1.91E+01	2.28E+01
28	641.44	1.84E+01	24.00			1.84E+01	2.40E+01
29	648.25	2.66E+01	23.32			2.66E+01	2.33E+01
30	727.37	5.46E+01	29.53			5.46E+01	2.95E+01
31	768.79	1.59E+01	19.20			1.59E+01	1.92E+01
32	786.10	2.19E+01	23.54			2.19E+01	2.35E+01
33	794.56	5.52E+01	28.58			5.52E+01	2.86E+01
34	861.15	2.74E+01	26.40			2.74E+01	2.64E+01
35	911.38	1.48E+02	35.97	2.01E+00	2.72E+00	1.46E+02	3.61E+01
M 36	964.72	2.53E+01	21.02			2.53E+01	2.10E+01
m 37	969.35	1.31E+02	28.18			1.31E+02	2.82E+01
38	1239.70	2.46E+01	29.09			2.46E+01	2.91E+01
39	1245.15	2.08E+01	16.99			2.08E+01	1.70E+01
M 40	1377.72	1.55E+01	11.53			1.55E+01	1.15E+01
m 41	1381.82	7.87E+00	10.82			7.87E+00	1.08E+01
42	1461.08	6.51E+02	54.94	3.09E+00	1.97E+00	6.48E+02	5.50E+01
43	1497.20	1.31E+01	12.61			1.31E+01	1.26E+01
44	1510.43	1.80E+01	16.34			1.80E+01	1.63E+01
45	1589.39	3.11E+01	14.44			3.11E+01	1.44E+01
46	1601.94	1.15E+01	14.46			1.15E+01	1.45E+01
47	1621.07	7.36E+00	7.92			7.36E+00	7.92E+00
48	1729.73	1.45E+01	10.79			1.45E+01	1.08E+01
49	1764.86	3.13E+01	16.41			3.13E+01	1.64E+01
50	1784.46	1.30E+01	7.21			1.30E+01	7.21E+00
51	1835.11	6.60E+00	8.03			6.60E+00	8.03E+00
52	1847.90	9.18E+00	7.50			9.18E+00	7.50E+00
53	2020.22	9.00E+00	6.00			9.00E+00	6.00E+00
54	2162.91	5.43E+00	6.34			5.43E+00	6.34E+00
55	2176.44	8.00E+00	5.66			8.00E+00	5.66E+00
56	2204.42	1.80E+01	8.49			1.80E+01	8.49E+00
57	2614.60	8.40E+01	18.33	3.07E+00	1.34E+00	8.09E+01	1.84E+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 : 6/17/2016 11:09:23AM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038677.CNF

Corrected Area is: Original * Peak Ratio - Background

: 00513

Analysis Report for 1606065-08

CP-5011 8 5-15

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	12.91	1.99E+03	130.51			1.99E+03	1.31E+02
	2	46.61	1.04E+02	71.95	2.17E+01	5.74E+00	8.19E+01	7.22E+01
	3	63.28	1.75E+02	95.96	2.91E+01	8.34E+00	1.46E+02	9.63E+01
	4	76.23	6.50E+02	117.27			6.50E+02	1.17E+02
M	5	90.13	1.16E+02	37.43			1.16E+02	3.74E+01
m	6	93.10	2.18E+02	61.61	4.47E+01	7.30E+00	1.73E+02	6.20E+01
	7	100.31	5.15E+01	45.96			5.15E+01	4.60E+01
	8	144.48	4.79E+01	45.74	5.98E+00	5.50E+00	4.19E+01	4.61E+01
	9	186.12	1.55E+02	56.36	3.13E+01	6.95E+00	1.24E+02	5.68E+01
m	10	209.37	8.61E+01	43.47			8.61E+01	4.35E+01
M	11	236.13	3.90E+01	33.70			3.90E+01	3.37E+01
m	12	239.13	7.06E+02	62.42	1.19E+01	7.10E+00	6.95E+02	6.28E+01
	13	258.70	3.80E+01	39.47			3.80E+01	3.95E+01
	14	270.13	6.98E+01	51.61			6.98E+01	5.16E+01
M	15	295.16	1.63E+02	37.20			1.63E+02	3.72E+01
m	16	299.90	3.81E+01	34.52			3.81E+01	3.45E+01
	17	328.25	5.77E+01	41.86			5.77E+01	4.19E+01
	18	338.26	1.68E+02	47.63			1.68E+02	4.76E+01
	19	351.95	3.03E+02	55.10	9.12E+00	4.79E+00	2.94E+02	5.53E+01
	20	408.80	4.49E+01	48.86			4.49E+01	4.89E+01
	21	463.04	6.07E+01	34.58			6.07E+01	3.46E+01
M	22	510.91	1.35E+02	35.38	6.97E+01	5.00E+00	6.58E+01	3.57E+01
m	23	514.81	2.12E+01	28.21			2.12E+01	2.82E+01
	24	526.89	2.05E+01	24.98			2.05E+01	2.50E+01
	25	583.28	2.13E+02	45.83	3.98E+00	3.57E+00	2.09E+02	4.60E+01
	26	609.40	2.09E+02	41.18	8.66E+00	3.90E+00	2.00E+02	4.14E+01
	27	634.09	1.91E+01	22.75			1.91E+01	2.28E+01
	28	641.44	1.84E+01	24.00			1.84E+01	2.40E+01
	29	648.25	2.66E+01	23.32			2.66E+01	2.33E+01
	30	727.37	5.46E+01	29.53			5.46E+01	2.95E+01
	31	768.79	1.59E+01	19.20			1.59E+01	1.92E+01
	32	786.10	2.19E+01	23.54			2.19E+01	2.35E+01
	33	794.56	5.52E+01	28.58			5.52E+01	2.86E+01
	34	861.15	2.74E+01	26.40			2.74E+01	2.64E+01
	35	911.38	1.48E+02	35.97	2.01E+00	2.72E+00	1.46E+02	3.61E+01
M	36	964.72	2.53E+01	21.02			2.53E+01	2.10E+01
m	37	969.35	1.31E+02	28.18			1.31E+02	2.82E+01
	38	1239.70	2.46E+01	29.09			2.46E+01	2.91E+01
	39	1245.15	2.08E+01	16.99			2.08E+01	1.70E+01
M	40	1377.72	1.55E+01	11.53			1.55E+01	1.15E+01
m	41	1381.82	7.87E+00	10.82			7.87E+00	1.08E+01
	42	1461.08	6.51E+02	54.94	3.09E+00	1.97E+00	6.48E+02	5.50E+01
	43	1497.20	1.31E+01	12.61			1.31E+01	1.26E+01
	44	1510.43	1.80E+01	16.34			1.80E+01	1.63E+01
	45	1589.39	3.11E+01	14.44			3.11E+01	1.44E+01
	46	1601.94	1.15E+01	14.46			1.15E+01	1.45E+01
	47	1621.07	7.36E+00	7.92			7.36E+00	7.92E+00
	48	1729.73	1.45E+01	10.79			1.45E+01	1.08E+01
	49	1764.86	3.13E+01	16.41			3.13E+01	1.64E+01
	50	1784.46	1.30E+01	7.21			1.30E+01	7.21E+00
	51	1835.11	6.60E+00	8.03			6.60E+00	8.03E+00
	52	1847.90	9.18E+00	7.50			9.18E+00	7.50E+00
	53	2020.22	9.00E+00	6.00			9.00E+00	6.00E+00
	54	2162.91	5.43E+00	6.34			5.43E+00	6.34E+00

Analysis Report for 1606065-08

CP-5011 8 5-15

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
55	2176.44	8.00E+00	5.66			8.00E+00	5.66E+00
56	2204.42	1.80E+01	8.49			1.80E+01	8.49E+00
57	2614.60	8.40E+01	18.33	3.07E+00	1.34E+00	8.09E+01	1.84E+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	0.988	1460.81 *	10.67	2.51E+01	3.11E+00
GA-67	0.952	93.31 *	35.70	2.24E+00	3.74E+00
		208.95 *	2.24	2.50E+01	3.22E+01
		300.22 *	16.00	1.96E+00	3.68E+00
KR-85	0.898	513.99 *	0.43	8.80E+00	1.18E+01
SR-85	0.898	513.99 *	99.27	4.23E-02	5.67E-02
NB-95M	0.940	235.69 *	25.00	9.09E-01	7.94E-01
CE-141	0.863	145.44 *	48.40	8.06E-02	9.00E-02
ND-147	0.555	91.11 *	28.90	4.76E-01	1.60E-01
		531.02	13.10		
TL-208	0.992	583.14 *	30.22	1.38E+00	3.45E-01
		860.37 *	4.48	1.67E+00	1.63E+00
		2614.66 *	35.85	1.16E+00	2.97E-01
PB-210	0.998	46.50 *	4.25	1.97E+00	1.75E+00
BI-212	0.989	727.17 *	11.80	1.10E+00	6.06E-01
		1620.62 *	2.75	1.18E+00	1.28E+00
PB-212	0.963	238.63 *	44.60	1.60E+00	2.61E-01
		300.09 *	3.41	1.34E+00	1.23E+00
BI-214	0.733	609.31 *	46.30	8.90E-01	2.08E-01
		1120.29	15.10		
		1764.49 *	15.80	9.17E-01	4.91E-01
		2204.22 *	4.98	1.83E+00	8.88E-01
PB-214	1.000	295.21 *	19.19	1.01E+00	2.76E-01
		351.92 *	37.19	1.07E+00	2.65E-01
RA-226	0.999	186.21 *	3.28	3.32E+00	6.28E+00
AC-228	0.990	338.32 *	11.40	1.93E+00	6.28E-01
		911.07 *	27.70	1.51E+00	4.38E-01
		969.11 *	16.60	2.39E+00	6.12E-01

: 00515

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Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TH-234	1.000	63.29 *	3.80	2.83E+00	1.88E+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 : 6/17/2016 11:09:23AM
 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	12.91	5.51924E-01	3.28		
4	76.23	1.80539E-01	9.02		
7	100.31	1.43056E-02	44.62	Tol.	LU-173
13	258.70	1.05493E-02	51.97		
14	270.13	1.93796E-02	36.99		
17	328.25	1.60291E-02	36.27	Sum	
20	408.80	1.24685E-02	54.42		
21	463.04	1.68605E-02	28.49	Tol.	SB-125
M 22	510.91	1.82854E-02	27.14		
24	526.89	5.70370E-03	60.83		
27	634.09	5.29896E-03	59.64	Sum	
28	641.44	5.12037E-03	65.10		
29	648.25	7.38715E-03	43.85		
31	768.79	4.41944E-03	60.35	Sum	
32	786.10	6.07751E-03	53.80		
33	794.56	1.53274E-02	25.90	Sum	
M 36	964.72	7.03724E-03	41.49	Tol.	EU-152
38	1239.70	6.82292E-03	59.23		
39	1245.15	5.76389E-03	40.93		
M 40	1377.72	4.29171E-03	37.32		
m 41	1381.82	2.18681E-03	68.70		
43	1497.20	3.65079E-03	47.97		
44	1510.43	5.00000E-03	45.39		
45	1589.39	8.62613E-03	23.25	Sum	
46	1601.94	3.19444E-03	62.86		
48	1729.73	4.02778E-03	37.22		
50	1784.46	3.61111E-03	27.74		
51	1835.11	1.83333E-03	60.84	Tol.	Y-88

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
52	1847.90	2.55051E-03	40.84		
53	2020.22	2.50000E-03	33.33		
54	2162.91	1.50794E-03	58.43		
55	2176.44	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	0.98	1460.81 *	10.67	2.51E+01	3.11E+00
GA-67	0.95	93.31 *	35.70	2.24E+00	3.74E+00
		208.95 *	2.24	2.50E+01	3.22E+01
		300.22 *	16.00	1.96E+00	3.68E+00
KR-85	0.89	513.99 *	0.43	8.80E+00	1.18E+01
SR-85	0.89	513.99 *	99.27	4.23E-02	5.67E-02
NB-95M	0.94	235.69 *	25.00	9.09E-01	7.94E-01
CE-141	0.86	145.44 *	48.40	8.06E-02	9.00E-02
ND-147	0.55	91.11 *	28.90	4.76E-01	1.60E-01
		531.02	13.10		
TL-208	0.99	583.14 *	30.22	1.38E+00	3.45E-01
		860.37 *	4.48	1.67E+00	1.63E+00
		2614.66 *	35.85	1.16E+00	2.97E-01
PB-210	0.99	46.50 *	4.25	1.97E+00	1.75E+00
BI-212	0.98	727.17 *	11.80	1.10E+00	6.06E-01
		1620.62 *	2.75	1.18E+00	1.28E+00
PB-212	0.96	238.63 *	44.60	1.60E+00	2.61E-01
		300.09 *	3.41	1.34E+00	1.23E+00
BI-214	0.73	609.31 *	46.30	8.90E-01	2.08E-01
		1120.29	15.10		
		1764.49 *	15.80	9.17E-01	4.91E-01
		2204.22 *	4.98	1.83E+00	8.88E-01
PB-214	1.00	295.21 *	19.19	1.01E+00	2.76E-01
		351.92 *	37.19	1.07E+00	2.65E-01

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Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
RA-226	0.99	186.21 *	3.28	3.32E+00	6.28E+00
AC-228	0.99	338.32 *	11.40	1.93E+00	6.28E-01
		911.07 *	27.70	1.51E+00	4.38E-01
		969.11 *	16.60	2.39E+00	6.12E-01
TH-234	1.00	63.29 *	3.80	2.83E+00	1.88E+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	0.988	2.51E+01	3.11E+00	
GA-67	0.952	1.88E+00	2.34E+00	
? KR-85	0.898	8.80E+00	1.18E+01	
? SR-85	0.898	4.23E-02	5.67E-02	
NB-95M	0.940	9.09E-01	7.94E-01	
CE-141	0.863	8.06E-02	9.00E-02	
ND-147	0.555	4.76E-01	1.60E-01	
TL-208	0.992	1.26E+00	2.23E-01	
PB-210	0.998	1.97E+00	1.75E+00	
BI-212	0.989	1.12E+00	5.47E-01	
PB-212	0.963	1.53E+00	2.57E-01	
BI-214	0.733	9.35E-01	1.87E-01	
PB-214	1.000	1.04E+00	1.91E-01	
RA-226	0.999	3.32E+00	6.28E+00	
AC-228	0.990	1.84E+00	3.10E-01	
TH-234	1.000	2.83E+00	1.88E+00	

Analysis Report for 1606065-08

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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 1606065-08

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 UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 11:09:23AM
 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	12.91	5.51924E-01	3.28		
4	76.23	1.80539E-01	9.02		
7	100.31	1.43056E-02	44.62	Tol.	LU-173
13	258.70	1.05493E-02	51.97		
14	270.13	1.93796E-02	36.99		
17	328.25	1.60291E-02	36.27	Sum	
20	408.80	1.24685E-02	54.42		
21	463.04	1.68605E-02	28.49	Tol.	SB-125
M 22	510.91	1.82854E-02	27.14		
24	526.89	5.70370E-03	60.83		
27	634.09	5.29896E-03	59.64	Sum	
28	641.44	5.12037E-03	65.10		
29	648.25	7.38715E-03	43.85		
31	768.79	4.41944E-03	60.35	Sum	
32	786.10	6.07751E-03	53.80		
33	794.56	1.53274E-02	25.90	Sum	
M 36	964.72	7.03724E-03	41.49	Tol.	EU-152
38	1239.70	6.82292E-03	59.23		
39	1245.15	5.76389E-03	40.93		
M 40	1377.72	4.29171E-03	37.32		
m 41	1381.82	2.18681E-03	68.70		
43	1497.20	3.65079E-03	47.97		
44	1510.43	5.00000E-03	45.39		
45	1589.39	8.62613E-03	23.25	Sum	
46	1601.94	3.19444E-03	62.86		
48	1729.73	4.02778E-03	37.22		
50	1784.46	3.61111E-03	27.74		
51	1835.11	1.83333E-03	60.84	Tol.	Y-88
52	1847.90	2.55051E-03	40.84		
53	2020.22	2.50000E-03	33.33		
54	2162.91	1.50794E-03	58.43		
55	2176.44	2.22222E-03	35.36		

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

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	-1.83E-02	6.76E-01	6.76E-01
+ NA-22	1274.54	99.94	-9.16E-03	1.14E-01	1.14E-01
+ NA-24	1368.53	99.99	-2.53E+02	8.82E+02	2.02E+03
	2754.09	99.86	-2.40E+02		8.82E+02
+ AL-26	1808.65	99.76	1.14E-02	7.06E-02	7.06E-02
+ K-40	1460.81	* 10.67	2.51E+01	1.42E+00	1.42E+00
+ @ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+ TI-44	67.88	94.40	4.82E-02	6.49E-02	6.49E-02
	78.34	96.00	3.50E-01		9.59E-02
+ SC-46	889.25	99.98	-3.17E-02	9.28E-02	9.28E-02
	1120.51	99.99	1.62E-01		1.61E-01
+ V-48	983.52	99.98	-4.85E-02	1.35E-01	1.35E-01
	1312.10	97.50	4.70E-02		1.54E-01
+ CR-51	320.08	9.83	8.30E-01	9.46E-01	9.46E-01
+ MN-54	834.83	99.97	2.91E-03	1.04E-01	1.04E-01
+ CO-56	846.75	99.96	4.34E-02	1.02E-01	1.02E-01
	1037.75	14.03	9.85E-02		6.83E-01
	1238.25	67.00	1.54E-01		2.47E-01
	1771.40	15.51	1.32E-01		5.88E-01
	2598.48	16.90	6.59E-02		3.06E-01
+ CO-57	122.06	85.51	-3.26E-02	6.58E-02	6.58E-02
	136.48	10.60	5.74E-02		5.62E-01
+ CO-58	810.76	99.40	7.19E-03	9.51E-02	9.51E-02
+ FE-59	1099.22	56.50	-5.28E-02	2.14E-01	2.14E-01
	1291.56	43.20	7.89E-02		3.13E-01
+ CO-60	1173.22	100.00	7.77E-03	9.33E-02	1.24E-01
	1332.49	100.00	0.00E+00		9.33E-02
+ ZN-65	1115.52	50.75	-3.40E-01	2.24E-01	2.24E-01
+ GA-67	93.31	* 35.70	2.24E+00	1.84E+00	1.84E+00
	208.95	* 2.24	2.50E+01		3.64E+01
	300.22	* 16.00	1.96E+00		5.58E+00
+ SE-75	121.11	16.70	-1.40E-01	1.04E-01	3.46E-01

Analysis Report for 1606065-08
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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
	SE-75	136.00	59.20	1.17E-02	1.04E-01	1.04E-01
		264.65	59.80	4.35E-02		1.09E-01
		279.53	25.20	-9.67E-02		2.51E-01
		400.65	11.40	5.22E-01		6.75E-01
+	RB-82	776.52	13.00	2.97E-01	8.64E-01	8.64E-01
+	RB-83	520.41	46.00	2.97E-02	1.72E-01	1.72E-01
		529.64	30.30	-4.13E-02		2.55E-01
		552.65	16.40	1.49E-01		4.61E-01
+	KR-85	513.99	* 0.43	8.80E+00	3.32E+01	3.32E+01
+	SR-85	513.99	* 99.27	4.23E-02	1.60E-01	1.60E-01
+	Y-88	898.02	93.40	3.87E-02	9.50E-02	1.11E-01
		1836.01	99.38	3.36E-03		9.50E-02
+	NB-93M	16.57	9.43	-1.82E+00	1.10E+02	1.10E+02
+	NB-94	702.63	100.00	-1.31E-02	9.37E-02	9.37E-02
		871.10	100.00	-2.19E-02		9.93E-02
+	NB-95	765.79	99.81	-8.93E-03	1.29E-01	1.29E-01
+	NB-95M	235.69	* 25.00	9.09E-01	2.47E+00	2.47E+00
+	ZR-95	724.18	43.70	-1.22E-02	2.00E-01	2.73E-01
		756.72	55.30	5.21E-02		2.00E-01
+	MO-99	181.06	6.20	-1.60E-01	7.24E+00	1.01E+01
		739.58	12.80	-1.54E+00		7.24E+00
		778.00	4.50	-1.00E+01		1.77E+01
+	RU-103	497.08	89.00	-4.25E-02	8.06E-02	8.06E-02
+	RU-106	621.84	9.80	-1.98E-01	8.74E-01	8.74E-01
+	AG-108M	433.93	89.90	2.47E-03	7.40E-02	7.40E-02
		614.37	90.40	4.86E-02		1.02E-01
		722.95	90.50	-1.06E-02		1.01E-01
+	CD-109	88.03	3.72	2.18E+00	2.22E+00	2.22E+00
+	AG-110M	657.75	93.14	-3.32E-02	9.20E-02	9.20E-02
		677.61	10.53	1.97E-01		8.86E-01
		706.67	16.46	7.88E-02		5.95E-01
		763.93	21.98	3.79E-03		4.58E-01
		884.67	71.63	6.01E-02		1.37E-01
		1384.27	23.94	1.38E-02		3.63E-01
+	CD-113M	263.70	0.02	7.63E+01	2.66E+02	2.66E+02
+	SN-113	255.12	1.93	7.70E-01	9.88E-02	3.43E+00
		391.69	64.90	-6.86E-02		9.88E-02
+	TE123M	159.00	84.10	-3.54E-02	7.70E-02	7.70E-02
+	SB-124	602.71	97.87	2.52E-03	9.38E-02	9.38E-02
		645.85	7.26	-3.21E-01		1.25E+00
		722.78	11.10	-9.55E-02		9.10E-01
		1691.02	49.00	6.19E-02		2.00E-01
+	I-125	35.49	6.49	4.60E-01	2.00E+00	2.00E+00
+	SB-125	176.33	6.89	5.22E-01	2.45E-01	9.07E-01
		427.89	29.33	3.59E-02		2.45E-01
		463.38	10.35	1.08E+00		8.33E-01
		600.56	17.80	-7.96E-02		4.82E-01
		635.90	11.32	6.13E-02		7.29E-01

Analysis Report for 1606065-08

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70	83.30	2.24E-02	1.31E-01	1.31E-01
		666.33	99.60	1.33E-02		1.51E-01
		695.00	99.60	5.76E-02		1.69E-01
		720.50	53.80	4.22E-02		2.85E-01
+	SN-126	87.57	37.00	2.16E-01	2.20E-01	2.20E-01
+	SB-127	473.00	25.00	8.36E-01	1.38E+00	1.44E+00
		685.20	35.70	1.02E-01		1.38E+00
		783.80	14.70	2.23E-01		3.67E+00
+	I-129	29.78	57.00	4.53E-02	3.61E-01	3.61E-01
		33.60	13.20	-3.73E-01		1.02E+00
		39.58	7.52	-1.35E-02		1.21E+00
+	I-131	284.30	6.05	-2.40E-01	1.69E-01	2.11E+00
		364.48	81.20	-3.65E-02		1.69E-01
		636.97	7.26	-1.32E+00		2.39E+00
		722.89	1.80	-1.16E+00		1.11E+01
+	TE-132	49.72	13.10	1.13E+00	5.22E-01	3.29E+00
		228.16	88.00	3.19E-02		5.22E-01
+	BA-133	81.00	33.00	7.55E-02	1.09E-01	1.65E-01
		302.84	17.80	-1.35E-01		3.69E-01
		356.01	60.00	-2.35E-03		1.09E-01
+	I-133	529.87	86.30	-2.45E+01	1.15E+02	1.15E+02
+	XE-133	81.00	38.00	2.17E-01	4.74E-01	4.74E-01
+	CS-134	563.23	8.38	-4.53E-03	9.80E-02	8.94E-01
		569.32	15.43	1.45E-01		5.20E-01
		604.70	97.60	1.21E-02		9.80E-02
		795.84	85.40	4.72E-02		1.29E-01
		801.93	8.73	3.90E-01		1.10E+00
+	CS-135	268.24	16.00	-2.46E-02	4.34E-01	4.34E-01
+	I-135	1131.51	22.50	-2.35E+09	3.32E+09	3.64E+09
		1260.41	28.60	-8.34E+08		3.32E+09
		1678.03	9.54	-2.73E+09		6.18E+09
+	CS-136	153.22	7.46	-7.34E-01	1.27E-01	1.35E+00
		163.89	4.61	-2.30E-01		2.24E+00
		176.55	13.56	-2.47E-01		7.35E-01
		273.65	12.66	-5.12E-01		8.11E-01
		340.57	48.50	-8.05E-02		2.72E-01
		818.50	99.70	-2.63E-02		1.27E-01
		1048.07	79.60	-2.00E-03		2.07E-01
		1235.34	19.70	-1.71E-02		1.15E+00
+	CS-137	661.65	85.12	3.71E-02	1.10E-01	1.10E-01
+	LA-138	788.74	34.00	-1.41E-02	1.39E-01	2.92E-01
		1435.80	66.00	1.41E-02		1.39E-01
+	CE-139	165.85	80.35	2.36E-02	8.14E-02	8.14E-02
+	BA-140	162.64	6.70	3.38E-01	4.25E-01	1.57E+00
		304.84	4.50	-2.63E-01		2.26E+00
		423.70	3.20	4.29E-02		3.55E+00
		437.55	2.00	-2.54E+00		5.14E+00
		537.32	25.00	-1.59E-01		4.25E-01
+	LA-140	328.77	20.50	5.62E-01	1.68E-01	6.16E-01

Analysis Report for 1606065-08

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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
LA-140	487.03	45.50	6.03E-03	1.68E-01	2.68E-01
	815.85	23.50	0.00E+00		5.50E-01
	1596.49	95.49	-9.90E-02		1.68E-01
+ CE-141	145.44 *	48.40	8.06E-02	1.45E-01	1.45E-01
+ CE-143	57.36	11.80	-1.08E-01	1.99E+01	4.84E+01
	293.26	42.00	-7.64E-01		1.99E+01
	664.55	5.20	4.53E+01		1.74E+02
+ CE-144	133.54	10.80	-1.56E-01	5.52E-01	5.52E-01
+ PM-144	476.78	42.00	-4.11E-03	9.80E-02	1.51E-01
	618.01	98.60	5.85E-02		9.80E-02
	696.49	99.49	1.75E-02		1.03E-01
+ PM-145	36.85	21.70	-5.42E-02	2.55E-01	4.82E-01
	37.36	39.70	-2.86E-02		2.55E-01
	42.30	15.10	1.02E-01		5.22E-01
	72.40	2.31	-8.78E-01		2.73E+00
+ PM-146	453.90	39.94	1.27E-01	1.89E-01	1.89E-01
	735.90	14.01	2.39E-01		7.07E-01
	747.13	13.10	1.12E-01		7.05E-01
+ ND-147	91.11 *	28.90	4.76E-01	5.56E-01	5.56E-01
	531.02	13.10	2.92E-01		9.75E-01
+ PM-149	285.90	3.10	6.36E+00	3.41E+01	3.41E+01
+ EU-152	121.78	20.50	-1.33E-01	2.68E-01	2.68E-01
	244.69	5.40	2.04E-01		1.16E+00
	344.27	19.13	-1.40E-01		3.33E-01
	778.89	9.20	-3.84E-01		9.01E-01
	964.01	10.40	-4.47E+00		1.19E+00
	1085.78	7.22	1.15E-01		1.49E+00
	1112.02	9.60	2.86E-01		1.18E+00
	1407.95	14.94	1.75E-01		6.88E-01
+ GD-153	97.43	31.30	-1.31E-02	1.97E-01	1.97E-01
	103.18	22.20	-2.62E-02		2.75E-01
+ EU-154	123.07	40.50	-1.11E-01	1.38E-01	1.38E-01
	723.30	19.70	-4.86E-02		4.63E-01
	873.19	11.50	2.05E-01		8.90E-01
	996.32	10.30	-1.65E-01		1.02E+00
	1004.76	17.90	-9.99E-02		5.65E-01
	1274.45	35.50	-2.57E-02		3.20E-01
+ EU-155	86.50	30.90	7.61E-02	2.49E-01	2.49E-01
	105.30	20.70	1.76E-01		2.90E-01
+ EU-156	811.77	10.40	4.25E-01	1.23E+00	1.23E+00
	1153.47	7.20	3.64E-02		2.50E+00
	1230.71	8.90	-1.13E+00		2.08E+00
+ HO-166M	184.41	72.60	1.21E-01	1.09E-01	1.09E-01
	280.45	29.60	-7.83E-02		2.04E-01
	410.94	11.10	3.33E-01		6.98E-01
	711.69	54.10	5.62E-02		1.85E-01
+ TM-171	66.72	0.14	8.77E+00	4.32E+01	4.32E+01
+ HF-172	81.75	4.52	-2.19E+00	5.47E-01	1.16E+00
	125.81	11.30	-5.60E-01		5.47E-01

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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	1.68E-01	4.42E-01	8.11E-01
		810.06	16.63	1.00E-01		1.33E+00
		912.12	15.25	8.11E+00		3.23E+00
		1093.66	62.50	2.99E-01		4.42E-01
+	LU-173	100.72	5.24	2.60E-01	3.53E-01	1.15E+00
		272.11	21.20	3.16E-01		3.53E-01
+	HF-175	343.40	84.00	9.82E-02	9.06E-02	9.06E-02
+	LU-176	88.34	13.30	6.01E-01	6.63E-02	6.13E-01
		201.83	86.00	1.14E-02		7.40E-02
		306.78	94.00	1.89E-02		6.63E-02
+	TA-182	67.75	41.20	1.17E-01	1.57E-01	1.57E-01
		1121.30	34.90	3.07E-01		4.47E-01
		1189.05	16.23	2.31E-01		9.03E-01
		1221.41	26.98	-1.08E-01		5.42E-01
		1231.02	11.44	-4.62E-01		1.14E+00
+	IR-192	308.46	29.68	-5.84E-02	1.31E-01	2.25E-01
		468.07	48.10	-1.01E-01		1.31E-01
+	HG-203	279.19	77.30	-2.28E-02	9.39E-02	9.39E-02
+	BI-207	569.67	97.72	2.27E-02	8.15E-02	8.15E-02
		1063.62	74.90	-2.42E-02		1.41E-01
+	TL-208	583.14	* 30.22	1.38E+00	1.27E-01	4.04E-01
		860.37	* 4.48	1.67E+00		2.60E+00
		2614.66	* 35.85	1.16E+00		1.27E-01
+	BI-210M	262.00	45.00	1.28E-02	1.36E-01	1.36E-01
		300.00	23.00	1.31E-01		3.23E-01
+	PB-210	46.50	* 4.25	1.97E+00	2.83E+00	2.83E+00
+	PB-211	404.84	2.90	-8.36E-01	2.43E+00	2.43E+00
		831.96	2.90	4.07E-01		3.14E+00
+	BI-212	727.17	* 11.80	1.10E+00	9.03E-01	9.03E-01
		1620.62	* 2.75	1.18E+00		1.96E+00
+	PB-212	238.63	* 44.60	1.60E+00	2.45E-01	2.45E-01
		300.09	* 3.41	1.34E+00		3.80E+00
+	BI-214	609.31	* 46.30	8.90E-01	2.75E-01	2.98E-01
		1120.29	15.10	9.93E-01		9.89E-01
		1764.49	* 15.80	9.17E-01		6.58E-01
		2204.22	* 4.98	1.83E+00		2.75E-01
+	PB-214	295.21	* 19.19	1.01E+00	2.68E-01	6.63E-01
		351.92	* 37.19	1.07E+00		2.68E-01
+	RN-219	401.80	6.50	3.43E-01	1.07E+00	1.07E+00
+	RA-223	323.87	3.88	6.40E-01	1.77E+00	1.77E+00
+	RA-224	240.98	3.95	1.43E+01	3.62E+00	3.62E+00
+	RA-225	40.00	31.00	-4.90E-03	4.39E-01	4.39E-01
+	RA-226	186.21	* 3.28	3.32E+00	2.37E+00	2.37E+00
+	TH-227	50.10	8.40	2.53E-01	7.37E-01	7.37E-01
		236.00	11.50	-6.86E+00		8.62E-01
		256.20	6.30	-4.09E-02		9.56E-01
+	AC-228	338.32	* 11.40	1.93E+00	4.85E-01	7.86E-01
		911.07	* 27.70	1.51E+00		4.85E-01

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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>
	AC-228	969.11	*	16.60	2.39E+00	4.85E-01
+	TH-230	48.44		16.90	-5.02E-01	3.79E-01
		62.85		4.60	1.63E+00	1.59E+00
		67.67		0.37	1.23E+01	1.66E+01
+	PA-231	283.67		1.60	-4.15E-01	2.85E+00
		302.67		2.30	-1.04E+00	2.85E+00
+	TH-231	25.64		14.70	-6.29E-01	9.05E-01
		84.21		6.40	1.21E+00	9.05E-01
+	PA-233	311.98		38.60	-7.60E-02	2.02E-01
+	PA-234	131.20		20.40	3.16E-01	3.27E-01
		733.99		8.80	-1.17E-01	1.07E+00
		946.00		12.00	-1.13E-01	7.45E-01
+	PA-234M	1001.03		0.92	1.17E+00	1.09E+01
+	TH-234	63.29	*	3.80	2.83E+00	3.03E+00
+	U-235	143.76		10.50	-9.34E-02	5.60E-01
		163.35		4.70	2.95E-01	1.37E+00
		205.31		4.70	1.12E+00	1.38E+00
+	NP-237	86.50		12.60	1.86E-01	6.07E-01
+	NP-239	106.10		22.70	4.67E-01	3.85E+00
		228.18		10.70	5.50E-01	9.00E+00
		277.60		14.10	1.44E+00	6.47E+00
+	AM-241	59.54		35.90	-1.17E-01	1.67E-01
+	AM-243	74.67		66.00	-3.95E-01	1.29E-01
+	CM-243	209.75		3.29	2.76E+00	4.52E-01
		228.14		10.60	3.84E-02	6.29E-01
		277.60		14.00	1.00E-01	4.52E-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

: 00526

Analysis Report for 1606065-08
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	6.76E-01	6.76E-01	-1.83E-02	3.13E-01
NA-22	1274.54	99.94	1.14E-01	1.14E-01	-9.16E-03	5.19E-02
NA-24	1368.53	99.99	2.02E+03	8.82E+02	-2.53E+02	8.87E+02
	2754.09	99.86	8.82E+02		-2.40E+02	2.79E+02
AL-26	1808.65	99.76	7.06E-02	7.06E-02	1.14E-02	2.89E-02
+ K-40	1460.81	* 10.67	1.42E+00	1.42E+00	2.51E+01	6.59E-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	6.49E-02	6.49E-02	4.82E-02	3.14E-02
	78.34	96.00	9.59E-02		3.50E-01	4.70E-02
SC-46	889.25	99.98	9.28E-02	9.28E-02	-3.17E-02	4.23E-02
	1120.51	99.99	1.61E-01		1.62E-01	7.56E-02
V-48	983.52	99.98	1.35E-01	1.35E-01	-4.85E-02	6.14E-02
	1312.10	97.50	1.54E-01		4.70E-02	6.90E-02
CR-51	320.08	9.83	9.46E-01	9.46E-01	8.30E-01	4.51E-01
MN-54	834.83	99.97	1.04E-01	1.04E-01	2.91E-03	4.82E-02
CO-56	846.75	99.96	1.02E-01	1.02E-01	4.34E-02	4.71E-02
	1037.75	14.03	6.83E-01		9.85E-02	3.08E-01
	1238.25	67.00	2.47E-01		1.54E-01	1.15E-01
	1771.40	15.51	5.88E-01		1.32E-01	2.50E-01
	2598.48	16.90	3.06E-01		6.59E-02	1.08E-01
CO-57	122.06	85.51	6.58E-02	6.58E-02	-3.26E-02	3.17E-02
	136.48	10.60	5.62E-01		5.74E-02	2.71E-01
CO-58	810.76	99.40	9.51E-02	9.51E-02	7.19E-03	4.37E-02
FE-59	1099.22	56.50	2.14E-01	2.14E-01	-5.28E-02	9.76E-02
	1291.56	43.20	3.13E-01		7.89E-02	1.43E-01
CO-60	1173.22	100.00	1.24E-01	9.33E-02	7.77E-03	5.74E-02
	1332.49	100.00	9.33E-02		0.00E+00	4.14E-02
ZN-65	1115.52	50.75	2.24E-01	2.24E-01	-3.40E-01	1.03E-01
+ GA-67	93.31	* 35.70	1.84E+00	1.84E+00	2.24E+00	9.04E-01
	208.95	* 2.24	3.64E+01		2.50E+01	1.78E+01
	300.22	* 16.00	5.58E+00		1.96E+00	2.72E+00
SE-75	121.11	16.70	3.46E-01	1.04E-01	-1.40E-01	1.67E-01
	136.00	59.20	1.04E-01		1.17E-02	5.01E-02
	264.65	59.80	1.09E-01		4.35E-02	5.16E-02
	279.53	25.20	2.51E-01		-9.67E-02	1.19E-01
	400.65	11.40	6.75E-01		5.22E-01	3.19E-01
RB-82	776.52	13.00	8.64E-01	8.64E-01	2.97E-01	3.98E-01
RB-83	520.41	46.00	1.72E-01	1.72E-01	2.97E-02	8.02E-02
	529.64	30.30	2.55E-01		-4.13E-02	1.19E-01
	552.65	16.40	4.61E-01		1.49E-01	2.13E-01
+ KR-85	513.99	* 0.43	3.32E+01	3.32E+01	8.80E+00	1.60E+01
+ SR-85	513.99	* 99.27	1.60E-01	1.60E-01	4.23E-02	7.72E-02
Y-88	898.02	93.40	1.11E-01	9.50E-02	3.87E-02	5.13E-02
	1836.01	99.38	9.50E-02		3.36E-03	4.07E-02
NB-93M	16.57	9.43	1.10E+02	1.10E+02	-1.82E+00	5.32E+01
NB-94	702.63	100.00	9.37E-02	9.37E-02	-1.31E-02	4.37E-02
	871.10	100.00	9.93E-02		-2.19E-02	4.59E-02
NB-95	765.79	99.81	1.29E-01	1.29E-01	-8.93E-03	6.04E-02
+ NB-95M	235.69	* 25.00	2.47E+00	2.47E+00	9.09E-01	1.20E+00
ZR-95	724.18	43.70	2.73E-01	2.00E-01	-1.22E-02	1.28E-01
	756.72	55.30	2.00E-01		5.21E-02	9.34E-02

Analysis Report for 1606065-08

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
MO-99	181.06	6.20	1.01E+01	7.24E+00	-1.60E-01	4.85E+00
	739.58	12.80	7.24E+00		-1.54E+00	3.37E+00
	778.00	4.50	1.77E+01		-1.00E+01	8.09E+00
RU-103	497.08	89.00	8.06E-02	8.06E-02	-4.25E-02	3.72E-02
RU-106	621.84	9.80	8.74E-01	8.74E-01	-1.98E-01	4.08E-01
AG-108M	433.93	89.90	7.40E-02	7.40E-02	2.47E-03	3.46E-02
	614.37	90.40	1.02E-01		4.86E-02	4.77E-02
	722.95	90.50	1.01E-01		-1.06E-02	4.68E-02
CD-109	88.03	3.72	2.22E+00	2.22E+00	2.18E+00	1.09E+00
AG-110M	657.75	93.14	9.20E-02	9.20E-02	-3.32E-02	4.27E-02
	677.61	10.53	8.86E-01		1.97E-01	4.13E-01
	706.67	16.46	5.95E-01		7.88E-02	2.78E-01
	763.93	21.98	4.58E-01		3.79E-03	2.14E-01
	884.67	71.63	1.37E-01		6.01E-02	6.32E-02
CD-113M	1384.27	23.94	3.63E-01		1.38E-02	1.59E-01
CD-113M	263.70	0.02	2.66E+02	2.66E+02	7.63E+01	1.27E+02
SN-113	255.12	1.93	3.43E+00	9.88E-02	7.70E-01	1.63E+00
	391.69	64.90	9.88E-02		-6.86E-02	4.62E-02
TE123M	159.00	84.10	7.70E-02	7.70E-02	-3.54E-02	3.72E-02
SB-124	602.71	97.87	9.38E-02	9.38E-02	2.52E-03	4.38E-02
	645.85	7.26	1.25E+00		-3.21E-01	5.80E-01
	722.78	11.10	9.10E-01		-9.55E-02	4.23E-01
	1691.02	49.00	2.00E-01		6.19E-02	8.60E-02
I-125	35.49	6.49	2.00E+00	2.00E+00	4.60E-01	9.57E-01
SB-125	176.33	6.89	9.07E-01	2.45E-01	5.22E-01	4.37E-01
	427.89	29.33	2.45E-01		3.59E-02	1.15E-01
	463.38	10.35	8.33E-01		1.08E+00	3.95E-01
	600.56	17.80	4.82E-01		-7.96E-02	2.26E-01
	635.90	11.32	7.29E-01		6.13E-02	3.39E-01
SB-126	414.70	83.30	1.31E-01	1.31E-01	2.24E-02	6.15E-02
	666.33	99.60	1.51E-01		1.33E-02	7.03E-02
	695.00	99.60	1.69E-01		5.76E-02	7.95E-02
	720.50	53.80	2.85E-01		4.22E-02	1.32E-01
SN-126	87.57	37.00	2.20E-01	2.20E-01	2.16E-01	1.08E-01
SB-127	473.00	25.00	1.44E+00	1.38E+00	8.36E-01	6.72E-01
	685.20	35.70	1.38E+00		1.02E-01	6.46E-01
	783.80	14.70	3.67E+00		2.23E-01	1.72E+00
I-129	29.78	57.00	3.61E-01	3.61E-01	4.53E-02	1.73E-01
	33.60	13.20	1.02E+00		-3.73E-01	4.87E-01
	39.58	7.52	1.21E+00		-1.35E-02	5.80E-01
I-131	284.30	6.05	2.11E+00	1.69E-01	-2.40E-01	1.00E+00
	364.48	81.20	1.69E-01		-3.65E-02	7.93E-02
	636.97	7.26	2.39E+00		-1.32E+00	1.11E+00
	722.89	1.80	1.11E+01		-1.16E+00	5.14E+00
TE-132	49.72	13.10	3.29E+00	5.22E-01	1.13E+00	1.58E+00
	228.16	88.00	5.22E-01		3.19E-02	2.50E-01
BA-133	81.00	33.00	1.65E-01	1.09E-01	7.55E-02	7.95E-02
	302.84	17.80	3.69E-01		-1.35E-01	1.75E-01
	356.01	60.00	1.09E-01		-2.35E-03	5.14E-02
I-133	529.87	86.30	1.15E+02	1.15E+02	-2.45E+01	5.36E+01
XE-133	81.00	38.00	4.74E-01	4.74E-01	2.17E-01	2.29E-01
CS-134	563.23	8.38	8.94E-01	9.80E-02	-4.53E-03	4.16E-01
	569.32	15.43	5.20E-01		1.45E-01	2.43E-01

Analysis Report for 1606065-08

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	604.70	97.60	9.80E-02	9.80E-02	1.21E-02	4.61E-02
	795.84	85.40	1.29E-01		4.72E-02	6.06E-02
	801.93	8.73	1.10E+00		3.90E-01	5.09E-01
CS-135	268.24	16.00	4.34E-01	4.34E-01	-2.46E-02	2.07E-01
	I-135	1131.51	22.50		3.64E+09	3.32E+09	-2.35E+09	1.65E+09
CS-136	1260.41	28.60	3.32E+09	1.27E-01	-8.34E+08	1.52E+09
	1678.03	9.54	6.18E+09		-2.73E+09	2.56E+09
	153.22	7.46	1.35E+00		-7.34E-01	6.51E-01
	163.89	4.61	2.24E+00		-2.30E-01	1.08E+00
	176.55	13.56	7.35E-01		-2.47E-01	3.54E-01
	273.65	12.66	8.11E-01		-5.12E-01	3.86E-01
	340.57	48.50	2.72E-01		-8.05E-02	1.30E-01
	818.50	99.70	1.27E-01		-2.63E-02	5.76E-02
	1048.07	79.60	2.07E-01		-2.00E-03	9.46E-02
	1235.34	19.70	1.15E+00		-1.71E-02	5.35E-01
CS-137	661.65	85.12	1.10E-01	1.10E-01	3.71E-02	5.15E-02
LA-138	788.74	34.00	2.92E-01	1.39E-01	-1.41E-02	1.36E-01
	1435.80	66.00	1.39E-01		1.41E-02	6.10E-02
CE-139	165.85	80.35	8.14E-02	8.14E-02	2.36E-02	3.93E-02
BA-140	162.64	6.70	1.57E+00	4.25E-01	3.38E-01	7.58E-01
	304.84	4.50	2.26E+00		-2.63E-01	1.07E+00
	423.70	3.20	3.55E+00		4.29E-02	1.67E+00
	437.55	2.00	5.14E+00		-2.54E+00	2.39E+00
	537.32	25.00	4.25E-01		-1.59E-01	1.96E-01
LA-140	328.77	20.50	6.16E-01	1.68E-01	5.62E-01	2.94E-01
	487.03	45.50	2.68E-01		6.03E-03	1.26E-01
	815.85	23.50	5.50E-01		0.00E+00	2.51E-01
	1596.49	95.49	1.68E-01		-9.90E-02	7.39E-02
+ CE-141	145.44	* 48.40	1.45E-01	1.45E-01	8.06E-02	6.99E-02
CE-143	57.36	11.80	4.84E+01	1.99E+01	-1.08E-01	2.33E+01
	293.26	42.00	1.99E+01		-7.64E-01	9.58E+00
	664.55	5.20	1.74E+02		4.53E+01	8.13E+01
CE-144	133.54	10.80	5.52E-01	5.52E-01	-1.56E-01	2.66E-01
PM-144	476.78	42.00	1.51E-01	9.80E-02	-4.11E-03	7.02E-02
	618.01	98.60	9.80E-02		5.85E-02	4.61E-02
	696.49	99.49	1.03E-01		1.75E-02	4.86E-02
PM-145	36.85	21.70	4.82E-01	2.55E-01	-5.42E-02	2.31E-01
	37.36	39.70	2.55E-01		-2.86E-02	1.22E-01
	42.30	15.10	5.22E-01		1.02E-01	2.50E-01
	72.40	2.31	2.73E+00		-8.78E-01	1.32E+00
PM-146	453.90	39.94	1.89E-01	1.89E-01	1.27E-01	8.89E-02
	735.90	14.01	7.07E-01		2.39E-01	3.30E-01
	747.13	13.10	7.05E-01		1.12E-01	3.27E-01
+ ND-147	91.11	* 28.90	5.56E-01	5.56E-01	4.76E-01	2.73E-01
PM-149	531.02	13.10	9.75E-01	3.41E+01	2.92E-01	4.54E-01
	285.90	3.10	3.41E+01		6.36E+00	1.62E+01
EU-152	121.78	20.50	2.68E-01	2.68E-01	-1.33E-01	1.29E-01
	244.69	5.40	1.16E+00		2.04E-01	5.53E-01
	344.27	19.13	3.33E-01		-1.40E-01	1.57E-01
	778.89	9.20	9.01E-01		-3.84E-01	4.13E-01
	964.01	10.40	1.19E+00		-4.47E+00	5.55E-01
	1085.78	7.22	1.49E+00		1.15E-01	6.83E-01
	1112.02	9.60	1.18E+00		2.86E-01	5.42E-01

Analysis Report for 1606065-08

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
EU-152	1407.95	14.94	6.88E-01	2.68E-01	1.75E-01	3.07E-01	
GD-153	97.43	31.30	1.97E-01	1.97E-01	-1.31E-02	9.53E-02	
	103.18	22.20	2.75E-01		-2.62E-02	1.33E-01	
EU-154	123.07	40.50	1.38E-01	1.38E-01	-1.11E-01	6.67E-02	
	723.30	19.70	4.63E-01		-4.86E-02	2.15E-01	
	873.19	11.50	8.90E-01		2.05E-01	4.12E-01	
	996.32	10.30	1.02E+00		-1.65E-01	4.68E-01	
	1004.76	17.90	5.65E-01		-9.99E-02	2.59E-01	
	1274.45	35.50	3.20E-01		-2.57E-02	1.45E-01	
EU-155	86.50	30.90	2.49E-01	2.49E-01	7.61E-02	1.21E-01	
	105.30	20.70	2.90E-01		1.76E-01	1.41E-01	
EU-156	811.77	10.40	1.23E+00	1.23E+00	4.25E-01	5.65E-01	
	1153.47	7.20	2.50E+00		3.64E-02	1.15E+00	
	1230.71	8.90	2.08E+00		-1.13E+00	9.57E-01	
HO-166M	184.41	72.60	1.09E-01	1.09E-01	1.21E-01	5.31E-02	
	280.45	29.60	2.04E-01		-7.83E-02	9.65E-02	
	410.94	11.10	6.98E-01		3.33E-01	3.31E-01	
	711.69	54.10	1.85E-01		5.62E-02	8.65E-02	
TM-171	66.72	0.14	4.32E+01	4.32E+01	8.77E+00	2.09E+01	
HF-172	81.75	4.52	1.16E+00	5.47E-01	-2.19E+00	5.59E-01	
	125.81	11.30	5.47E-01		-5.60E-01	2.65E-01	
LU-172	181.53	20.60	8.11E-01	4.42E-01	1.68E-01	3.91E-01	
	810.06	16.63	1.33E+00		1.00E-01	6.10E-01	
	912.12	15.25	3.23E+00		8.11E+00	1.55E+00	
	1093.66	62.50	4.42E-01		2.99E-01	2.03E-01	
LU-173	100.72	5.24	1.15E+00	3.53E-01	2.60E-01	5.57E-01	
	272.11	21.20	3.53E-01		3.16E-01	1.69E-01	
HF-175	343.40	84.00	9.06E-02	9.06E-02	9.82E-02	4.30E-02	
LU-176	88.34	13.30	6.13E-01	6.63E-02	6.01E-01	3.00E-01	
	201.83	86.00	7.40E-02		1.14E-02	3.56E-02	
	306.78	94.00	6.63E-02		1.89E-02	3.14E-02	
TA-182	67.75	41.20	1.57E-01	1.57E-01	1.17E-01	7.61E-02	
	1121.30	34.90	4.47E-01		3.07E-01	2.10E-01	
	1189.05	16.23	9.03E-01		2.31E-01	4.20E-01	
	1221.41	26.98	5.42E-01		-1.08E-01	2.52E-01	
	1231.02	11.44	1.14E+00		-4.62E-01	5.26E-01	
IR-192	308.46	29.68	2.25E-01	1.31E-01	-5.84E-02	1.07E-01	
	468.07	48.10	1.31E-01		-1.01E-01	6.03E-02	
HG-203	279.19	77.30	9.39E-02	9.39E-02	-2.28E-02	4.47E-02	
BI-207	569.67	97.72	8.15E-02	8.15E-02	2.27E-02	3.80E-02	
	1063.62	74.90	1.41E-01		-2.42E-02	6.47E-02	
+ TL-208	583.14	*	30.22	4.04E-01	1.27E-01	1.38E+00	1.93E-01
	860.37	*	4.48	2.60E+00		1.67E+00	1.22E+00
	2614.66	*	35.85	1.27E-01		1.16E+00	4.43E-02
BI-210M	262.00		45.00	1.36E-01	1.36E-01	1.28E-02	6.47E-02
	300.00		23.00	3.23E-01		1.31E-01	1.55E-01
+ PB-210	46.50	*	4.25	2.83E+00	2.83E+00	1.97E+00	1.38E+00
PB-211	404.84		2.90	2.43E+00	2.43E+00	-8.36E-01	1.14E+00
	831.96		2.90	3.14E+00		4.07E-01	1.45E+00
+ BI-212	727.17	*	11.80	9.03E-01	9.03E-01	1.10E+00	4.24E-01
	1620.62	*	2.75	1.96E+00		1.18E+00	7.62E-01
+ PB-212	238.63	*	44.60	2.45E-01	2.45E-01	1.60E+00	1.19E-01
	300.09	*	3.41	3.80E+00		1.34E+00	1.85E+00

Analysis Report for 1606065-08
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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	BI-214	609.31 *		46.30	2.98E-01	2.75E-01	8.90E-01	1.43E-01
		1120.29		15.10	9.89E-01		9.93E-01	4.64E-01
		1764.49 *		15.80	6.58E-01		9.17E-01	2.90E-01
		2204.22 *		4.98	2.75E-01		1.83E+00	0.00E+00
+	PB-214	295.21 *		19.19	6.63E-01	2.68E-01	1.01E+00	3.23E-01
		351.92 *		37.19	2.68E-01		1.07E+00	1.29E-01
	RN-219	401.80		6.50	1.07E+00	1.07E+00	3.43E-01	5.05E-01
	RA-223	323.87		3.88	1.77E+00	1.77E+00	6.40E-01	8.43E-01
	RA-224	240.98		3.95	3.62E+00	3.62E+00	1.43E+01	1.78E+00
	RA-225	40.00		31.00	4.39E-01	4.39E-01	-4.90E-03	2.10E-01
+	RA-226	186.21 *		3.28	2.37E+00	2.37E+00	3.32E+00	1.15E+00
	TH-227	50.10		8.40	7.37E-01	7.37E-01	2.53E-01	3.54E-01
		236.00		11.50	8.62E-01		-6.86E+00	4.19E-01
		256.20		6.30	9.56E-01		-4.09E-02	4.55E-01
+	AC-228	338.32 *		11.40	7.86E-01	4.85E-01	1.93E+00	3.77E-01
		911.07 *		27.70	4.85E-01		1.51E+00	2.28E-01
		969.11 *		16.60	1.36E+00		2.39E+00	6.53E-01
	TH-230	48.44		16.90	3.79E-01	3.79E-01	-5.02E-01	1.82E-01
		62.85		4.60	1.59E+00		1.63E+00	7.71E-01
		67.67		0.37	1.66E+01		1.23E+01	8.03E+00
	PA-231	283.67		1.60	3.65E+00	2.85E+00	-4.15E-01	1.73E+00
		302.67		2.30	2.85E+00		-1.04E+00	1.36E+00
	TH-231	25.64		14.70	2.54E+00	9.05E-01	-6.29E-01	1.21E+00
		84.21		6.40	9.05E-01		1.21E+00	4.38E-01
	PA-233	311.98		38.60	2.02E-01	2.02E-01	-7.60E-02	9.58E-02
	PA-234	131.20		20.40	3.27E-01	3.27E-01	3.16E-01	1.59E-01
		733.99		8.80	1.07E+00		-1.17E-01	4.99E-01
		946.00		12.00	7.45E-01		-1.13E-01	3.39E-01
	PA-234M	1001.03		0.92	1.09E+01	1.09E+01	1.17E+00	5.01E+00
+	TH-234	63.29 *		3.80	3.03E+00	3.03E+00	2.83E+00	1.49E+00
	U-235	143.76		10.50	5.60E-01	5.60E-01	-9.34E-02	2.70E-01
		163.35		4.70	1.37E+00		2.95E-01	6.63E-01
		205.31		4.70	1.38E+00		1.12E+00	6.64E-01
	NP-237	86.50		12.60	6.07E-01	6.07E-01	1.86E-01	2.97E-01
	NP-239	106.10		22.70	3.85E+00	3.85E+00	4.67E-01	1.86E+00
		228.18		10.70	9.00E+00		5.50E-01	4.32E+00
		277.60		14.10	6.47E+00		1.44E+00	3.08E+00
	AM-241	59.54		35.90	1.67E-01	1.67E-01	-1.17E-01	8.08E-02
	AM-243	74.67		66.00	1.29E-01	1.29E-01	-3.95E-01	6.30E-02
	CM-243	209.75		3.29	2.26E+00	4.52E-01	2.76E+00	1.09E+00
		228.14		10.60	6.29E-01		3.84E-02	3.02E-01
		277.60		14.00	4.52E-01		1.00E-01	2.15E-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 1606065-08
CP-5011 8 5-15

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-5011 8 5-15

Elapsed Live time: 3600
 Elapsed Real Time: 3601

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	31	623
9:	1054	775	379	244	2161	201	126	137
17:	129	98	108	99	86	52	51	68
25:	57	53	48	53	57	58	58	56
33:	52	63	52	67	55	48	62	65
41:	55	67	58	51	80	78	145	55
49:	55	77	60	57	75	66	70	85
57:	69	82	83	85	94	118	140	165
65:	115	86	103	114	105	86	131	105
73:	124	151	386	143	466	258	93	99
81:	95	85	75	149	98	60	188	142
89:	85	177	102	99	252	143	60	57
97:	69	62	72	82	71	61	47	63
105:	88	74	60	52	76	45	67	68
113:	58	53	62	52	60	56	59	51
121:	42	52	51	58	58	75	58	62
129:	99	82	64	58	55	50	57	47
137:	54	55	48	51	64	37	36	72
145:	57	52	45	49	57	63	59	48
153:	43	70	49	62	52	50	44	51
161:	54	54	54	56	51	50	55	36
169:	40	51	43	54	42	37	53	52
177:	45	41	34	57	38	53	49	48
185:	51	159	67	33	37	44	41	47
193:	51	46	50	49	39	46	35	42
201:	34	32	39	56	39	37	36	29
209:	83	72	40	43	33	37	33	38
217:	41	25	53	45	51	41	45	36
225:	42	38	33	42	47	30	34	34
233:	35	34	44	57	36	242	538	45
241:	103	121	45	20	24	32	30	28
249:	24	29	42	25	35	26	25	24
257:	33	23	48	26	24	21	28	32
265:	26	23	22	37	27	56	41	29
273:	28	30	24	23	45	27	19	15
281:	23	31	14	23	27	11	22	34
289:	27	25	26	19	27	30	126	76
297:	28	29	32	47	31	23	27	21
305:	21	18	22	23	24	17	25	14
313:	18	30	25	29	20	22	31	31
321:	26	36	18	29	19	21	33	56
329:	26	25	13	19	23	17	30	16
337:	22	127	90	11	32	14	16	32
345:	21	12	17	22	15	24	79	220
353:	55	20	20	17	20	18	18	17
361:	20	13	24	18	16	13	18	23

369: 16 9 17 13 15 13 22 27

Sample Title: CP-5011 8 5-15

Channel	1	2	3	4	5	6	7	8
377:	12	18	17	15	16	17	12	15
385:	10	20	21	13	21	12	19	14
393:	10	15	19	19	14	13	22	19
401:	19	22	18	12	14	26	21	21
409:	27	33	17	21	11	22	8	19
417:	16	9	18	18	14	23	10	9
425:	17	23	15	18	14	16	20	15
433:	15	13	12	17	13	10	11	23
441:	13	8	15	14	11	14	13	16
449:	19	8	9	13	19	20	25	10
457:	14	12	12	8	13	25	47	12
465:	14	8	8	12	7	12	21	19
473:	11	11	8	11	7	16	12	12
481:	10	10	11	14	22	10	16	12
489:	16	13	20	10	14	12	8	10
497:	8	11	11	15	12	14	11	17
505:	10	9	10	19	22	54	78	33
513:	17	11	23	13	12	18	10	11
521:	16	11	8	9	11	17	14	17
529:	7	12	11	11	20	10	9	9
537:	14	10	6	11	10	11	12	9
545:	11	7	10	10	11	9	12	13
553:	9	11	9	5	9	8	9	11
561:	8	7	15	13	16	16	11	14
569:	14	11	17	7	8	14	13	14
577:	10	14	13	8	12	40	162	63
585:	11	8	17	13	11	11	11	10
593:	8	14	12	12	7	13	12	8
601:	11	16	4	11	10	6	13	28
609:	140	71	11	5	9	10	16	19
617:	10	7	11	11	11	5	10	6
625:	11	14	10	12	11	6	6	8
633:	13	10	10	8	4	7	7	9
641:	8	14	9	4	2	8	8	16
649:	10	10	6	4	8	9	7	4
657:	6	9	11	10	11	9	15	8
665:	11	11	7	7	8	11	6	14
673:	5	8	13	3	10	11	8	13
681:	9	5	8	13	9	14	11	13
689:	10	8	10	11	9	11	10	15
697:	12	12	10	9	11	8	12	8
705:	8	9	9	11	11	7	10	16
713:	11	8	10	7	7	13	10	9
721:	10	7	5	6	9	13	35	19
729:	12	8	8	8	10	7	11	8
737:	10	8	14	8	7	6	8	13
745:	7	3	8	5	9	12	8	7
753:	10	6	8	15	7	12	9	6
761:	11	8	10	14	7	8	5	17
769:	15	8	5	9	11	5	11	5
777:	2	6	8	4	4	13	4	12
785:	14	12	11	7	2	6	9	9
793:	10	14	20	10	9	8	3	6

801: 10 6 9 10 10 8 6 9

Sample Title: CP-5011 8 5-15

Channel	1	2	3	4	5	6	7	8
809:	3	8	6	4	7	4	3	2
817:	3	6	10	4	6	6	6	5
825:	4	7	4	4	2	4	9	8
833:	5	8	10	12	4	11	11	8
841:	5	9	3	7	8	11	9	6
849:	4	1	5	6	5	7	4	4
857:	3	5	3	14	20	6	10	6
865:	6	7	11	7	6	10	6	9
873:	9	4	8	8	7	6	4	6
881:	9	6	4	6	6	8	7	5
889:	3	4	5	4	8	6	12	7
897:	6	8	8	2	4	4	4	6
905:	11	10	1	9	5	35	89	41
913:	8	5	9	4	1	5	4	3
921:	7	7	8	8	5	5	6	6
929:	5	3	6	3	5	11	2	2
937:	4	6	6	7	5	3	4	6
945:	6	4	2	6	7	7	7	7
953:	4	4	4	7	6	4	7	6
961:	4	5	8	19	20	5	7	37
969:	72	21	7	6	5	11	9	5
977:	3	6	2	6	5	4	5	4
985:	8	2	9	7	3	8	6	6
993:	3	5	19	5	2	8	3	8
1001:	8	7	4	3	7	6	6	8
1009:	7	4	4	3	5	4	6	6
1017:	6	8	7	9	6	5	5	5
1025:	6	7	3	4	8	4	4	2
1033:	6	1	4	2	3	4	7	8
1041:	3	3	8	5	9	6	4	4
1049:	4	2	10	5	5	5	6	6
1057:	7	6	0	1	3	6	8	8
1065:	5	10	11	11	7	6	10	5
1073:	11	7	7	7	5	4	5	3
1081:	8	9	4	5	5	7	7	4
1089:	2	9	5	2	5	5	7	8
1097:	3	2	8	3	4	10	5	9
1105:	4	5	9	3	3	8	8	11
1113:	5	3	6	5	4	8	8	25
1121:	19	7	8	2	7	9	4	1
1129:	2	8	5	6	5	5	9	7
1137:	5	7	6	5	2	9	9	4
1145:	5	6	6	6	7	6	11	8
1153:	3	5	4	9	3	10	7	6
1161:	5	5	6	7	4	9	4	10
1169:	4	9	11	6	3	9	7	4
1177:	6	7	9	8	5	9	5	7
1185:	3	9	10	7	8	9	9	9
1193:	6	12	2	2	5	7	9	3
1201:	7	4	10	4	10	9	10	7
1209:	6	9	5	13	4	7	9	8
1217:	9	8	8	9	12	6	7	8
1225:	9	11	7	6	5	7	5	4

1233: 10 8 8 8 7 14 12 13

Sample Title: CP-5011 8 5-15

Channel	1	2	3	4	5	6	7	8
1241:	8	2	6	13	13	10	2	8
1249:	9	10	7	4	6	2	8	6
1257:	6	5	5	10	2	4	5	6
1265:	6	3	4	4	7	7	9	6
1273:	4	6	2	5	3	3	6	9
1281:	7	2	6	6	2	4	9	6
1289:	6	7	4	1	6	7	2	3
1297:	6	3	8	7	5	3	2	4
1305:	5	3	2	2	2	7	1	4
1313:	5	3	4	5	1	5	1	5
1321:	5	3	0	4	3	2	3	3
1329:	2	1	1	6	5	0	6	2
1337:	4	3	5	5	6	4	6	5
1345:	2	3	1	2	4	2	0	5
1353:	3	4	1	2	0	2	4	3
1361:	4	2	3	6	6	0	4	2
1369:	2	1	2	3	1	2	2	1
1377:	8	3	6	1	5	2	1	1
1385:	2	4	1	3	1	0	3	3
1393:	1	3	3	2	4	2	3	1
1401:	4	3	2	4	4	2	2	3
1409:	4	5	2	3	2	4	0	1
1417:	3	2	1	0	5	1	3	4
1425:	1	2	2	2	5	4	5	2
1433:	2	4	3	2	2	3	0	1
1441:	3	1	2	1	5	3	2	2
1449:	1	0	3	5	3	4	3	1
1457:	3	5	66	238	291	60	6	4
1465:	2	1	1	0	2	0	0	1
1473:	1	3	0	1	1	1	2	1
1481:	1	1	0	0	5	0	2	1
1489:	0	3	4	1	0	2	5	3
1497:	2	2	2	2	2	1	1	0
1505:	0	3	2	3	6	2	2	1
1513:	3	1	2	2	3	0	3	0
1521:	0	2	1	2	1	1	0	1
1529:	1	1	1	0	3	1	2	2
1537:	0	1	0	1	1	1	1	3
1545:	1	1	0	2	0	1	2	0
1553:	2	1	2	1	0	3	0	3
1561:	0	0	2	1	0	1	0	2
1569:	1	0	0	0	1	2	2	3
1577:	2	1	3	2	4	1	0	0
1585:	3	1	6	6	7	2	6	3
1593:	3	0	2	1	1	3	0	5
1601:	3	3	2	1	2	1	0	2
1609:	2	4	1	4	1	1	2	1
1617:	1	1	0	5	5	0	1	1
1625:	0	3	0	2	3	6	3	2
1633:	0	2	1	3	1	0	1	0
1641:	0	1	0	1	2	0	0	0
1649:	1	0	2	1	0	2	1	1
1657:	2	0	0	2	5	3	0	1

1665: 1 1 2 2 1 0 1 4

Sample Title: CP-5011 8 5-15

Channel	1	2	3	4	5	6	7	8
1673:	1	1	1	0	1	2	0	1
1681:	1	0	2	1	0	3	0	1
1689:	1	2	0	3	2	1	1	1
1697:	2	4	3	1	0	2	1	0
1705:	0	1	0	1	0	1	2	0
1713:	4	1	0	2	0	3	1	1
1721:	0	0	3	0	1	2	0	3
1729:	4	6	1	2	0	1	0	0
1737:	1	1	2	0	0	0	1	0
1745:	1	1	1	1	0	2	0	1
1753:	0	2	1	0	0	0	1	3
1761:	0	3	4	17	13	2	1	1
1769:	1	1	3	1	2	1	0	1
1777:	0	1	0	0	2	1	1	3
1785:	5	1	0	0	1	0	0	0
1793:	0	1	0	0	0	4	1	0
1801:	0	0	2	0	0	1	1	2
1809:	0	2	0	1	0	0	1	2
1817:	2	1	0	1	1	1	0	0
1825:	0	2	2	0	0	0	0	1
1833:	1	2	3	3	0	2	0	1
1841:	0	1	0	0	1	0	6	2
1849:	2	0	1	1	1	3	1	0
1857:	0	1	3	1	1	1	1	1
1865:	1	0	0	3	1	1	2	3
1873:	0	0	0	0	1	4	2	0
1881:	2	2	0	2	0	2	1	0
1889:	0	1	0	0	0	0	0	1
1897:	0	2	0	1	2	2	1	1
1905:	1	1	1	0	1	0	2	1
1913:	0	0	0	0	0	0	0	1
1921:	0	1	0	1	0	1	0	0
1929:	1	2	1	0	2	1	2	0
1937:	1	2	2	1	0	1	0	1
1945:	0	0	0	0	0	1	0	0
1953:	1	0	1	1	1	0	0	1
1961:	1	1	1	3	0	0	0	0
1969:	1	0	2	0	1	1	0	1
1977:	0	1	1	2	0	1	3	1
1985:	1	0	0	0	1	0	0	1
1993:	1	0	1	0	3	1	1	0
2001:	0	0	1	0	2	0	1	1
2009:	0	0	0	0	1	0	0	0
2017:	0	2	2	3	2	0	0	1
2025:	1	1	1	0	0	0	2	0
2033:	0	0	1	2	0	2	0	1
2041:	0	1	2	2	0	0	0	4
2049:	1	0	1	1	0	1	0	0
2057:	1	1	1	2	1	1	1	0
2065:	0	1	2	1	0	3	1	0
2073:	1	0	0	0	0	1	0	0
2081:	1	2	2	0	0	1	2	0
2089:	0	2	0	0	1	0	0	2

2097: 1 1 2 2 1 5 4 3

Sample Title: CP-5011 8 5-15

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

2529: 1 0 1 0 0 0 0 0

Sample Title: CP-5011 8 5-15

Channel	1	2	3	4	5	6	7	8	9
2537:	0	0	0	0	0	0	0	0	0
2545:	0	0	0	1	0	0	0	0	1
2553:	0	2	0	0	0	0	0	1	0
2561:	0	0	0	2	0	0	0	1	0
2569:	1	0	0	1	0	0	0	0	0
2577:	1	1	0	1	0	0	0	0	0
2585:	0	0	1	1	0	0	0	0	0
2593:	0	1	0	0	1	0	0	0	0
2601:	0	0	0	0	0	1	3	0	0
2609:	0	0	2	7	25	29	13	5	0
2617:	2	1	0	0	1	1	1	0	0
2625:	1	0	0	0	1	0	0	0	0
2633:	0	0	0	0	1	1	1	0	0
2641:	1	0	0	0	1	0	0	1	0
2649:	0	0	1	0	0	1	0	1	0
2657:	0	2	0	0	0	1	0	0	0
2665:	0	0	0	0	1	0	0	0	0
2673:	1	0	0	0	0	0	0	0	0
2681:	0	0	0	1	0	0	0	0	0
2689:	1	1	2	0	2	0	1	0	0
2697:	2	0	1	0	0	1	0	1	0
2705:	1	0	0	0	0	0	0	0	0
2713:	0	0	1	0	0	0	1	0	0
2721:	0	0	0	0	0	0	1	0	0
2729:	0	0	0	1	0	0	1	0	0
2737:	0	1	0	0	0	0	1	0	0
2745:	0	0	0	1	1	0	0	0	0
2753:	0	0	0	0	0	0	1	0	0
2761:	3	1	1	0	0	1	1	0	0
2769:	0	0	1	0	1	0	1	0	0
2777:	0	0	0	1	1	1	0	0	0
2785:	0	0	0	0	0	0	0	0	0
2793:	0	1	2	1	0	0	0	0	0
2801:	2	0	0	0	0	1	0	0	0
2809:	1	1	0	0	0	0	0	0	0
2817:	0	0	0	0	0	0	0	0	0
2825:	1	0	1	1	0	0	1	0	0
2833:	0	0	0	0	0	1	0	0	0
2841:	0	0	0	1	0	0	0	0	0
2849:	3	0	1	0	0	0	1	0	0
2857:	1	0	0	0	0	0	0	0	0
2865:	0	0	1	1	1	0	0	0	0
2873:	1	0	0	0	0	0	1	0	0
2881:	0	0	1	0	0	1	0	0	0
2889:	0	0	0	0	0	1	1	0	0
2897:	0	0	0	0	0	0	0	1	0
2905:	1	0	0	0	0	1	0	2	0
2913:	0	0	0	0	0	1	1	0	0
2921:	0	0	0	0	1	0	0	0	0
2929:	0	0	0	0	0	0	1	0	0
2937:	0	0	0	0	0	1	0	0	0
2945:	1	0	0	0	0	1	0	1	0
2953:	0	1	0	0	0	1	0	0	0

2961: 0 1 1 0 0 0 0 1

Sample Title: CP-5011 8 5-15

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

3393: 0 0 0 2 0 0 0 0

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Channel	-----	-----	-----	-----	-----	-----	-----	-----
3401:	0	0	0	0	0	0	1	0
3409:	0	0	0	0	0	0	0	0
3417:	0	1	0	0	1	1	0	0
3425:	1	1	0	0	0	0	0	1
3433:	0	0	0	0	0	0	0	1
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	1	0	0	0
3457:	0	0	0	0	0	0	1	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	1	0	0	1	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	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	1	0	0	0	0
3521:	0	0	0	0	0	0	0	1
3529:	0	1	0	0	0	0	0	1
3537:	0	0	1	0	0	0	0	0
3545:	0	0	0	0	0	0	0	1
3553:	0	0	0	0	0	0	0	1
3561:	0	0	0	0	0	1	0	0
3569:	1	0	0	0	0	0	0	0
3577:	0	0	0	0	0	0	0	0
3585:	0	0	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	1
3617:	1	0	0	0	0	0	1	0
3625:	0	0	0	0	0	0	0	1
3633:	1	0	0	0	0	0	0	1
3641:	0	0	1	0	0	0	0	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	0	1	0	0
3681:	0	0	0	0	0	0	0	0
3689:	0	0	0	0	0	0	0	0
3697:	0	0	0	1	0	0	0	0
3705:	0	0	0	0	0	1	1	0
3713:	0	0	0	0	0	0	1	0
3721:	0	1	0	0	0	1	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	1	0	0	0	0	0	0
3745:	0	1	0	0	0	1	0	1
3753:	0	0	0	0	0	0	0	0
3761:	0	0	0	0	1	0	1	0
3769:	0	1	1	0	0	0	0	0
3777:	0	0	0	0	0	0	0	0
3785:	0	1	0	0	0	0	1	0
3793:	0	1	0	0	0	0	0	0
3801:	0	0	0	0	0	0	1	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0

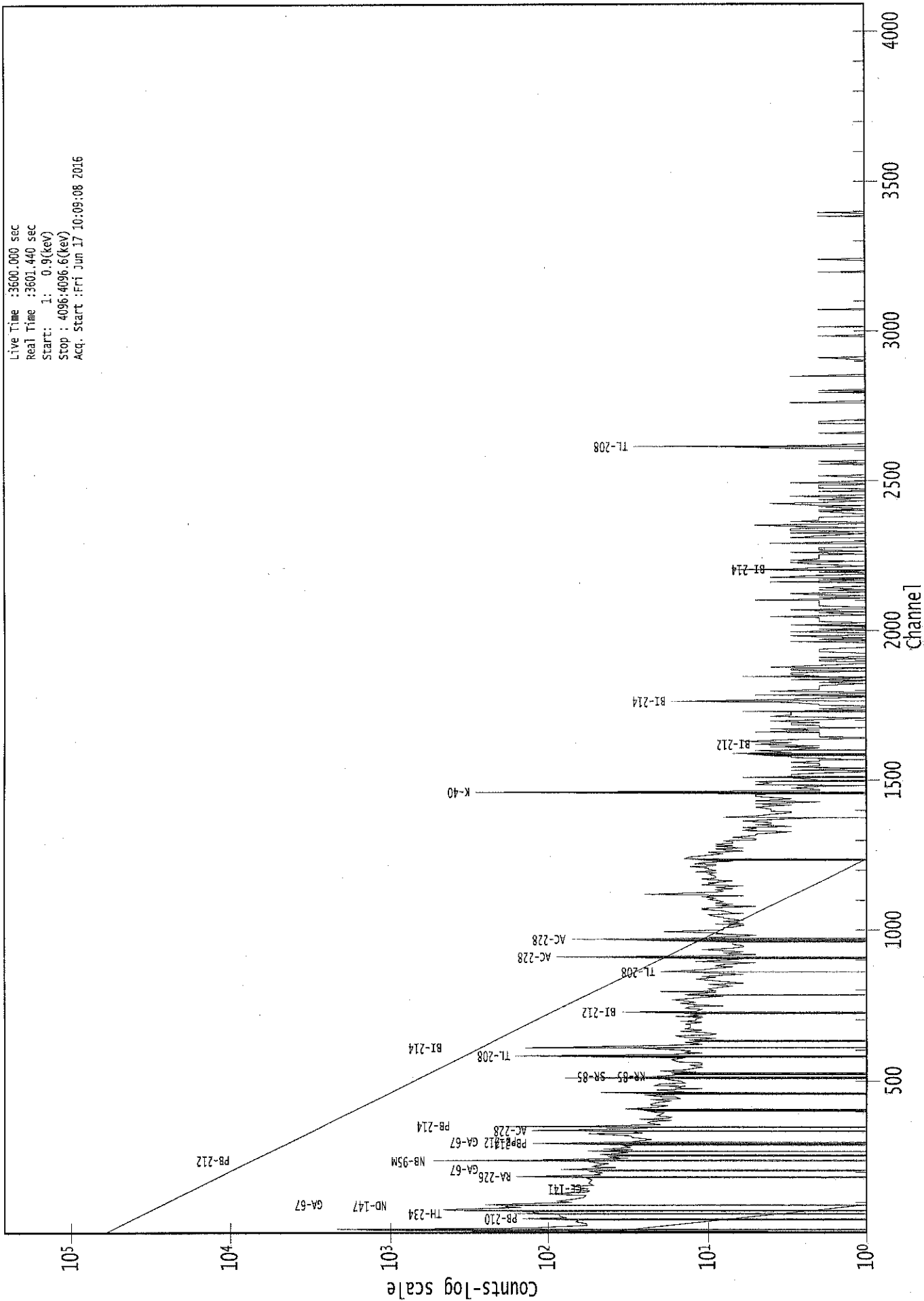
3825: 0 0 0 0 0 0 0 0 0

Sample Title: CP-5011 8 5-15

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	1	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	1	1	0	0	0	0
3873:	0	0	0	1	0	0	0	0
3881:	0	1	0	1	0	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	0	0	1
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	1	0	0	0	1	0	0
3929:	0	0	0	0	0	1	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	1	1	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	0	0	0	0
3993:	0	0	0	0	0	0	1	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	0	0	1	0	1
4017:	0	0	1	0	0	0	0	0
4025:	0	0	0	1	0	0	0	0
4033:	0	0	0	0	0	0	0	1
4041:	0	0	1	1	1	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	1	0	1	0	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	1
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000039077.CNF

Live Time :3600.000 sec
Real Time :3601.440 sec
Start: 1: 0.9(keV)
Stop : 4096.4096.6(keV)
Acq. Start :FPI Jun 17 10:09:08 2016



ROI Type: 1

ROI Type: 2

Analysis Report for 1606065-09
CP-5017 00-02

✓
6117

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606065-09
Sample Description : CP-5017 00-02
Sample Type : SOIL

Sample Size : 5.803E+02 grams
Facility : Countroom

Sample Taken On : 6/8/2016 8:54:26AM
Acquisition Started : 6/17/2016 10:09:18AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE3
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3614.0 seconds

Dead Time : 0.39 %

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 : 39078

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606065-09
CP-5017 00-02

PEAK LOCATE REPORT

Peak Locate Performed on : 6/17/2016 11:09:40AM
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	46.58	46.81	0.0000	0.00
2	52.99	53.21	0.0000	0.00
3	63.38	63.61	0.0000	0.00
4	75.10	75.32	0.0000	0.00
5	77.56	77.78	0.0000	0.00
6	88.38	88.58	0.0000	0.00
7	93.45	93.66	0.0000	0.00
8	186.63	186.79	0.0000	0.00
9	210.03	210.17	0.0000	0.00
10	238.94	239.07	0.0000	0.00
11	242.13	242.26	0.0000	0.00
12	270.71	270.83	0.0000	0.00
13	292.08	292.18	0.0000	0.00
14	295.78	295.88	0.0000	0.00
15	328.65	328.73	0.0000	0.00
16	338.67	338.74	0.0000	0.00
17	352.21	352.28	0.0000	0.00
18	409.47	409.51	0.0000	0.00
19	463.35	463.37	0.0000	0.00
20	510.74	510.73	0.0000	0.00
21	583.59	583.54	0.0000	0.00
22	609.63	609.58	0.0000	0.00
23	617.15	617.09	0.0000	0.00
24	721.08	720.97	0.0000	0.00
25	727.53	727.42	0.0000	0.00
26	768.82	768.69	0.0000	0.00
27	772.49	772.36	0.0000	0.00
28	860.73	860.56	0.0000	0.00
29	911.79	911.59	0.0000	0.00
30	935.47	935.26	0.0000	0.00
31	964.68	964.46	0.0000	0.00
32	969.20	968.98	0.0000	0.00
33	1058.11	1057.85	0.0000	0.00
34	1120.90	1120.61	0.0000	0.00
35	1133.59	1133.30	0.0000	0.00
36	1377.99	1377.60	0.0000	0.00
37	1405.60	1405.20	0.0000	0.00
38	1407.86	1407.46	0.0000	0.00
39	1414.84	1414.44	0.0000	0.00
40	1461.11	1460.69	0.0000	0.00
41	1520.12	1519.67	0.0000	0.00
42	1539.06	1538.61	0.0000	0.00

Analysis Report for 1606065-09
CP-5017 00-02

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1612.05	1611.58	0.0000	0.00
44	1636.08	1635.60	0.0000	0.00
45	1764.68	1764.15	0.0000	0.00
46	1848.55	1847.99	0.0000	0.00
47	1858.12	1857.56	0.0000	0.00
48	1879.57	1879.00	0.0000	0.00
49	2029.23	2028.61	0.0000	0.00
50	2205.29	2204.62	0.0000	0.00
51	2283.83	2283.13	0.0000	0.00
52	2470.08	2469.33	0.0000	0.00
53	2614.78	2614.00	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606065-09
CP-5017 00-02

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 11:09:40AM

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	46.58	43 -	50	46.81	1.71E+02	81.73	1.01E+03	1.24
2	52.99	51 -	55	53.21	8.67E+01	60.17	7.31E+02	1.22
3	63.38	60 -	66	63.61	1.57E+02	94.49	1.51E+03	1.23
M 4	75.10	73 -	83	75.32	4.17E+02	87.31	1.21E+03	1.83
m 5	77.56	73 -	83	77.78	5.97E+02	93.53	1.17E+03	1.83
6	88.38	86 -	91	88.58	1.30E+02	87.42	1.42E+03	1.13
7	93.45	91 -	97	93.66	2.24E+02	94.04	1.35E+03	1.85
8	186.63	183 -	191	186.79	2.22E+02	75.99	7.42E+02	1.87
9	210.03	207 -	213	210.17	8.57E+01	57.50	5.33E+02	1.65
M 10	238.94	235 -	251	239.07	6.91E+02	66.02	3.99E+02	1.71
m 11	242.13	235 -	251	242.26	1.34E+02	71.33	4.34E+02	2.08
12	270.71	268 -	274	270.83	4.40E+01	49.29	4.10E+02	1.72
M 13	292.08	290 -	300	292.18	2.61E+01	30.53	2.04E+02	1.94
m 14	295.78	290 -	300	295.88	1.96E+02	49.86	3.64E+02	1.95
15	328.65	325 -	332	328.73	5.64E+01	46.82	3.27E+02	1.83
16	338.67	335 -	342	338.74	7.14E+01	54.33	4.45E+02	1.24
17	352.21	348 -	354	352.28	3.12E+02	50.85	2.46E+02	1.91
18	409.47	407 -	412	409.51	3.02E+01	32.34	1.84E+02	3.05
19	463.35	458 -	466	463.37	7.09E+01	39.94	2.00E+02	2.27
20	510.74	506 -	515	510.73	1.30E+02	45.43	2.22E+02	2.69
21	583.59	579 -	586	583.54	1.63E+02	44.41	2.20E+02	1.83
22	609.63	605 -	613	609.58	2.53E+02	42.08	1.16E+02	1.76
23	617.15	614 -	620	617.09	3.47E+01	25.74	9.67E+01	3.42
24	721.08	716 -	724	720.97	2.90E+01	28.60	1.08E+02	1.81
25	727.53	725 -	731	727.42	4.05E+01	27.71	1.13E+02	2.03
M 26	768.82	765 -	775	768.69	3.99E+01	27.35	9.02E+01	2.79
m 27	772.49	765 -	775	772.36	1.90E+01	26.91	7.51E+01	2.79
28	860.73	857 -	866	860.56	2.89E+01	30.51	1.20E+02	2.20
29	911.79	908 -	917	911.59	1.33E+02	33.05	8.00E+01	2.07
30	935.47	932 -	940	935.26	2.78E+01	22.88	6.44E+01	4.98
M 31	964.68	961 -	973	964.46	3.51E+01	20.30	5.59E+01	2.66
m 32	969.20	961 -	973	968.98	8.33E+01	28.91	5.95E+01	2.66
33	1058.11	1053 -	1063	1057.85	2.30E+01	28.92	1.00E+02	6.82
34	1120.90	1117 -	1125	1120.61	5.34E+01	27.29	8.32E+01	2.40
35	1133.59	1129 -	1137	1133.30	2.31E+01	23.06	6.78E+01	3.51
36	1377.99	1374 -	1380	1377.60	1.70E+01	12.04	1.40E+01	3.53
M 37	1405.60	1403 -	1410	1405.20	9.97E+00	9.96	1.49E+01	2.94
m 38	1407.86	1403 -	1410	1407.46	1.06E+01	11.53	1.03E+01	3.86
39	1414.84	1413 -	1417	1414.44	6.91E+00	7.92	8.18E+00	1.09
40	1461.11	1455 -	1466	1460.69	5.03E+02	48.91	4.66E+01	2.12

Analysis Report for 1606065-09

CP-5017 00-02

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1520.12	1517 -	1522	1519.67	5.50E+00	7.94	7.00E+00	1.83
42	1539.06	1534 -	1541	1538.61	9.32E+00	7.75	3.36E+00	1.24
43	1612.05	1608 -	1615	1611.58	8.86E+00	7.75	4.27E+00	1.91
44	1636.08	1631 -	1639	1635.60	8.91E+00	8.02	4.18E+00	1.60
45	1764.68	1760 -	1768	1764.15	2.65E+01	14.87	1.70E+01	2.18
46	1848.55	1845 -	1851	1847.99	9.05E+00	7.50	3.91E+00	2.91
47	1858.12	1855 -	1861	1857.56	5.90E+00	8.03	8.20E+00	2.92
48	1879.57	1876 -	1881	1879.00	6.00E+00	4.90	0.00E+00	2.88
49	2029.23	2025 -	2031	2028.61	5.29E+00	6.34	3.43E+00	1.87
50	2205.29	2201 -	2207	2204.62	9.50E+00	8.75	7.00E+00	2.79
51	2283.83	2280 -	2286	2283.13	6.50E+00	8.03	7.00E+00	2.69
52	2470.08	2465 -	2472	2469.33	9.00E+00	6.00	0.00E+00	2.75
53	2614.78	2609 -	2617	2614.00	5.00E+01	15.11	3.98E+00	2.44

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 : 6/17/2016 11:09:40AM

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	46.58	43 -	50	1.71E+02	81.73	1.01E+03	3.06E+01
2	52.99	51 -	55	8.67E+01	60.17	7.31E+02	4.70E+01
3	63.38	60 -	66	1.57E+02	94.49	1.51E+03	7.49E+01
M 4	75.10	73 -	83	4.17E+02	87.31	1.21E+03	5.71E+01
m 5	77.56	73 -	83	5.97E+02	93.53	1.17E+03	5.62E+01
6	88.38	86 -	91	1.30E+02	87.42	1.42E+03	6.94E+01
7	93.45	91 -	97	2.24E+02	94.04	1.35E+03	7.33E+01
8	186.63	183 -	191	2.22E+02	75.99	7.42E+02	5.75E+01
9	210.03	207 -	213	8.57E+01	57.50	5.33E+02	4.48E+01
M 10	238.94	235 -	251	6.91E+02	66.02	3.99E+02	3.28E+01
m 11	242.13	235 -	251	1.34E+02	71.33	4.34E+02	3.43E+01
12	270.71	268 -	274	4.40E+01	49.29	4.10E+02	3.90E+01
M 13	292.08	290 -	300	2.61E+01	30.53	2.04E+02	2.35E+01
m 14	295.78	290 -	300	1.96E+02	49.86	3.64E+02	3.14E+01
15	328.65	325 -	332	5.64E+01	46.82	3.27E+02	3.65E+01

: 00548

Analysis Report for 1606065-09

CP-5017 00-02

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level	
16	338.67	335 -	342	7.14E+01	54.33	4.45E+02	4.24E+01	
17	352.21	348 -	354	3.12E+02	50.85	2.46E+02	3.01E+01	
18	409.47	407 -	412	3.02E+01	32.34	1.84E+02	2.50E+01	
19	463.35	458 -	466	7.09E+01	39.94	2.00E+02	2.98E+01	
20	510.74	506 -	515	1.30E+02	45.43	2.22E+02	3.23E+01	
21	583.59	579 -	586	1.63E+02	44.41	2.20E+02	2.99E+01	
22	609.63	605 -	613	2.53E+02	42.08	1.16E+02	2.26E+01	
23	617.15	614 -	620	3.47E+01	25.74	9.67E+01	1.88E+01	
24	721.08	716 -	724	2.90E+01	28.60	1.08E+02	2.18E+01	
25	727.53	725 -	731	4.05E+01	27.71	1.13E+02	2.02E+01	
M	26	768.82	765 -	775	3.99E+01	27.35	9.02E+01	1.56E+01
m	27	772.49	765 -	775	1.90E+01	26.91	7.51E+01	1.43E+01
	28	860.73	857 -	866	2.89E+01	30.51	1.20E+02	2.35E+01
	29	911.79	908 -	917	1.33E+02	33.05	8.00E+01	1.95E+01
	30	935.47	932 -	940	2.78E+01	22.88	6.44E+01	1.67E+01
M	31	964.68	961 -	973	3.51E+01	20.30	5.59E+01	1.23E+01
m	32	969.20	961 -	973	8.33E+01	28.91	5.95E+01	1.27E+01
	33	1058.11	1053 -	1063	2.30E+01	28.92	1.00E+02	2.24E+01
	34	1120.90	1117 -	1125	5.34E+01	27.29	8.32E+01	1.89E+01
	35	1133.59	1129 -	1137	2.31E+01	23.06	6.78E+01	1.72E+01
	36	1377.99	1374 -	1380	1.70E+01	12.04	1.40E+01	7.21E+00
M	37	1405.60	1403 -	1410	9.97E+00	9.96	1.49E+01	6.35E+00
m	38	1407.86	1403 -	1410	1.06E+01	11.53	1.03E+01	5.28E+00
	39	1414.84	1413 -	1417	6.91E+00	7.92	8.18E+00	4.87E+00
	40	1461.11	1455 -	1466	5.03E+02	48.91	4.66E+01	1.60E+01
	41	1520.12	1517 -	1522	5.50E+00	7.94	7.00E+00	5.26E+00
	42	1539.06	1534 -	1541	9.32E+00	7.75	3.36E+00	3.92E+00
	43	1612.05	1608 -	1615	8.86E+00	7.75	4.27E+00	4.07E+00
	44	1636.08	1631 -	1639	8.91E+00	8.02	4.18E+00	4.40E+00
	45	1764.68	1760 -	1768	2.65E+01	14.87	1.70E+01	8.82E+00
	46	1848.55	1845 -	1851	9.05E+00	7.50	3.91E+00	3.68E+00
	47	1858.12	1855 -	1861	5.90E+00	8.03	8.20E+00	5.26E+00
	48	1879.57	1876 -	1881	6.00E+00	4.90	0.00E+00	0.00E+00
	49	2029.23	2025 -	2031	5.29E+00	6.34	3.43E+00	3.59E+00
	50	2205.29	2201 -	2207	9.50E+00	8.75	7.00E+00	5.10E+00
	51	2283.83	2280 -	2286	6.50E+00	8.03	7.00E+00	5.10E+00
	52	2470.08	2465 -	2472	9.00E+00	6.00	0.00E+00	0.00E+00
	53	2614.78	2609 -	2617	5.00E+01	15.11	3.98E+00	4.37E+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 1606065-09

CP-5017 00-02

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/17/2016 11:09:40AM

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	46.58	43 -	50	46.81	1.71E+02	81.73	1.01E+03	PB-210
2	52.99	51 -	55	53.21	8.67E+01	60.17	7.31E+02	.....
3	63.38	60 -	66	63.61	1.57E+02	94.49	1.51E+03	TH-234 TH-230
M	4	73 -	83	75.32	4.17E+02	87.31	1.21E+03	AM-243
m	5	73 -	83	77.78	5.97E+02	93.53	1.17E+03	TI-44
	6	86 -	91	88.58	1.30E+02	87.42	1.42E+03	LU-176 CD-109 SN-126
	7	91 -	97	93.66	2.24E+02	94.04	1.35E+03	GA-67
	8	183 -	191	186.79	2.22E+02	75.99	7.42E+02	RA-226
	9	207 -	213	210.17	8.57E+01	57.50	5.33E+02	CM-243
M	10	235 -	251	239.07	6.91E+02	66.02	3.99E+02	PB-212
m	11	242.13	235 -	242.26	1.34E+02	71.33	4.34E+02	.....
	12	270.71	268 -	270.83	4.40E+01	49.29	4.10E+02	.....
M	13	292.08	290 -	292.18	2.61E+01	30.53	2.04E+02	.....
m	14	295.78	290 -	295.88	1.96E+02	49.86	3.64E+02	PB-214
	15	328.65	325 -	328.73	5.64E+01	46.82	3.27E+02	LA-140
	16	338.67	335 -	338.74	7.14E+01	54.33	4.45E+02	AC-228
	17	352.21	348 -	352.28	3.12E+02	50.85	2.46E+02	PB-214
	18	409.47	407 -	409.51	3.02E+01	32.34	1.84E+02	.....
	19	463.35	458 -	466	7.09E+01	39.94	2.00E+02	SB-125
	20	510.74	506 -	515	1.30E+02	45.43	2.22E+02	.....
	21	583.59	579 -	586	1.63E+02	44.41	2.20E+02	TL-208
	22	609.63	605 -	613	2.53E+02	42.08	1.16E+02	BI-214
	23	617.15	614 -	620	3.47E+01	25.74	9.67E+01	PM-144
	24	721.08	716 -	724	2.90E+01	28.60	1.08E+02	SB-126
	25	727.53	725 -	731	4.05E+01	27.71	1.13E+02	BI-212
M	26	768.82	765 -	775	3.99E+01	27.35	9.02E+01	.....
m	27	772.49	765 -	775	1.90E+01	26.91	7.51E+01	.....
	28	860.73	857 -	866	2.89E+01	30.51	1.20E+02	TL-208
	29	911.79	908 -	917	1.33E+02	33.05	8.00E+01	LU-172 AC-228
	30	935.47	932 -	940	2.78E+01	22.88	6.44E+01	.....
M	31	964.68	961 -	973	3.51E+01	20.30	5.59E+01	EU-152
m	32	969.20	961 -	973	968.98	28.91	5.95E+01	AC-228
	33	1058.11	1053 -	1063	1057.85	28.92	1.00E+02	.....
	34	1120.90	1117 -	1125	1120.61	27.29	8.32E+01	SC-46 TA-182 BI-214
	35	1133.59	1129 -	1137	1133.30	23.06	6.78E+01	.....

Analysis Report for 1606065-09

CP-5017 00-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	36	1377.99	1374 -	1380	1377.60	1.70E+01	12.04	1.40E+01	.....
M	37	1405.60	1403 -	1410	1405.20	9.97E+00	9.96	1.49E+01	.....
m	38	1407.86	1403 -	1410	1407.46	1.06E+01	11.53	1.03E+01	EU-152
	39	1414.84	1413 -	1417	1414.44	6.91E+00	7.92	8.18E+00	.....
	40	1461.11	1455 -	1466	1460.69	5.03E+02	48.91	4.66E+01	K-40
	41	1520.12	1517 -	1522	1519.67	5.50E+00	7.94	7.00E+00	.....
	42	1539.06	1534 -	1541	1538.61	9.32E+00	7.75	3.36E+00	.....
	43	1612.05	1608 -	1615	1611.58	8.86E+00	7.75	4.27E+00	.....
	44	1636.08	1631 -	1639	1635.60	8.91E+00	8.02	4.18E+00	.....
	45	1764.68	1760 -	1768	1764.15	2.65E+01	14.87	1.70E+01	BI-214
	46	1848.55	1845 -	1851	1847.99	9.05E+00	7.50	3.91E+00	.....
	47	1858.12	1855 -	1861	1857.56	5.90E+00	8.03	8.20E+00	.....
	48	1879.57	1876 -	1881	1879.00	6.00E+00	4.90	0.00E+00	.....
	49	2029.23	2025 -	2031	2028.61	5.29E+00	6.34	3.43E+00	.....
	50	2205.29	2201 -	2207	2204.62	9.50E+00	8.75	7.00E+00	.....
	51	2283.83	2280 -	2286	2283.13	6.50E+00	8.03	7.00E+00	.....
	52	2470.08	2465 -	2472	2469.33	9.00E+00	6.00	0.00E+00	.....
	53	2614.78	2609 -	2617	2614.00	5.00E+01	15.11	3.98E+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 : 6/17/2016 11:09:40AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.58	1.71E+02	81.73	1.51E-02	1.58E-03
	2	52.99	8.67E+01	60.17	1.81E-02	1.58E-03
	3	63.38	1.57E+02	94.49	2.16E-02	1.71E-03
M	4	75.10	4.17E+02	87.31	2.37E-02	2.10E-03
m	5	77.56	5.97E+02	93.53	2.39E-02	2.18E-03
	6	88.38	1.30E+02	87.42	2.44E-02	2.52E-03
	7	93.45	2.24E+02	94.04	2.44E-02	2.40E-03
	8	186.63	2.22E+02	75.99	1.82E-02	1.42E-03
	9	210.03	8.57E+01	57.50	1.68E-02	1.31E-03
M	10	238.94	6.91E+02	66.02	1.52E-02	1.18E-03
m	11	242.13	1.34E+02	71.33	1.50E-02	1.17E-03
	12	270.71	4.40E+01	49.29	1.38E-02	1.04E-03

: 00551

Analysis Report for 1606065-09

CP-5017 00-02

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	13	292.08	2.61E+01	30.53	1.29E-02	9.79E-04
m	14	295.78	1.96E+02	49.86	1.28E-02	9.73E-04
	15	328.65	5.64E+01	46.82	1.17E-02	9.27E-04
	16	338.67	7.14E+01	54.33	1.14E-02	9.12E-04
	17	352.21	3.12E+02	50.85	1.11E-02	8.93E-04
	18	409.47	3.02E+01	32.34	9.71E-03	8.19E-04
	19	463.35	7.09E+01	39.94	8.72E-03	7.66E-04
	20	510.74	1.30E+02	45.43	8.01E-03	7.18E-04
	21	583.59	1.63E+02	44.41	7.13E-03	6.46E-04
	22	609.63	2.53E+02	42.08	6.87E-03	6.20E-04
	23	617.15	3.47E+01	25.74	6.80E-03	6.12E-04
	24	721.08	2.90E+01	28.60	5.93E-03	5.19E-04
	25	727.53	4.05E+01	27.71	5.89E-03	5.14E-04
M	26	768.82	3.99E+01	27.35	5.61E-03	4.80E-04
m	27	772.49	1.90E+01	26.91	5.59E-03	4.77E-04
	28	860.73	2.89E+01	30.51	5.09E-03	4.05E-04
	29	911.79	1.33E+02	33.05	4.85E-03	3.72E-04
	30	935.47	2.78E+01	22.88	4.74E-03	3.68E-04
M	31	964.68	3.51E+01	20.30	4.62E-03	3.62E-04
m	32	969.20	8.33E+01	28.91	4.60E-03	3.61E-04
	33	1058.11	2.30E+01	28.92	4.28E-03	3.45E-04
	34	1120.90	5.34E+01	27.29	4.08E-03	3.33E-04
	35	1133.59	2.31E+01	23.06	4.04E-03	3.31E-04
	36	1377.99	1.70E+01	12.04	3.45E-03	2.82E-04
M	37	1405.60	9.97E+00	9.96	3.39E-03	2.78E-04
m	38	1407.86	1.06E+01	11.53	3.39E-03	2.77E-04
	39	1414.84	6.91E+00	7.92	3.38E-03	2.76E-04
	40	1461.11	5.03E+02	48.91	3.29E-03	2.69E-04
	41	1520.12	5.50E+00	7.94	3.19E-03	2.60E-04
	42	1539.06	9.32E+00	7.75	3.16E-03	2.58E-04
	43	1612.05	8.86E+00	7.75	3.05E-03	2.47E-04
	44	1636.08	8.91E+00	8.02	3.02E-03	2.43E-04
	45	1764.68	2.65E+01	14.87	2.86E-03	2.24E-04
	46	1848.55	9.05E+00	7.50	2.77E-03	2.13E-04
	47	1858.12	5.90E+00	8.03	2.76E-03	2.13E-04
	48	1879.57	6.00E+00	4.90	2.73E-03	2.13E-04
	49	2029.23	5.29E+00	6.34	2.60E-03	2.13E-04
	50	2205.29	9.50E+00	8.75	2.46E-03	2.13E-04
	51	2283.83	6.50E+00	8.03	2.41E-03	2.13E-04
	52	2470.08	9.00E+00	6.00	2.31E-03	2.13E-04
	53	2614.78	5.00E+01	15.11	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

Analysis Report for 1606065-09

CP-5017 00-02

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/17/2016 11:09:40AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038678.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	46.58	1.71E+02	81.73	4.97E+01	7.81E+00	1.22E+02	8.21E+01
2	52.99	8.67E+01	60.17			8.67E+01	6.02E+01
3	63.38	1.57E+02	94.49	4.47E+01	1.66E+01	1.12E+02	9.59E+01
M 4	75.10	4.17E+02	87.31			4.17E+02	8.73E+01
m 5	77.56	5.97E+02	93.53	6.70E+00	3.28E+00	5.91E+02	9.36E+01
6	88.38	1.30E+02	87.42	1.07E+01	3.99E+00	1.19E+02	8.75E+01
7	93.45	2.24E+02	94.04	8.20E+01	2.30E+01	1.42E+02	9.68E+01
8	186.63	2.22E+02	75.99	3.45E+01	5.92E+00	1.88E+02	7.62E+01
9	210.03	8.57E+01	57.50			8.57E+01	5.75E+01
M 10	238.94	6.91E+02	66.02	1.33E+01	5.09E+00	6.78E+02	6.62E+01
m 11	242.13	1.34E+02	71.33			1.34E+02	7.13E+01
12	270.71	4.40E+01	49.29			4.40E+01	4.93E+01
M 13	292.08	2.61E+01	30.53			2.61E+01	3.05E+01
m 14	295.78	1.96E+02	49.86	1.94E+00	4.39E+00	1.94E+02	5.01E+01
15	328.65	5.64E+01	46.82			5.64E+01	4.68E+01
16	338.67	7.14E+01	54.33			7.14E+01	5.43E+01
17	352.21	3.12E+02	50.85	4.00E+00	3.58E+00	3.08E+02	5.10E+01
18	409.47	3.02E+01	32.34			3.02E+01	3.23E+01
19	463.35	7.09E+01	39.94			7.09E+01	3.99E+01
20	510.74	1.30E+02	45.43	6.05E+01	4.93E+00	6.97E+01	4.57E+01
21	583.59	1.63E+02	44.41	5.50E+00	3.61E+00	1.57E+02	4.46E+01
22	609.63	2.53E+02	42.08	5.07E+00	3.83E+00	2.48E+02	4.23E+01
23	617.15	3.47E+01	25.74			3.47E+01	2.57E+01
24	721.08	2.90E+01	28.60			2.90E+01	2.86E+01
25	727.53	4.05E+01	27.71			4.05E+01	2.77E+01
M 26	768.82	3.99E+01	27.35			3.99E+01	2.73E+01
m 27	772.49	1.90E+01	26.91			1.90E+01	2.69E+01
28	860.73	2.89E+01	30.51			2.89E+01	3.05E+01
29	911.79	1.33E+02	33.05			1.33E+02	3.30E+01
30	935.47	2.78E+01	22.88			2.78E+01	2.29E+01
M 31	964.68	3.51E+01	20.30			3.51E+01	2.03E+01
m 32	969.20	8.33E+01	28.91			8.33E+01	2.89E+01
33	1058.11	2.30E+01	28.92			2.30E+01	2.89E+01
34	1120.90	5.34E+01	27.29	1.09E+00	2.08E+00	5.23E+01	2.74E+01
35	1133.59	2.31E+01	23.06			2.31E+01	2.31E+01
36	1377.99	1.70E+01	12.04			1.70E+01	1.20E+01
M 37	1405.60	9.97E+00	9.96			9.97E+00	9.96E+00
m 38	1407.86	1.06E+01	11.53			1.06E+01	1.15E+01
39	1414.84	6.91E+00	7.92			6.91E+00	7.92E+00
40	1461.11	5.03E+02	48.91	4.33E+00	2.02E+00	4.98E+02	4.89E+01
41	1520.12	5.50E+00	7.94			5.50E+00	7.94E+00
42	1539.06	9.32E+00	7.75			9.32E+00	7.75E+00
43	1612.05	8.86E+00	7.75			8.86E+00	7.75E+00
44	1636.08	8.91E+00	8.02			8.91E+00	8.02E+00

Analysis Report for 1606065-09

CP-5017 00-02

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
45	1764.68	2.65E+01	14.87			2.65E+01	1.49E+01
46	1848.55	9.05E+00	7.50			9.05E+00	7.50E+00
47	1858.12	5.90E+00	8.03			5.90E+00	8.03E+00
48	1879.57	6.00E+00	4.90			6.00E+00	4.90E+00
49	2029.23	5.29E+00	6.34			5.29E+00	6.34E+00
50	2205.29	9.50E+00	8.75			9.50E+00	8.75E+00
51	2283.83	6.50E+00	8.03			6.50E+00	8.03E+00
52	2470.08	9.00E+00	6.00			9.00E+00	6.00E+00
53	2614.78	5.00E+01	15.11	2.52E+00	1.44E+00	4.75E+01	1.52E+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 : 6/17/2016 11:09:40AM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038678.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	46.58	1.71E+02	81.73	4.97E+01	7.81E+00	1.22E+02	8.21E+01
2	52.99	8.67E+01	60.17			8.67E+01	6.02E+01
3	63.38	1.57E+02	94.49	4.47E+01	1.66E+01	1.12E+02	9.59E+01
M 4	75.10	4.17E+02	87.31			4.17E+02	8.73E+01
m 5	77.56	5.97E+02	93.53	6.70E+00	3.28E+00	5.91E+02	9.36E+01
6	88.38	1.30E+02	87.42	1.07E+01	3.99E+00	1.19E+02	8.75E+01
7	93.45	2.24E+02	94.04	8.20E+01	2.30E+01	1.42E+02	9.68E+01
8	186.63	2.22E+02	75.99	3.45E+01	5.92E+00	1.88E+02	7.62E+01
9	210.03	8.57E+01	57.50			8.57E+01	5.75E+01
M 10	238.94	6.91E+02	66.02	1.33E+01	5.09E+00	6.78E+02	6.62E+01
m 11	242.13	1.34E+02	71.33			1.34E+02	7.13E+01
12	270.71	4.40E+01	49.29			4.40E+01	4.93E+01
M 13	292.08	2.61E+01	30.53			2.61E+01	3.05E+01
m 14	295.78	1.96E+02	49.86	1.94E+00	4.39E+00	1.94E+02	5.01E+01
15	328.65	5.64E+01	46.82			5.64E+01	4.68E+01
16	338.67	7.14E+01	54.33			7.14E+01	5.43E+01
17	352.21	3.12E+02	50.85	4.00E+00	3.58E+00	3.08E+02	5.10E+01
18	409.47	3.02E+01	32.34			3.02E+01	3.23E+01
19	463.35	7.09E+01	39.94			7.09E+01	3.99E+01

: 00554

Analysis Report for 1606065-09

CP-5017 00-02

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
20	510.74	1.30E+02	45.43	6.05E+01	4.93E+00	6.97E+01	4.57E+01
21	583.59	1.63E+02	44.41	5.50E+00	3.61E+00	1.57E+02	4.46E+01
22	609.63	2.53E+02	42.08	5.07E+00	3.83E+00	2.48E+02	4.23E+01
23	617.15	3.47E+01	25.74			3.47E+01	2.57E+01
24	721.08	2.90E+01	28.60			2.90E+01	2.86E+01
25	727.53	4.05E+01	27.71			4.05E+01	2.77E+01
M	26	768.82	3.99E+01			3.99E+01	2.73E+01
m	27	772.49	1.90E+01			1.90E+01	2.69E+01
	28	860.73	2.89E+01			2.89E+01	3.05E+01
	29	911.79	1.33E+02			1.33E+02	3.30E+01
	30	935.47	2.78E+01			2.78E+01	2.29E+01
M	31	964.68	3.51E+01			3.51E+01	2.03E+01
m	32	969.20	8.33E+01			8.33E+01	2.89E+01
	33	1058.11	2.30E+01			2.30E+01	2.89E+01
	34	1120.90	5.34E+01	1.09E+00	2.08E+00	5.23E+01	2.74E+01
	35	1133.59	2.31E+01			2.31E+01	2.31E+01
	36	1377.99	1.70E+01			1.70E+01	1.20E+01
M	37	1405.60	9.97E+00			9.97E+00	9.96E+00
m	38	1407.86	1.06E+01			1.06E+01	1.15E+01
	39	1414.84	6.91E+00			6.91E+00	7.92E+00
	40	1461.11	5.03E+02	4.33E+00	2.02E+00	4.98E+02	4.89E+01
	41	1520.12	5.50E+00			5.50E+00	7.94E+00
	42	1539.06	9.32E+00			9.32E+00	7.75E+00
	43	1612.05	8.86E+00			8.86E+00	7.75E+00
	44	1636.08	8.91E+00			8.91E+00	8.02E+00
	45	1764.68	2.65E+01	14.87		2.65E+01	1.49E+01
	46	1848.55	9.05E+00	7.50		9.05E+00	7.50E+00
	47	1858.12	5.90E+00	8.03		5.90E+00	8.03E+00
	48	1879.57	6.00E+00	4.90		6.00E+00	4.90E+00
	49	2029.23	5.29E+00	6.34		5.29E+00	6.34E+00
	50	2205.29	9.50E+00	8.75		9.50E+00	8.75E+00
	51	2283.83	6.50E+00	8.03		6.50E+00	8.03E+00
	52	2470.08	9.00E+00	6.00		9.00E+00	6.00E+00
	53	2614.78	5.00E+01	15.11	2.52E+00 1.44E+00	4.75E+01	1.52E+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 1606065-09
CP-5017 00-02

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.986	1460.81 *	10.67	1.84E+01	2.38E+00
GA-67	0.541	93.31 *	35.70	1.45E+00	2.57E+00
		208.95	2.24		
		300.22	16.00		
CD-109	0.981	88.03 *	3.72	1.73E+00	1.28E+00
SN-126	0.901	87.57 *	37.00	1.71E-01	1.27E-01
TL-208	0.984	583.14 *	30.22	9.44E-01	2.81E-01
		860.37 *	4.48	1.64E+00	1.73E+00
		2614.66 *	35.85	7.65E-01	2.55E-01
PB-210	0.999	46.50 *	4.25	2.46E+00	1.68E+00
BI-212	0.754	727.17 *	11.80	7.55E-01	5.20E-01
		1620.62	2.75		
PB-212	0.882	238.63 *	44.60	1.29E+00	1.61E-01
		300.09	3.41		
BI-214	0.912	609.31 *	46.30	1.01E+00	1.94E-01
		1120.29 *	15.10	1.10E+00	5.82E-01
		1764.49 *	15.80	7.59E-01	4.30E-01
		2204.22	4.98		
PB-214	0.974	295.21 *	19.19	1.02E+00	2.75E-01
		351.92 *	37.19	9.69E-01	1.79E-01
RA-226	0.972	186.21 *	3.28	4.06E+00	7.61E+00
AC-228	0.956	338.32 *	11.40	7.09E-01	5.43E-01
		911.07 *	27.70	1.28E+00	3.33E-01
		969.11 *	16.60	1.41E+00	5.02E-01
TH-234	0.999	63.29 *	3.80	1.77E+00	1.52E+00
AM-243	0.971	74.67 *	66.00	3.45E-01	7.86E-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 : 6/17/2016 11:09:40AM
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	52.99	2.40942E-02	34.68		
5	77.56	1.64095E-01	7.92		
9	210.03	2.38100E-02	33.54	Tol.	CM-243

Analysis Report for 1606065-09
 CP-5017 00-02

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	11	242.13	3.71552E-02		
	12	270.71	1.22306E-02		
M	13	292.08	7.25406E-03		
	15	328.65	1.56667E-02	Tol.	LA-140
	18	409.47	8.38798E-03		
	19	463.35	1.96970E-02	Tol.	SB-125
	20	510.74	1.93707E-02		
	23	617.15	9.63186E-03	Tol.	PM-144
	24	721.08	8.05556E-03	Tol.	SB-126
M	26	768.82	1.10959E-02		
m	27	772.49	5.28220E-03		
	30	935.47	7.71759E-03	Sum	
M	31	964.68	9.75473E-03	Tol.	EU-152
	33	1058.11	6.37747E-03	Sum	
	35	1133.59	6.42057E-03		
	36	1377.99	4.72222E-03		
M	37	1405.60	2.76904E-03		
m	38	1407.86	2.93443E-03	Tol.	EU-152
	39	1414.84	1.91919E-03		
	41	1520.12	1.52778E-03		
	42	1539.06	2.58838E-03		
	43	1612.05	2.46212E-03		
	44	1636.08	2.47475E-03		
	46	1848.55	2.51263E-03	Sum	
	47	1858.12	1.63889E-03	Sum	
	48	1879.57	1.66667E-03		
	49	2029.23	1.46825E-03		
	50	2205.29	2.63889E-03		
	51	2283.83	1.80556E-03		
	52	2470.08	2.50000E-03		

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 1606065-09
CP-5017 00-02

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81 *	10.67	1.84E+01	2.38E+00
GA-67	0.54	93.31 *	35.70	1.45E+00	2.57E+00
		208.95	2.24		
		300.22	16.00		
CD-109	0.98	88.03 *	3.72	1.73E+00	1.28E+00
SN-126	0.90	87.57 *	37.00	1.71E-01	1.27E-01
TL-208	0.98	583.14 *	30.22	9.44E-01	2.81E-01
		860.37 *	4.48	1.64E+00	1.73E+00
		2614.66 *	35.85	7.65E-01	2.55E-01
PB-210	0.99	46.50 *	4.25	2.46E+00	1.68E+00
BI-212	0.75	727.17 *	11.80	7.55E-01	5.20E-01
		1620.62	2.75		
PB-212	0.88	238.63 *	44.60	1.29E+00	1.61E-01
		300.09	3.41		
BI-214	0.91	609.31 *	46.30	1.01E+00	1.94E-01
		1120.29 *	15.10	1.10E+00	5.82E-01
		1764.49 *	15.80	7.59E-01	4.30E-01
		2204.22	4.98		
PB-214	0.97	295.21 *	19.19	1.02E+00	2.75E-01
		351.92 *	37.19	9.69E-01	1.79E-01
RA-226	0.97	186.21 *	3.28	4.06E+00	7.61E+00
AC-228	0.95	338.32 *	11.40	7.09E-01	5.43E-01
		911.07 *	27.70	1.28E+00	3.33E-01
		969.11 *	16.60	1.41E+00	5.02E-01
TH-234	0.99	63.29 *	3.80	1.77E+00	1.52E+00
AM-243	0.97	74.67 *	66.00	3.45E-01	7.86E-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	0.986	1.84E+01	2.38E+00	

Analysis Report for 1606065-09

CP-5017 00-02

<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>	
	GA-67	0.541	1.45E+00	2.57E+00	
?	CD-109	0.981	1.73E+00	1.28E+00	
?	SN-126	0.901	1.71E-01	1.27E-01	
	TL-208	0.984	8.56E-01	1.88E-01	
	PB-210	0.999	2.46E+00	1.68E+00	
	BI-212	0.754	7.55E-01	5.20E-01	
	PB-212	0.882	1.29E+00	1.61E-01	
	BI-214	0.912	9.77E-01	1.70E-01	
	PB-214	0.974	9.85E-01	1.50E-01	
	RA-226	0.972	4.06E+00	7.61E+00	
	AC-228	0.956	1.19E+00	2.47E-01	
	TH-234	0.999	1.77E+00	1.52E+00	
	AM-243	0.971	3.45E-01	7.86E-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 1606065-09
CP-5017 00-02

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 11:09:40AM
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	52.99	2.40942E-02		
m	5	77.56	1.64095E-01		
	9	210.03	2.38100E-02	Tol.	CM-243
m	11	242.13	3.71552E-02		
	12	270.71	1.22306E-02		
M	13	292.08	7.25406E-03		
	15	328.65	1.56667E-02	Tol.	LA-140
	18	409.47	8.38798E-03		
	19	463.35	1.96970E-02	Tol.	SB-125
	20	510.74	1.93707E-02		
	23	617.15	9.63186E-03	Tol.	PM-144
	24	721.08	8.05556E-03	Tol.	SB-126
M	26	768.82	1.10959E-02		
m	27	772.49	5.28220E-03		
	30	935.47	7.71759E-03	Sum	
M	31	964.68	9.75473E-03	Tol.	EU-152
	33	1058.11	6.37747E-03	Sum	
	35	1133.59	6.42057E-03		
	36	1377.99	4.72222E-03		
M	37	1405.60	2.76904E-03		
m	38	1407.86	2.93443E-03	Tol.	EU-152
	39	1414.84	1.91919E-03		
	41	1520.12	1.52778E-03		
	42	1539.06	2.58838E-03		
	43	1612.05	2.46212E-03		
	44	1636.08	2.47475E-03		
	46	1848.55	2.51263E-03	Sum	
	47	1858.12	1.63889E-03	Sum	
	48	1879.57	1.66667E-03		
	49	2029.23	1.46825E-03		
	50	2205.29	2.63889E-03		
	51	2283.83	1.80556E-03		
	52	2470.08	2.50000E-03		

Analysis Report for 1606065-09
CP-5017 00-02

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	1.16E-01	7.86E-01	7.86E-01
+	NA-22	1274.54	99.94	-3.30E-02	1.10E-01	1.10E-01
+	NA-24	1368.53	99.99	9.13E+02	1.29E+03	2.19E+03
		2754.09	99.86	-1.39E+02		1.29E+03
+	AL-26	1808.65	99.76	8.55E-03	7.70E-02	7.70E-02
+	K-40	1460.81	* 10.67	1.84E+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	-9.73E-03	6.84E-02	6.84E-02
		78.34	96.00	1.78E-01		8.68E-02
+	SC-46	889.25	99.98	2.25E-02	9.15E-02	9.15E-02
		1120.51	99.99	1.68E-01		1.57E-01
+	V-48	983.52	99.98	-2.60E-02	1.12E-01	1.12E-01
		1312.10	97.50	2.50E-02		1.64E-01
+	CR-51	320.08	9.83	-7.98E-02	8.28E-01	8.28E-01
+	MN-54	834.83	99.97	-6.53E-02	8.74E-02	8.74E-02
+	CO-56	846.75	99.96	5.97E-03	8.72E-02	8.72E-02
		1037.75	14.03	1.77E-01		6.95E-01
		1238.25	67.00	2.01E-01		2.38E-01
		1771.40	15.51	-1.11E-01		5.28E-01
		2598.48	16.90	-7.38E-02		2.72E-01
+	CO-57	122.06	85.51	-7.58E-03	5.57E-02	5.57E-02
		136.48	10.60	-2.52E-01		4.88E-01
+	CO-58	810.76	99.40	-5.30E-03	8.52E-02	8.52E-02
+	FE-59	1099.22	56.50	1.09E-01	2.20E-01	2.20E-01
		1291.56	43.20	-7.33E-02		2.95E-01
+	CO-60	1173.22	100.00	-3.14E-02	1.01E-01	1.01E-01
		1332.49	100.00	-3.19E-02		1.02E-01
+	ZN-65	1115.52	50.75	5.36E-02	1.96E-01	1.96E-01
+	GA-67	93.31	* 35.70	1.45E+00	1.60E+00	1.60E+00
		208.95	2.24	1.27E+01		2.13E+01
		300.22	16.00	9.59E-01		3.16E+00
+	SE-75	121.11	16.70	-1.56E-01	9.29E-02	2.87E-01

Analysis Report for 1606065-09
CP-5017 00-02

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	4.18E-03	9.29E-02
		264.65	59.80	2.00E-02	1.12E-01
		279.53	25.20	9.53E-02	2.97E-01
		400.65	11.40	-4.45E-01	6.20E-01
+	RB-82	776.52	13.00	3.02E-02	7.99E-01
+	RB-83	520.41	46.00	-7.24E-02	1.63E-01
		529.64	30.30	-4.42E-02	2.43E-01
		552.65	16.40	-2.23E-01	4.63E-01
+	KR-85	513.99	0.43	4.75E-01	2.38E+01
+	SR-85	513.99	99.27	2.29E-03	1.14E-01
+	Y-88	898.02	93.40	-9.37E-03	9.36E-02
		1836.01	99.38	2.69E-02	9.36E-02
+	NB-93M	16.57	9.43	1.20E+01	8.14E+01
+	NB-94	702.63	100.00	3.68E-02	8.05E-02
		871.10	100.00	-5.25E-02	8.05E-02
+	NB-95	765.79	99.81	-8.26E-03	1.22E-01
+	NB-95M	235.69	25.00	5.78E-02	2.57E+00
+	ZR-95	724.18	43.70	-5.69E-02	1.74E-01
		756.72	55.30	5.65E-02	1.74E-01
+	MO-99	181.06	6.20	1.58E+00	6.58E+00
		739.58	12.80	-7.01E-01	6.58E+00
		778.00	4.50	4.38E+00	1.76E+01
+	RU-103	497.08	89.00	-5.96E-02	9.05E-02
+	RU-106	621.84	9.80	-4.97E-02	7.94E-01
+	AG-108M	433.93	89.90	-5.37E-03	7.41E-02
		614.37	90.40	-5.97E-01	9.52E-02
		722.95	90.50	-1.45E-01	9.92E-02
+	CD-109	88.03	* 3.72	1.73E+00	2.05E+00
+	AG-110M	657.75	93.14	-3.65E-02	8.72E-02
		677.61	10.53	4.66E-01	9.12E-01
		706.67	16.46	-2.99E-01	5.01E-01
		763.93	21.98	-2.41E-02	3.98E-01
		884.67	71.63	6.20E-03	1.22E-01
		1384.27	23.94	1.69E-02	3.79E-01
+	CD-113M	263.70	0.02	1.71E+01	2.81E+02
+	SN-113	255.12	1.93	5.00E-01	1.11E-01
		391.69	64.90	-1.65E-02	1.11E-01
+	TE123M	159.00	84.10	9.51E-03	6.37E-02
+	SB-124	602.71	97.87	-1.25E-02	8.39E-02
		645.85	7.26	-2.88E-01	1.16E+00
		722.78	11.10	-1.31E+00	8.97E-01
		1691.02	49.00	0.00E+00	1.40E-01
+	I-125	35.49	6.49	-4.30E-01	2.28E+00
+	SB-125	176.33	6.89	-2.54E-01	2.41E-01
		427.89	29.33	-1.72E-02	2.41E-01
		463.38	10.35	8.36E-01	8.47E-01
		600.56	17.80	6.16E-02	4.26E-01
		635.90	11.32	-4.46E-01	6.63E-01

Analysis Report for 1606065-09
CP-5017 00-02

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70	83.30	-4.58E-02	1.29E-01	1.29E-01
		666.33	99.60	-3.62E-02		1.42E-01
		695.00	99.60	2.68E-02		1.40E-01
		720.50	53.80	2.02E-01		2.84E-01
+	SN-126	87.57	* 37.00	1.71E-01	2.04E-01	2.04E-01
+	SB-127	473.00	25.00	-6.80E-01	1.25E+00	1.45E+00
		685.20	35.70	4.12E-01		1.25E+00
		783.80	14.70	2.03E-01		3.16E+00
+	I-129	29.78	57.00	3.26E-02	3.96E-01	3.96E-01
		33.60	13.20	-1.58E-01		1.17E+00
		39.58	7.52	1.05E-01		1.34E+00
+	I-131	284.30	6.05	1.22E+00	1.69E-01	2.49E+00
		364.48	81.20	-5.35E-02		1.69E-01
		636.97	7.26	-1.38E+00		2.21E+00
		722.89	1.80	-1.60E+01		1.09E+01
+	TE-132	49.72	13.10	-9.24E+00	4.91E-01	3.91E+00
		228.16	88.00	-2.47E-01		4.91E-01
+	BA-133	81.00	33.00	-1.02E+00	1.55E-01	1.75E-01
		302.84	17.80	1.12E-01		3.83E-01
		356.01	60.00	-1.96E-01		1.55E-01
+	I-133	529.87	86.30	-2.04E+01	1.12E+02	1.12E+02
+	XE-133	81.00	38.00	-2.93E+00	5.02E-01	5.02E-01
+	CS-134	563.23	8.38	-2.93E-01	8.26E-02	8.87E-01
		569.32	15.43	4.27E-01		5.40E-01
		604.70	97.60	-1.48E-02		8.26E-02
		795.84	85.40	3.23E-03		1.08E-01
		801.93	8.73	-2.40E-01		8.97E-01
+	CS-135	268.24	16.00	4.99E-02	4.40E-01	4.40E-01
+	I-135	1131.51	22.50	-1.76E+08	2.93E+09	3.94E+09
		1260.41	28.60	-1.64E+09		2.93E+09
		1678.03	9.54	-1.13E+09		5.32E+09
+	CS-136	153.22	7.46	5.31E-01	1.20E-01	1.15E+00
		163.89	4.61	4.06E-01		1.83E+00
		176.55	13.56	7.29E-03		6.36E-01
		273.65	12.66	-5.66E-02		9.23E-01
		340.57	48.50	2.23E-02		2.99E-01
		818.50	99.70	-7.29E-02		1.20E-01
		1048.07	79.60	2.41E-02		1.86E-01
		1235.34	19.70	2.45E-02		1.16E+00
+	CS-137	661.65	85.12	-4.34E-02	9.49E-02	9.49E-02
+	LA-138	788.74	34.00	1.52E-02	1.32E-01	2.56E-01
		1435.80	66.00	5.94E-02		1.32E-01
+	CE-139	165.85	80.35	4.25E-02	7.02E-02	7.02E-02
+	BA-140	162.64	6.70	2.56E-01	4.86E-01	1.27E+00
		304.84	4.50	-1.08E+00		2.28E+00
		423.70	3.20	1.07E+00		3.87E+00
		437.55	2.00	7.29E-01		5.65E+00
		537.32	25.00	-4.89E-02		4.86E-01
+	LA-140	328.77	20.50	4.21E-01	1.54E-01	6.08E-01

Analysis Report for 1606065-09

CP-5017 00-02

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
LA-140	487.03	45.50	-1.55E-01	1.54E-01	2.33E-01
	815.85	23.50	-2.09E-01		5.17E-01
	1596.49	95.49	-4.50E-03		1.54E-01
+ CE-141	145.44	48.40	-1.84E-02	1.26E-01	1.26E-01
+ CE-143	57.36	11.80	-7.16E+00	2.14E+01	5.58E+01
	293.26	42.00	4.12E+01		2.14E+01
	664.55	5.20	6.85E+01		1.65E+02
+ CE-144	133.54	10.80	-1.18E-01	4.85E-01	4.85E-01
+ PM-144	476.78	42.00	5.32E-02	9.07E-02	1.80E-01
	618.01	98.60	6.28E-02		9.22E-02
	696.49	99.49	4.21E-02		9.07E-02
+ PM-145	36.85	21.70	-4.73E-01	3.00E-01	5.50E-01
	37.36	39.70	1.81E-01		3.00E-01
	42.30	15.10	-4.25E-02		5.70E-01
	72.40	2.31	4.61E-01		3.29E+00
+ PM-146	453.90	39.94	2.56E-02	1.78E-01	1.78E-01
	735.90	14.01	-5.44E-02		6.20E-01
	747.13	13.10	2.64E-01		6.30E-01
+ ND-147	91.11	28.90	-3.13E-01	4.13E-01	4.13E-01
	531.02	13.10	-1.13E-01		9.35E-01
+ PM-149	285.90	3.10	1.15E+01	3.72E+01	3.72E+01
+ EU-152	121.78	20.50	-3.09E-02	2.27E-01	2.27E-01
	244.69	5.40	-9.48E-01		1.48E+00
	344.27	19.13	-2.04E-02		3.60E-01
	778.89	9.20	2.60E-01		9.36E-01
	964.01	10.40	-1.50E+00		1.15E+00
	1085.78	7.22	-5.33E-02		1.33E+00
	1112.02	9.60	6.10E-01		1.16E+00
	1407.95	14.94	-7.04E-02		6.53E-01
+ GD-153	97.43	31.30	2.19E-03	1.60E-01	1.60E-01
	103.18	22.20	-2.00E-02		2.30E-01
+ EU-154	123.07	40.50	2.33E-02	1.18E-01	1.18E-01
	723.30	19.70	-6.69E-01		4.57E-01
	873.19	11.50	3.04E-01		7.75E-01
	996.32	10.30	-6.14E-02		9.09E-01
	1004.76	17.90	1.41E-01		5.15E-01
	1274.45	35.50	-9.25E-02		3.09E-01
+ EU-155	86.50	30.90	5.12E-02	2.15E-01	2.15E-01
	105.30	20.70	4.06E-02		2.39E-01
+ EU-156	811.77	10.40	4.68E-01	1.18E+00	1.18E+00
	1153.47	7.20	7.20E-01		2.48E+00
	1230.71	8.90	7.82E-01		2.31E+00
+ HO-166M	184.41	72.60	1.75E-01	9.42E-02	9.42E-02
	280.45	29.60	4.07E-02		2.38E-01
	410.94	11.10	6.57E-02		6.93E-01
	711.69	54.10	5.71E-02		1.54E-01
+ TM-171	66.72	0.14	-2.61E+00	4.69E+01	4.69E+01
+ HF-172	81.75	4.52	-4.45E+00	4.40E-01	1.31E+00
	125.81	11.30	-2.20E-01		4.40E-01

Analysis Report for 1606065-09

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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	-8.95E-03	4.04E-01	6.56E-01
		810.06	16.63	-3.44E-01		1.20E+00
		912.12	15.25	5.95E+00		2.76E+00
		1093.66	62.50	-6.13E-02		4.04E-01
+	LU-173	100.72	5.24	2.08E-01	3.46E-01	9.61E-01
		272.11	21.20	1.55E-01		3.46E-01
+	HF-175	343.40	84.00	3.69E-04	9.10E-02	9.10E-02
+	LU-176	88.34	13.30	5.21E-01	6.47E-02	5.15E-01
		201.83	86.00	2.79E-02		7.66E-02
		306.78	94.00	-4.78E-02		6.47E-02
+	TA-182	67.75	41.20	-2.36E-02	1.66E-01	1.66E-01
		1121.30	34.90	5.60E-01		4.53E-01
		1189.05	16.23	2.41E-03		6.64E-01
		1221.41	26.98	-5.03E-02		4.92E-01
		1231.02	11.44	1.05E-01		1.21E+00
+	IR-192	308.46	29.68	-1.04E-01	1.56E-01	2.32E-01
		468.07	48.10	-3.92E-02		1.56E-01
+	HG-203	279.19	77.30	-3.14E-04	1.03E-01	1.03E-01
+	BI-207	569.67	97.72	2.28E-02	8.24E-02	8.24E-02
		1063.62	74.90	-2.03E-03		1.19E-01
+	TL-208	583.14	* 30.22	9.44E-01	2.12E-01	3.80E-01
		860.37	* 4.48	1.64E+00		2.82E+00
		2614.66	* 35.85	7.65E-01		2.12E-01
+	BI-210M	262.00	45.00	-1.24E-02	1.46E-01	1.46E-01
		300.00	23.00	9.69E-02		3.20E-01
+	PB-210	46.50	* 4.25	2.46E+00	2.69E+00	2.69E+00
+	PB-211	404.84	2.90	5.41E-01	2.60E+00	2.60E+00
		831.96	2.90	-1.49E+00		2.79E+00
+	BI-212	727.17	* 11.80	7.55E-01	8.04E-01	8.04E-01
		1620.62	2.75	2.86E-01		3.01E+00
+	PB-212	238.63	* 44.60	1.29E+00	3.47E-01	3.47E-01
		300.09	3.41	6.54E-01		2.16E+00
+	BI-214	609.31	* 46.30	1.01E+00	2.00E-01	2.00E-01
		1120.29	* 15.10	1.10E+00		8.60E-01
		1764.49	* 15.80	7.59E-01		5.83E-01
		2204.22	4.98	8.14E-01		2.12E+00
+	PB-214	295.21	* 19.19	1.02E+00	2.00E-01	5.84E-01
		351.92	* 37.19	9.69E-01		2.00E-01
+	RN-219	401.80	6.50	-3.51E-02	1.09E+00	1.09E+00
+	RA-223	323.87	3.88	-1.01E-02	1.66E+00	1.66E+00
+	RA-224	240.98	3.95	1.73E+01	3.35E+00	3.35E+00
+	RA-225	40.00	31.00	3.80E-02	4.85E-01	4.85E-01
+	RA-226	186.21	* 3.28	4.06E+00	2.59E+00	2.59E+00
+	TH-227	50.10	8.40	-2.07E+00	8.75E-01	8.75E-01
		236.00	11.50	2.20E-02		9.81E-01
		256.20	6.30	1.36E-01		1.08E+00
+	AC-228	338.32	* 11.40	7.09E-01	4.01E-01	8.71E-01
		911.07	* 27.70	1.28E+00		4.01E-01

Analysis Report for 1606065-09

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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	1.41E+00	4.01E-01	8.31E-01
+	TH-230	48.44		16.90	2.43E-01	5.01E-01	5.01E-01
		62.85		4.60	1.97E+00		1.64E+00
		67.67		0.37	-2.49E+00		1.75E+01
+	PA-231	283.67		1.60	2.10E+00	2.96E+00	4.30E+00
		302.67		2.30	8.65E-01		2.96E+00
+	TH-231	25.64		14.70	-1.90E-01	9.38E-01	3.01E+00
		84.21		6.40	2.19E-01		9.38E-01
+	PA-233	311.98		38.60	1.16E-01	2.28E-01	2.28E-01
+	PA-234	131.20		20.40	9.07E-02	2.61E-01	2.61E-01
		733.99		8.80	4.30E-02		9.97E-01
		946.00		12.00	1.69E-01		7.54E-01
+	PA-234M	1001.03		0.92	6.10E+00	1.11E+01	1.11E+01
+	TH-234	63.29	*	3.80	1.77E+00	2.47E+00	2.47E+00
+	U-235	143.76		10.50	2.86E-02	4.90E-01	4.90E-01
		163.35		4.70	2.46E-01		1.11E+00
		205.31		4.70	3.68E-01		1.37E+00
+	NP-237	86.50		12.60	1.25E-01	5.25E-01	5.25E-01
+	NP-239	106.10		22.70	8.72E-01	3.12E+00	3.12E+00
		228.18		10.70	-4.26E+00		8.47E+00
		277.60		14.10	1.77E+00		7.23E+00
+	AM-241	59.54		35.90	-3.90E-02	1.90E-01	1.90E-01
+	AM-243	74.67	*	66.00	3.45E-01	1.78E-01	1.78E-01
+	CM-243	209.75		3.29	1.40E+00	5.04E-01	2.11E+00
		228.14		10.60	-2.98E-01		5.92E-01
		277.60		14.00	1.23E-01		5.04E-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

? = 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

: 00566

Analysis Report for 1606065-09

CP-5017 00-02

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	7.86E-01	7.86E-01	1.16E-01	3.71E-01
NA-22	1274.54	99.94	1.10E-01	1.10E-01	-3.30E-02	5.03E-02
NA-24	1368.53	99.99	2.19E+03	1.29E+03	9.13E+02	9.76E+02
	2754.09	99.86	1.29E+03		-1.39E+02	4.57E+02
AL-26	1808.65	99.76	7.70E-02	7.70E-02	8.55E-03	3.22E-02
+ K-40	1460.81	* 10.67	1.32E+00	1.32E+00	1.84E+01	6.08E-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	6.84E-02	6.84E-02	-9.73E-03	3.34E-02
	78.34	96.00	8.68E-02		1.78E-01	4.26E-02
SC-46	889.25	99.98	9.15E-02	9.15E-02	2.25E-02	4.19E-02
	1120.51	99.99	1.57E-01		1.68E-01	7.38E-02
V-48	983.52	99.98	1.12E-01	1.12E-01	-2.60E-02	5.00E-02
	1312.10	97.50	1.64E-01		2.50E-02	7.45E-02
CR-51	320.08	9.83	8.28E-01	8.28E-01	-7.98E-02	3.95E-01
MN-54	834.83	99.97	8.74E-02	8.74E-02	-6.53E-02	4.03E-02
CO-56	846.75	99.96	8.72E-02	8.72E-02	5.97E-03	3.99E-02
	1037.75	14.03	6.95E-01		1.77E-01	3.16E-01
	1238.25	67.00	2.38E-01		2.01E-01	1.11E-01
	1771.40	15.51	5.28E-01		-1.11E-01	2.21E-01
	2598.48	16.90	2.72E-01		-7.38E-02	8.59E-02
CO-57	122.06	85.51	5.57E-02	5.57E-02	-7.58E-03	2.69E-02
	136.48	10.60	4.88E-01		-2.52E-01	2.36E-01
CO-58	810.76	99.40	8.52E-02	8.52E-02	-5.30E-03	3.90E-02
FE-59	1099.22	56.50	2.20E-01	2.20E-01	1.09E-01	1.02E-01
	1291.56	43.20	2.95E-01		-7.33E-02	1.34E-01
CO-60	1173.22	100.00	1.01E-01	1.01E-01	-3.14E-02	4.62E-02
	1332.49	100.00	1.02E-01		-3.19E-02	4.59E-02
ZN-65	1115.52	50.75	1.96E-01	1.96E-01	5.36E-02	8.92E-02
+ GA-67	93.31	* 35.70	1.60E+00	1.60E+00	1.45E+00	7.88E-01
	208.95	2.24	2.13E+01		1.27E+01	1.03E+01
	300.22	16.00	3.16E+00		9.59E-01	1.52E+00
SE-75	121.11	16.70	2.87E-01	9.29E-02	-1.56E-01	1.39E-01
	136.00	59.20	9.29E-02		4.18E-03	4.50E-02
	264.65	59.80	1.12E-01		2.00E-02	5.40E-02
	279.53	25.20	2.97E-01		9.53E-02	1.43E-01
	400.65	11.40	6.20E-01		-4.45E-01	2.94E-01
RB-82	776.52	13.00	7.99E-01	7.99E-01	3.02E-02	3.69E-01
RB-83	520.41	46.00	1.63E-01	1.63E-01	-7.24E-02	7.63E-02
	529.64	30.30	2.43E-01		-4.42E-02	1.13E-01
	552.65	16.40	4.63E-01		-2.23E-01	2.16E-01
KR-85	513.99	0.43	2.38E+01	2.38E+01	4.75E-01	1.14E+01
SR-85	513.99	99.27	1.14E-01	1.14E-01	2.29E-03	5.48E-02
Y-88	898.02	93.40	9.72E-02	9.36E-02	-9.37E-03	4.46E-02
	1836.01	99.38	9.36E-02		2.69E-02	4.01E-02
NB-93M	16.57	9.43	8.14E+01	8.14E+01	1.20E+01	3.96E+01
NB-94	702.63	100.00	8.75E-02	8.05E-02	3.68E-02	4.09E-02
	871.10	100.00	8.05E-02		-5.25E-02	3.68E-02
NB-95	765.79	99.81	1.22E-01	1.22E-01	-8.26E-03	5.73E-02
NB-95M	235.69	25.00	2.57E+00	2.57E+00	5.78E-02	1.26E+00
ZR-95	724.18	43.70	2.52E-01	1.74E-01	-5.69E-02	1.18E-01
	756.72	55.30	1.74E-01		5.65E-02	8.10E-02

Analysis Report for 1606065-09
CP-5017 00-02

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	8.50E+00	6.58E+00	1.58E+00	4.10E+00
	739.58	12.80	6.58E+00		-7.01E-01	3.06E+00
	778.00	4.50	1.76E+01		4.38E+00	8.12E+00
RU-103	497.08	89.00	9.05E-02	9.05E-02	-5.96E-02	4.24E-02
RU-106	621.84	9.80	7.94E-01	7.94E-01	-4.97E-02	3.70E-01
AG-108M	433.93	89.90	7.41E-02	7.41E-02	-5.37E-03	3.50E-02
	614.37	90.40	9.52E-02		-5.97E-01	4.47E-02
	722.95	90.50	9.92E-02		-1.45E-01	4.63E-02
+ CD-109	88.03	*	2.05E+00	2.05E+00	1.73E+00	1.01E+00
AG-110M	657.75	93.14	8.72E-02	8.72E-02	-3.65E-02	4.06E-02
	677.61	10.53	9.12E-01		4.66E-01	4.29E-01
	706.67	16.46	5.01E-01		-2.99E-01	2.32E-01
	763.93	21.98	3.98E-01		-2.41E-02	1.84E-01
	884.67	71.63	1.22E-01		6.20E-03	5.61E-02
	1384.27	23.94	3.79E-01		1.69E-02	1.68E-01
CD-113M	263.70	0.02	2.81E+02	2.81E+02	1.71E+01	1.35E+02
SN-113	255.12	1.93	3.70E+00	1.11E-01	5.00E-01	1.78E+00
	391.69	64.90	1.11E-01		-1.65E-02	5.25E-02
TE123M	159.00	84.10	6.37E-02	6.37E-02	9.51E-03	3.08E-02
SB-124	602.71	97.87	8.39E-02	8.39E-02	-1.25E-02	3.91E-02
	645.85	7.26	1.16E+00		-2.88E-01	5.41E-01
	722.78	11.10	8.97E-01		-1.31E+00	4.19E-01
	1691.02	49.00	1.40E-01		0.00E+00	5.67E-02
I-125	35.49	6.49	2.28E+00	2.28E+00	-4.30E-01	1.11E+00
SB-125	176.33	6.89	7.73E-01	2.41E-01	-2.54E-01	3.73E-01
	427.89	29.33	2.41E-01		-1.72E-02	1.14E-01
	463.38	10.35	8.47E-01		8.36E-01	4.04E-01
	600.56	17.80	4.26E-01		6.16E-02	1.99E-01
	635.90	11.32	6.63E-01		-4.46E-01	3.08E-01
SB-126	414.70	83.30	1.29E-01	1.29E-01	-4.58E-02	6.09E-02
	666.33	99.60	1.42E-01		-3.62E-02	6.65E-02
	695.00	99.60	1.40E-01		2.68E-02	6.50E-02
	720.50	53.80	2.84E-01		2.02E-01	1.33E-01
+ SN-126	87.57	*	2.04E-01	2.04E-01	1.71E-01	9.98E-02
SB-127	473.00	25.00	1.45E+00	1.25E+00	-6.80E-01	6.83E-01
	685.20	35.70	1.25E+00		4.12E-01	5.86E-01
	783.80	14.70	3.16E+00		2.03E-01	1.47E+00
I-129	29.78	57.00	3.96E-01	3.96E-01	3.26E-02	1.91E-01
	33.60	13.20	1.17E+00		-1.58E-01	5.67E-01
	39.58	7.52	1.34E+00		1.05E-01	6.48E-01
I-131	284.30	6.05	2.49E+00	1.69E-01	1.22E+00	1.20E+00
	364.48	81.20	1.69E-01		-5.35E-02	8.03E-02
	636.97	7.26	2.21E+00		-1.38E+00	1.03E+00
	722.89	1.80	1.09E+01		-1.60E+01	5.09E+00
TE-132	49.72	13.10	3.91E+00	4.91E-01	-9.24E+00	1.90E+00
	228.16	88.00	4.91E-01		-2.47E-01	2.37E-01
BA-133	81.00	33.00	1.75E-01	1.55E-01	-1.02E+00	8.51E-02
	302.84	17.80	3.83E-01		1.12E-01	1.84E-01
	356.01	60.00	1.55E-01		-1.96E-01	7.48E-02
I-133	529.87	86.30	1.12E+02	1.12E+02	-2.04E+01	5.25E+01
XE-133	81.00	38.00	5.02E-01	5.02E-01	-2.93E+00	2.45E-01
CS-134	563.23	8.38	8.87E-01	8.26E-02	-2.93E-01	4.15E-01
	569.32	15.43	5.40E-01		4.27E-01	2.55E-01

Analysis Report for 1606065-09

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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	8.26E-02	8.26E-02	-1.48E-02	3.87E-02
	795.84	85.40	1.08E-01		3.23E-03	5.01E-02
	801.93	8.73	8.97E-01		-2.40E-01	4.11E-01
CS-135	268.24	16.00	4.40E-01	4.40E-01	4.99E-02	2.12E-01
I-135	1131.51	22.50	3.94E+09	2.93E+09	-1.76E+08	1.81E+09
	1260.41	28.60	2.93E+09		-1.64E+09	1.33E+09
	1678.03	9.54	5.32E+09		-1.13E+09	2.15E+09
CS-136	153.22	7.46	1.15E+00	1.20E-01	5.31E-01	5.54E-01
	163.89	4.61	1.83E+00		4.06E-01	8.84E-01
	176.55	13.56	6.36E-01		7.29E-03	3.07E-01
	273.65	12.66	9.23E-01		-5.66E-02	4.45E-01
	340.57	48.50	2.99E-01		2.23E-02	1.44E-01
	818.50	99.70	1.20E-01		-7.29E-02	5.49E-02
	1048.07	79.60	1.86E-01		2.41E-02	8.49E-02
	1235.34	19.70	1.16E+00		2.45E-02	5.44E-01
CS-137	661.65	85.12	9.49E-02	9.49E-02	-4.34E-02	4.43E-02
LA-138	788.74	34.00	2.56E-01	1.32E-01	1.52E-02	1.18E-01
	1435.80	66.00	1.32E-01		5.94E-02	5.80E-02
CE-139	165.85	80.35	7.02E-02	7.02E-02	4.25E-02	3.39E-02
BA-140	162.64	6.70	1.27E+00	4.86E-01	2.56E-01	6.15E-01
	304.84	4.50	2.28E+00		-1.08E+00	1.09E+00
	423.70	3.20	3.87E+00		1.07E+00	1.84E+00
	437.55	2.00	5.65E+00		7.29E-01	2.67E+00
	537.32	25.00	4.86E-01		-4.89E-02	2.28E-01
LA-140	328.77	20.50	6.08E-01	1.54E-01	4.21E-01	2.92E-01
	487.03	45.50	2.33E-01		-1.55E-01	1.09E-01
	815.85	23.50	5.17E-01		-2.09E-01	2.36E-01
	1596.49	95.49	1.54E-01		-4.50E-03	6.70E-02
CE-141	145.44	48.40	1.26E-01	1.26E-01	-1.84E-02	6.08E-02
CE-143	57.36	11.80	5.58E+01	2.14E+01	-7.16E+00	2.72E+01
	293.26	42.00	2.14E+01		4.12E+01	1.04E+01
	664.55	5.20	1.65E+02		6.85E+01	7.73E+01
CE-144	133.54	10.80	4.85E-01	4.85E-01	-1.18E-01	2.35E-01
PM-144	476.78	42.00	1.80E-01	9.07E-02	5.32E-02	8.53E-02
	618.01	98.60	9.22E-02		6.28E-02	4.34E-02
	696.49	99.49	9.07E-02		4.21E-02	4.24E-02
PM-145	36.85	21.70	5.50E-01	3.00E-01	-4.73E-01	2.66E-01
	37.36	39.70	3.00E-01		1.81E-01	1.45E-01
	42.30	15.10	5.70E-01		-4.25E-02	2.76E-01
PM-146	72.40	2.31	3.29E+00	1.78E-01	4.61E-01	1.61E+00
	453.90	39.94	1.78E-01		2.56E-02	8.43E-02
	735.90	14.01	6.20E-01		-5.44E-02	2.89E-01
ND-147	747.13	13.10	6.30E-01	4.13E-01	2.64E-01	2.92E-01
	91.11	28.90	4.13E-01		-3.13E-01	2.02E-01
	531.02	13.10	9.35E-01		-1.13E-01	4.37E-01
PM-149	285.90	3.10	3.72E+01	3.72E+01	1.15E+01	1.79E+01
EU-152	121.78	20.50	2.27E-01	2.27E-01	-3.09E-02	1.10E-01
	244.69	5.40	1.48E+00		-9.48E-01	7.20E-01
	344.27	19.13	3.60E-01		-2.04E-02	1.72E-01
	778.89	9.20	9.36E-01		2.60E-01	4.34E-01
	964.01	10.40	1.15E+00		-1.50E+00	5.39E-01
	1085.78	7.22	1.33E+00		-5.33E-02	6.07E-01
	1112.02	9.60	1.16E+00		6.10E-01	5.36E-01

Analysis Report for 1606065-09
CP-5017 00-02

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	6.53E-01	2.27E-01	-7.04E-02	2.92E-01
GD-153	97.43	31.30	1.60E-01	1.60E-01	2.19E-03	7.77E-02
	103.18	22.20	2.30E-01		-2.00E-02	1.11E-01
EU-154	123.07	40.50	1.18E-01	1.18E-01	2.33E-02	5.71E-02
	723.30	19.70	4.57E-01		-6.69E-01	2.13E-01
	873.19	11.50	7.75E-01		3.04E-01	3.57E-01
	996.32	10.30	9.09E-01		-6.14E-02	4.17E-01
	1004.76	17.90	5.15E-01		1.41E-01	2.36E-01
	1274.45	35.50	3.09E-01		-9.25E-02	1.41E-01
EU-155	86.50	30.90	2.15E-01	2.15E-01	5.12E-02	1.05E-01
	105.30	20.70	2.39E-01		4.06E-02	1.16E-01
EU-156	811.77	10.40	1.18E+00	1.18E+00	4.68E-01	5.42E-01
	1153.47	7.20	2.48E+00		7.20E-01	1.15E+00
	1230.71	8.90	2.31E+00		7.82E-01	1.08E+00
HO-166M	184.41	72.60	9.42E-02	9.42E-02	1.75E-01	4.58E-02
	280.45	29.60	2.38E-01		4.07E-02	1.15E-01
	410.94	11.10	6.93E-01		6.57E-02	3.30E-01
	711.69	54.10	1.54E-01		5.71E-02	7.18E-02
TM-171	66.72	0.14	4.69E+01	4.69E+01	-2.61E+00	2.29E+01
HF-172	81.75	4.52	1.31E+00	4.40E-01	-4.45E+00	6.38E-01
	125.81	11.30	4.40E-01		-2.20E-01	2.13E-01
LU-172	181.53	20.60	6.56E-01	4.04E-01	-8.95E-03	3.16E-01
	810.06	16.63	1.20E+00		-3.44E-01	5.52E-01
	912.12	15.25	2.76E+00		5.95E+00	1.32E+00
	1093.66	62.50	4.04E-01		-6.13E-02	1.85E-01
LU-173	100.72	5.24	9.61E-01	3.46E-01	2.08E-01	4.66E-01
	272.11	21.20	3.46E-01		1.55E-01	1.67E-01
HF-175	343.40	84.00	9.10E-02	9.10E-02	3.69E-04	4.35E-02
LU-176	88.34	13.30	5.15E-01	6.47E-02	5.21E-01	2.52E-01
	201.83	86.00	7.66E-02		2.79E-02	3.71E-02
	306.78	94.00	6.47E-02		-4.78E-02	3.08E-02
TA-182	67.75	41.20	1.66E-01	1.66E-01	-2.36E-02	8.09E-02
	1121.30	34.90	4.53E-01		5.60E-01	2.13E-01
	1189.05	16.23	6.64E-01		2.41E-03	3.03E-01
	1221.41	26.98	4.92E-01		-5.03E-02	2.28E-01
	1231.02	11.44	1.21E+00		1.05E-01	5.61E-01
IR-192	308.46	29.68	2.32E-01	1.56E-01	-1.04E-01	1.11E-01
	468.07	48.10	1.56E-01		-3.92E-02	7.35E-02
HG-203	279.19	77.30	1.03E-01	1.03E-01	-3.14E-04	4.98E-02
BI-207	569.67	97.72	8.24E-02	8.24E-02	2.28E-02	3.88E-02
	1063.62	74.90	1.19E-01		-2.03E-03	5.43E-02
+ TL-208	583.14	* 30.22	3.80E-01	2.12E-01	9.44E-01	1.82E-01
	860.37	* 4.48	2.82E+00		1.64E+00	1.33E+00
	2614.66	* 35.85	2.12E-01		7.65E-01	8.42E-02
BI-210M	262.00	45.00	1.46E-01	1.46E-01	-1.24E-02	7.02E-02
	300.00	23.00	3.20E-01		9.69E-02	1.54E-01
+ PB-210	46.50	* 4.25	2.69E+00	2.69E+00	2.46E+00	1.32E+00
PB-211	404.84	2.90	2.60E+00	2.60E+00	5.41E-01	1.24E+00
	831.96	2.90	2.79E+00		-1.49E+00	1.28E+00
+ BI-212	727.17	* 11.80	8.04E-01	8.04E-01	7.55E-01	3.77E-01
	1620.62	2.75	3.01E+00		2.86E-01	1.30E+00
+ PB-212	238.63	* 44.60	3.47E-01	3.47E-01	1.29E+00	1.71E-01
	300.09	3.41	2.16E+00		6.54E-01	1.04E+00

Analysis Report for 1606065-09
CP-5017 00-02

	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	2.00E-01	2.00E-01	1.01E+00	9.43E-02
		1120.29 *		15.10	8.60E-01		1.10E+00	4.02E-01
		1764.49 *		15.80	5.83E-01		7.59E-01	2.53E-01
		2204.22		4.98	2.12E+00		8.14E-01	9.18E-01
+	PB-214	295.21 *		19.19	5.84E-01	2.00E-01	1.02E+00	2.85E-01
		351.92 *		37.19	2.00E-01		9.69E-01	9.57E-02
	RN-219	401.80		6.50	1.09E+00	1.09E+00	-3.51E-02	5.16E-01
	RA-223	323.87		3.88	1.66E+00	1.66E+00	-1.01E-02	7.90E-01
	RA-224	240.98		3.95	3.35E+00	3.35E+00	1.73E+01	1.65E+00
	RA-225	40.00		31.00	4.85E-01	4.85E-01	3.80E-02	2.35E-01
+	RA-226	186.21 *		3.28	2.59E+00	2.59E+00	4.06E+00	1.26E+00
	TH-227	50.10		8.40	8.75E-01	8.75E-01	-2.07E+00	4.25E-01
		236.00		11.50	9.81E-01		2.20E-02	4.80E-01
		256.20		6.30	1.08E+00		1.36E-01	5.19E-01
+	AC-228	338.32 *		11.40	8.71E-01	4.01E-01	7.09E-01	4.22E-01
		911.07 *		27.70	4.01E-01		1.28E+00	1.87E-01
		969.11 *		16.60	8.31E-01		1.41E+00	3.93E-01
	TH-230	48.44		16.90	5.01E-01	5.01E-01	2.43E-01	2.44E-01
		62.85		4.60	1.64E+00		1.97E+00	8.03E-01
		67.67		0.37	1.75E+01		-2.49E+00	8.53E+00
	PA-231	283.67		1.60	4.30E+00	2.96E+00	2.10E+00	2.07E+00
		302.67		2.30	2.96E+00		8.65E-01	1.42E+00
	TH-231	25.64		14.70	3.01E+00	9.38E-01	-1.90E-01	1.46E+00
		84.21		6.40	9.38E-01		2.19E-01	4.58E-01
	PA-233	311.98		38.60	2.28E-01	2.28E-01	1.16E-01	1.09E-01
	PA-234	131.20		20.40	2.61E-01	2.61E-01	9.07E-02	1.27E-01
		733.99		8.80	9.97E-01		4.30E-02	4.65E-01
		946.00		12.00	7.54E-01		1.69E-01	3.46E-01
	PA-234M	1001.03		0.92	1.11E+01	1.11E+01	6.10E+00	5.11E+00
+	TH-234	63.29 *		3.80	2.47E+00	2.47E+00	1.77E+00	1.21E+00
	U-235	143.76		10.50	4.90E-01	4.90E-01	2.86E-02	2.37E-01
		163.35		4.70	1.11E+00		2.46E-01	5.37E-01
		205.31		4.70	1.37E+00		3.68E-01	6.62E-01
	NP-237	86.50		12.60	5.25E-01	5.25E-01	1.25E-01	2.57E-01
	NP-239	106.10		22.70	3.12E+00	3.12E+00	8.72E-01	1.52E+00
		228.18		10.70	8.47E+00		-4.26E+00	4.09E+00
		277.60		14.10	7.23E+00		1.77E+00	3.48E+00
	AM-241	59.54		35.90	1.90E-01	1.90E-01	-3.90E-02	9.28E-02
+	AM-243	74.67 *		66.00	1.78E-01	1.78E-01	3.45E-01	8.80E-02
	CM-243	209.75		3.29	2.11E+00	5.04E-01	1.40E+00	1.02E+00
		228.14		10.60	5.92E-01		-2.98E-01	2.86E-01
		277.60		14.00	5.04E-01		1.23E-01	2.43E-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 1606065-09
CP-5017 00-02

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

Elapsed Live time: 3600
 Elapsed Real Time: 3614

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	5	145	121	94	100	104	99	101
17:	97	76	73	76	78	71	68	77
25:	73	63	53	59	65	54	53	59
33:	59	79	52	59	71	55	71	74
41:	58	55	55	78	58	76	175	93
49:	76	63	76	91	92	125	68	83
57:	91	87	102	111	114	103	141	221
65:	115	107	111	122	102	117	123	138
73:	111	139	319	277	324	426	105	104
81:	102	99	96	126	136	103	147	203
89:	98	157	134	102	225	206	98	79
97:	56	81	74	77	94	69	64	60
105:	87	85	69	60	63	72	66	76
113:	67	68	63	71	60	50	50	69
121:	57	59	49	63	82	56	60	65
129:	89	84	61	56	78	82	58	61
137:	63	78	59	77	58	73	62	57
145:	66	55	51	65	54	60	52	59
153:	62	65	72	48	56	59	57	47
161:	53	52	42	66	66	52	54	53
169:	56	42	51	58	54	53	43	65
177:	45	53	58	57	47	47	47	50
185:	51	121	144	50	42	52	36	38
193:	41	43	53	50	46	40	49	44
201:	51	41	42	52	56	43	44	33
209:	66	81	40	48	40	28	44	32
217:	47	42	41	45	49	44	50	35
225:	39	38	28	32	47	31	36	35
233:	46	41	44	44	39	134	446	189
241:	71	100	78	46	38	36	41	32
249:	31	28	27	40	37	32	34	37
257:	35	29	40	35	32	22	28	39
265:	24	33	32	26	20	49	60	34
273:	32	28	31	30	36	42	30	30
281:	33	24	38	30	29	29	29	22
289:	22	26	21	40	28	37	85	134
297:	46	26	27	30	40	29	23	25
305:	18	20	25	14	19	22	32	22
313:	31	28	31	19	28	24	25	18
321:	18	24	15	25	17	23	24	46
329:	36	26	27	21	19	27	27	21
337:	23	52	99	27	17	28	29	17
345:	17	22	21	20	23	16	47	176
353:	140	13	15	29	24	23	22	22
361:	15	10	16	22	15	17	16	17

369: 18 19 18 19 24 18 26 25

Sample Title: CP-5017 00-02

Channel	1	2	3	4	5	6	7	8
377:	13	19	11	18	30	18	23	30
385:	14	19	15	16	15	21	17	17
393:	17	15	15	19	20	17	10	10
401:	18	17	18	19	29	15	18	21
409:	23	26	22	12	17	18	13	15
417:	12	8	15	18	14	14	23	22
425:	14	19	21	14	17	10	12	15
433:	8	15	15	15	13	14	14	16
441:	12	15	14	16	20	15	15	12
449:	13	13	8	14	23	9	12	17
457:	15	14	12	19	11	15	37	37
465:	19	7	9	15	17	9	11	16
473:	15	14	16	9	18	14	14	14
481:	9	10	12	13	9	5	12	10
489:	11	11	15	18	16	7	14	12
497:	6	15	8	15	14	13	13	14
505:	10	9	15	16	21	35	53	53
513:	15	11	13	12	14	16	9	6
521:	8	12	8	13	14	12	8	12
529:	8	10	4	18	8	9	9	13
537:	10	12	15	11	6	16	14	8
545:	7	19	11	12	11	11	13	5
553:	13	7	6	12	10	16	11	6
561:	13	9	16	6	6	15	13	9
569:	10	21	10	11	10	7	13	15
577:	12	18	14	13	14	24	81	105
585:	17	5	18	12	12	7	11	14
593:	13	12	10	5	9	13	9	12
601:	10	9	9	4	12	7	12	21
609:	83	135	28	7	6	4	10	17
617:	12	21	13	6	11	11	10	9
625:	4	10	9	12	10	16	17	12
633:	9	7	8	8	11	5	10	7
641:	13	11	3	7	11	10	2	13
649:	13	10	5	6	6	8	13	8
657:	5	14	5	9	8	17	11	8
665:	6	15	12	6	13	10	12	8
673:	7	8	11	17	7	16	15	9
681:	9	11	8	11	7	10	11	13
689:	10	5	8	5	8	12	13	11
697:	7	7	13	5	11	10	13	11
705:	8	10	3	7	10	7	12	10
713:	7	9	5	7	8	7	11	8
721:	9	13	16	4	8	10	25	25
729:	10	11	8	11	11	8	7	12
737:	6	10	7	10	8	6	10	10
745:	8	4	7	8	10	6	5	2
753:	8	4	8	11	10	11	8	7
761:	6	10	6	7	7	9	10	21
769:	20	13	10	9	13	5	2	6
777:	10	5	7	10	7	9	7	10
785:	11	11	5	4	12	2	12	8
793:	5	5	17	13	5	8	6	8

801: 6 7 3 4 7 5 10 3

Sample Title: CP-5017 00-02

Channel	1	2	3	4	5	6	7	8
809:	3	6	9	6	4	9	7	2
817:	3	3	8	5	8	10	8	6
825:	11	6	9	8	5	7	7	10
833:	3	6	4	12	5	7	12	14
841:	6	3	4	5	7	2	8	4
849:	7	7	7	7	5	5	7	4
857:	4	6	7	19	19	11	4	8
865:	7	4	11	4	5	6	5	10
873:	5	3	11	7	5	5	7	7
881:	7	6	9	7	4	3	6	5
889:	5	11	4	7	4	4	3	6
897:	4	6	10	4	8	9	8	6
905:	3	7	4	4	10	16	50	56
913:	11	13	5	3	5	3	6	2
921:	3	6	5	9	3	9	4	6
929:	8	5	4	2	8	9	10	8
937:	10	6	3	4	4	3	8	8
945:	4	3	4	7	8	4	8	6
953:	6	4	4	8	8	5	5	4
961:	6	4	7	20	16	14	7	24
969:	40	26	7	11	3	3	3	9
977:	3	3	8	5	3	4	3	6
985:	2	3	6	2	6	2	1	9
993:	8	5	7	2	7	6	6	5
1001:	9	11	6	6	3	5	4	4
1009:	4	2	6	8	3	11	9	3
1017:	7	2	8	8	8	8	4	6
1025:	9	5	8	7	6	8	7	8
1033:	3	9	4	5	9	4	7	1
1041:	5	3	2	9	9	5	5	2
1049:	6	2	7	5	3	5	6	11
1057:	8	11	10	4	2	9	4	6
1065:	2	6	5	3	6	8	9	3
1073:	7	9	10	4	8	1	4	9
1081:	9	7	8	2	5	6	4	5
1089:	7	5	2	8	5	4	8	7
1097:	4	9	7	10	5	5	3	3
1105:	5	6	3	8	6	9	8	5
1113:	5	10	6	6	1	3	14	26
1121:	20	11	11	6	3	8	5	4
1129:	3	4	5	10	9	9	7	6
1137:	4	4	5	3	8	15	4	8
1145:	7	5	7	2	6	5	6	10
1153:	7	8	11	5	6	9	5	5
1161:	5	5	9	6	11	6	4	9
1169:	7	4	2	5	5	7	7	6
1177:	3	7	7	7	5	3	9	2
1185:	6	5	3	4	10	6	3	5
1193:	6	6	4	10	4	1	5	4
1201:	4	6	4	9	9	7	5	8
1209:	4	7	9	8	6	5	11	7
1217:	9	8	5	7	5	6	9	14
1225:	10	7	8	9	10	9	9	9

1233: 9 3 9 7 15 17 11 10

Sample Title: CP-5017 00-02

Channel	1	2	3	4	5	6	7	8	9
1241:	5	2	8	4	12	11	4	7	
1249:	8	4	4	9	4	9	2	9	
1257:	5	3	4	4	8	4	4	10	
1265:	6	6	6	1	5	7	5	3	
1273:	3	3	6	5	3	2	5	8	
1281:	12	5	5	5	7	6	3	8	
1289:	8	1	3	4	4	2	4	2	
1297:	6	5	2	1	4	0	3	4	
1305:	2	4	5	6	4	3	3	5	
1313:	5	4	2	2	3	2	7	8	
1321:	4	5	6	3	5	5	2	6	
1329:	5	3	5	3	2	3	1	1	
1337:	3	6	2	2	4	3	3	4	
1345:	2	1	6	2	2	5	3	2	
1353:	3	4	4	3	5	0	3	3	
1361:	1	2	2	3	1	5	2	4	
1369:	3	3	0	2	2	0	0	5	
1377:	8	3	8	0	2	2	0	4	
1385:	7	1	2	2	0	2	1	4	
1393:	2	1	1	3	1	0	2	4	
1401:	3	3	1	0	6	6	4	5	
1409:	1	0	1	1	0	6	2	2	
1417:	1	1	1	3	1	4	4	1	
1425:	6	1	3	2	1	2	3	3	
1433:	2	2	2	0	3	2	1	1	
1441:	0	1	4	1	5	4	1	2	
1449:	3	2	1	1	1	4	2	1	
1457:	4	10	39	166	217	68	12	2	
1465:	4	1	1	1	0	3	1	2	
1473:	1	1	3	2	4	3	1	5	
1481:	3	1	2	2	0	3	1	5	
1489:	2	1	0	1	1	0	3	2	
1497:	1	2	1	1	2	3	1	4	
1505:	1	0	4	2	2	2	1	0	
1513:	4	3	1	2	1	0	4	3	
1521:	1	0	0	2	0	0	1	1	
1529:	2	0	0	1	0	0	1	1	
1537:	0	2	2	5	0	1	1	0	
1545:	2	3	1	3	2	0	1	2	
1553:	0	1	3	0	1	1	1	1	
1561:	1	3	1	1	0	1	1	2	
1569:	0	0	2	0	2	1	1	0	
1577:	1	2	3	1	1	3	3	1	
1585:	0	1	7	7	3	2	3	4	
1593:	1	3	1	3	0	2	0	2	
1601:	3	0	0	0	1	0	0	0	
1609:	0	2	4	2	1	2	0	1	
1617:	1	1	1	1	4	0	1	3	
1625:	1	2	3	2	1	0	1	1	
1633:	1	0	1	4	2	1	0	0	
1641:	0	0	1	1	0	0	0	1	
1649:	2	0	1	1	0	1	0	0	
1657:	0	1	1	1	1	2	0	0	

1665: 1 0 0 0 0 2 0 2

Sample Title: CP-5017 00-02

Channel	1	2	3	4	5	6	7	8
1673:	0	0	1	1	1	0	0	1
1681:	0	2	1	1	1	0	2	1
1689:	0	0	1	0	2	0	0	0
1697:	1	1	2	1	1	1	2	4
1705:	0	2	0	0	1	1	1	1
1713:	1	0	2	0	0	0	0	1
1721:	1	2	1	1	2	0	2	2
1729:	3	2	1	2	0	0	0	1
1737:	1	0	0	1	1	1	1	0
1745:	0	0	1	0	0	0	1	4
1753:	1	3	1	1	1	0	3	0
1761:	2	1	8	13	7	3	1	0
1769:	1	0	1	1	1	3	1	1
1777:	4	1	2	2	0	1	0	3
1785:	0	0	0	2	0	1	0	2
1793:	0	0	0	0	0	1	0	0
1801:	0	0	3	1	2	0	3	0
1809:	0	1	2	0	1	0	1	0
1817:	0	3	1	1	1	0	1	2
1825:	1	0	0	1	0	0	0	0
1833:	3	1	0	0	3	2	3	1
1841:	0	3	1	0	0	2	1	4
1849:	2	2	0	1	0	0	0	3
1857:	0	4	1	2	0	2	0	1
1865:	1	1	3	0	0	0	3	0
1873:	0	1	0	0	0	2	2	2
1881:	0	0	1	2	0	2	2	1
1889:	2	1	0	0	0	1	0	0
1897:	0	3	1	0	1	1	0	0
1905:	1	0	0	0	0	0	0	0
1913:	0	1	0	3	0	0	1	3
1921:	0	0	0	1	0	1	1	0
1929:	1	0	2	1	0	1	1	0
1937:	0	0	1	1	0	2	0	0
1945:	0	0	0	1	1	1	1	0
1953:	0	2	1	0	1	0	0	2
1961:	0	0	0	0	1	1	2	0
1969:	2	2	2	0	3	1	0	2
1977:	1	1	0	3	2	1	0	1
1985:	0	1	0	0	1	0	1	0
1993:	1	0	1	0	0	0	0	1
2001:	0	1	3	0	1	0	2	0
2009:	4	0	1	1	1	0	0	1
2017:	0	2	2	1	1	0	0	1
2025:	0	1	0	2	3	1	0	0
2033:	1	0	1	3	1	0	1	2
2041:	0	1	0	0	0	1	1	2
2049:	0	1	0	1	0	0	0	0
2057:	0	0	0	0	0	0	0	0
2065:	0	1	0	1	1	0	1	1
2073:	0	2	1	0	1	0	1	0
2081:	2	1	0	0	1	1	0	1
2089:	0	0	1	0	0	1	0	1

2097: 0 0 1 1 0 0 3 3

Sample Title: CP-5017 00-02

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

2529: 0 0 2 0 1 0 0 1

Sample Title: CP-5017 00-02

Channel	1	2	3	4	5	6	7	8
2537:	0	0	0	0	0	0	0	0
2545:	0	0	0	1	0	0	0	0
2553:	0	1	0	0	0	0	0	1
2561:	0	0	1	0	0	0	0	0
2569:	0	0	1	0	0	0	0	0
2577:	1	0	1	1	0	0	0	0
2585:	0	0	0	0	0	0	0	1
2593:	0	0	0	1	0	0	0	0
2601:	0	0	0	0	1	0	0	0
2609:	0	1	2	2	9	17	18	3
2617:	0	1	1	0	0	0	0	0
2625:	1	0	0	0	0	0	0	0
2633:	1	1	1	0	1	0	1	0
2641:	0	0	0	0	0	0	0	1
2649:	0	0	0	0	0	0	0	0
2657:	3	0	0	0	1	0	0	0
2665:	0	0	1	0	0	0	0	0
2673:	2	0	0	1	0	0	0	1
2681:	1	1	0	1	1	0	0	0
2689:	0	0	0	0	0	1	0	0
2697:	1	0	0	0	0	0	1	0
2705:	0	0	0	0	1	0	0	0
2713:	1	0	0	0	0	0	0	0
2721:	0	0	0	1	0	0	0	2
2729:	0	0	0	0	0	1	1	0
2737:	1	0	0	0	0	0	0	0
2745:	0	0	0	1	0	0	0	0
2753:	0	1	0	0	1	1	0	0
2761:	0	0	0	0	0	1	0	1
2769:	0	0	0	0	0	1	1	0
2777:	0	1	0	0	0	3	0	1
2785:	0	0	1	0	0	0	1	0
2793:	0	0	0	0	0	0	0	1
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	0	0	1	0	0
2817:	0	0	0	0	0	0	1	1
2825:	0	0	0	0	0	1	0	0
2833:	0	1	0	0	0	0	0	0
2841:	0	1	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	1	0	0	0	0	0	0
2865:	0	0	0	0	0	0	1	0
2873:	0	1	0	0	0	0	0	1
2881:	0	0	0	0	0	0	0	1
2889:	0	1	0	0	0	0	1	1
2897:	0	0	0	0	1	1	0	0
2905:	0	0	0	0	1	0	0	0
2913:	1	0	0	1	0	1	0	0
2921:	1	0	0	0	0	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	1	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	0	0	0	0	1	1

2961: 0 0 0 0 0 0 0 1 1

Sample Title: CP-5017 00-02

Channel	1	2	3	4	5	6	7	8	9
2969:	0	0	0	0	0	0	0	0	0
2977:	0	0	0	0	1	1	0	0	0
2985:	0	0	1	1	0	0	0	0	0
2993:	0	0	0	0	2	0	0	0	0
3001:	0	0	0	0	0	0	0	0	0
3009:	0	0	0	0	1	0	1	0	0
3017:	0	0	0	0	1	1	0	0	0
3025:	1	0	0	0	0	0	0	0	0
3033:	0	1	0	0	0	0	1	0	0
3041:	0	0	0	0	0	1	0	0	0
3049:	0	0	0	0	0	0	0	1	0
3057:	0	0	0	1	0	0	0	0	0
3065:	0	0	0	0	0	0	0	0	0
3073:	0	0	0	0	0	0	0	0	0
3081:	0	0	0	0	0	0	0	0	0
3089:	0	0	0	0	0	0	0	0	0
3097:	1	0	0	0	0	0	0	0	3
3105:	0	0	0	0	0	0	0	0	0
3113:	0	1	0	0	0	0	0	0	0
3121:	0	0	0	1	0	0	0	0	0
3129:	0	0	0	0	0	0	0	0	0
3137:	0	0	1	0	0	0	0	1	0
3145:	0	0	0	0	0	0	1	0	0
3153:	0	0	1	0	0	0	0	1	0
3161:	1	1	0	0	0	0	0	0	0
3169:	0	0	0	0	0	0	0	0	0
3177:	0	0	1	0	0	0	0	0	0
3185:	0	1	0	0	0	0	1	0	0
3193:	0	0	0	0	1	0	0	0	0
3201:	0	0	0	0	0	1	0	0	0
3209:	0	0	0	0	0	0	0	0	0
3217:	0	0	1	0	0	0	0	0	0
3225:	0	0	0	0	0	1	0	0	0
3233:	0	0	0	0	0	0	0	0	0
3241:	0	0	0	0	0	0	1	0	0
3249:	0	0	0	0	1	0	0	0	0
3257:	0	0	0	0	0	0	0	0	0
3265:	0	0	0	0	0	0	1	0	0
3273:	1	0	0	0	0	1	0	0	0
3281:	0	0	0	1	0	1	0	0	0
3289:	0	1	0	0	0	1	0	1	0
3297:	0	0	0	0	0	0	0	0	0
3305:	0	0	0	0	0	0	0	0	0
3313:	0	0	0	0	0	0	0	0	0
3321:	0	0	0	0	1	0	0	0	0
3329:	0	0	0	1	0	0	0	0	0
3337:	0	1	0	0	0	0	0	0	0
3345:	0	0	0	0	0	0	0	1	0
3353:	0	0	0	0	0	0	0	0	0
3361:	0	0	1	0	0	0	0	0	0
3369:	0	0	0	0	0	1	0	0	0
3377:	0	0	0	0	0	0	0	0	0
3385:	1	0	0	0	0	0	0	0	0

3393: 0 0 0 0 1 0 0 0

Sample Title: CP-5017 00-02

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

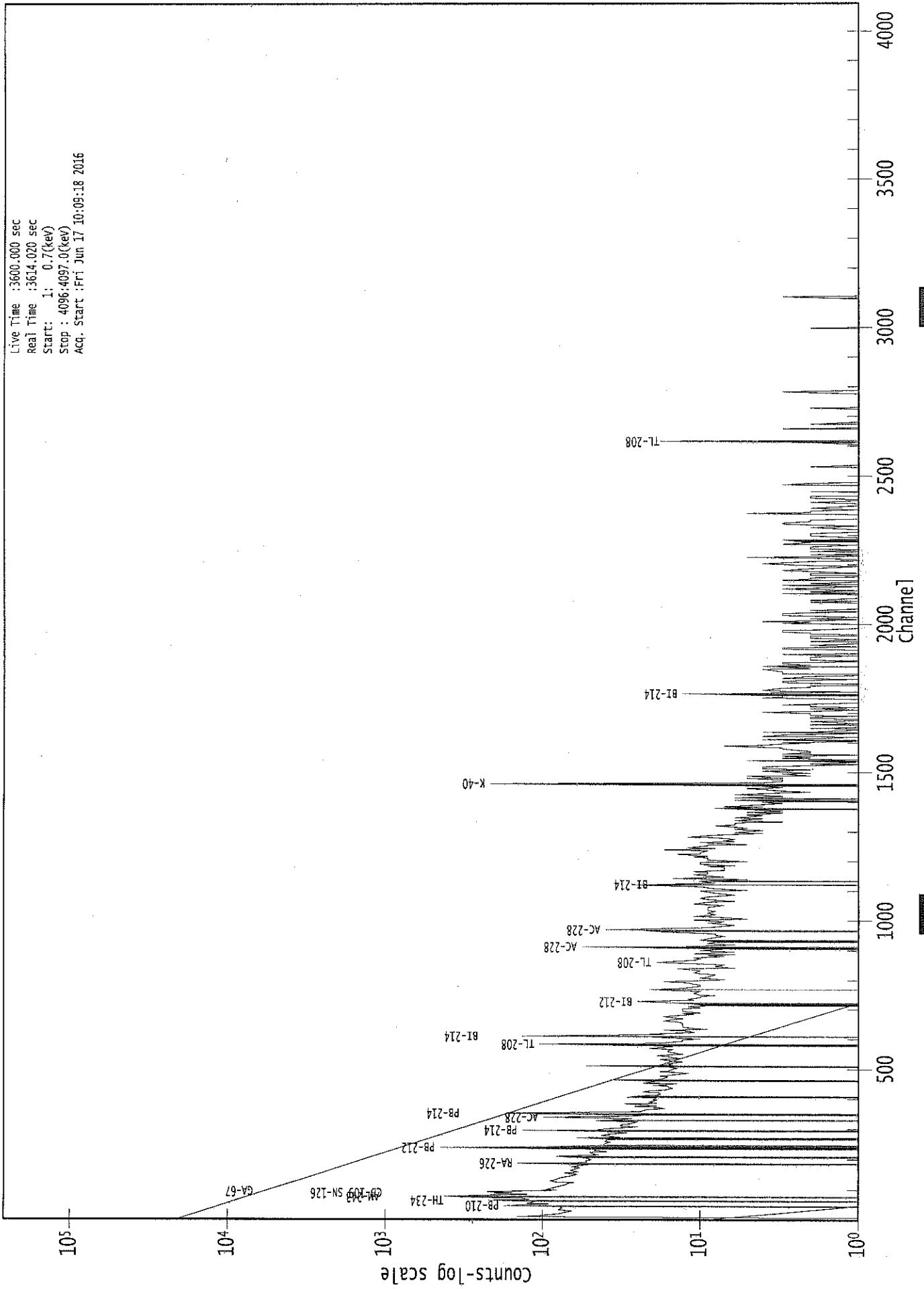
3825: 0 0 1 0 1 0 0 0

Sample Title: CP-5017 00-02

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

0000039078.CNF

Live Time :3600.000 sec
Real Time :3614.020 sec
Start: 1: 0.7(kev)
Stop : 4096.4097.0(kev)
Acq. Start :Fri Jun 17 10:09:18 2016



KB
6/17/16Analysis Report for 1606065-10
CP-5017 02-05

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606065-10
Sample Description : CP-5017 02-05
Sample Type : SOIL

Sample Size : 5.501E+02 grams
Facility : Countroom

Sample Taken On : 6/8/2016 8:54:54AM
Acquisition Started : 6/17/2016 11:10:13AM

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 : 39085

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606065-10
CP-5017 02-05

PEAK LOCATE REPORT

Peak Locate Performed on : 6/17/2016 12:10:18PM
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	47.04	47.39	0.0000	0.00
2	63.92	64.26	0.0000	0.00
3	76.63	76.97	0.0000	0.00
4	93.06	93.40	0.0000	0.00
5	129.93	130.25	0.0000	0.00
6	154.90	155.21	0.0000	0.00
7	163.40	163.71	0.0000	0.00
8	186.43	186.74	0.0000	0.00
9	210.21	210.51	0.0000	0.00
10	239.25	239.54	0.0000	0.00
11	242.53	242.82	0.0000	0.00
12	270.17	270.45	0.0000	0.00
13	277.52	277.80	0.0000	0.00
14	295.83	296.09	0.0000	0.00
15	300.72	300.98	0.0000	0.00
16	315.11	315.37	0.0000	0.00
17	328.93	329.19	0.0000	0.00
18	338.86	339.11	0.0000	0.00
19	341.59	341.84	0.0000	0.00
20	352.42	352.66	0.0000	0.00
21	463.73	463.94	0.0000	0.00
22	511.51	511.71	0.0000	0.00
23	580.46	580.63	0.0000	0.00
24	583.91	584.08	0.0000	0.00
25	609.96	610.12	0.0000	0.00
26	795.85	795.95	0.0000	0.00
27	841.29	841.37	0.0000	0.00
28	911.72	911.78	0.0000	0.00
29	934.79	934.84	0.0000	0.00
30	965.55	965.58	0.0000	0.00
31	969.91	969.95	0.0000	0.00
32	1040.87	1040.88	0.0000	0.00
33	1121.04	1121.02	0.0000	0.00
34	1188.66	1188.62	0.0000	0.00
35	1238.27	1238.21	0.0000	0.00
36	1370.96	1370.85	0.0000	0.00
37	1380.61	1380.50	0.0000	0.00
38	1461.63	1461.48	0.0000	0.00
39	1511.44	1511.28	0.0000	0.00
40	1587.71	1587.52	0.0000	0.00
41	1619.29	1619.09	0.0000	0.00
42	1637.99	1637.78	0.0000	0.00

Analysis Report for 1606065-10
CP-5017 02-05

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1730.40	1730.15	0.0000	0.00
44	1765.28	1765.02	0.0000	0.00
45	1840.41	1840.13	0.0000	0.00
46	1847.84	1847.55	0.0000	0.00
47	1861.82	1861.53	0.0000	0.00
48	1983.34	1983.00	0.0000	0.00
49	2060.51	2060.14	0.0000	0.00
50	2103.57	2103.19	0.0000	0.00
51	2206.79	2206.37	0.0000	0.00
52	2293.43	2292.97	0.0000	0.00
53	2380.29	2379.80	0.0000	0.00
54	2448.27	2447.75	0.0000	0.00
55	2615.32	2614.74	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606065-10

CP-5017 02-05

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 12:10:18PM

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	47.04	44 -	50	47.39	1.32E+02	76.45	9.73E+02	1.80
2	63.92	61 -	66	64.26	1.99E+02	88.36	1.40E+03	1.29
3	76.63	72 -	80	76.97	1.09E+03	134.51	2.11E+03	3.12
4	93.06	90 -	97	93.40	4.42E+02	107.96	1.60E+03	1.79
5	129.93	127 -	134	130.25	7.37E+01	83.23	1.10E+03	2.87
6	154.90	153 -	159	155.21	6.03E+01	65.89	7.51E+02	1.99
7	163.40	160 -	167	163.71	6.72E+01	73.05	8.38E+02	1.50
8	186.43	183 -	191	186.74	2.93E+02	84.42	9.21E+02	1.55
9	210.21	207 -	213	210.51	7.67E+01	63.63	6.71E+02	1.23
M 10	239.25	234 -	248	239.54	8.25E+02	72.41	3.84E+02	1.83
m 11	242.53	234 -	248	242.82	1.73E+02	69.42	4.24E+02	1.87
12	270.17	266 -	273	270.45	1.07E+02	57.27	4.74E+02	1.36
13	277.52	275 -	281	277.80	4.55E+01	48.37	3.93E+02	1.22
14	295.83	293 -	299	296.09	2.44E+02	55.01	3.76E+02	1.44
15	300.72	300 -	304	300.98	4.47E+01	36.02	2.41E+02	1.26
16	315.11	313 -	317	315.37	3.51E+01	32.91	2.06E+02	1.90
17	328.93	325 -	332	329.19	5.73E+01	50.32	3.83E+02	1.24
M 18	338.86	335 -	344	339.11	1.94E+02	42.61	2.44E+02	1.77
m 19	341.59	335 -	344	341.84	2.93E+01	42.33	2.14E+02	1.78
20	352.42	348 -	357	352.66	4.32E+02	68.53	4.22E+02	1.74
21	463.73	463 -	467	463.94	4.19E+01	28.80	1.40E+02	1.58
22	511.51	506 -	517	511.71	2.04E+02	54.55	2.70E+02	1.88
M 23	580.46	578 -	587	580.63	2.32E+01	20.40	8.36E+01	2.15
m 24	583.91	578 -	587	584.08	2.79E+02	41.48	1.23E+02	1.93
25	609.96	606 -	613	610.12	3.42E+02	48.50	1.64E+02	1.67
26	795.85	792 -	800	795.95	3.31E+01	30.31	1.20E+02	1.88
27	841.29	838 -	844	841.37	2.65E+01	25.60	9.10E+01	3.19
28	911.72	906 -	916	911.78	2.33E+02	41.92	1.10E+02	2.07
29	934.79	931 -	938	934.84	2.22E+01	22.27	6.76E+01	2.79
M 30	965.55	962 -	973	965.58	3.38E+01	24.54	1.01E+02	2.14
m 31	969.91	962 -	973	969.95	1.03E+02	32.79	9.90E+01	2.32
32	1040.87	1039 -	1044	1040.88	1.40E+01	14.35	3.00E+01	2.18
33	1121.04	1117 -	1125	1121.02	7.10E+01	27.93	7.60E+01	2.78
34	1188.66	1185 -	1193	1188.62	2.37E+01	28.18	1.07E+02	4.56
35	1238.27	1234 -	1242	1238.21	4.06E+01	28.94	1.05E+02	1.66
36	1370.96	1369 -	1373	1370.85	9.07E+00	9.55	1.19E+01	2.44
37	1380.61	1374 -	1388	1380.50	4.60E+01	21.66	3.00E+01	9.67
38	1461.63	1455 -	1467	1461.48	7.42E+02	58.40	5.17E+01	2.22
39	1511.44	1506 -	1515	1511.28	1.20E+01	16.06	3.00E+01	4.42
40	1587.71	1582 -	1593	1587.52	2.01E+01	20.40	4.18E+01	7.59

Analysis Report for 1606065-10

CP-5017 02-05

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1619.29	1614 - 1623		1619.09	1.00E+01	10.49	1.00E+01	1.31
42	1637.99	1633 - 1643		1637.78	1.66E+01	14.87	1.68E+01	3.16
43	1730.40	1724 - 1734		1730.15	1.70E+01	13.81	1.61E+01	2.11
44	1765.28	1761 - 1769		1765.02	5.05E+01	16.14	9.00E+00	3.26
45	1840.41	1837 - 1842		1840.13	7.67E+00	8.66	8.67E+00	1.77
46	1847.84	1844 - 1852		1847.55	8.50E+00	9.62	9.00E+00	2.05
47	1861.82	1858 - 1866		1861.53	8.41E+00	8.02	5.18E+00	2.65
48	1983.34	1979 - 1986		1983.00	6.00E+00	8.49	8.00E+00	2.13
49	2060.51	2057 - 2063		2060.14	6.56E+00	6.65	2.88E+00	1.89
50	2103.57	2098 - 2107		2103.19	2.00E+01	12.25	1.00E+01	2.74
51	2206.79	2201 - 2214		2206.37	3.38E+01	14.18	8.37E+00	3.17
52	2293.43	2289 - 2296		2292.97	7.15E+00	10.00	1.17E+01	1.65
53	2380.29	2375 - 2384		2379.80	8.78E+00	11.79	1.44E+01	2.08
54	2448.27	2445 - 2450		2447.75	6.69E+00	6.40	2.63E+00	1.54
55	2615.32	2611 - 2619		2614.74	1.04E+02	21.08	3.72E+00	2.14

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 : 6/17/2016 12:10:18PM

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	47.04	44 -	50	1.32E+02	76.45	9.73E+02	5.99E+01
2	63.92	61 -	66	1.99E+02	88.36	1.40E+03	6.88E+01
3	76.63	72 -	80	1.09E+03	134.51	2.11E+03	9.63E+01
4	93.06	90 -	97	4.42E+02	107.96	1.60E+03	8.17E+01
5	129.93	127 -	134	7.37E+01	83.23	1.10E+03	6.69E+01
6	154.90	153 -	159	6.03E+01	65.89	7.51E+02	5.26E+01
7	163.40	160 -	167	6.72E+01	73.05	8.38E+02	5.85E+01
8	186.43	183 -	191	2.93E+02	84.42	9.21E+02	6.34E+01
9	210.21	207 -	213	7.67E+01	63.63	6.71E+02	5.03E+01
M 10	239.25	234 -	248	8.25E+02	72.41	3.84E+02	3.22E+01
m 11	242.53	234 -	248	1.73E+02	69.42	4.24E+02	3.38E+01
12	270.17	266 -	273	1.07E+02	57.27	4.74E+02	4.39E+01
13	277.52	275 -	281	4.55E+01	48.37	3.93E+02	3.82E+01

Analysis Report for 1606065-10

CP-5017 02-05

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
14	295.83	293 -	299	2.44E+02	55.01	3.76E+02	3.72E+01
15	300.72	300 -	304	4.47E+01	36.02	2.41E+02	2.75E+01
16	315.11	313 -	317	3.51E+01	32.91	2.06E+02	2.52E+01
17	328.93	325 -	332	5.73E+01	50.32	3.83E+02	3.94E+01
M 18	338.86	335 -	344	1.94E+02	42.61	2.44E+02	2.57E+01
m 19	341.59	335 -	344	2.93E+01	42.33	2.14E+02	2.41E+01
20	352.42	348 -	357	4.32E+02	68.53	4.22E+02	4.48E+01
21	463.73	463 -	467	4.19E+01	28.80	1.40E+02	2.93E+01
22	511.51	506 -	517	2.04E+02	54.55	2.70E+02	3.82E+01
M 23	580.46	578 -	587	2.32E+01	20.40	8.36E+01	1.50E+01
m 24	583.91	578 -	587	2.79E+02	41.48	1.23E+02	1.82E+01
25	609.96	606 -	613	3.42E+02	48.50	1.64E+02	2.58E+01
26	795.85	792 -	800	3.31E+01	30.31	1.20E+02	2.31E+01
27	841.29	838 -	844	2.65E+01	25.60	9.10E+01	1.93E+01
28	911.72	906 -	916	2.33E+02	41.92	1.10E+02	2.36E+01
29	934.79	931 -	938	2.22E+01	22.27	6.76E+01	1.66E+01
M 30	965.55	962 -	973	3.38E+01	24.54	1.01E+02	1.65E+01
m 31	969.91	962 -	973	1.03E+02	32.79	9.90E+01	1.64E+01
32	1040.87	1039 -	1044	1.40E+01	14.35	3.00E+01	1.01E+01
33	1121.04	1117 -	1125	7.10E+01	27.93	7.60E+01	1.83E+01
34	1188.66	1185 -	1193	2.37E+01	28.18	1.07E+02	2.17E+01
35	1238.27	1234 -	1242	4.06E+01	28.94	1.05E+02	2.14E+01
36	1370.96	1369 -	1373	9.07E+00	9.55	1.19E+01	6.10E+00
37	1380.61	1374 -	1388	4.60E+01	21.66	3.00E+01	1.39E+01
38	1461.63	1455 -	1467	7.42E+02	58.40	5.17E+01	1.73E+01
39	1511.44	1506 -	1515	1.20E+01	16.06	3.00E+01	1.19E+01
40	1587.71	1582 -	1593	2.01E+01	20.40	4.18E+01	1.51E+01
41	1619.29	1614 -	1623	1.00E+01	10.49	1.00E+01	6.88E+00
42	1637.99	1633 -	1643	1.66E+01	14.87	1.68E+01	1.02E+01
43	1730.40	1724 -	1734	1.70E+01	13.81	1.61E+01	9.11E+00
44	1765.28	1761 -	1769	5.05E+01	16.14	9.00E+00	6.29E+00
45	1840.41	1837 -	1842	7.67E+00	8.66	8.67E+00	5.47E+00
46	1847.84	1844 -	1852	8.50E+00	9.62	9.00E+00	6.29E+00
47	1861.82	1858 -	1866	8.41E+00	8.02	5.18E+00	4.55E+00
48	1983.34	1979 -	1986	6.00E+00	8.49	8.00E+00	5.70E+00
49	2060.51	2057 -	2063	6.56E+00	6.65	2.88E+00	3.49E+00
50	2103.57	2098 -	2107	2.00E+01	12.25	1.00E+01	6.88E+00
51	2206.79	2201 -	2214	3.38E+01	14.18	8.37E+00	6.66E+00
52	2293.43	2289 -	2296	7.15E+00	10.00	1.17E+01	6.95E+00
53	2380.29	2375 -	2384	8.78E+00	11.79	1.44E+01	8.38E+00
54	2448.27	2445 -	2450	6.69E+00	6.40	2.63E+00	3.10E+00
55	2615.32	2611 -	2619	1.04E+02	21.08	3.72E+00	4.33E+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 1606065-10
CP-5017 02-05

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/17/2016 12:10:18PM

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	47.04	44 -	50	47.39	1.32E+02	76.45	9.73E+02	PB-210
2	63.92	61 -	66	64.26	1.99E+02	88.36	1.40E+03	TH-234
3	76.63	72 -	80	76.97	1.09E+03	134.51	2.11E+03	.....
4	93.06	90 -	97	93.40	4.42E+02	107.96	1.60E+03	GA-67
5	129.93	127 -	134	130.25	7.37E+01	83.23	1.10E+03	.....
6	154.90	153 -	159	155.21	6.03E+01	65.89	7.51E+02	.....
7	163.40	160 -	167	163.71	6.72E+01	73.05	8.38E+02	U-235 CS-136 BA-140
8	186.43	183 -	191	186.74	2.93E+02	84.42	9.21E+02	RA-226
9	210.21	207 -	213	210.51	7.67E+01	63.63	6.71E+02	CM-243
M 10	239.25	234 -	248	239.54	8.25E+02	72.41	3.84E+02	PB-212
m 11	242.53	234 -	248	242.82	1.73E+02	69.42	4.24E+02	.....
12	270.17	266 -	273	270.45	1.07E+02	57.27	4.74E+02	.....
13	277.52	275 -	281	277.80	4.55E+01	48.37	3.93E+02	CM-243 NP-239
14	295.83	293 -	299	296.09	2.44E+02	55.01	3.76E+02	PB-214
15	300.72	300 -	304	300.98	4.47E+01	36.02	2.41E+02	GA-67 PB-212 BI-210M
16	315.11	313 -	317	315.37	3.51E+01	32.91	2.06E+02	.....
17	328.93	325 -	332	329.19	5.73E+01	50.32	3.83E+02	LA-140
M 18	338.86	335 -	344	339.11	1.94E+02	42.61	2.44E+02	AC-228
m 19	341.59	335 -	344	341.84	2.93E+01	42.33	2.14E+02	.....
20	352.42	348 -	357	352.66	4.32E+02	68.53	4.22E+02	PB-214
21	463.73	463 -	467	463.94	4.19E+01	28.80	1.40E+02	SB-125
22	511.51	506 -	517	511.71	2.04E+02	54.55	2.70E+02	.....
M 23	580.46	578 -	587	580.63	2.32E+01	20.40	8.36E+01	.....
m 24	583.91	578 -	587	584.08	2.79E+02	41.48	1.23E+02	TL-208
25	609.96	606 -	613	610.12	3.42E+02	48.50	1.64E+02	BI-214
26	795.85	792 -	800	795.95	3.31E+01	30.31	1.20E+02	CS-134
27	841.29	838 -	844	841.37	2.65E+01	25.60	9.10E+01	.....
28	911.72	906 -	916	911.78	2.33E+02	41.92	1.10E+02	LU-172 AC-228
29	934.79	931 -	938	934.84	2.22E+01	22.27	6.76E+01	.....
M 30	965.55	962 -	973	965.58	3.38E+01	24.54	1.01E+02	.....
m 31	969.91	962 -	973	969.95	1.03E+02	32.79	9.90E+01	AC-228
32	1040.87	1039 -	1044	1040.88	1.40E+01	14.35	3.00E+01	.....

Analysis Report for 1606065-10

CP-5017 02-05

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
33	1121.04	1117 -	1125	1121.02	7.10E+01	27.93	7.60E+01	TA-182 SC-46 BI-214
34	1188.66	1185 -	1193	1188.62	2.37E+01	28.18	1.07E+02	TA-182
35	1238.27	1234 -	1242	1238.21	4.06E+01	28.94	1.05E+02	CO-56
36	1370.96	1369 -	1373	1370.85	9.07E+00	9.55	1.19E+01	.....
37	1380.61	1374 -	1388	1380.50	4.60E+01	21.66	3.00E+01	.....
38	1461.63	1455 -	1467	1461.48	7.42E+02	58.40	5.17E+01	K-40
39	1511.44	1506 -	1515	1511.28	1.20E+01	16.06	3.00E+01	.....
40	1587.71	1582 -	1593	1587.52	2.01E+01	20.40	4.18E+01	.....
41	1619.29	1614 -	1623	1619.09	1.00E+01	10.49	1.00E+01	.....
42	1637.99	1633 -	1643	1637.78	1.66E+01	14.87	1.68E+01	.....
43	1730.40	1724 -	1734	1730.15	1.70E+01	13.81	1.61E+01	.....
44	1765.28	1761 -	1769	1765.02	5.05E+01	16.14	9.00E+00	BI-214
45	1840.41	1837 -	1842	1840.13	7.67E+00	8.66	8.67E+00	.....
46	1847.84	1844 -	1852	1847.55	8.50E+00	9.62	9.00E+00	.....
47	1861.82	1858 -	1866	1861.53	8.41E+00	8.02	5.18E+00	.....
48	1983.34	1979 -	1986	1983.00	6.00E+00	8.49	8.00E+00	.....
49	2060.51	2057 -	2063	2060.14	6.56E+00	6.65	2.88E+00	.....
50	2103.57	2098 -	2107	2103.19	2.00E+01	12.25	1.00E+01	.....
51	2206.79	2201 -	2214	2206.37	3.38E+01	14.18	8.37E+00	.....
52	2293.43	2289 -	2296	2292.97	7.15E+00	10.00	1.17E+01	.....
53	2380.29	2375 -	2384	2379.80	8.78E+00	11.79	1.44E+01	.....
54	2448.27	2445 -	2450	2447.75	6.69E+00	6.40	2.63E+00	.....
55	2615.32	2611 -	2619	2614.74	1.04E+02	21.08	3.72E+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 : 6/17/2016 12:10:18PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	47.04	1.32E+02	76.45	1.71E-02	1.78E-03
2	63.92	1.99E+02	88.36	2.51E-02	1.93E-03
3	76.63	1.09E+03	134.51	2.77E-02	2.36E-03
4	93.06	4.42E+02	107.96	2.86E-02	2.64E-03
5	129.93	7.37E+01	83.23	2.67E-02	2.09E-03

: 00591

Analysis Report for 1606065-10
CP-5017 02-05

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	6	154.90	6.03E+01	65.89	2.47E-02	2.15E-03
	7	163.40	6.72E+01	73.05	2.40E-02	2.17E-03
	8	186.43	2.93E+02	84.42	2.24E-02	2.02E-03
	9	210.21	7.67E+01	63.63	2.08E-02	1.85E-03
M	10	239.25	8.25E+02	72.41	1.92E-02	1.63E-03
m	11	242.53	1.73E+02	69.42	1.90E-02	1.61E-03
	12	270.17	1.07E+02	57.27	1.77E-02	1.41E-03
	13	277.52	4.55E+01	48.37	1.74E-02	1.35E-03
	14	295.83	2.44E+02	55.01	1.67E-02	1.31E-03
	15	300.72	4.47E+01	36.02	1.65E-02	1.30E-03
	16	315.11	3.51E+01	32.91	1.60E-02	1.27E-03
	17	328.93	5.73E+01	50.32	1.55E-02	1.24E-03
M	18	338.86	1.94E+02	42.61	1.52E-02	1.22E-03
m	19	341.59	2.93E+01	42.33	1.51E-02	1.21E-03
	20	352.42	4.32E+02	68.53	1.48E-02	1.19E-03
	21	463.73	4.19E+01	28.80	1.21E-02	1.04E-03
	22	511.51	2.04E+02	54.55	1.12E-02	9.90E-04
M	23	580.46	2.32E+01	20.40	1.02E-02	9.18E-04
m	24	583.91	2.79E+02	41.48	1.02E-02	9.15E-04
	25	609.96	3.42E+02	48.50	9.82E-03	8.88E-04
	26	795.85	3.31E+01	30.31	7.96E-03	7.14E-04
	27	841.29	2.65E+01	25.60	7.62E-03	6.73E-04
	28	911.72	2.33E+02	41.92	7.14E-03	6.15E-04
	29	934.79	2.22E+01	22.27	7.00E-03	6.03E-04
M	30	965.55	3.38E+01	24.54	6.82E-03	5.87E-04
m	31	969.91	1.03E+02	32.79	6.80E-03	5.85E-04
	32	1040.87	1.40E+01	14.35	6.43E-03	5.48E-04
	33	1121.04	7.10E+01	27.93	6.06E-03	5.06E-04
	34	1188.66	2.37E+01	28.18	5.79E-03	4.76E-04
	35	1238.27	4.06E+01	28.94	5.61E-03	4.68E-04
	36	1370.96	9.07E+00	9.55	5.20E-03	4.42E-04
	37	1380.61	4.60E+01	21.66	5.18E-03	4.39E-04
	38	1461.63	7.42E+02	58.40	4.97E-03	4.19E-04
	39	1511.44	1.20E+01	16.06	4.85E-03	4.07E-04
	40	1587.71	2.01E+01	20.40	4.70E-03	3.88E-04
	41	1619.29	1.00E+01	10.49	4.64E-03	3.80E-04
	42	1637.99	1.66E+01	14.87	4.60E-03	3.75E-04
	43	1730.40	1.70E+01	13.81	4.45E-03	3.52E-04
	44	1765.28	5.05E+01	16.14	4.39E-03	3.43E-04
	45	1840.41	7.67E+00	8.66	4.29E-03	3.26E-04
	46	1847.84	8.50E+00	9.62	4.28E-03	3.26E-04
	47	1861.82	8.41E+00	8.02	4.26E-03	3.26E-04
	48	1983.34	6.00E+00	8.49	4.13E-03	3.26E-04
	49	2060.51	6.56E+00	6.65	4.06E-03	3.26E-04
	50	2103.57	2.00E+01	12.25	4.02E-03	3.26E-04
	51	2206.79	3.38E+01	14.18	3.95E-03	3.26E-04
	52	2293.43	7.15E+00	10.00	3.90E-03	3.26E-04
	53	2380.29	8.78E+00	11.79	3.86E-03	3.26E-04
	54	2448.27	6.69E+00	6.40	3.83E-03	3.26E-04
	55	2615.32	1.04E+02	21.08	3.79E-03	3.26E-04

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CP-5017 02-05

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 : 6/17/2016 12:10:18PM

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	47.04	1.32E+02	76.45	4.33E+01	8.35E+00	8.91E+01	7.69E+01
2	63.92	1.99E+02	88.36	1.14E+02	2.81E+01	8.57E+01	9.27E+01
3	76.63	1.09E+03	134.51	1.08E+01	8.92E+00	1.08E+03	1.35E+02
4	93.06	4.42E+02	107.96	1.29E+02	7.14E+00	3.13E+02	1.08E+02
5	129.93	7.37E+01	83.23			7.37E+01	8.32E+01
6	154.90	6.03E+01	65.89			6.03E+01	6.59E+01
7	163.40	6.72E+01	73.05	2.54E+00	7.33E+00	6.47E+01	7.34E+01
8	186.43	2.93E+02	84.42	5.81E+01	8.50E+00	2.35E+02	8.48E+01
9	210.21	7.67E+01	63.63			7.67E+01	6.36E+01
M	10	239.25	8.25E+02	72.41	1.81E+01	5.76E+00	8.07E+02
m	11	242.53	1.73E+02	69.42		1.73E+02	6.94E+01
	12	270.17	1.07E+02	57.27		1.07E+02	5.73E+01
	13	277.52	4.55E+01	48.37		4.55E+01	4.84E+01
	14	295.83	2.44E+02	55.01	1.02E+00	5.38E+00	2.43E+02
	15	300.72	4.47E+01	36.02		4.47E+01	3.60E+01
	16	315.11	3.51E+01	32.91		3.51E+01	3.29E+01
	17	328.93	5.73E+01	50.32		5.73E+01	5.03E+01
M	18	338.86	1.94E+02	42.61	3.86E+00	4.98E+00	1.90E+02
m	19	341.59	2.93E+01	42.33		2.93E+01	4.23E+01
	20	352.42	4.32E+02	68.53	7.25E+00	4.86E+00	4.25E+02
	21	463.73	4.19E+01	28.80		4.19E+01	2.88E+01
	22	511.51	2.04E+02	54.55	7.58E+01	5.38E+00	1.28E+02
M	23	580.46	2.32E+01	20.40		2.32E+01	2.04E+01
m	24	583.91	2.79E+02	41.48	6.11E+00	3.78E+00	2.73E+02
	25	609.96	3.42E+02	48.50	6.74E+00	3.64E+00	3.35E+02
	26	795.85	3.31E+01	30.31		3.31E+01	3.03E+01
	27	841.29	2.65E+01	25.60		2.65E+01	2.56E+01
	28	911.72	2.33E+02	41.92	4.21E+00	2.98E+00	2.29E+02
	29	934.79	2.22E+01	22.27		2.22E+01	2.23E+01
M	30	965.55	3.38E+01	24.54		3.38E+01	2.45E+01
m	31	969.91	1.03E+02	32.79		1.03E+02	3.28E+01
	32	1040.87	1.40E+01	14.35		1.40E+01	1.44E+01
	33	1121.04	7.10E+01	27.93		7.10E+01	2.79E+01
	34	1188.66	2.37E+01	28.18		2.37E+01	2.82E+01
	35	1238.27	4.06E+01	28.94		4.06E+01	2.89E+01

Analysis Report for 1606065-10

CP-5017 02-05

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
36	1370.96	9.07E+00	9.55			9.07E+00	9.55E+00
37	1380.61	4.60E+01	21.66			4.60E+01	2.17E+01
38	1461.63	7.42E+02	58.40	6.83E+00	2.10E+00	7.35E+02	5.84E+01
39	1511.44	1.20E+01	16.06			1.20E+01	1.61E+01
40	1587.71	2.01E+01	20.40			2.01E+01	2.04E+01
41	1619.29	1.00E+01	10.49			1.00E+01	1.05E+01
42	1637.99	1.66E+01	14.87			1.66E+01	1.49E+01
43	1730.40	1.70E+01	13.81			1.70E+01	1.38E+01
44	1765.28	5.05E+01	16.14	1.66E+00	1.65E+00	4.88E+01	1.62E+01
45	1840.41	7.67E+00	8.66			7.67E+00	8.66E+00
46	1847.84	8.50E+00	9.62			8.50E+00	9.62E+00
47	1861.82	8.41E+00	8.02			8.41E+00	8.02E+00
48	1983.34	6.00E+00	8.49			6.00E+00	8.49E+00
49	2060.51	6.56E+00	6.65			6.56E+00	6.65E+00
50	2103.57	2.00E+01	12.25			2.00E+01	1.22E+01
51	2206.79	3.38E+01	14.18			3.38E+01	1.42E+01
52	2293.43	7.15E+00	10.00			7.15E+00	1.00E+01
53	2380.29	8.78E+00	11.79			8.78E+00	1.18E+01
54	2448.27	6.69E+00	6.40			6.69E+00	6.40E+00
55	2615.32	1.04E+02	21.08	4.95E+00	1.35E+00	9.92E+01	2.11E+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 : 6/17/2016 12:10:18PM
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	47.04	1.32E+02	76.45	4.33E+01	8.35E+00	8.91E+01	7.69E+01
2	63.92	1.99E+02	88.36	1.14E+02	2.81E+01	8.57E+01	9.27E+01
3	76.63	1.09E+03	134.51	1.08E+01	8.92E+00	1.08E+03	1.35E+02
4	93.06	4.42E+02	107.96	1.29E+02	7.14E+00	3.13E+02	1.08E+02
5	129.93	7.37E+01	83.23			7.37E+01	8.32E+01
6	154.90	6.03E+01	65.89			6.03E+01	6.59E+01
7	163.40	6.72E+01	73.05	2.54E+00	7.33E+00	6.47E+01	7.34E+01
8	186.43	2.93E+02	84.42	5.81E+01	8.50E+00	2.35E+02	8.48E+01

Analysis Report for 1606065-10

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	9	210.21	7.67E+01	63.63			7.67E+01	6.36E+01
M	10	239.25	8.25E+02	72.41	1.81E+01	5.76E+00	8.07E+02	7.26E+01
m	11	242.53	1.73E+02	69.42			1.73E+02	6.94E+01
	12	270.17	1.07E+02	57.27			1.07E+02	5.73E+01
	13	277.52	4.55E+01	48.37			4.55E+01	4.84E+01
	14	295.83	2.44E+02	55.01	1.02E+00	5.38E+00	2.43E+02	5.53E+01
	15	300.72	4.47E+01	36.02			4.47E+01	3.60E+01
	16	315.11	3.51E+01	32.91			3.51E+01	3.29E+01
	17	328.93	5.73E+01	50.32			5.73E+01	5.03E+01
M	18	338.86	1.94E+02	42.61	3.86E+00	4.98E+00	1.90E+02	4.29E+01
m	19	341.59	2.93E+01	42.33			2.93E+01	4.23E+01
	20	352.42	4.32E+02	68.53	7.25E+00	4.86E+00	4.25E+02	6.87E+01
	21	463.73	4.19E+01	28.80			4.19E+01	2.88E+01
	22	511.51	2.04E+02	54.55	7.58E+01	5.38E+00	1.28E+02	5.48E+01
M	23	580.46	2.32E+01	20.40			2.32E+01	2.04E+01
m	24	583.91	2.79E+02	41.48	6.11E+00	3.78E+00	2.73E+02	4.17E+01
	25	609.96	3.42E+02	48.50	6.74E+00	3.64E+00	3.35E+02	4.86E+01
	26	795.85	3.31E+01	30.31			3.31E+01	3.03E+01
	27	841.29	2.65E+01	25.60			2.65E+01	2.56E+01
	28	911.72	2.33E+02	41.92	4.21E+00	2.98E+00	2.29E+02	4.20E+01
	29	934.79	2.22E+01	22.27			2.22E+01	2.23E+01
M	30	965.55	3.38E+01	24.54			3.38E+01	2.45E+01
m	31	969.91	1.03E+02	32.79			1.03E+02	3.28E+01
	32	1040.87	1.40E+01	14.35			1.40E+01	1.44E+01
	33	1121.04	7.10E+01	27.93			7.10E+01	2.79E+01
	34	1188.66	2.37E+01	28.18			2.37E+01	2.82E+01
	35	1238.27	4.06E+01	28.94			4.06E+01	2.89E+01
	36	1370.96	9.07E+00	9.55			9.07E+00	9.55E+00
	37	1380.61	4.60E+01	21.66			4.60E+01	2.17E+01
	38	1461.63	7.42E+02	58.40	6.83E+00	2.10E+00	7.35E+02	5.84E+01
	39	1511.44	1.20E+01	16.06			1.20E+01	1.61E+01
	40	1587.71	2.01E+01	20.40			2.01E+01	2.04E+01
	41	1619.29	1.00E+01	10.49			1.00E+01	1.05E+01
	42	1637.99	1.66E+01	14.87			1.66E+01	1.49E+01
	43	1730.40	1.70E+01	13.81			1.70E+01	1.38E+01
	44	1765.28	5.05E+01	16.14	1.66E+00	1.65E+00	4.88E+01	1.62E+01
	45	1840.41	7.67E+00	8.66			7.67E+00	8.66E+00
	46	1847.84	8.50E+00	9.62			8.50E+00	9.62E+00
	47	1861.82	8.41E+00	8.02			8.41E+00	8.02E+00
	48	1983.34	6.00E+00	8.49			6.00E+00	8.49E+00
	49	2060.51	6.56E+00	6.65			6.56E+00	6.65E+00
	50	2103.57	2.00E+01	12.25			2.00E+01	1.22E+01
	51	2206.79	3.38E+01	14.18			3.38E+01	1.42E+01
	52	2293.43	7.15E+00	10.00			7.15E+00	1.00E+01
	53	2380.29	8.78E+00	11.79			8.78E+00	1.18E+01
	54	2448.27	6.69E+00	6.40			6.69E+00	6.40E+00
	55	2615.32	1.04E+02	21.08	4.95E+00	1.35E+00	9.92E+01	2.11E+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 1606065-10
CP-5017 02-05

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	0.899	1460.81 *	10.67	1.89E+01	2.23E+00
GA-67	0.885	93.31 *	35.70	2.90E+00	4.85E+00
		208.95	2.24		
		300.22 *	16.00	1.61E+00	2.93E+00
TL-208	0.816	583.14 *	30.22	1.22E+00	2.15E-01
		860.37	4.48		
		2614.66 *	35.85	9.95E-01	2.28E-01
PB-210	0.955	46.50 *	4.25	1.67E+00	1.45E+00
PB-212	0.940	238.63 *	44.60	1.29E+00	1.59E-01
		300.09 *	3.41	1.09E+00	8.79E-01
BI-214	0.859	609.31 *	46.30	1.01E+00	1.72E-01
		1120.29 *	15.10	1.06E+00	4.26E-01
		1764.49 *	15.80	9.60E-01	3.28E-01
		2204.22	4.98		
PB-214	0.955	295.21 *	19.19	1.04E+00	2.50E-01
		351.92 *	37.19	1.06E+00	1.91E-01
RA-226	0.992	186.21 *	3.28	4.38E+00	8.17E+00
AC-228	0.929	338.32 *	11.40	1.50E+00	3.59E-01
		911.07 *	27.70	1.58E+00	3.20E-01
		969.11 *	16.60	1.24E+00	4.11E-01
TH-234	0.939	63.29 *	3.80	1.23E+00	1.33E+00
CM-243	0.370	209.75 *	3.29	1.53E+00	1.28E+00
		228.14	10.60		
		277.60 *	14.00	2.55E-01	2.72E-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

Analysis Report for 1606065-10
CP-5017 02-05

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 12:10:18PM
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	76.63	3.01022E-01	6.22		
5	129.93	2.04803E-02	56.45		
6	154.90	1.67597E-02	54.60		
7	163.40	1.79716E-02	56.74	Tol.	CS-136 BA-140 U-235
m 11	242.53	4.80169E-02	20.08		
12	270.17	2.97016E-02	26.78		
16	315.11	9.76147E-03	46.83		
17	328.93	1.59058E-02	43.94	Tol.	LA-140
m 19	341.59	8.14924E-03	72.14	Sum	
21	463.73	1.16493E-02	34.33	Sum	
22	511.51	3.55689E-02	21.40	Sum	
M 23	580.46	6.43270E-03	44.04		
26	795.85	9.18459E-03	45.84	Sum	
27	841.29	7.36111E-03	48.31		
29	934.79	6.16319E-03	50.19		
M 30	965.55	9.38558E-03	36.31		
32	1040.87	3.88889E-03	51.26		
34	1188.66	6.58911E-03	59.40	Sum	
35	1238.27	1.12829E-02	35.63	Tol.	CO-56
36	1370.96	2.51852E-03	52.68		
37	1380.61	1.27778E-02	23.54		
39	1511.44	3.33333E-03	66.93		
40	1587.71	5.58604E-03	50.71		
41	1619.29	2.77778E-03	52.44		
42	1637.99	4.61111E-03	44.78		
43	1730.40	4.71111E-03	40.72	Sum	
45	1840.41	2.12963E-03	56.48		
46	1847.84	2.36111E-03	56.57		
47	1861.82	2.33586E-03	47.66		
48	1983.34	1.66667E-03	70.71		
49	2060.51	1.82292E-03	50.68	Sum	
50	2103.57	5.55556E-03	30.62	S-Esc	
51	2206.79	9.39327E-03	20.96		
52	2293.43	1.98718E-03	69.89		
53	2380.29	2.43924E-03	67.13		
54	2448.27	1.85764E-03	47.87		

Analysis Report for 1606065-10
CP-5017 02-05

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	1.89E+01	2.23E+00
GA-67	0.88	93.31	*	35.70	2.90E+00	4.85E+00
		208.95		2.24		
		300.22	*	16.00	1.61E+00	2.93E+00
TL-208	0.81	583.14	*	30.22	1.22E+00	2.15E-01
		860.37		4.48		
		2614.66	*	35.85	9.95E-01	2.28E-01
PB-210	0.95	46.50	*	4.25	1.67E+00	1.45E+00
PB-212	0.94	238.63	*	44.60	1.29E+00	1.59E-01
		300.09	*	3.41	1.09E+00	8.79E-01
BI-214	0.85	609.31	*	46.30	1.01E+00	1.72E-01
		1120.29	*	15.10	1.06E+00	4.26E-01
		1764.49	*	15.80	9.60E-01	3.28E-01
		2204.22		4.98		
PB-214	0.95	295.21	*	19.19	1.04E+00	2.50E-01
		351.92	*	37.19	1.06E+00	1.91E-01
RA-226	0.99	186.21	*	3.28	4.38E+00	8.17E+00
AC-228	0.92	338.32	*	11.40	1.50E+00	3.59E-01
		911.07	*	27.70	1.58E+00	3.20E-01
		969.11	*	16.60	1.24E+00	4.11E-01
TH-234	0.93	63.29	*	3.80	1.23E+00	1.33E+00
CM-243	0.37	209.75	*	3.29	1.53E+00	1.28E+00
		228.14		10.60		
		277.60	*	14.00	2.55E-01	2.72E-01

Analysis Report for 1606065-10
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* = 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	0.899	1.89E+01	2.23E+00	
GA-67	0.885	1.68E+00	2.15E+00	
TL-208	0.816	1.11E+00	1.57E-01	
PB-210	0.955	1.67E+00	1.45E+00	
PB-212	0.940	1.24E+00	1.58E-01	
BI-214	0.859	1.00E+00	1.43E-01	
PB-214	0.955	1.05E+00	1.52E-01	
RA-226	0.992	4.38E+00	8.17E+00	
AC-228	0.929	1.47E+00	2.07E-01	
TH-234	0.939	1.23E+00	1.33E+00	
CM-243	0.370	3.10E-01	2.66E-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 1606065-10
CP-5017 02-05

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 12:10:18PM
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	76.63	3.01022E-01	6.22		
5	129.93	2.04803E-02	56.45		
6	154.90	1.67597E-02	54.60		
7	163.40	1.79716E-02	56.74	Tol.	CS-136 BA-140 U-235
m 11	242.53	4.80169E-02	20.08		
12	270.17	2.97016E-02	26.78		
16	315.11	9.76147E-03	46.83		
17	328.93	1.59058E-02	43.94	Tol.	LA-140
m 19	341.59	8.14924E-03	72.14	Sum	
21	463.73	1.16493E-02	34.33	Sum	
22	511.51	3.55689E-02	21.40	Sum	
M 23	580.46	6.43270E-03	44.04		
26	795.85	9.18459E-03	45.84	Sum	
27	841.29	7.36111E-03	48.31		
29	934.79	6.16319E-03	50.19		
M 30	965.55	9.38558E-03	36.31		
32	1040.87	3.88889E-03	51.26		
34	1188.66	6.58911E-03	59.40	Sum	
35	1238.27	1.12829E-02	35.63	Tol.	CO-56
36	1370.96	2.51852E-03	52.68		
37	1380.61	1.27778E-02	23.54		
39	1511.44	3.33333E-03	66.93		
40	1587.71	5.58604E-03	50.71		
41	1619.29	2.77778E-03	52.44		
42	1637.99	4.61111E-03	44.78		
43	1730.40	4.71111E-03	40.72	Sum	
45	1840.41	2.12963E-03	56.48		
46	1847.84	2.36111E-03	56.57		
47	1861.82	2.33586E-03	47.66		
48	1983.34	1.66667E-03	70.71		
49	2060.51	1.82292E-03	50.68	Sum	
50	2103.57	5.55556E-03	30.62	S-Esc	
51	2206.79	9.39327E-03	20.96		

Analysis Report for 1606065-10
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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
52	2293.43	1.98718E-03	69.89		
53	2380.29	2.43924E-03	67.13		
54	2448.27	1.85764E-03	47.87		

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	2.30E-01	6.56E-01	6.56E-01
+	NA-22	1274.54	99.94	4.33E-02	8.57E-02	8.57E-02
+	NA-24	1368.53	99.99	1.84E+01	6.52E+02	1.67E+03
		2754.09	99.86	-8.86E+01		6.52E+02
+	AL-26	1808.65	99.76	-4.74E-03	4.45E-02	4.45E-02
+	K-40	1460.81	* 10.67	1.89E+01	9.91E-01	9.91E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	1.93E-02	6.46E-02	6.46E-02
		78.34	96.00	1.01E-01		8.40E-02
+	SC-46	889.25	99.98	-4.31E-02	7.12E-02	7.12E-02
		1120.51	99.99	1.85E-01		1.21E-01
+	V-48	983.52	99.98	-3.66E-02	9.91E-02	9.91E-02
		1312.10	97.50	2.90E-02		1.12E-01
+	CR-51	320.08	9.83	-1.45E-01	5.95E-01	5.95E-01
+	MN-54	834.83	99.97	2.25E-02	7.71E-02	7.71E-02
+	CO-56	846.75	99.96	-2.44E-03	6.55E-02	6.55E-02
		1037.75	14.03	-2.40E-01		5.07E-01
		1238.25	67.00	1.69E-01		1.78E-01
		1771.40	15.51	-9.35E-02		3.07E-01
		2598.48	16.90	2.69E-02		2.77E-01
+	CO-57	122.06	85.51	-3.67E-03	5.22E-02	5.22E-02
		136.48	10.60	1.11E-01		4.46E-01
+	CO-58	810.76	99.40	-4.96E-03	7.75E-02	7.75E-02
+	FE-59	1099.22	56.50	1.00E-02	1.61E-01	1.61E-01
		1291.56	43.20	8.59E-02		2.27E-01
+	CO-60	1173.22	100.00	1.09E-02	7.15E-02	9.13E-02

Analysis Report for 1606065-10
CP-5017 02-05

	<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>
	CO-60	1332.49	100.00	2.00E-02	7.15E-02	7.15E-02
+	ZN-65	1115.52	50.75	1.68E-02	1.41E-01	1.41E-01
+	GA-67	93.31	* 35.70	2.90E+00	1.59E+00	1.59E+00
		208.95	2.24	6.58E+00		1.73E+01
		300.22	* 16.00	1.61E+00		2.07E+00
+	SE-75	121.11	16.70	3.53E-02	8.18E-02	2.72E-01
		136.00	59.20	1.36E-02		8.18E-02
		264.65	59.80	1.33E-03		8.53E-02
		279.53	25.20	1.00E-01		2.11E-01
		400.65	11.40	-3.09E-02		4.66E-01
+	RB-82	776.52	13.00	-1.19E-01	6.21E-01	6.21E-01
+	RB-83	520.41	46.00	-8.34E-02	1.27E-01	1.27E-01
		529.64	30.30	5.36E-03		2.13E-01
		552.65	16.40	-1.01E-01		3.61E-01
+	KR-85	513.99	0.43	4.02E+01	2.14E+01	2.14E+01
+	SR-85	513.99	99.27	1.93E-01	1.03E-01	1.03E-01
+	Y-88	898.02	93.40	-1.90E-02	5.09E-02	7.77E-02
		1836.01	99.38	-3.39E-03		5.09E-02
+	NB-93M	16.57	9.43	-6.42E+01	6.46E+01	6.46E+01
+	NB-94	702.63	100.00	-6.31E-03	6.37E-02	6.80E-02
		871.10	100.00	-1.02E-03		6.37E-02
+	NB-95	765.79	99.81	5.33E-02	8.89E-02	8.89E-02
+	NB-95M	235.69	25.00	-1.63E+01	1.24E+00	1.24E+00
+	ZR-95	724.18	43.70	-2.62E-01	1.51E-01	1.81E-01
		756.72	55.30	1.01E-01		1.51E-01
+	MO-99	181.06	6.20	9.75E-01	4.79E+00	7.93E+00
		739.58	12.80	1.07E+00		4.79E+00
		778.00	4.50	-6.64E+00		1.35E+01
+	RU-103	497.08	89.00	1.41E-02	7.46E-02	7.46E-02
+	RU-106	621.84	9.80	-7.64E-02	6.38E-01	6.38E-01
+	AG-108M	433.93	89.90	-4.20E-02	6.00E-02	6.00E-02
		614.37	90.40	1.11E-03		7.68E-02
		722.95	90.50	-1.09E-01		7.64E-02
+	CD-109	88.03	3.72	8.24E-01	1.70E+00	1.70E+00
+	AG-110M	657.75	93.14	-1.56E-02	6.24E-02	6.24E-02
		677.61	10.53	1.44E-01		6.12E-01
		706.67	16.46	2.41E-01		4.31E-01
		763.93	21.98	-2.81E-01		2.95E-01
		884.67	71.63	-3.47E-02		8.87E-02
		1384.27	23.94	-3.17E-02		2.94E-01
+	CD-113M	263.70	0.02	-9.17E+00	2.07E+02	2.07E+02
+	SN-113	255.12	1.93	-8.94E-03	8.00E-02	2.62E+00
		391.69	64.90	1.93E-02		8.00E-02
+	TE123M	159.00	84.10	-1.07E-02	5.78E-02	5.78E-02
+	SB-124	602.71	97.87	1.07E-03	6.93E-02	6.93E-02
		645.85	7.26	-2.14E-02		9.00E-01
		722.78	11.10	-9.86E-01		6.91E-01
		1691.02	49.00	2.40E-02		1.14E-01

Analysis Report for 1606065-10
CP-5017 02-05

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	I-125	35.49	6.49	-6.77E-01	2.31E+00	2.31E+00
+	SB-125	176.33	6.89	1.06E-02	1.96E-01	7.22E-01
		427.89	29.33	3.33E-02		1.96E-01
		463.38	10.35	-3.40E-01		6.38E-01
		600.56	17.80	-5.35E-02		3.46E-01
		635.90	11.32	1.19E-01		5.88E-01
+	SB-126	414.70	83.30	-1.07E-01	1.08E-01	1.14E-01
		666.33	99.60	-5.89E-02		1.08E-01
		695.00	99.60	-1.44E-02		1.09E-01
		720.50	53.80	6.84E-02		2.13E-01
+	SN-126	87.57	37.00	8.18E-02	1.69E-01	1.69E-01
+	SB-127	473.00	25.00	-2.29E-01	8.91E-01	1.27E+00
		685.20	35.70	3.32E-01		8.91E-01
		783.80	14.70	1.34E+00		2.44E+00
+	I-129	29.78	57.00	6.69E-02	4.49E-01	4.49E-01
		33.60	13.20	6.21E-01		1.26E+00
		39.58	7.52	3.54E-01		1.34E+00
+	I-131	284.30	6.05	7.44E-01	1.29E-01	1.73E+00
		364.48	81.20	8.85E-03		1.29E-01
		636.97	7.26	-1.83E-01		1.96E+00
		722.89	1.80	-1.20E+01		8.42E+00
+	TE-132	49.72	13.10	1.28E+00	3.89E-01	3.94E+00
		228.16	88.00	-1.47E-02		3.89E-01
+	BA-133	81.00	33.00	-3.42E-02	9.01E-02	1.81E-01
		302.84	17.80	1.44E-01		2.87E-01
		356.01	60.00	-3.42E-01		9.01E-02
+	I-133	529.87	86.30	2.56E+00	1.02E+02	1.02E+02
+	XE-133	81.00	38.00	-9.89E-02	5.24E-01	5.24E-01
+	CS-134	563.23	8.38	2.72E-01	6.96E-02	7.45E-01
		569.32	15.43	1.40E-01		3.99E-01
		604.70	97.60	1.39E-02		6.96E-02
		795.84	85.40	7.62E-02		9.18E-02
		801.93	8.73	-3.65E-01		7.09E-01
+	CS-135	268.24	16.00	3.35E-01	3.58E-01	3.58E-01
+	I-135	1131.51	22.50	-1.13E+07	2.91E+09	3.38E+09
		1260.41	28.60	1.79E+09		2.91E+09
		1678.03	9.54	5.52E+08		5.25E+09
+	CS-136	153.22	7.46	1.01E-01	1.06E-01	1.02E+00
		163.89	4.61	5.90E-01		1.69E+00
		176.55	13.56	8.64E-03		5.90E-01
		273.65	12.66	-8.33E-01		6.16E-01
		340.57	48.50	5.58E-01		2.51E-01
		818.50	99.70	2.82E-02		1.06E-01
		1048.07	79.60	3.96E-02		1.50E-01
		1235.34	19.70	-8.96E-02		7.53E-01
+	CS-137	661.65	85.12	-3.06E-02	7.15E-02	7.15E-02
+	LA-138	788.74	34.00	8.74E-02	7.45E-02	2.00E-01
		1435.80	66.00	-1.06E-02		7.45E-02
+	CE-139	165.85	80.35	-1.13E-02	6.04E-02	6.04E-02

Analysis Report for 1606065-10

CP-5017 02-05

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BA-140	162.64	6.70	3.33E-01	3.89E-01	1.18E+00
		304.84	4.50	3.26E-01		1.57E+00
		423.70	3.20	-1.33E+00		2.88E+00
		437.55	2.00	2.54E+00		4.92E+00
		537.32	25.00	2.41E-01		3.89E-01
+	LA-140	328.77	20.50	3.97E-01	9.75E-02	4.54E-01
		487.03	45.50	2.04E-02		2.00E-01
		815.85	23.50	-1.65E-01		4.26E-01
		1596.49	95.49	3.05E-02		9.75E-02
+	CE-141	145.44	48.40	2.26E-02	1.23E-01	1.23E-01
+	CE-143	57.36	11.80	1.04E+01	1.65E+01	5.44E+01
		293.26	42.00	2.07E+01		1.65E+01
		664.55	5.20	-1.22E+01		1.25E+02
+	CE-144	133.54	10.80	-5.05E-02	4.35E-01	4.35E-01
+	PM-144	476.78	42.00	8.77E-03	6.69E-02	1.46E-01
		618.01	98.60	2.05E-02		6.96E-02
		696.49	99.49	-3.19E-03		6.69E-02
+	PM-145	36.85	21.70	-2.43E-01	2.84E-01	5.46E-01
		37.36	39.70	-1.95E-01		2.84E-01
		42.30	15.10	2.37E-01		5.78E-01
		72.40	2.31	-1.32E+01		2.87E+00
+	PM-146	453.90	39.94	6.17E-03	1.41E-01	1.41E-01
		735.90	14.01	1.09E-01		4.29E-01
		747.13	13.10	-7.90E-02		4.80E-01
+	ND-147	91.11	28.90	-1.65E+00	3.90E-01	3.90E-01
		531.02	13.10	4.42E-02		8.15E-01
+	PM-149	285.90	3.10	6.51E+00	2.66E+01	2.66E+01
+	EU-152	121.78	20.50	-1.50E-02	2.13E-01	2.13E-01
		244.69	5.40	1.82E-01		1.09E+00
		344.27	19.13	-5.30E-02		2.40E-01
		778.89	9.20	-4.78E-01		6.47E-01
		964.01	10.40	-5.02E-01		9.15E-01
		1085.78	7.22	1.65E-01		1.09E+00
		1112.02	9.60	4.48E-02		7.32E-01
		1407.95	14.94	1.83E-02		4.82E-01
			97.43	31.30		-1.30E-02	1.54E-01	1.54E-01
+	GD-153	103.18	22.20	-1.92E-01		2.04E-01
+	EU-154	123.07	40.50	-5.39E-02	1.09E-01	1.09E-01
		723.30	19.70	-5.01E-01		3.52E-01
		873.19	11.50	-4.16E-02		5.51E-01
		996.32	10.30	-4.35E-01		5.95E-01
		1004.76	17.90	1.13E-01		4.37E-01
	1274.45	35.50	1.21E-01	2.40E-01		
+	EU-155	86.50	30.90	3.24E-01	2.12E-01	2.12E-01
		105.30	20.70	-6.87E-02		2.21E-01
+	EU-156	811.77	10.40	-5.66E-01	9.68E-01	9.68E-01
		1153.47	7.20	9.39E-01		1.88E+00
		1230.71	8.90	1.08E-01		1.56E+00
+	HO-166M	184.41	72.60	1.80E-01	8.88E-02	8.88E-02

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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	-7.80E-04	8.88E-02	1.58E-01
		410.94	11.10	5.23E-01		5.80E-01
		711.69	54.10	-4.42E-02		1.11E-01
+	TM-171	66.72	0.14	1.71E+01	4.67E+01	4.67E+01
+	HF-172	81.75	4.52	-1.51E+00	4.16E-01	1.23E+00
		125.81	11.30	5.27E-02		4.16E-01
+	LU-172	181.53	20.60	-8.91E-02	3.17E-01	6.08E-01
		810.06	16.63	5.92E-01		1.16E+00
		912.12	15.25	6.85E+00		2.50E+00
		1093.66	62.50	8.69E-03		3.17E-01
+	LU-173	100.72	5.24	8.24E-01	2.67E-01	8.93E-01
		272.11	21.20	1.86E-01		2.67E-01
+	HF-175	343.40	84.00	-7.33E-03	6.35E-02	6.35E-02
+	LU-176	88.34	13.30	5.32E-01	4.91E-02	4.90E-01
		201.83	86.00	-2.36E-02		5.56E-02
		306.78	94.00	1.09E-02		4.91E-02
+	TA-182	67.75	41.20	4.69E-02	1.57E-01	1.57E-01
		1121.30	34.90	5.08E-01		3.42E-01
		1189.05	16.23	3.79E-01		6.21E-01
		1221.41	26.98	-9.99E-02		3.68E-01
		1231.02	11.44	5.84E-02		8.46E-01
+	IR-192	308.46	29.68	1.08E-02	1.36E-01	1.71E-01
		468.07	48.10	2.60E-02		1.36E-01
+	HG-203	279.19	77.30	3.64E-02	7.52E-02	7.52E-02
+	BI-207	569.67	97.72	-6.80E-03	5.81E-02	5.81E-02
		1063.62	74.90	2.66E-02		1.06E-01
+	TL-208	583.14	* 30.22	1.22E+00	1.43E-01	2.77E-01
		860.37	4.48	1.04E+00		1.87E+00
		2614.66	* 35.85	9.95E-01		1.43E-01
+	BI-210M	262.00	45.00	9.98E-03	1.07E-01	1.07E-01
		300.00	23.00	-6.68E-01		2.33E-01
+	PB-210	46.50	* 4.25	1.67E+00	2.35E+00	2.35E+00
+	PB-211	404.84	2.90	-1.59E-01	1.80E+00	1.80E+00
		831.96	2.90	-5.59E-01		2.44E+00
+	BI-212	727.17	11.80	1.09E+00	7.45E-01	7.45E-01
		1620.62	2.75	4.63E-01		1.94E+00
+	PB-212	238.63	* 44.60	1.29E+00	2.58E-01	2.58E-01
		300.09	* 3.41	1.09E+00		1.40E+00
+	BI-214	609.31	* 46.30	1.01E+00	1.66E-01	1.66E-01
		1120.29	* 15.10	1.06E+00		5.86E-01
		1764.49	* 15.80	9.60E-01		3.20E-01
		2204.22	4.98	1.10E+00		1.87E+00
+	PB-214	295.21	* 19.19	1.04E+00	2.32E-01	3.32E-01
		351.92	* 37.19	1.06E+00		2.32E-01
+	RN-219	401.80	6.50	3.27E-01	8.12E-01	8.12E-01
+	RA-223	323.87	3.88	2.25E-01	1.27E+00	1.27E+00
+	RA-224	240.98	3.95	1.76E+01	2.95E+00	2.95E+00
+	RA-225	40.00	31.00	1.28E-01	4.84E-01	4.84E-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	4.38E+00	2.47E+00	2.47E+00
+	TH-227	50.10		8.40	2.84E-01	4.68E-01	8.73E-01
		236.00		11.50	-6.18E+00		4.68E-01
		256.20		6.30	-1.18E-01		7.44E-01
+	AC-228	338.32	*	11.40	1.50E+00	3.49E-01	7.18E-01
		911.07	*	27.70	1.58E+00		3.49E-01
		969.11	*	16.60	1.24E+00		7.44E-01
+	TH-230	48.44		16.90	6.53E-01	4.89E-01	4.89E-01
		62.85		4.60	2.66E+00		1.60E+00
		67.67		0.37	4.94E+00		1.65E+01
+	PA-231	283.67		1.60	-6.19E-01	2.21E+00	2.86E+00
		302.67		2.30	1.11E+00		2.21E+00
+	TH-231	25.64		14.70	-3.17E+01	9.31E-01	4.45E+00
		84.21		6.40	-1.91E+00		9.31E-01
+	PA-233	311.98		38.60	2.09E-02	1.54E-01	1.54E-01
+	PA-234	131.20		20.40	1.01E-01	2.40E-01	2.40E-01
		733.99		8.80	-5.14E-01		6.56E-01
		946.00		12.00	-1.24E-01		5.33E-01
+	PA-234M	1001.03		0.92	6.08E+00	8.93E+00	8.93E+00
+	TH-234	63.29	*	3.80	1.23E+00	2.18E+00	2.18E+00
+	U-235	143.76		10.50	8.70E-02	4.71E-01	4.71E-01
		163.35		4.70	3.57E-01		1.03E+00
		205.31		4.70	-1.60E-01		1.05E+00
+	NP-237	86.50		12.60	7.91E-01	5.17E-01	5.17E-01
+	NP-239	106.10		22.70	-9.15E-01	2.95E+00	2.95E+00
		228.18		10.70	-2.54E-01		6.73E+00
		277.60		14.10	3.29E+00		5.31E+00
+	AM-241	59.54		35.90	-3.70E-02	1.76E-01	1.76E-01
+	AM-243	74.67		66.00	-4.18E-01	1.21E-01	1.21E-01
+	CM-243	209.75	*	3.29	1.53E+00	4.44E-01	2.06E+00
		228.14		10.60	-1.76E-02		4.65E-01
		277.60	*	14.00	2.55E-01		4.44E-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

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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	6.56E-01	6.56E-01	2.30E-01	3.11E-01
NA-22	1274.54	99.94	8.57E-02	8.57E-02	4.33E-02	3.95E-02
NA-24	1368.53	99.99	1.67E+03	6.52E+02	1.84E+01	7.48E+02
	2754.09	99.86	6.52E+02		-8.86E+01	2.06E+02
AL-26	1808.65	99.76	4.45E-02	4.45E-02	-4.74E-03	1.80E-02
+ K-40	1460.81	*	10.67	9.91E-01	1.89E+01	4.61E-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	6.46E-02	6.46E-02	1.93E-02	3.16E-02
	78.34	96.00	8.40E-02		1.01E-01	4.13E-02
SC-46	889.25	99.98	7.12E-02	7.12E-02	-4.31E-02	3.29E-02
	1120.51	99.99	1.21E-01		1.85E-01	5.73E-02
V-48	983.52	99.98	9.91E-02	9.91E-02	-3.66E-02	4.55E-02
	1312.10	97.50	1.12E-01		2.90E-02	5.09E-02
CR-51	320.08	9.83	5.95E-01	5.95E-01	-1.45E-01	2.83E-01
MN-54	834.83	99.97	7.71E-02	7.71E-02	2.25E-02	3.61E-02
CO-56	846.75	99.96	6.55E-02	6.55E-02	-2.44E-03	3.01E-02
	1037.75	14.03	5.07E-01		-2.40E-01	2.31E-01
	1238.25	67.00	1.78E-01		1.69E-01	8.38E-02
	1771.40	15.51	3.07E-01		-9.35E-02	1.24E-01
	2598.48	16.90	2.77E-01		2.69E-02	1.07E-01
CO-57	122.06	85.51	5.22E-02	5.22E-02	-3.67E-03	2.53E-02
	136.48	10.60	4.46E-01		1.11E-01	2.16E-01
CO-58	810.76	99.40	7.75E-02	7.75E-02	-4.96E-03	3.62E-02
FE-59	1099.22	56.50	1.61E-01	1.61E-01	1.00E-02	7.43E-02
	1291.56	43.20	2.27E-01		8.59E-02	1.04E-01
CO-60	1173.22	100.00	9.13E-02	7.15E-02	1.09E-02	4.25E-02
	1332.49	100.00	7.15E-02		2.00E-02	3.23E-02
ZN-65	1115.52	50.75	1.41E-01	1.41E-01	1.68E-02	6.42E-02
+ GA-67	93.31	*	35.70	1.59E+00	1.59E+00	2.90E+00
	208.95	2.24	1.73E+01		6.58E+00	8.37E+00
	300.22	*	16.00	2.07E+00	1.61E+00	9.88E-01
SE-75	121.11	16.70	2.72E-01	8.18E-02	3.53E-02	1.32E-01
	136.00	59.20	8.18E-02		1.36E-02	3.96E-02
	264.65	59.80	8.53E-02		1.33E-03	4.09E-02
	279.53	25.20	2.11E-01		1.00E-01	1.01E-01
	400.65	11.40	4.66E-01		-3.09E-02	2.20E-01
RB-82	776.52	13.00	6.21E-01	6.21E-01	-1.19E-01	2.88E-01
RB-83	520.41	46.00	1.27E-01	1.27E-01	-8.34E-02	5.95E-02
	529.64	30.30	2.13E-01		5.36E-03	1.00E-01
	552.65	16.40	3.61E-01		-1.01E-01	1.69E-01
KR-85	513.99	0.43	2.14E+01	2.14E+01	4.02E+01	1.03E+01
SR-85	513.99	99.27	1.03E-01	1.03E-01	1.93E-01	4.97E-02
Y-88	898.02	93.40	7.77E-02	5.09E-02	-1.90E-02	3.60E-02
	1836.01	99.38	5.09E-02		-3.39E-03	2.09E-02
NB-93M	16.57	9.43	6.46E+01	6.46E+01	-6.42E+01	2.99E+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)
NB-94	702.63	100.00	6.80E-02	6.37E-02	-6.31E-03	3.19E-02
	871.10	100.00	6.37E-02		-1.02E-03	2.94E-02
NB-95	765.79	99.81	8.89E-02	8.89E-02	5.33E-02	4.17E-02
NB-95M	235.69	25.00	1.24E+00	1.24E+00	-1.63E+01	5.98E-01
ZR-95	724.18	43.70	1.81E-01	1.51E-01	-2.62E-01	8.51E-02
	756.72	55.30	1.51E-01		1.01E-01	7.09E-02
MO-99	181.06	6.20	7.93E+00	4.79E+00	9.75E-01	3.83E+00
	739.58	12.80	4.79E+00		1.07E+00	2.22E+00
	778.00	4.50	1.35E+01		-6.64E+00	6.24E+00
RU-103	497.08	89.00	7.46E-02	7.46E-02	1.41E-02	3.52E-02
RU-106	621.84	9.80	6.38E-01	6.38E-01	-7.64E-02	2.99E-01
AG-108M	433.93	89.90	6.00E-02	6.00E-02	-4.20E-02	2.84E-02
	614.37	90.40	7.68E-02		1.11E-03	3.63E-02
	722.95	90.50	7.64E-02		-1.09E-01	3.58E-02
CD-109	88.03	3.72	1.70E+00	1.70E+00	8.24E-01	8.35E-01
AG-110M	657.75	93.14	6.24E-02	6.24E-02	-1.56E-02	2.90E-02
	677.61	10.53	6.12E-01		1.44E-01	2.86E-01
	706.67	16.46	4.31E-01		2.41E-01	2.02E-01
	763.93	21.98	2.95E-01		-2.81E-01	1.37E-01
	884.67	71.63	8.87E-02		-3.47E-02	4.07E-02
	1384.27	23.94	2.94E-01		-3.17E-02	1.32E-01
CD-113M	263.70	0.02	2.07E+02	2.07E+02	-9.17E+00	9.92E+01
SN-113	255.12	1.93	2.62E+00	8.00E-02	-8.94E-03	1.26E+00
	391.69	64.90	8.00E-02		1.93E-02	3.78E-02
TE123M	159.00	84.10	5.78E-02	5.78E-02	-1.07E-02	2.80E-02
SB-124	602.71	97.87	6.93E-02	6.93E-02	1.07E-03	3.25E-02
	645.85	7.26	9.00E-01		-2.14E-02	4.20E-01
	722.78	11.10	6.91E-01		-9.86E-01	3.24E-01
	1691.02	49.00	1.14E-01		2.40E-02	4.79E-02
I-125	35.49	6.49	2.31E+00	2.31E+00	-6.77E-01	1.12E+00
SB-125	176.33	6.89	7.22E-01	1.96E-01	1.06E-02	3.49E-01
	427.89	29.33	1.96E-01		3.33E-02	9.30E-02
	463.38	10.35	6.38E-01		-3.40E-01	3.04E-01
	600.56	17.80	3.46E-01		-5.35E-02	1.63E-01
	635.90	11.32	5.88E-01		1.19E-01	2.77E-01
	414.70	83.30	1.14E-01		1.08E-01	-1.07E-01	5.40E-02
SB-126	666.33	99.60	1.08E-01	1.08E-01	-5.89E-02	5.05E-02
	695.00	99.60	1.09E-01		-1.44E-02	5.08E-02
	720.50	53.80	2.13E-01		6.84E-02	1.00E-01
SN-126	87.57	37.00	1.69E-01	1.69E-01	8.18E-02	8.28E-02
SB-127	473.00	25.00	1.27E+00	8.91E-01	-2.29E-01	6.05E-01
	685.20	35.70	8.91E-01		3.32E-01	4.16E-01
	783.80	14.70	2.44E+00		1.34E+00	1.14E+00
I-129	29.78	57.00	4.49E-01	4.49E-01	6.69E-02	2.17E-01
	33.60	13.20	1.26E+00		6.21E-01	6.10E-01
	39.58	7.52	1.34E+00		3.54E-01	6.48E-01
I-131	284.30	6.05	1.73E+00	1.29E-01	7.44E-01	8.24E-01
	364.48	81.20	1.29E-01		8.85E-03	6.10E-02
	636.97	7.26	1.96E+00		-1.83E-01	9.21E-01
	722.89	1.80	8.42E+00		-1.20E+01	3.95E+00
TE-132	49.72	13.10	3.94E+00	3.89E-01	1.28E+00	1.92E+00
BA-133	228.16	88.00	3.89E-01	9.01E-02	-1.47E-02	1.87E-01
	81.00	33.00	1.81E-01		-3.42E-02	8.85E-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-133	302.84	17.80	2.87E-01	9.01E-02	1.44E-01	1.37E-01
	356.01	60.00	9.01E-02		-3.42E-01	4.30E-02
I-133	529.87	86.30	1.02E+02	1.02E+02	2.56E+00	4.80E+01
XE-133	81.00	38.00	5.24E-01	5.24E-01	-9.89E-02	2.56E-01
CS-134	563.23	8.38	7.45E-01	6.96E-02	2.72E-01	3.51E-01
	569.32	15.43	3.99E-01		1.40E-01	1.88E-01
	604.70	97.60	6.96E-02		1.39E-02	3.29E-02
	795.84	85.40	9.18E-02		7.62E-02	4.31E-02
	801.93	8.73	7.09E-01		-3.65E-01	3.28E-01
CS-135	268.24	16.00	3.58E-01	3.58E-01	3.35E-01	1.72E-01
I-135	1131.51	22.50	3.38E+09	2.91E+09	-1.13E+07	1.56E+09
	1260.41	28.60	2.91E+09		1.79E+09	1.35E+09
	1678.03	9.54	5.25E+09		5.52E+08	2.23E+09
CS-136	153.22	7.46	1.02E+00	1.06E-01	1.01E-01	4.95E-01
	163.89	4.61	1.69E+00		5.90E-01	8.19E-01
	176.55	13.56	5.90E-01		8.64E-03	2.85E-01
	273.65	12.66	6.16E-01		-8.33E-01	2.95E-01
	340.57	48.50	2.51E-01		5.58E-01	1.21E-01
	818.50	99.70	1.06E-01		2.82E-02	4.90E-02
	1048.07	79.60	1.50E-01		3.96E-02	6.91E-02
1235.34	19.70	7.53E-01	-8.96E-02	3.50E-01		
CS-137	661.65	85.12	7.15E-02	7.15E-02	-3.06E-02	3.34E-02
LA-138	788.74	34.00	2.00E-01	7.45E-02	8.74E-02	9.31E-02
	1435.80	66.00	7.45E-02		-1.06E-02	3.17E-02
CE-139	165.85	80.35	6.04E-02	6.04E-02	-1.13E-02	2.92E-02
BA-140	162.64	6.70	1.18E+00	3.89E-01	3.33E-01	5.73E-01
	304.84	4.50	1.57E+00		3.26E-01	7.46E-01
	423.70	3.20	2.88E+00		-1.33E+00	1.37E+00
	437.55	2.00	4.92E+00		2.54E+00	2.34E+00
	537.32	25.00	3.89E-01		2.41E-01	1.83E-01
LA-140	328.77	20.50	4.54E-01	9.75E-02	3.97E-01	2.17E-01
	487.03	45.50	2.00E-01		2.04E-02	9.41E-02
	815.85	23.50	4.26E-01		-1.65E-01	1.96E-01
	1596.49	95.49	9.75E-02		3.05E-02	4.20E-02
CE-141	145.44	48.40	1.23E-01	1.23E-01	2.26E-02	5.97E-02
CE-143	57.36	11.80	5.44E+01	1.65E+01	1.04E+01	2.65E+01
	293.26	42.00	1.65E+01		2.07E+01	7.97E+00
	664.55	5.20	1.25E+02		-1.22E+01	5.85E+01
CE-144	133.54	10.80	4.35E-01	4.35E-01	-5.05E-02	2.11E-01
PM-144	476.78	42.00	1.46E-01	6.69E-02	8.77E-03	6.90E-02
	618.01	98.60	6.96E-02		2.05E-02	3.29E-02
	696.49	99.49	6.69E-02		-3.19E-03	3.13E-02
PM-145	36.85	21.70	5.46E-01	2.84E-01	-2.43E-01	2.64E-01
	37.36	39.70	2.84E-01		-1.95E-01	1.37E-01
	42.30	15.10	5.78E-01		2.37E-01	2.80E-01
	72.40	2.31	2.87E+00		-1.32E+01	1.40E+00
PM-146	453.90	39.94	1.41E-01	1.41E-01	6.17E-03	6.68E-02
	735.90	14.01	4.29E-01		1.09E-01	1.99E-01
	747.13	13.10	4.80E-01		-7.90E-02	2.23E-01
ND-147	91.11	28.90	3.90E-01	3.90E-01	-1.65E+00	1.91E-01
	531.02	13.10	8.15E-01		4.42E-02	3.85E-01
PM-149	285.90	3.10	2.66E+01	2.66E+01	6.51E+00	1.27E+01
EU-152	121.78	20.50	2.13E-01	2.13E-01	-1.50E-02	1.03E-01

Analysis Report for 1606065-10

CP-5017 02-05

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	1.09E+00	2.13E-01	1.82E-01	5.25E-01
	344.27	19.13	2.40E-01		-5.30E-02	1.14E-01
	778.89	9.20	6.47E-01		-4.78E-01	2.99E-01
	964.01	10.40	9.15E-01		-5.02E-01	4.31E-01
	1085.78	7.22	1.09E+00		1.65E-01	5.06E-01
	1112.02	9.60	7.32E-01		4.48E-02	3.35E-01
	1407.95	14.94	4.82E-01		1.83E-02	2.17E-01
GD-153	97.43	31.30	1.54E-01	1.54E-01	-1.30E-02	7.47E-02
	103.18	22.20	2.04E-01		-1.92E-01	9.90E-02
EU-154	123.07	40.50	1.09E-01	1.09E-01	-5.39E-02	5.26E-02
	723.30	19.70	3.52E-01		-5.01E-01	1.65E-01
	873.19	11.50	5.51E-01		-4.16E-02	2.54E-01
	996.32	10.30	5.95E-01		-4.35E-01	2.71E-01
	1004.76	17.90	4.37E-01		1.13E-01	2.03E-01
EU-155	1274.45	35.50	2.40E-01	2.12E-01	1.21E-01	1.11E-01
	86.50	30.90	2.12E-01		3.24E-01	1.04E-01
EU-156	105.30	20.70	2.21E-01	9.68E-01	-6.87E-02	1.08E-01
	811.77	10.40	9.68E-01		-5.66E-01	4.50E-01
HO-166M	1153.47	7.20	1.88E+00	8.88E-02	9.39E-01	8.73E-01
	1230.71	8.90	1.56E+00		1.08E-01	7.24E-01
	184.41	72.60	8.88E-02		1.80E-01	4.33E-02
	280.45	29.60	1.58E-01		-7.80E-04	7.55E-02
TM-171	410.94	11.10	5.80E-01	4.67E+01	5.23E-01	2.77E-01
	711.69	54.10	1.11E-01		-4.42E-02	5.18E-02
	66.72	0.14	4.67E+01		1.71E+01	2.28E+01
HF-172	81.75	4.52	1.23E+00	4.16E-01	-1.51E+00	6.01E-01
	125.81	11.30	4.16E-01		5.27E-02	2.02E-01
LU-172	181.53	20.60	6.08E-01	3.17E-01	-8.91E-02	2.94E-01
	810.06	16.63	1.16E+00		5.92E-01	5.44E-01
	912.12	15.25	2.50E+00		6.85E+00	1.21E+00
	1093.66	62.50	3.17E-01		8.69E-03	1.46E-01
LU-173	100.72	5.24	8.93E-01	2.67E-01	8.24E-01	4.34E-01
	272.11	21.20	2.67E-01		1.86E-01	1.29E-01
HF-175	343.40	84.00	6.35E-02	6.35E-02	-7.33E-03	3.02E-02
LU-176	88.34	13.30	4.90E-01	4.91E-02	5.32E-01	2.40E-01
	201.83	86.00	5.56E-02		-2.36E-02	2.68E-02
	306.78	94.00	4.91E-02		1.09E-02	2.33E-02
TA-182	67.75	41.20	1.57E-01	1.57E-01	4.69E-02	7.65E-02
	1121.30	34.90	3.42E-01		5.08E-01	1.62E-01
	1189.05	16.23	6.21E-01		3.79E-01	2.90E-01
	1221.41	26.98	3.68E-01		-9.99E-02	1.71E-01
	1231.02	11.44	8.46E-01		5.84E-02	3.93E-01
IR-192	308.46	29.68	1.71E-01	1.36E-01	1.08E-02	8.14E-02
	468.07	48.10	1.36E-01		2.60E-02	6.45E-02
HG-203	279.19	77.30	7.52E-02	7.52E-02	3.64E-02	3.60E-02
BI-207	569.67	97.72	5.81E-02	5.81E-02	-6.80E-03	2.72E-02
	1063.62	74.90	1.06E-01		2.66E-02	4.89E-02
+ TL-208	583.14	*	30.22	1.43E-01	1.22E+00	1.32E-01
	860.37		4.48		1.87E+00	8.78E-01
	2614.66	*	35.85		1.43E-01	9.95E-01	5.79E-02
BI-210M	262.00		45.00	1.07E-01	9.98E-03	5.13E-02
	300.00		23.00		2.33E-01	-6.68E-01
+ PB-210	46.50	*	4.25	2.35E+00	2.35E+00	1.15E+00

Analysis Report for 1606065-10

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PB-211	404.84	2.90	1.80E+00	1.80E+00	-1.59E-01	8.52E-01
	831.96	2.90	2.44E+00		-5.59E-01	1.14E+00
BI-212	727.17	11.80	7.45E-01	7.45E-01	1.09E+00	3.54E-01
	1620.62	2.75	1.94E+00		4.63E-01	8.26E-01
+ PB-212	238.63	* 44.60	2.58E-01	2.58E-01	1.29E+00	1.27E-01
	300.09	* 3.41	1.40E+00		1.09E+00	6.68E-01
+ BI-214	609.31	* 46.30	1.66E-01	1.66E-01	1.01E+00	7.90E-02
	1120.29	* 15.10	5.86E-01		1.06E+00	2.73E-01
	1764.49	* 15.80	3.20E-01		9.60E-01	1.33E-01
	2204.22	4.98	1.87E+00		1.10E+00	8.39E-01
+ PB-214	295.21	* 19.19	3.32E-01	2.32E-01	1.04E+00	1.60E-01
	351.92	* 37.19	2.32E-01		1.06E+00	1.12E-01
RN-219	401.80	6.50	8.12E-01	8.12E-01	3.27E-01	3.85E-01
RA-223	323.87	3.88	1.27E+00	1.27E+00	2.25E-01	6.05E-01
RA-224	240.98	3.95	2.95E+00	2.95E+00	1.76E+01	1.45E+00
RA-225	40.00	31.00	4.84E-01	4.84E-01	1.28E-01	2.35E-01
+ RA-226	186.21	* 3.28	2.47E+00	2.47E+00	4.38E+00	1.21E+00
TH-227	50.10	8.40	8.73E-01	4.68E-01	2.84E-01	4.25E-01
	236.00	11.50	4.68E-01		-6.18E+00	2.26E-01
	256.20	6.30	7.44E-01		-1.18E-01	3.56E-01
+ AC-228	338.32	* 11.40	7.18E-01	3.49E-01	1.50E+00	3.48E-01
	911.07	* 27.70	3.49E-01		1.58E+00	1.65E-01
	969.11	* 16.60	7.44E-01		1.24E+00	3.55E-01
TH-230	48.44	16.90	4.89E-01	4.89E-01	6.53E-01	2.39E-01
	62.85	4.60	1.60E+00		2.66E+00	7.84E-01
	67.67	0.37	1.65E+01		4.94E+00	8.07E+00
PA-231	283.67	1.60	2.86E+00	2.21E+00	-6.19E-01	1.36E+00
	302.67	2.30	2.21E+00		1.11E+00	1.06E+00
TH-231	25.64	14.70	4.45E+00	9.31E-01	-3.17E+01	2.17E+00
	84.21	6.40	9.31E-01		-1.91E+00	4.55E-01
PA-233	311.98	38.60	1.54E-01	1.54E-01	2.09E-02	7.32E-02
PA-234	131.20	20.40	2.40E-01	2.40E-01	1.01E-01	1.17E-01
	733.99	8.80	6.56E-01		-5.14E-01	3.03E-01
	946.00	12.00	5.33E-01		-1.24E-01	2.44E-01
PA-234M	1001.03	0.92	8.93E+00	8.93E+00	6.08E+00	4.16E+00
+ TH-234	63.29	* 3.80	2.18E+00	2.18E+00	1.23E+00	1.07E+00
U-235	143.76	10.50	4.71E-01	4.71E-01	8.70E-02	2.29E-01
	163.35	4.70	1.03E+00		3.57E-01	4.96E-01
	205.31	4.70	1.05E+00		-1.60E-01	5.05E-01
NP-237	86.50	12.60	5.17E-01	5.17E-01	7.91E-01	2.54E-01
NP-239	106.10	22.70	2.95E+00	2.95E+00	-9.15E-01	1.43E+00
	228.18	10.70	6.73E+00		-2.54E-01	3.24E+00
	277.60	14.10	5.31E+00		3.29E+00	2.55E+00
AM-241	59.54	35.90	1.76E-01	1.76E-01	-3.70E-02	8.59E-02
AM-243	74.67	66.00	1.21E-01	1.21E-01	-4.18E-01	5.96E-02
+ CM-243	209.75	* 3.29	2.06E+00	4.44E-01	1.53E+00	1.00E+00
	228.14	10.60	4.65E-01		-1.76E-02	2.24E-01
	277.60	* 14.00	4.44E-01		2.55E-01	2.14E-01

Analysis Report for 1606065-10

CP-5017 02-05

-
- + = 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***

No Data Review Comments Entered.

369: 19 20 25 16 24 18 15 15

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Channel	1	2	3	4	5	6	7	8
377:	18	26	9	20	22	23	23	16
385:	27	19	11	21	21	16	20	17
393:	23	24	16	14	16	21	16	18
401:	25	20	23	26	20	16	23	25
409:	20	31	29	15	18	26	14	11
417:	23	18	17	26	20	12	13	21
425:	15	19	18	15	24	18	11	20
433:	10	16	18	15	14	18	20	22
441:	22	15	16	20	25	24	16	16
449:	12	16	16	10	15	14	20	15
457:	16	17	14	12	20	10	28	40
465:	21	13	10	13	22	21	16	18
473:	18	12	17	19	20	19	12	14
481:	14	14	12	12	13	9	13	20
489:	10	15	10	14	10	13	14	15
497:	15	12	10	14	15	9	12	12
505:	14	8	11	19	21	31	53	92
513:	43	17	16	18	10	13	10	10
521:	11	13	9	13	16	17	10	18
529:	11	14	12	20	10	10	12	14
537:	13	12	17	15	8	7	9	7
545:	6	10	21	18	16	10	10	10
553:	11	8	15	10	8	9	14	15
561:	9	12	14	15	9	18	11	9
569:	10	14	16	10	5	13	7	13
577:	9	12	14	14	23	17	59	165
585:	50	24	10	10	19	12	10	14
593:	19	10	10	14	16	14	8	7
601:	10	14	17	11	11	10	14	21
609:	53	192	103	21	10	10	15	17
617:	15	14	14	12	8	14	11	13
625:	5	14	6	8	13	8	13	15
633:	14	12	16	11	9	8	17	10
641:	8	14	8	11	9	10	10	10
649:	8	7	10	9	5	12	4	11
657:	8	8	7	7	14	15	7	8
665:	10	13	18	8	12	14	14	5
673:	10	6	10	11	10	11	14	10
681:	4	9	9	5	10	13	8	12
689:	5	10	11	12	10	8	12	14
697:	6	10	14	9	13	8	14	9
705:	13	12	12	11	12	11	6	5
713:	5	11	9	10	10	6	10	11
721:	12	8	9	21	8	8	17	40
729:	20	13	5	5	7	14	7	5
737:	8	6	8	8	7	12	9	10
745:	6	12	8	7	6	10	8	9
753:	14	16	11	13	11	16	8	11
761:	5	6	11	10	7	9	10	12
769:	22	10	10	11	12	12	10	4
777:	8	9	6	7	8	7	10	11
785:	5	10	17	6	7	9	11	4
793:	9	8	17	23	11	7	9	5

801: 7 10 3 7 9 9 18 14

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Channel	1	2	3	4	5	6	7	8	9
809:	7	11	9	12	5	8	6	9	
817:	8	7	5	9	6	11	8	4	
825:	9	7	7	8	8	6	11	10	
833:	7	10	12	10	16	8	10	16	
841:	13	14	7	4	2	11	6	6	
849:	8	7	7	9	7	9	12	9	
857:	8	5	7	14	16	22	14	7	
865:	6	7	6	6	9	9	4	5	
873:	7	7	5	9	6	7	8	12	
881:	4	5	5	5	8	8	8	4	
889:	9	7	9	4	11	14	6	11	
897:	7	8	7	4	9	5	7	7	
905:	6	6	9	12	8	14	63	106	
913:	51	12	6	1	7	8	5	2	
921:	6	8	5	5	9	3	3	5	
929:	6	4	5	5	3	13	10	11	
937:	5	4	4	5	11	4	6	7	
945:	7	4	3	4	10	10	3	10	
953:	4	5	3	3	8	7	10	3	
961:	10	8	7	13	21	24	10	12	
969:	43	58	22	8	3	9	11	6	
977:	6	7	6	2	8	5	5	13	
985:	3	3	5	15	5	6	2	12	
993:	2	5	5	3	6	4	9	4	
1001:	14	13	10	10	4	8	4	8	
1009:	6	5	7	11	4	12	9	8	
1017:	5	10	9	4	5	5	3	9	
1025:	8	4	9	8	6	8	4	5	
1033:	8	14	0	10	5	2	3	9	
1041:	8	5	4	0	5	6	9	9	
1049:	7	3	8	9	7	8	8	3	
1057:	5	8	7	5	6	7	6	4	
1065:	5	17	8	3	10	7	6	5	
1073:	4	8	9	9	6	6	6	7	
1081:	9	6	14	8	7	4	8	4	
1089:	6	5	7	4	1	7	8	13	
1097:	8	5	11	6	3	4	9	4	
1105:	5	6	6	6	3	7	4	7	
1113:	8	6	3	6	3	6	5	26	
1121:	31	23	9	4	2	6	7	7	
1129:	6	6	9	9	8	8	11	6	
1137:	6	4	6	7	5	6	3	7	
1145:	12	11	4	3	6	6	9	6	
1153:	9	9	9	12	7	7	11	6	
1161:	7	7	11	9	4	7	3	8	
1169:	7	7	11	8	7	6	11	11	
1177:	10	7	6	6	5	10	7	7	
1185:	6	10	7	13	11	12	7	6	
1193:	5	6	4	6	9	7	3	9	
1201:	8	4	6	8	5	14	4	10	
1209:	8	10	12	10	7	5	6	10	
1217:	14	5	3	12	11	11	7	12	
1225:	9	8	13	10	5	9	17	7	

1233: 5 4 10 7 12 12 21 12

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Channel	1	2	3	4	5	6	7	8
1241:	10	5	9	10	4	9	6	9
1249:	3	8	3	7	8	7	8	5
1257:	9	6	10	6	5	12	6	2
1265:	4	5	5	7	4	3	9	4
1273:	11	6	3	6	7	4	5	6
1281:	3	7	4	8	5	8	5	11
1289:	7	2	8	9	4	4	6	1
1297:	3	3	5	5	5	5	7	2
1305:	5	5	3	4	8	6	3	5
1313:	4	3	3	3	4	3	1	5
1321:	5	4	4	5	3	3	0	4
1329:	0	4	7	5	4	5	4	4
1337:	4	2	1	4	3	0	5	3
1345:	4	6	2	4	3	2	1	2
1353:	3	2	2	2	6	3	6	1
1361:	3	5	5	4	5	5	1	3
1369:	0	6	5	4	0	2	2	4
1377:	5	7	8	7	3	3	2	4
1385:	6	5	2	1	1	4	1	3
1393:	1	1	5	1	1	3	0	6
1401:	1	3	6	2	4	4	3	3
1409:	8	1	4	3	4	4	4	3
1417:	1	1	0	2	2	1	3	2
1425:	2	4	1	4	2	2	3	4
1433:	3	0	3	1	1	2	1	2
1441:	0	1	3	3	0	3	2	2
1449:	4	3	1	3	4	4	2	3
1457:	6	7	17	82	292	252	77	20
1465:	5	3	2	0	1	1	1	1
1473:	1	2	1	2	2	2	3	4
1481:	2	0	1	1	0	1	1	3
1489:	2	4	1	2	4	4	0	3
1497:	3	3	3	3	3	4	1	1
1505:	2	1	1	3	2	4	5	5
1513:	2	4	0	3	1	2	3	2
1521:	2	2	0	1	2	2	1	0
1529:	1	1	3	3	2	1	1	1
1537:	3	4	3	0	1	1	1	3
1545:	2	4	2	5	3	2	1	5
1553:	1	3	1	0	3	1	1	0
1561:	0	0	1	1	2	1	1	1
1569:	0	3	2	2	1	2	0	2
1577:	2	1	1	0	2	0	4	1
1585:	2	3	6	6	6	6	3	2
1593:	2	3	5	1	1	1	0	1
1601:	0	1	0	2	1	2	0	2
1609:	0	0	3	1	0	1	2	1
1617:	1	0	1	5	2	2	0	1
1625:	0	5	0	1	0	1	5	1
1633:	3	0	3	3	4	5	3	2
1641:	1	1	0	0	1	3	2	0
1649:	2	1	0	2	1	2	0	1
1657:	0	2	2	1	1	3	2	0

1665: 0 0 2 1 1 0 0 2

Sample Title: CP-5017 02-05

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

2097: 1 0 2 1 2 3 6 5

Sample Title: CP-5017 02-05

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

2529: 1 0 0 0 0 0 0 0 0

Sample Title: CP-5017 02-05

Channel	1	2	3	4	5	6	7	8	9
2537:	1	1	1	0	1	0	1	1	
2545:	0	1	0	1	0	0	0	0	
2553:	1	0	0	0	0	0	0	0	
2561:	0	0	0	0	0	0	0	0	
2569:	0	1	0	0	2	0	1	0	
2577:	0	0	0	1	0	2	0	0	
2585:	1	0	0	0	1	0	0	0	
2593:	0	0	1	0	0	1	0	1	
2601:	0	1	1	0	1	1	1	0	
2609:	0	1	0	5	17	16	38	27	
2617:	1	2	0	0	0	2	1	1	
2625:	0	0	0	1	0	0	0	0	
2633:	0	0	1	0	0	2	0	1	
2641:	0	0	0	0	0	0	1	0	
2649:	1	1	0	0	0	0	0	0	
2657:	2	1	1	0	0	0	0	0	
2665:	0	0	0	0	1	0	0	0	
2673:	1	1	0	1	0	1	0	1	
2681:	1	0	0	0	1	0	0	1	
2689:	0	2	0	0	0	1	0	0	
2697:	1	1	0	0	0	1	0	0	
2705:	0	0	0	0	1	0	0	0	
2713:	0	0	0	0	0	0	0	0	
2721:	0	1	0	0	0	0	0	0	
2729:	1	0	0	0	0	1	0	0	
2737:	1	0	0	0	0	0	0	0	
2745:	0	0	0	0	0	0	0	1	
2753:	0	0	0	0	0	0	1	0	
2761:	0	0	0	1	0	0	0	0	
2769:	1	0	1	0	1	0	1	0	
2777:	0	1	2	1	0	0	0	0	
2785:	0	0	0	0	0	0	0	0	
2793:	0	1	0	0	0	0	0	0	
2801:	0	0	0	1	0	1	1	1	
2809:	0	1	0	3	1	0	0	0	
2817:	0	0	0	0	0	0	0	1	
2825:	0	0	0	0	2	0	0	0	
2833:	1	1	0	0	0	0	0	0	
2841:	0	1	1	1	1	0	1	0	
2849:	0	2	0	2	0	0	0	0	
2857:	0	0	0	0	0	0	0	0	
2865:	0	0	1	0	0	0	0	0	
2873:	0	0	0	1	0	1	0	0	
2881:	0	0	0	0	0	0	0	1	
2889:	0	1	1	0	0	1	0	0	
2897:	1	1	0	0	0	0	0	0	
2905:	1	1	0	0	0	0	0	0	
2913:	0	0	0	0	0	0	1	0	
2921:	0	0	0	0	0	0	0	0	
2929:	1	1	0	0	0	0	0	0	
2937:	0	1	0	0	0	0	0	0	
2945:	0	1	0	1	0	0	0	0	
2953:	0	1	1	1	0	0	1	0	

2961: 1 0 0 1 0 0 0 0

Sample Title: CP-5017 02-05

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

3393: 1 0 1 0 0 1 0 0

Sample Title: CP-5017 02-05

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	2
3417:	0	0	0	1	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	1	0	0	0	0	1	1
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	1	0	0	0
3457:	0	0	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	0	0	0	0	0	0	0
3489:	0	0	0	0	1	0	0	0
3497:	0	0	0	0	0	1	0	0
3505:	0	0	1	0	0	0	0	0
3513:	1	1	0	0	0	0	0	0
3521:	0	0	0	0	1	0	0	1
3529:	0	0	0	0	0	1	0	0
3537:	0	0	0	1	0	0	0	0
3545:	0	0	0	1	0	0	0	0
3553:	0	0	1	0	0	1	0	1
3561:	0	0	0	1	0	0	0	0
3569:	0	1	0	0	0	0	0	0
3577:	1	0	0	0	0	1	0	0
3585:	0	0	0	0	0	0	0	1
3593:	0	0	0	0	1	0	0	0
3601:	0	0	1	0	0	0	1	0
3609:	0	0	0	0	0	0	0	0
3617:	0	0	0	0	0	1	0	0
3625:	0	0	0	0	0	0	1	1
3633:	1	0	0	0	0	0	0	1
3641:	0	1	0	0	1	0	0	0
3649:	0	0	0	0	1	0	0	1
3657:	0	0	0	0	0	0	0	0
3665:	0	0	0	1	0	0	0	0
3673:	0	0	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	1	0	0	1	1	0
3713:	0	0	0	0	0	0	0	1
3721:	0	1	1	0	0	0	0	1
3729:	0	1	0	0	0	0	0	0
3737:	0	0	0	0	1	0	0	0
3745:	1	1	0	0	0	1	0	0
3753:	0	0	0	0	0	0	0	0
3761:	1	0	0	0	0	0	0	0
3769:	0	0	0	0	0	0	0	0
3777:	0	0	1	0	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	0	0	1	0	0	0	0	0
3801:	0	0	0	0	0	0	0	0
3809:	0	0	2	0	0	0	2	0
3817:	0	0	0	0	0	0	0	0

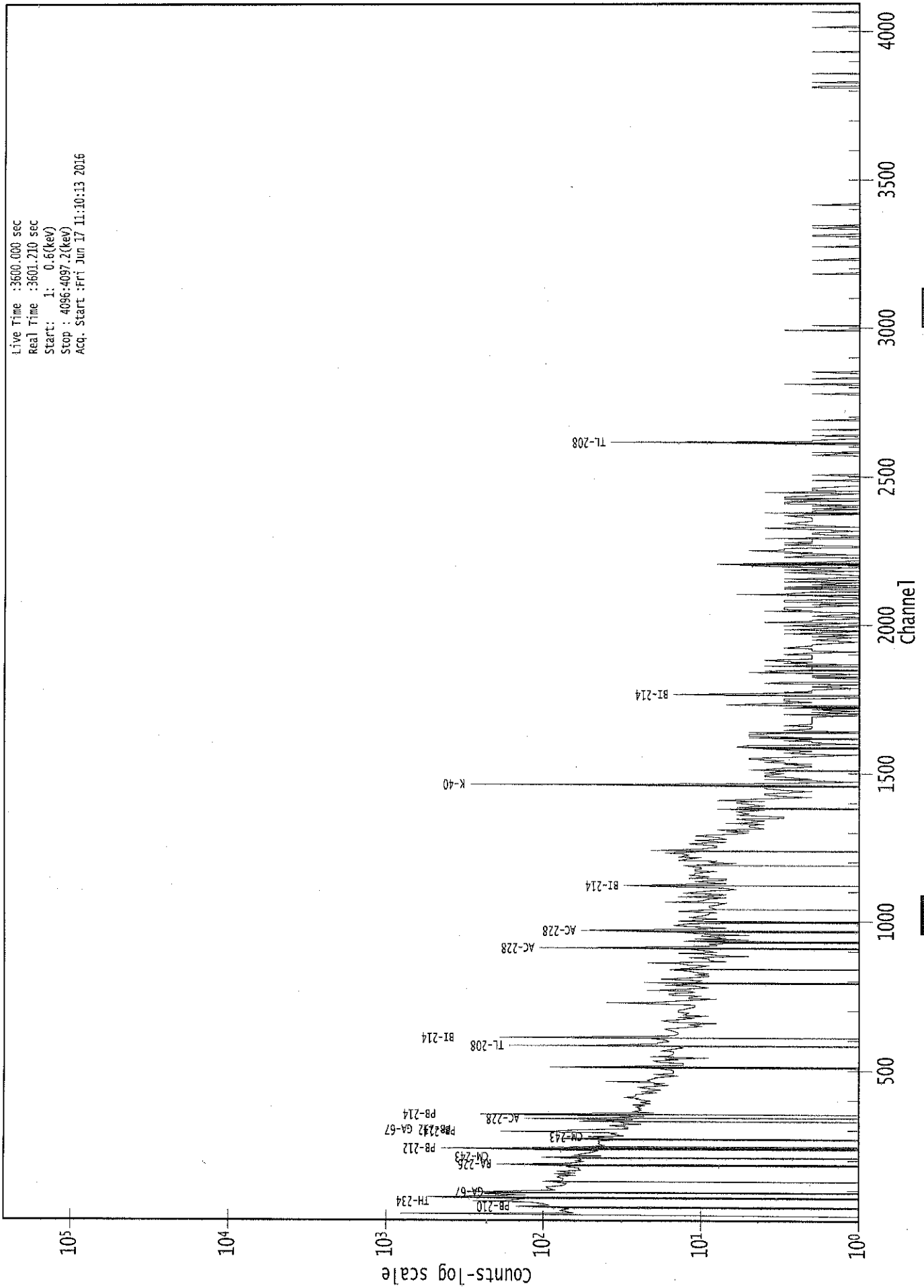
3825: 0 1 1 0 2 0 0 0

Sample Title: CP-5017 02-05

Channel	1	2	3	4	5	6	7	8
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	2	1	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	1	0	0	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	1	1
3913:	0	0	0	0	0	0	0	1
3921:	0	1	0	0	0	0	0	0
3929:	1	0	0	2	0	0	0	0
3937:	0	0	0	0	0	0	0	0
3945:	0	0	0	0	0	0	0	0
3953:	1	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	0	0	0	0
3985:	0	1	0	0	0	0	0	0
3993:	0	0	0	0	0	0	0	0
4001:	1	0	0	0	0	0	0	0
4009:	0	0	0	0	2	0	0	0
4017:	0	0	1	0	0	0	0	0
4025:	0	0	0	0	0	0	1	0
4033:	0	0	0	0	0	0	0	0
4041:	0	1	0	1	1	0	0	0
4049:	0	1	0	0	0	0	0	0
4057:	0	0	0	0	0	0	1	2
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	1	1	0	0	0	0
4089:	0	0	0	0	1	0	0	0

0000039085.CNF

Live Time :3600.000 sec
Real Time :3601.210 sec
Start: 1: 0.6(kev)
Stop : 4036:4097.2(kev)
Acq. Start :Fri Jun 17 11:10:13 2016



ROI Type: 2

ROI Type: 1

V.S.
6/17/16Analysis Report for 1606065-11
CP-5017 05-10

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606065-11
Sample Description : CP-5017 05-10
Sample Type : SOIL

Sample Size : 3.242E+02 grams
Facility : Countroom

Sample Taken On : 6/8/2016 8:55:19AM
Acquisition Started : 6/17/2016 11:10:29AM

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 : 39086

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606065-11
CP-5017 05-10

PEAK LOCATE REPORT

Peak Locate Performed on : 6/17/2016 12:10:45PM
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	46.81	47.04	0.0000	0.00
2	63.32	63.54	0.0000	0.00
3	72.59	72.80	0.0000	0.00
4	76.51	76.72	0.0000	0.00
5	87.85	88.06	0.0000	0.00
6	92.72	92.92	0.0000	0.00
7	100.43	100.63	0.0000	0.00
8	185.78	185.93	0.0000	0.00
9	210.28	210.42	0.0000	0.00
10	238.96	239.09	0.0000	0.00
11	242.05	242.17	0.0000	0.00
12	270.29	270.41	0.0000	0.00
13	277.71	277.81	0.0000	0.00
14	295.54	295.63	0.0000	0.00
15	301.10	301.19	0.0000	0.00
16	338.62	338.70	0.0000	0.00
17	352.48	352.55	0.0000	0.00
18	440.35	440.37	0.0000	0.00
19	463.69	463.70	0.0000	0.00
20	471.20	471.21	0.0000	0.00
21	499.42	499.42	0.0000	0.00
22	511.42	511.41	0.0000	0.00
23	583.64	583.60	0.0000	0.00
24	609.86	609.80	0.0000	0.00
25	613.98	613.92	0.0000	0.00
26	727.76	727.65	0.0000	0.00
27	756.58	756.46	0.0000	0.00
28	768.45	768.32	0.0000	0.00
29	781.50	781.37	0.0000	0.00
30	795.64	795.50	0.0000	0.00
31	835.95	835.79	0.0000	0.00
32	840.38	840.21	0.0000	0.00
33	864.11	863.94	0.0000	0.00
34	911.59	911.40	0.0000	0.00
35	969.78	969.56	0.0000	0.00
36	1001.02	1000.78	0.0000	0.00
37	1099.50	1099.22	0.0000	0.00
38	1136.24	1135.94	0.0000	0.00
39	1281.27	1280.92	0.0000	0.00
40	1386.08	1385.69	0.0000	0.00
41	1448.66	1448.24	0.0000	0.00
42	1461.13	1460.71	0.0000	0.00

Analysis Report for 1606065-11
CP-5017 05-10

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1476.93	1476.50	0.0000	0.00
44	1484.05	1483.62	0.0000	0.00
45	1587.01	1586.54	0.0000	0.00
46	1593.28	1592.81	0.0000	0.00
47	1630.29	1629.81	0.0000	0.00
48	1728.41	1727.89	0.0000	0.00
49	1764.15	1763.62	0.0000	0.00
50	1847.78	1847.22	0.0000	0.00
51	1923.22	1922.63	0.0000	0.00
52	2011.87	2011.26	0.0000	0.00
53	2237.33	2236.65	0.0000	0.00
54	2394.87	2394.14	0.0000	0.00
55	2614.68	2613.90	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606065-11

CP-5017 05-10

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 12:10:45PM

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	46.81	44 -	49	47.04	1.15E+02	64.02	7.26E+02	1.33
2	63.32	60 -	67	63.54	1.85E+02	93.25	1.33E+03	1.50
M 3	72.59	71 -	80	72.80	6.88E+01	43.70	5.15E+02	1.66
m 4	76.51	71 -	80	76.72	9.23E+02	108.24	1.29E+03	3.23
M 5	87.85	83 -	97	88.06	2.73E+02	106.36	1.47E+03	3.97
m 6	92.72	83 -	97	92.92	3.97E+02	84.88	8.95E+02	2.42
7	100.43	99 -	103	100.63	4.39E+01	50.90	5.26E+02	1.97
8	185.78	181 -	191	185.93	1.83E+02	83.01	8.27E+02	2.00
9	210.28	207 -	214	210.42	1.11E+02	57.69	4.75E+02	1.58
M 10	238.96	236 -	245	239.09	7.31E+02	62.62	2.42E+02	1.74
m 11	242.05	236 -	245	242.17	1.41E+02	65.89	2.57E+02	1.89
M 12	270.29	267 -	283	270.41	8.97E+01	41.93	2.69E+02	2.32
m 13	277.71	267 -	283	277.81	6.29E+01	44.81	2.87E+02	2.57
14	295.54	292 -	298	295.63	1.56E+02	44.83	2.52E+02	1.63
15	301.10	299 -	305	301.19	5.29E+01	42.00	2.86E+02	2.04
16	338.62	334 -	343	338.70	1.45E+02	54.06	3.34E+02	1.59
17	352.48	348 -	358	352.55	2.65E+02	58.84	3.24E+02	1.88
18	440.35	437 -	444	440.37	3.16E+01	32.19	1.51E+02	3.27
19	463.69	460 -	467	463.70	4.06E+01	31.30	1.37E+02	2.45
20	471.20	468 -	474	471.21	2.42E+01	26.22	1.06E+02	3.57
21	499.42	496 -	503	499.42	2.59E+01	28.21	1.14E+02	1.41
22	511.42	507 -	516	511.41	1.04E+02	44.51	2.20E+02	2.28
23	583.64	578 -	588	583.60	1.95E+02	43.46	1.47E+02	2.00
M 24	609.86	604 -	616	609.80	1.78E+02	37.37	1.23E+02	2.20
m 25	613.98	604 -	616	613.92	1.67E+01	20.66	8.09E+01	2.20
26	727.76	724 -	731	727.65	2.55E+01	27.86	1.13E+02	1.38
27	756.58	754 -	759	756.46	1.72E+01	17.58	4.36E+01	2.95
28	768.45	762 -	773	768.32	3.43E+01	32.37	1.13E+02	2.30
29	781.50	779 -	785	781.37	1.70E+01	20.51	6.60E+01	1.43
30	795.64	790 -	800	795.50	5.19E+01	28.67	8.03E+01	4.83
M 31	835.95	832 -	845	835.79	2.12E+01	20.80	6.30E+01	2.34
m 32	840.38	832 -	845	840.21	1.68E+01	19.91	6.30E+01	2.35
33	864.11	857 -	872	863.94	3.30E+01	39.65	1.44E+02	10.79
34	911.59	906 -	916	911.40	1.44E+02	33.37	7.16E+01	1.84
35	969.78	966 -	975	969.56	4.81E+01	34.31	1.30E+02	2.02
36	1001.02	998 -	1003	1000.78	1.55E+01	16.43	4.11E+01	2.77
37	1099.50	1095 -	1104	1099.22	2.02E+01	22.45	6.16E+01	2.27
m 38	1136.24	1117 -	1139	1135.94	2.18E+01	21.82	3.45E+01	3.34
39	1281.27	1268 -	1294	1280.92	8.70E+01	34.42	5.40E+01	22.35
40	1386.08	1383 -	1388	1385.69	7.83E+00	10.25	1.43E+01	2.90

Analysis Report for 1606065-11

CP-5017 05-10

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1448.66	1446 -	1450	1448.24	6.05E+00	7.66	7.90E+00	1.84
42	1461.13	1455 -	1466	1460.71	4.15E+02	42.99	2.26E+01	2.08
43	1476.93	1472 -	1480	1476.50	1.48E+01	9.39	4.35E+00	3.45
44	1484.05	1481 -	1486	1483.62	1.03E+01	7.55	3.33E+00	3.28
45	1587.01	1581 -	1590	1586.54	2.13E+01	11.00	5.33E+00	1.10
46	1593.28	1591 -	1595	1592.81	6.00E+00	8.54	1.20E+01	1.73
47	1630.29	1627 -	1632	1629.81	6.44E+00	6.40	3.13E+00	2.41
48	1728.41	1724 -	1731	1727.89	7.00E+00	8.72	8.00E+00	5.79
49	1764.15	1760 -	1767	1763.62	2.58E+01	11.31	4.32E+00	1.65
50	1847.78	1842 -	1851	1847.22	1.35E+01	9.43	4.94E+00	4.58
51	1923.22	1918 -	1925	1922.63	7.80E+00	7.48	4.40E+00	2.00
52	2011.87	2008 -	2013	2011.26	4.42E+00	5.74	3.17E+00	1.88
53	2237.33	2233 -	2239	2236.65	6.23E+00	8.99	9.55E+00	1.69
54	2394.87	2389 -	2396	2394.14	7.00E+00	5.29	0.00E+00	2.70
55	2614.68	2609 -	2617	2613.90	4.90E+01	14.00	0.00E+00	3.06

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 : 6/17/2016 12:10:45PM

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	46.81	44 -	49	1.15E+02	64.02	7.26E+02	4.96E+01
2	63.32	60 -	67	1.85E+02	93.25	1.33E+03	7.33E+01
M 3	72.59	71 -	80	6.88E+01	43.70	5.15E+02	3.73E+01
m 4	76.51	71 -	80	9.23E+02	108.24	1.29E+03	5.90E+01
M 5	87.85	83 -	97	2.73E+02	106.36	1.47E+03	6.30E+01
m 6	92.72	83 -	97	3.97E+02	84.88	8.95E+02	4.92E+01
7	100.43	99 -	103	4.39E+01	50.90	5.26E+02	4.04E+01
8	185.78	181 -	191	1.83E+02	83.01	8.27E+02	6.45E+01
9	210.28	207 -	214	1.11E+02	57.69	4.75E+02	4.42E+01
M 10	238.96	236 -	245	7.31E+02	62.62	2.42E+02	2.56E+01
m 11	242.05	236 -	245	1.41E+02	65.89	2.57E+02	2.63E+01
M 12	270.29	267 -	283	8.97E+01	41.93	2.69E+02	2.70E+01
m 13	277.71	267 -	283	6.29E+01	44.81	2.87E+02	2.78E+01

: 00628

Analysis Report for 1606065-11

CP-5017 05-10

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level	
14	295.54	292 -	298	1.56E+02	44.83	2.52E+02	3.06E+01	
15	301.10	299 -	305	5.29E+01	42.00	2.86E+02	3.24E+01	
16	338.62	334 -	343	1.45E+02	54.06	3.34E+02	3.98E+01	
17	352.48	348 -	358	2.65E+02	58.84	3.24E+02	4.03E+01	
18	440.35	437 -	444	3.16E+01	32.19	1.51E+02	2.48E+01	
19	463.69	460 -	467	4.06E+01	31.30	1.37E+02	2.35E+01	
20	471.20	468 -	474	2.42E+01	26.22	1.06E+02	2.00E+01	
21	499.42	496 -	503	2.59E+01	28.21	1.14E+02	2.16E+01	
22	511.42	507 -	516	1.04E+02	44.51	2.20E+02	3.25E+01	
23	583.64	578 -	588	1.95E+02	43.46	1.47E+02	2.74E+01	
M	24	609.86	604 -	616	1.78E+02	37.37	1.23E+02	1.82E+01
m	25	613.98	604 -	616	1.67E+01	20.66	8.09E+01	1.48E+01
	26	727.76	724 -	731	2.55E+01	27.86	1.13E+02	2.13E+01
	27	756.58	754 -	759	1.72E+01	17.58	4.36E+01	1.27E+01
	28	768.45	762 -	773	3.43E+01	32.37	1.13E+02	2.48E+01
	29	781.50	779 -	785	1.70E+01	20.51	6.60E+01	1.54E+01
	30	795.64	790 -	800	5.19E+01	28.67	8.03E+01	2.04E+01
M	31	835.95	832 -	845	2.12E+01	20.80	6.30E+01	1.30E+01
m	32	840.38	832 -	845	1.68E+01	19.91	6.30E+01	1.30E+01
	33	864.11	857 -	872	3.30E+01	39.65	1.44E+02	3.12E+01
	34	911.59	906 -	916	1.44E+02	33.37	7.16E+01	1.90E+01
	35	969.78	966 -	975	4.81E+01	34.31	1.30E+02	2.58E+01
	36	1001.02	998 -	1003	1.55E+01	16.43	4.11E+01	1.19E+01
	37	1099.50	1095 -	1104	2.02E+01	22.45	6.16E+01	1.69E+01
m	38	1136.24	1117 -	1139	2.18E+01	21.82	3.45E+01	9.66E+00
	39	1281.27	1268 -	1294	8.70E+01	34.42	5.40E+01	2.38E+01
	40	1386.08	1383 -	1388	7.83E+00	10.25	1.43E+01	7.06E+00
	41	1448.66	1446 -	1450	6.05E+00	7.66	7.90E+00	4.83E+00
	42	1461.13	1455 -	1466	4.15E+02	42.99	2.26E+01	1.13E+01
	43	1476.93	1472 -	1480	1.48E+01	9.39	4.35E+00	4.42E+00
	44	1484.05	1481 -	1486	1.03E+01	7.55	3.33E+00	3.25E+00
	45	1587.01	1581 -	1590	2.13E+01	11.00	5.33E+00	4.91E+00
	46	1593.28	1591 -	1595	6.00E+00	8.54	1.20E+01	5.75E+00
	47	1630.29	1627 -	1632	6.44E+00	6.40	3.13E+00	3.21E+00
	48	1728.41	1724 -	1731	7.00E+00	8.72	8.00E+00	5.70E+00
	49	1764.15	1760 -	1767	2.58E+01	11.31	4.32E+00	4.08E+00
	50	1847.78	1842 -	1851	1.35E+01	9.43	4.94E+00	4.85E+00
	51	1923.22	1918 -	1925	7.80E+00	7.48	4.40E+00	4.09E+00
	52	2011.87	2008 -	2013	4.42E+00	5.74	3.17E+00	3.22E+00
	53	2237.33	2233 -	2239	6.23E+00	8.99	9.55E+00	6.14E+00
	54	2394.87	2389 -	2396	7.00E+00	5.29	0.00E+00	0.00E+00
	55	2614.68	2609 -	2617	4.90E+01	14.00	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 1606065-11

CP-5017 05-10

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/17/2016 12:10:45PM

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	46.81	44 -	49	47.04	1.15E+02	64.02	7.26E+02	PB-210
2	63.32	60 -	67	63.54	1.85E+02	93.25	1.33E+03	TH-234
								TH-230
M 3	72.59	71 -	80	72.80	6.88E+01	43.70	5.15E+02	PM-145
m 4	76.51	71 -	80	76.72	9.23E+02	108.24	1.29E+03	.....
M 5	87.85	83 -	97	88.06	2.73E+02	106.36	1.47E+03	CD-109
								SN-126
								LU-176
m 6	92.72	83 -	97	92.92	3.97E+02	84.88	8.95E+02	GA-67
	100.43	99 -	103	100.63	4.39E+01	50.90	5.26E+02	LU-173
	185.78	181 -	191	185.93	1.83E+02	83.01	8.27E+02	RA-226
	210.28	207 -	214	210.42	1.11E+02	57.69	4.75E+02	CM-243
M 10	238.96	236 -	245	239.09	7.31E+02	62.62	2.42E+02	PB-212
m 11	242.05	236 -	245	242.17	1.41E+02	65.89	2.57E+02	.....
M 12	270.29	267 -	283	270.41	8.97E+01	41.93	2.69E+02	.....
m 13	277.71	267 -	283	277.81	6.29E+01	44.81	2.87E+02	CM-243
								NP-239
	295.54	292 -	298	295.63	1.56E+02	44.83	2.52E+02	PB-214
	301.10	299 -	305	301.19	5.29E+01	42.00	2.86E+02	GA-67
	338.62	334 -	343	338.70	1.45E+02	54.06	3.34E+02	AC-228
	352.48	348 -	358	352.55	2.65E+02	58.84	3.24E+02	PB-214
	440.35	437 -	444	440.37	3.16E+01	32.19	1.51E+02	.....
	463.69	460 -	467	463.70	4.06E+01	31.30	1.37E+02	SB-125
	471.20	468 -	474	471.21	2.42E+01	26.22	1.06E+02	.....
	499.42	496 -	503	499.42	2.59E+01	28.21	1.14E+02	.....
	511.42	507 -	516	511.41	1.04E+02	44.51	2.20E+02	.....
	583.64	578 -	588	583.60	1.95E+02	43.46	1.47E+02	TL-208
M 24	609.86	604 -	616	609.80	1.78E+02	37.37	1.23E+02	BI-214
m 25	613.98	604 -	616	613.92	1.67E+01	20.66	8.09E+01	AG-108M
	727.76	724 -	731	727.65	2.55E+01	27.86	1.13E+02	BI-212
	756.58	754 -	759	756.46	1.72E+01	17.58	4.36E+01	ZR-95
	768.45	762 -	773	768.32	3.43E+01	32.37	1.13E+02	.....
	781.50	779 -	785	781.37	1.70E+01	20.51	6.60E+01	.....
	795.64	790 -	800	795.50	5.19E+01	28.67	8.03E+01	CS-134
M 31	835.95	832 -	845	835.79	2.12E+01	20.80	6.30E+01	.....
m 32	840.38	832 -	845	840.21	1.68E+01	19.91	6.30E+01	.....
	864.11	857 -	872	863.94	3.30E+01	39.65	1.44E+02	.....
	911.59	906 -	916	911.40	1.44E+02	33.37	7.16E+01	AC-228

: 00630

Analysis Report for 1606065-11

CP-5017 05-10

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
								LU-172
35	969.78	966 -	975	969.56	4.81E+01	34.31	1.30E+02	AC-228
36	1001.02	998 -	1003	1000.78	1.55E+01	16.43	4.11E+01	PA-234M
37	1099.50	1095 -	1104	1099.22	2.02E+01	22.45	6.16E+01	FE-59
m 38	1136.24	1117 -	1139	1135.94	2.18E+01	21.82	3.45E+01	.....
39	1281.27	1268 -	1294	1280.92	8.70E+01	34.42	5.40E+01	.....
40	1386.08	1383 -	1388	1385.69	7.83E+00	10.25	1.43E+01	.....
41	1448.66	1446 -	1450	1448.24	6.05E+00	7.66	7.90E+00	.....
42	1461.13	1455 -	1466	1460.71	4.15E+02	42.99	2.26E+01	K-40
43	1476.93	1472 -	1480	1476.50	1.48E+01	9.39	4.35E+00	.....
44	1484.05	1481 -	1486	1483.62	1.03E+01	7.55	3.33E+00	.....
45	1587.01	1581 -	1590	1586.54	2.13E+01	11.00	5.33E+00	.....
46	1593.28	1591 -	1595	1592.81	6.00E+00	8.54	1.20E+01	.....
47	1630.29	1627 -	1632	1629.81	6.44E+00	6.40	3.13E+00	.....
48	1728.41	1724 -	1731	1727.89	7.00E+00	8.72	8.00E+00	.....
49	1764.15	1760 -	1767	1763.62	2.58E+01	11.31	4.32E+00	BI-214
50	1847.78	1842 -	1851	1847.22	1.35E+01	9.43	4.94E+00	.....
51	1923.22	1918 -	1925	1922.63	7.80E+00	7.48	4.40E+00	.....
52	2011.87	2008 -	2013	2011.26	4.42E+00	5.74	3.17E+00	.....
53	2237.33	2233 -	2239	2236.65	6.23E+00	8.99	9.55E+00	.....
54	2394.87	2389 -	2396	2394.14	7.00E+00	5.29	0.00E+00	.....
55	2614.68	2609 -	2617	2613.90	4.90E+01	14.00	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 : 6/17/2016 12:10:45PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	46.81	1.15E+02	64.02	1.52E-02	1.58E-03
2	63.32	1.85E+02	93.25	2.16E-02	1.71E-03
M 3	72.59	6.88E+01	43.70	2.33E-02	2.01E-03
m 4	76.51	9.23E+02	108.24	2.38E-02	2.14E-03
M 5	87.85	2.73E+02	106.36	2.44E-02	2.52E-03
m 6	92.72	3.97E+02	84.88	2.44E-02	2.42E-03
7	100.43	4.39E+01	50.90	2.43E-02	2.24E-03
8	185.78	1.83E+02	83.01	1.83E-02	1.42E-03

Analysis Report for 1606065-11
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	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	9	210.28	1.11E+02	57.69	1.68E-02	1.31E-03
M	10	238.96	7.31E+02	62.62	1.52E-02	1.18E-03
m	11	242.05	1.41E+02	65.89	1.51E-02	1.17E-03
M	12	270.29	8.97E+01	41.93	1.38E-02	1.04E-03
m	13	277.71	6.29E+01	44.81	1.35E-02	1.00E-03
	14	295.54	1.56E+02	44.83	1.28E-02	9.74E-04
	15	301.10	5.29E+01	42.00	1.26E-02	9.66E-04
	16	338.62	1.45E+02	54.06	1.14E-02	9.12E-04
	17	352.48	2.65E+02	58.84	1.10E-02	8.93E-04
	18	440.35	3.16E+01	32.19	9.12E-03	7.89E-04
	19	463.69	4.06E+01	31.30	8.72E-03	7.65E-04
	20	471.20	2.42E+01	26.22	8.60E-03	7.58E-04
	21	499.42	2.59E+01	28.21	8.17E-03	7.30E-04
	22	511.42	1.04E+02	44.51	8.01E-03	7.18E-04
	23	583.64	1.95E+02	43.46	7.13E-03	6.46E-04
M	24	609.86	1.78E+02	37.37	6.87E-03	6.20E-04
m	25	613.98	1.67E+01	20.66	6.83E-03	6.15E-04
	26	727.76	2.55E+01	27.86	5.89E-03	5.14E-04
	27	756.58	1.72E+01	17.58	5.69E-03	4.90E-04
	28	768.45	3.43E+01	32.37	5.62E-03	4.81E-04
	29	781.50	1.70E+01	20.51	5.54E-03	4.70E-04
	30	795.64	5.19E+01	28.67	5.45E-03	4.58E-04
M	31	835.95	2.12E+01	20.80	5.22E-03	4.25E-04
m	32	840.38	1.68E+01	19.91	5.20E-03	4.22E-04
	33	864.11	3.30E+01	39.65	5.08E-03	4.02E-04
	34	911.59	1.44E+02	33.37	4.85E-03	3.72E-04
	35	969.78	4.81E+01	34.31	4.60E-03	3.61E-04
	36	1001.02	1.55E+01	16.43	4.48E-03	3.55E-04
	37	1099.50	2.02E+01	22.45	4.14E-03	3.37E-04
m	38	1136.24	2.18E+01	21.82	4.03E-03	3.30E-04
	39	1281.27	8.70E+01	34.42	3.65E-03	3.00E-04
	40	1386.08	7.83E+00	10.25	3.43E-03	2.81E-04
	41	1448.66	6.05E+00	7.66	3.31E-03	2.71E-04
	42	1461.13	4.15E+02	42.99	3.29E-03	2.69E-04
	43	1476.93	1.48E+01	9.39	3.26E-03	2.67E-04
	44	1484.05	1.03E+01	7.55	3.25E-03	2.66E-04
	45	1587.01	2.13E+01	11.00	3.09E-03	2.50E-04
	46	1593.28	6.00E+00	8.54	3.08E-03	2.50E-04
	47	1630.29	6.44E+00	6.40	3.03E-03	2.44E-04
	48	1728.41	7.00E+00	8.72	2.90E-03	2.29E-04
	49	1764.15	2.58E+01	11.31	2.86E-03	2.24E-04
	50	1847.78	1.35E+01	9.43	2.77E-03	2.13E-04
	51	1923.22	7.80E+00	7.48	2.69E-03	2.13E-04
	52	2011.87	4.42E+00	5.74	2.61E-03	2.13E-04
	53	2237.33	6.23E+00	8.99	2.44E-03	2.13E-04
	54	2394.87	7.00E+00	5.29	2.35E-03	2.13E-04
	55	2614.68	4.90E+01	14.00	2.24E-03	2.13E-04

Analysis Report for 1606065-11

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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 : 6/17/2016 12:10:45PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038678.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.81	1.15E+02	64.02	4.97E+01	7.81E+00	6.54E+01	6.45E+01
	2	63.32	1.85E+02	93.25	4.47E+01	1.66E+01	1.41E+02	9.47E+01
M	3	72.59	6.88E+01	43.70			6.88E+01	4.37E+01
m	4	76.51	9.23E+02	108.24	6.70E+00	3.28E+00	9.16E+02	1.08E+02
M	5	87.85	2.73E+02	106.36	1.07E+01	3.99E+00	2.62E+02	1.06E+02
m	6	92.72	3.97E+02	84.88	8.20E+01	2.30E+01	3.15E+02	8.79E+01
	7	100.43	4.39E+01	50.90			4.39E+01	5.09E+01
	8	185.78	1.83E+02	83.01	3.45E+01	5.92E+00	1.48E+02	8.32E+01
	9	210.28	1.11E+02	57.69			1.11E+02	5.77E+01
M	10	238.96	7.31E+02	62.62	1.33E+01	5.09E+00	7.17E+02	6.28E+01
m	11	242.05	1.41E+02	65.89			1.41E+02	6.59E+01
M	12	270.29	8.97E+01	41.93			8.97E+01	4.19E+01
m	13	277.71	6.29E+01	44.81			6.29E+01	4.48E+01
	14	295.54	1.56E+02	44.83	1.94E+00	4.39E+00	1.54E+02	4.50E+01
	15	301.10	5.29E+01	42.00			5.29E+01	4.20E+01
	16	338.62	1.45E+02	54.06			1.45E+02	5.41E+01
	17	352.48	2.65E+02	58.84	4.00E+00	3.58E+00	2.61E+02	5.90E+01
	18	440.35	3.16E+01	32.19			3.16E+01	3.22E+01
	19	463.69	4.06E+01	31.30			4.06E+01	3.13E+01
	20	471.20	2.42E+01	26.22			2.42E+01	2.62E+01
	21	499.42	2.59E+01	28.21			2.59E+01	2.82E+01
	22	511.42	1.04E+02	44.51	6.05E+01	4.93E+00	4.34E+01	4.48E+01
	23	583.64	1.95E+02	43.46	5.50E+00	3.61E+00	1.89E+02	4.36E+01
M	24	609.86	1.78E+02	37.37	5.07E+00	3.83E+00	1.73E+02	3.76E+01
m	25	613.98	1.67E+01	20.66			1.67E+01	2.07E+01
	26	727.76	2.55E+01	27.86			2.55E+01	2.79E+01
	27	756.58	1.72E+01	17.58			1.72E+01	1.76E+01
	28	768.45	3.43E+01	32.37			3.43E+01	3.24E+01
	29	781.50	1.70E+01	20.51			1.70E+01	2.05E+01
	30	795.64	5.19E+01	28.67			5.19E+01	2.87E+01
M	31	835.95	2.12E+01	20.80			2.12E+01	2.08E+01
m	32	840.38	1.68E+01	19.91			1.68E+01	1.99E+01
	33	864.11	3.30E+01	39.65			3.30E+01	3.96E+01
	34	911.59	1.44E+02	33.37			1.44E+02	3.34E+01
	35	969.78	4.81E+01	34.31			4.81E+01	3.43E+01

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Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	36	1.55E+01	16.43	8.73E-01	2.25E+00	1.46E+01	1.66E+01
	37	2.02E+01	22.45			2.02E+01	2.24E+01
m	38	2.18E+01	21.82			2.18E+01	2.18E+01
	39	8.70E+01	34.42			8.70E+01	3.44E+01
	40	7.83E+00	10.25			7.83E+00	1.02E+01
	41	6.05E+00	7.66			6.05E+00	7.66E+00
	42	4.15E+02	42.99	4.33E+00	2.02E+00	4.10E+02	4.30E+01
	43	1.48E+01	9.39			1.48E+01	9.39E+00
	44	1.03E+01	7.55			1.03E+01	7.55E+00
	45	2.13E+01	11.00			2.13E+01	1.10E+01
	46	6.00E+00	8.54			6.00E+00	8.54E+00
	47	6.44E+00	6.40			6.44E+00	6.40E+00
	48	7.00E+00	8.72			7.00E+00	8.72E+00
	49	2.58E+01	11.31			2.58E+01	1.13E+01
	50	1.35E+01	9.43			1.35E+01	9.43E+00
	51	7.80E+00	7.48			7.80E+00	7.48E+00
	52	4.42E+00	5.74			4.42E+00	5.74E+00
	53	6.23E+00	8.99			6.23E+00	8.99E+00
	54	7.00E+00	5.29			7.00E+00	5.29E+00
	55	4.90E+01	14.00	2.52E+00	1.44E+00	4.65E+01	1.41E+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 : 6/17/2016 12:10:45PM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000038678.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	1.15E+02	64.02	4.97E+01	7.81E+00	6.54E+01	6.45E+01
	2	1.85E+02	93.25	4.47E+01	1.66E+01	1.41E+02	9.47E+01
M	3	6.88E+01	43.70			6.88E+01	4.37E+01
m	4	9.23E+02	108.24	6.70E+00	3.28E+00	9.16E+02	1.08E+02
M	5	2.73E+02	106.36	1.07E+01	3.99E+00	2.62E+02	1.06E+02
m	6	3.97E+02	84.88	8.20E+01	2.30E+01	3.15E+02	8.79E+01
	7	4.39E+01	50.90			4.39E+01	5.09E+01
	8	1.83E+02	83.01	3.45E+01	5.92E+00	1.48E+02	8.32E+01

: 00634

Analysis Report for 1606065-11

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	9	210.28	1.11E+02	57.69			1.11E+02	5.77E+01
M	10	238.96	7.31E+02	62.62	1.33E+01	5.09E+00	7.17E+02	6.28E+01
m	11	242.05	1.41E+02	65.89			1.41E+02	6.59E+01
M	12	270.29	8.97E+01	41.93			8.97E+01	4.19E+01
m	13	277.71	6.29E+01	44.81			6.29E+01	4.48E+01
	14	295.54	1.56E+02	44.83	1.94E+00	4.39E+00	1.54E+02	4.50E+01
	15	301.10	5.29E+01	42.00			5.29E+01	4.20E+01
	16	338.62	1.45E+02	54.06			1.45E+02	5.41E+01
	17	352.48	2.65E+02	58.84	4.00E+00	3.58E+00	2.61E+02	5.90E+01
	18	440.35	3.16E+01	32.19			3.16E+01	3.22E+01
	19	463.69	4.06E+01	31.30			4.06E+01	3.13E+01
	20	471.20	2.42E+01	26.22			2.42E+01	2.62E+01
	21	499.42	2.59E+01	28.21			2.59E+01	2.82E+01
	22	511.42	1.04E+02	44.51	6.05E+01	4.93E+00	4.34E+01	4.48E+01
	23	583.64	1.95E+02	43.46	5.50E+00	3.61E+00	1.89E+02	4.36E+01
M	24	609.86	1.78E+02	37.37	5.07E+00	3.83E+00	1.73E+02	3.76E+01
m	25	613.98	1.67E+01	20.66			1.67E+01	2.07E+01
	26	727.76	2.55E+01	27.86			2.55E+01	2.79E+01
	27	756.58	1.72E+01	17.58			1.72E+01	1.76E+01
	28	768.45	3.43E+01	32.37			3.43E+01	3.24E+01
	29	781.50	1.70E+01	20.51			1.70E+01	2.05E+01
	30	795.64	5.19E+01	28.67			5.19E+01	2.87E+01
M	31	835.95	2.12E+01	20.80			2.12E+01	2.08E+01
m	32	840.38	1.68E+01	19.91			1.68E+01	1.99E+01
	33	864.11	3.30E+01	39.65			3.30E+01	3.96E+01
	34	911.59	1.44E+02	33.37			1.44E+02	3.34E+01
	35	969.78	4.81E+01	34.31			4.81E+01	3.43E+01
	36	1001.02	1.55E+01	16.43	8.73E-01	2.25E+00	1.46E+01	1.66E+01
	37	1099.50	2.02E+01	22.45			2.02E+01	2.24E+01
m	38	1136.24	2.18E+01	21.82			2.18E+01	2.18E+01
	39	1281.27	8.70E+01	34.42			8.70E+01	3.44E+01
	40	1386.08	7.83E+00	10.25			7.83E+00	1.02E+01
	41	1448.66	6.05E+00	7.66			6.05E+00	7.66E+00
	42	1461.13	4.15E+02	42.99	4.33E+00	2.02E+00	4.10E+02	4.30E+01
	43	1476.93	1.48E+01	9.39			1.48E+01	9.39E+00
	44	1484.05	1.03E+01	7.55			1.03E+01	7.55E+00
	45	1587.01	2.13E+01	11.00			2.13E+01	1.10E+01
	46	1593.28	6.00E+00	8.54			6.00E+00	8.54E+00
	47	1630.29	6.44E+00	6.40			6.44E+00	6.40E+00
	48	1728.41	7.00E+00	8.72			7.00E+00	8.72E+00
	49	1764.15	2.58E+01	11.31			2.58E+01	1.13E+01
	50	1847.78	1.35E+01	9.43			1.35E+01	9.43E+00
	51	1923.22	7.80E+00	7.48			7.80E+00	7.48E+00
	52	2011.87	4.42E+00	5.74			4.42E+00	5.74E+00
	53	2237.33	6.23E+00	8.99			6.23E+00	8.99E+00
	54	2394.87	7.00E+00	5.29			7.00E+00	5.29E+00
	55	2614.68	4.90E+01	14.00	2.52E+00	1.44E+00	4.65E+01	1.41E+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 1606065-11

CP-5017 05-10

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	0.984	1460.81 *	10.67	2.71E+01	3.64E+00
FE-59	0.326	1099.22 *	56.50	2.30E-01	2.57E-01
		1291.56	43.20		
GA-67	0.835	93.31 *	35.70	5.80E+00	9.62E+00
		208.95	2.24		
		300.22 *	16.00	4.22E+00	7.67E+00
CD-109	0.995	88.03 *	3.72	6.77E+00	2.87E+00
SN-126	0.987	87.57 *	37.00	6.72E-01	2.82E-01
TL-208	0.871	583.14 *	30.22	2.03E+00	5.03E-01
		860.37	4.48		
		2614.66 *	35.85	1.34E+00	4.25E-01
PB-210	0.985	46.50 *	4.25	2.35E+00	2.33E+00
BI-212	0.726	727.17 *	11.80	8.49E-01	9.31E-01
		1620.62	2.75		
PB-212	0.879	238.63 *	44.60	2.45E+00	2.87E-01
		300.09	3.41		
BI-214	0.641	609.31 *	46.30	1.26E+00	2.96E-01
		1120.29	15.10		
		1764.49 *	15.80	1.32E+00	5.89E-01
		2204.22	4.98		
PB-214	0.962	295.21 *	19.19	1.45E+00	4.38E-01
		351.92 *	37.19	1.47E+00	3.53E-01
RA-226	0.970	186.21 *	3.28	5.71E+00	1.09E+01
AC-228	0.955	338.32 *	11.40	2.58E+00	9.83E-01
		911.07 *	27.70	2.48E+00	6.06E-01
		969.11 *	16.60	1.46E+00	1.05E+00
PA-234M	1.000	1001.03 *	0.92	8.20E+00	9.34E+00
TH-234	1.000	63.29 *	3.80	3.97E+00	2.69E+00
CM-243	0.364	209.75 *	3.29	4.65E+00	2.45E+00
		228.14	10.60		
		277.60 *	14.00	7.72E-01	5.53E-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

Analysis Report for 1606065-11

CP-5017 05-10

 UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 12:10:45PM
 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 3	72.59	1.91078E-02	31.76	Tol.	PM-145
m 4	76.51	2.54405E-01	5.91	D-Esc	
7	100.43	1.21991E-02	57.95	Tol.	LU-173
m 11	242.05	3.92746E-02	23.30		
M 12	270.29	2.49218E-02	23.37		
18	440.35	8.77466E-03	50.95	Sum	
19	463.69	1.12819E-02	38.54	Sum	
20	471.20	6.72980E-03	54.12		
21	499.42	7.20549E-03	54.38		
22	511.42	1.20585E-02	51.58	Sum	
m 25	613.98	4.63171E-03	61.95	Tol.	AG-108M
27	756.58	4.77564E-03	51.12	Tol.	ZR-95
28	768.45	9.51771E-03	47.24	Sum	
29	781.50	4.72778E-03	60.24		
30	795.64	1.44067E-02	27.64	Sum	
M 31	835.95	5.89673E-03	48.98		
m 32	840.38	4.65982E-03	59.35		
33	864.11	9.16667E-03	60.07		
m 38	1136.24	6.05900E-03	50.01		
39	1281.27	2.41667E-02	19.78		
40	1386.08	2.17593E-03	65.41		
41	1448.66	1.68056E-03	63.35		
43	1476.93	4.11765E-03	31.69		
44	1484.05	2.87037E-03	36.53		
45	1587.01	5.92593E-03	25.78		
46	1593.28	1.66667E-03	71.20	D-Esc	
47	1630.29	1.78819E-03	49.73		
48	1728.41	1.94444E-03	62.27	Sum	
50	1847.78	3.75868E-03	34.86		
51	1923.22	2.16667E-03	47.97		
52	2011.87	1.22685E-03	65.03	Sum	
53	2237.33	1.72980E-03	72.15		
54	2394.87	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

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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
K-40	0.98	1460.81 *	10.67	2.71E+01	3.64E+00
FE-59	0.32	1099.22 *	56.50	2.30E-01	2.57E-01
		1291.56	43.20		
GA-67	0.83	93.31 *	35.70	5.80E+00	9.62E+00
		208.95	2.24		
		300.22 *	16.00	4.22E+00	7.67E+00
CD-109	0.99	88.03 *	3.72	6.77E+00	2.87E+00
SN-126	0.98	87.57 *	37.00	6.72E-01	2.82E-01
TL-208	0.87	583.14 *	30.22	2.03E+00	5.03E-01
		860.37	4.48		
		2614.66 *	35.85	1.34E+00	4.25E-01
PB-210	0.98	46.50 *	4.25	2.35E+00	2.33E+00
BI-212	0.72	727.17 *	11.80	8.49E-01	9.31E-01
		1620.62	2.75		
PB-212	0.87	238.63 *	44.60	2.45E+00	2.87E-01
		300.09	3.41		
BI-214	0.64	609.31 *	46.30	1.26E+00	2.96E-01
		1120.29	15.10		
		1764.49 *	15.80	1.32E+00	5.89E-01
		2204.22	4.98		
PB-214	0.96	295.21 *	19.19	1.45E+00	4.38E-01
		351.92 *	37.19	1.47E+00	3.53E-01
RA-226	0.97	186.21 *	3.28	5.71E+00	1.09E+01
AC-228	0.95	338.32 *	11.40	2.58E+00	9.83E-01
		911.07 *	27.70	2.48E+00	6.06E-01
		969.11 *	16.60	1.46E+00	1.05E+00
PA-234M	1.00	1001.03 *	0.92	8.20E+00	9.34E+00
TH-234	1.00	63.29 *	3.80	3.97E+00	2.69E+00
CM-243	0.36	209.75 *	3.29	4.65E+00	2.45E+00
		228.14	10.60		
		277.60 *	14.00	7.72E-01	5.53E-01

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* = 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	0.984	2.71E+01	3.64E+00	
FE-59	0.326	2.30E-01	2.57E-01	
GA-67	0.835	4.89E+00	7.28E+00	
? CD-109	0.995	6.77E+00	2.87E+00	
? SN-126	0.987	6.72E-01	2.82E-01	
TL-208	0.871	1.63E+00	3.25E-01	
PB-210	0.985	2.35E+00	2.33E+00	
BI-212	0.726	8.49E-01	9.31E-01	
PB-212	0.879	2.45E+00	2.87E-01	
BI-214	0.641	1.27E+00	2.65E-01	
PB-214	0.962	1.46E+00	2.75E-01	
RA-226	0.970	5.71E+00	1.09E+01	
AC-228	0.955	2.30E+00	4.63E-01	
PA-234M	1.000	8.20E+00	9.34E+00	
TH-234	1.000	3.97E+00	2.69E+00	
CM-243	0.364	9.59E-01	5.39E-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

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 12:10:45PM
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 3	72.59	1.91078E-02	31.76	Tol.	PM-145
m 4	76.51	2.54405E-01	5.91	D-Esc	
	7	1.21991E-02	57.95	Tol.	LU-173
m 11	242.05	3.92746E-02	23.30		
M 12	270.29	2.49218E-02	23.37		
	18	8.77466E-03	50.95	Sum	
	19	1.12819E-02	38.54	Sum	
	20	6.72980E-03	54.12		
	21	7.20549E-03	54.38		
	22	1.20585E-02	51.58	Sum	
m 25	613.98	4.63171E-03	61.95	Tol.	AG-108M
	27	4.77564E-03	51.12	Tol.	ZR-95
	28	9.51771E-03	47.24	Sum	
	29	4.72778E-03	60.24		
	30	1.44067E-02	27.64	Sum	
M 31	835.95	5.89673E-03	48.98		
m 32	840.38	4.65982E-03	59.35		
	33	9.16667E-03	60.07		
m 38	1136.24	6.05900E-03	50.01		
	39	2.41667E-02	19.78		
	40	2.17593E-03	65.41		
	41	1.68056E-03	63.35		
	43	4.11765E-03	31.69		
	44	2.87037E-03	36.53		
	45	5.92593E-03	25.78		
	46	1.66667E-03	71.20	D-Esc	
	47	1.78819E-03	49.73		
	48	1.94444E-03	62.27	Sum	
	50	3.75868E-03	34.86		
	51	2.16667E-03	47.97		
	52	1.22685E-03	65.03	Sum	
	53	1.72980E-03	72.15		
	54	1.94444E-03	37.80		

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

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	1.22E-01	1.30E+00	1.30E+00
+	NA-22	1274.54	99.94	3.50E-02	2.07E-01	2.07E-01
+	NA-24	1368.53	99.99	3.98E+02	2.80E+03	4.41E+03
		2754.09	99.86	7.82E+02		2.80E+03
+	AL-26	1808.65	99.76	-3.51E-02	9.93E-02	9.93E-02
+	K-40	1460.81	* 10.67	2.71E+01	1.75E+00	1.75E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	4.12E-02	1.10E-01	1.10E-01
		78.34	96.00	3.51E-01		1.49E-01
+	SC-46	889.25	99.98	2.36E-02	1.50E-01	1.50E-01
		1120.51	99.99	2.18E-01		2.71E-01
+	V-48	983.52	99.98	-6.44E-02	2.10E-01	2.10E-01
		1312.10	97.50	-2.46E-02		2.73E-01
+	CR-51	320.08	9.83	5.44E-01	1.30E+00	1.30E+00
+	MN-54	834.83	99.97	-2.13E-04	1.65E-01	1.65E-01
+	CO-56	846.75	99.96	-5.81E-03	1.45E-01	1.45E-01
		1037.75	14.03	-6.16E-01		1.14E+00
		1238.25	67.00	-1.23E-01		3.17E-01
		1771.40	15.51	-6.40E-01		7.44E-01
		2598.48	16.90	2.20E-02		7.11E-01
+	CO-57	122.06	85.51	4.84E-02	9.64E-02	9.64E-02
		136.48	10.60	1.53E-01		7.68E-01
+	CO-58	810.76	99.40	3.64E-02	1.34E-01	1.34E-01
+	FE-59	1099.22	* 56.50	2.30E-01	4.17E-01	4.17E-01
		1291.56	43.20	8.51E-03		5.14E-01
+	CO-60	1173.22	100.00	2.21E-02	1.58E-01	1.88E-01
		1332.49	100.00	-1.03E-01		1.58E-01
+	ZN-65	1115.52	50.75	1.95E-02	4.00E-01	4.00E-01
+	GA-67	93.31	* 35.70	5.80E+00	4.14E+00	4.14E+00
		208.95	2.24	2.70E+01		3.65E+01
		300.22	* 16.00	4.22E+00		5.38E+00
+	SE-75	121.11	16.70	-1.22E-01	1.39E-01	4.79E-01

: 00641

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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>	
	SE-75	136.00	59.20	-3.22E-02	1.39E-01	1.39E-01
		264.65	59.80	-1.18E-02		1.74E-01
		279.53	25.20	5.10E-01		4.91E-01
		400.65	11.40	2.70E-01		1.07E+00
+	RB-82	776.52	13.00	-1.53E-01	1.29E+00	1.29E+00
+	RB-83	520.41	46.00	5.42E-02	2.74E-01	2.74E-01
		529.64	30.30	1.30E-01		4.38E-01
		552.65	16.40	5.76E-02		8.34E-01
+	KR-85	513.99	0.43	4.48E+01	4.13E+01	4.13E+01
+	SR-85	513.99	99.27	2.15E-01	1.99E-01	1.99E-01
+	Y-88	898.02	93.40	3.49E-02	1.48E-01	1.49E-01
		1836.01	99.38	-6.92E-03		1.48E-01
+	NB-93M	16.57	9.43	1.44E+00	1.42E+02	1.42E+02
+	NB-94	702.63	100.00	6.36E-02	1.51E-01	1.55E-01
		871.10	100.00	-2.76E-03		1.51E-01
+	NB-95	765.79	99.81	8.72E-02	1.95E-01	1.95E-01
+	NB-95M	235.69	25.00	-3.43E-02	4.41E+00	4.41E+00
+	ZR-95	724.18	43.70	6.70E-02	2.64E-01	3.62E-01
		756.72	55.30	1.07E-02		2.64E-01
+	MO-99	181.06	6.20	-1.78E+00	1.10E+01	1.29E+01
		739.58	12.80	1.57E+00		1.10E+01
		778.00	4.50	4.60E-01		3.09E+01
+	RU-103	497.08	89.00	2.61E-02	1.65E-01	1.65E-01
+	RU-106	621.84	9.80	-1.76E-01	1.31E+00	1.31E+00
+	AG-108M	433.93	89.90	4.32E-02	1.35E-01	1.35E-01
		614.37	90.40	-4.73E-01		1.75E-01
		722.95	90.50	4.30E-02		1.47E-01
+	CD-109	88.03	* 3.72	6.77E+00	5.86E+00	5.86E+00
+	AG-110M	657.75	93.14	-5.82E-02	1.49E-01	1.49E-01
		677.61	10.53	9.93E-01		1.41E+00
		706.67	16.46	-1.35E-01		9.26E-01
		763.93	21.98	-2.86E-01		6.56E-01
		884.67	71.63	6.68E-02		2.07E-01
		1384.27	23.94	1.44E-02		7.23E-01
+	CD-113M	263.70	0.02	-5.71E+01	4.35E+02	4.35E+02
+	SN-113	255.12	1.93	-2.85E-01	1.84E-01	5.93E+00
		391.69	64.90	2.76E-02		1.84E-01
+	TE123M	159.00	84.10	-2.94E-02	1.04E-01	1.04E-01
+	SB-124	602.71	97.87	-2.74E-02	1.52E-01	1.52E-01
		645.85	7.26	-2.49E-01		1.93E+00
		722.78	11.10	3.89E-01		1.33E+00
		1691.02	49.00	-2.67E-01		1.65E-01
+	I-125	35.49	6.49	4.95E-01	3.75E+00	3.75E+00
+	SB-125	176.33	6.89	6.40E-01	3.85E-01	1.23E+00
		427.89	29.33	-2.73E-01		3.85E-01
		463.38	10.35	1.13E+00		1.27E+00
		600.56	17.80	-1.02E-01		7.51E-01
		635.90	11.32	4.66E-01		1.20E+00

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70	83.30	-8.33E-02	2.33E-01	2.33E-01
		666.33	99.60	1.03E-02		2.43E-01
		695.00	99.60	7.96E-02		2.39E-01
		720.50	53.80	9.73E-02		4.13E-01
+	SN-126	87.57	* 37.00	6.72E-01	5.81E-01	5.81E-01
+	SB-127	473.00	25.00	-7.25E-01	2.02E+00	2.37E+00
		685.20	35.70	-3.71E-01		2.02E+00
		783.80	14.70	8.92E-01		5.43E+00
+	I-129	29.78	57.00	-4.83E-01	6.53E-01	6.53E-01
		33.60	13.20	-7.66E-01		1.92E+00
		39.58	7.52	-1.17E+00		2.34E+00
+	I-131	284.30	6.05	-3.84E-02	2.88E-01	3.86E+00
		364.48	81.20	-4.33E-02		2.88E-01
		636.97	7.26	2.65E-01		3.94E+00
		722.89	1.80	4.74E+00		1.62E+01
+	TE-132	49.72	13.10	1.61E+00	8.01E-01	6.32E+00
		228.16	88.00	-2.76E-01		8.01E-01
+	BA-133	81.00	33.00	-1.01E-02	2.55E-01	2.94E-01
		302.84	17.80	9.35E-01		7.06E-01
		356.01	60.00	-4.53E-02		2.55E-01
+	I-133	529.87	86.30	6.24E+01	2.09E+02	2.09E+02
+	XE-133	81.00	38.00	-2.92E-02	8.50E-01	8.50E-01
+	CS-134	563.23	8.38	4.99E-01	1.57E-01	1.80E+00
		569.32	15.43	-6.77E-02		8.98E-01
		604.70	97.60	-1.02E-02		1.57E-01
		795.84	85.40	1.88E-01		2.10E-01
		801.93	8.73	6.36E-01		1.62E+00
+	CS-135	268.24	16.00	1.74E-02	7.42E-01	7.42E-01
+	I-135	1131.51	22.50	1.05E+09	5.48E+09	7.14E+09
		1260.41	28.60	6.62E+08		5.48E+09
		1678.03	9.54	-5.66E+09		1.46E+10
+	CS-136	153.22	7.46	5.45E-01	2.16E-01	1.84E+00
		163.89	4.61	2.15E+00		3.08E+00
		176.55	13.56	3.69E-01		9.72E-01
		273.65	12.66	-1.01E+00		1.43E+00
		340.57	48.50	7.46E-01		5.12E-01
		818.50	99.70	5.05E-02		2.16E-01
		1048.07	79.60	1.11E-01		3.46E-01
		1235.34	19.70	4.30E-01		1.78E+00
+	CS-137	661.65	85.12	6.96E-03	1.74E-01	1.74E-01
+	LA-138	788.74	34.00	1.29E-01	2.30E-01	4.33E-01
		1435.80	66.00	-3.43E-02		2.30E-01
+	CE-139	165.85	80.35	-4.47E-02	1.09E-01	1.09E-01
+	BA-140	162.64	6.70	5.71E-01	7.85E-01	2.12E+00
		304.84	4.50	-6.61E-01		3.98E+00
		423.70	3.20	-1.89E+00		5.67E+00
		437.55	2.00	6.65E-01		1.02E+01
		537.32	25.00	-4.63E-02		7.85E-01
+	LA-140	328.77	20.50	4.94E-01	2.90E-01	9.25E-01

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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>
	LA-140	487.03	45.50	-5.66E-02	2.90E-01	4.13E-01
		815.85	23.50	4.86E-02		9.50E-01
		1596.49	95.49	-1.94E-02		2.90E-01
+	CE-141	145.44	48.40	7.87E-02	2.12E-01	2.12E-01
+	CE-143	57.36	11.80	-4.35E+01	3.38E+01	8.96E+01
		293.26	42.00	9.23E-01		3.38E+01
		664.55	5.20	4.02E+01		2.80E+02
+	CE-144	133.54	10.80	-2.87E-02	7.56E-01	7.56E-01
+	PM-144	476.78	42.00	-2.22E-02	1.27E-01	2.74E-01
		618.01	98.60	-2.59E-02		1.27E-01
		696.49	99.49	1.32E-02		1.46E-01
+	PM-145	36.85	21.70	-5.75E-01	4.97E-01	9.03E-01
		37.36	39.70	1.65E-02		4.97E-01
		42.30	15.10	1.75E-01		1.03E+00
		72.40	2.31	-9.99E+00		5.37E+00
+	PM-146	453.90	39.94	3.97E-02	2.78E-01	2.78E-01
		735.90	14.01	-7.64E-02		1.04E+00
		747.13	13.10	5.87E-01		1.04E+00
+	ND-147	91.11	28.90	7.91E-02	7.28E-01	7.28E-01
		531.02	13.10	2.84E-01		1.69E+00
+	PM-149	285.90	3.10	2.89E+00	5.84E+01	5.84E+01
+	EU-152	121.78	20.50	1.97E-01	3.93E-01	3.93E-01
		244.69	5.40	6.96E-01		2.36E+00
		344.27	19.13	4.76E-02		5.68E-01
		778.89	9.20	-8.55E-02		1.63E+00
		964.01	10.40	3.18E-01		1.67E+00
		1085.78	7.22	9.98E-01		2.29E+00
		1112.02	9.60	-5.21E-01		1.89E+00
		1407.95	14.94	-5.34E-02		9.49E-01
+	GD-153	97.43	31.30	-4.87E-01	2.64E-01	2.64E-01
		103.18	22.20	-2.40E-02		3.56E-01
+	EU-154	123.07	40.50	3.56E-02	2.00E-01	2.00E-01
		723.30	19.70	1.98E-01		6.75E-01
		873.19	11.50	6.87E-02		1.30E+00
		996.32	10.30	-7.73E-02		1.45E+00
		1004.76	17.90	-1.28E-01		8.42E-01
		1274.45	35.50	9.80E-02		5.79E-01
+	EU-155	86.50	30.90	1.19E-01	3.56E-01	3.56E-01
		105.30	20.70	-3.89E-02		3.71E-01
+	EU-156	811.77	10.40	1.01E-01	1.78E+00	1.78E+00
		1153.47	7.20	1.03E+00		3.61E+00
		1230.71	8.90	2.05E+00		3.86E+00
+	HO-166M	184.41	72.60	2.56E-01	1.55E-01	1.55E-01
		280.45	29.60	1.18E-01		3.74E-01
		410.94	11.10	7.77E-01		1.15E+00
		711.69	54.10	1.30E-01		2.74E-01
+	TM-171	66.72	0.14	1.95E-01	7.57E+01	7.57E+01
+	HF-172	81.75	4.52	-7.42E-02	7.53E-01	2.10E+00
		125.81	11.30	-2.55E-01		7.53E-01

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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	-1.78E+00	5.49E-01	1.02E+00
		810.06	16.63	-7.43E-01		1.76E+00
		912.12	15.25	1.04E+01		4.95E+00
		1093.66	62.50	-7.32E-02		5.49E-01
+	LU-173	100.72	5.24	6.03E-01	5.61E-01	1.55E+00
		272.11	21.20	2.17E-01		5.61E-01
+	HF-175	343.40	84.00	1.91E-02	1.54E-01	1.54E-01
+	LU-176	88.34	13.30	-1.69E-01	1.11E-01	8.63E-01
		201.83	86.00	1.81E-02		1.21E-01
		306.78	94.00	3.27E-03		1.11E-01
+	TA-182	67.75	41.20	9.98E-02	2.67E-01	2.67E-01
		1121.30	34.90	7.56E-01		7.49E-01
		1189.05	16.23	-3.36E-01		1.17E+00
		1221.41	26.98	1.10E-01		7.03E-01
		1231.02	11.44	7.72E-01		2.07E+00
+	IR-192	308.46	29.68	-2.00E-01	2.67E-01	3.42E-01
		468.07	48.10	-2.69E-01		2.67E-01
+	HG-203	279.19	77.30	1.80E-01	1.73E-01	1.73E-01
+	BI-207	569.67	97.72	8.13E-03	1.41E-01	1.41E-01
		1063.62	74.90	-2.18E-02		2.11E-01
+	TL-208	583.14	* 30.22	2.03E+00	2.43E-01	6.27E-01
		860.37	4.48	2.04E+00		3.77E+00
		2614.66	* 35.85	1.34E+00		2.43E-01
+	BI-210M	262.00	45.00	5.04E-02	2.29E-01	2.29E-01
		300.00	23.00	-1.19E+00		5.41E-01
+	PB-210	46.50	* 4.25	2.35E+00	3.79E+00	3.79E+00
+	PB-211	404.84	2.90	-2.33E+00	3.93E+00	3.93E+00
		831.96	2.90	6.47E-01		5.22E+00
+	BI-212	727.17	* 11.80	8.49E-01	1.51E+00	1.51E+00
		1620.62	2.75	3.49E+00		5.74E+00
+	PB-212	238.63	* 44.60	2.45E+00	3.11E-01	3.11E-01
		300.09	3.41	-8.04E+00		3.65E+00
+	BI-214	609.31	* 46.30	1.26E+00	5.22E-01	5.22E-01
		1120.29	15.10	1.34E+00		1.67E+00
		1764.49	* 15.80	1.32E+00		5.57E-01
		2204.22	4.98	1.77E+00		3.42E+00
+	PB-214	295.21	* 19.19	1.45E+00	4.73E-01	6.08E-01
		351.92	* 37.19	1.47E+00		4.73E-01
+	RN-219	401.80	6.50	3.02E-01	1.79E+00	1.79E+00
+	RA-223	323.87	3.88	-2.86E+00	2.54E+00	2.54E+00
+	RA-224	240.98	3.95	3.26E+01	5.83E+00	5.83E+00
+	RA-225	40.00	31.00	-4.24E-01	8.48E-01	8.48E-01
+	RA-226	186.21	* 3.28	5.71E+00	5.15E+00	5.15E+00
+	TH-227	50.10	8.40	3.56E-01	1.40E+00	1.40E+00
		236.00	11.50	-1.30E-02		1.67E+00
		256.20	6.30	1.50E-01		1.76E+00
+	AC-228	338.32	* 11.40	2.58E+00	7.03E-01	1.46E+00
		911.07	* 27.70	2.48E+00		7.03E-01

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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>
	AC-228	969.11	*	16.60	1.46E+00	7.03E-01	1.65E+00
+	TH-230	48.44		16.90	1.49E-01	8.31E-01	8.31E-01
		62.85		4.60	3.81E+00		2.72E+00
		67.67		0.37	1.05E+01		2.82E+01
+	PA-231	283.67		1.60	-6.60E-02	5.45E+00	6.64E+00
		302.67		2.30	7.22E+00		5.45E+00
+	TH-231	25.64		14.70	1.55E+00	1.53E+00	5.00E+00
		84.21		6.40	-1.46E+00		1.53E+00
+	PA-233	311.98		38.60	-7.00E-02	3.03E-01	3.03E-01
+	PA-234	131.20		20.40	9.90E-02	4.25E-01	4.25E-01
		733.99		8.80	-9.00E-02		1.66E+00
		946.00		12.00	9.17E-02		1.19E+00
+	PA-234M	1001.03	*	0.92	8.20E+00	1.51E+01	1.51E+01
+	TH-234	63.29	*	3.80	3.97E+00	4.33E+00	4.33E+00
+	U-235	143.76		10.50	2.05E-01	7.97E-01	7.97E-01
		163.35		4.70	1.30E+00		1.86E+00
		205.31		4.70	8.54E-01		2.24E+00
+	NP-237	86.50		12.60	2.90E-01	8.69E-01	8.69E-01
+	NP-239	106.10		22.70	9.87E-01	5.12E+00	5.12E+00
		228.18		10.70	-4.77E+00		1.39E+01
		277.60		14.10	9.17E+00		1.18E+01
+	AM-241	59.54		35.90	-5.74E-02	3.03E-01	3.03E-01
+	AM-243	74.67		66.00	2.81E-01	2.29E-01	2.29E-01
+	CM-243	209.75	*	3.29	4.65E+00	9.57E-01	3.83E+00
		228.14		10.60	-3.30E-01		9.57E-01
		277.60	*	14.00	7.72E-01		1.59E+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

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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	1.30E+00	1.30E+00	1.22E-01	6.12E-01
NA-22	1274.54	99.94	2.07E-01	2.07E-01	3.50E-02	9.47E-02
NA-24	1368.53	99.99	4.41E+03	2.80E+03	3.98E+02	1.98E+03
	2754.09	99.86	2.80E+03		7.82E+02	1.05E+03
AL-26	1808.65	99.76	9.93E-02	9.93E-02	-3.51E-02	3.85E-02
+ K-40	1460.81	* 10.67	1.75E+00	1.75E+00	2.71E+01	7.87E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	67.88	94.40	1.10E-01	1.10E-01	4.12E-02	5.37E-02
	78.34	96.00	1.49E-01		3.51E-01	7.29E-02
SC-46	889.25	99.98	1.50E-01	1.50E-01	2.36E-02	6.84E-02
	1120.51	99.99	2.71E-01		2.18E-01	1.27E-01
V-48	983.52	99.98	2.10E-01	2.10E-01	-6.44E-02	9.48E-02
	1312.10	97.50	2.73E-01		-2.46E-02	1.23E-01
CR-51	320.08	9.83	1.30E+00	1.30E+00	5.44E-01	6.16E-01
MN-54	834.83	99.97	1.65E-01	1.65E-01	-2.13E-04	7.65E-02
CO-56	846.75	99.96	1.45E-01	1.45E-01	-5.81E-03	6.59E-02
	1037.75	14.03	1.14E+00		-6.16E-01	5.15E-01
	1238.25	67.00	3.17E-01		-1.23E-01	1.45E-01
	1771.40	15.51	7.44E-01		-6.40E-01	2.95E-01
	2598.48	16.90	7.11E-01		2.20E-02	2.66E-01
CO-57	122.06	85.51	9.64E-02	9.64E-02	4.84E-02	4.66E-02
	136.48	10.60	7.68E-01		1.53E-01	3.70E-01
CO-58	810.76	99.40	1.34E-01	1.34E-01	3.64E-02	6.05E-02
+ FE-59	1099.22	* 56.50	4.17E-01	4.17E-01	2.30E-01	1.93E-01
	1291.56	43.20	5.14E-01		8.51E-03	2.34E-01
CO-60	1173.22	100.00	1.88E-01	1.58E-01	2.21E-02	8.60E-02
	1332.49	100.00	1.58E-01		-1.03E-01	7.00E-02
ZN-65	1115.52	50.75	4.00E-01	4.00E-01	1.95E-02	1.84E-01
+ GA-67	93.31	* 35.70	4.14E+00	4.14E+00	5.80E+00	2.04E+00
	208.95	2.24	3.65E+01		2.70E+01	1.77E+01
	300.22	* 16.00	5.38E+00		4.22E+00	2.58E+00
SE-75	121.11	16.70	4.79E-01	1.39E-01	-1.22E-01	2.31E-01
	136.00	59.20	1.39E-01		-3.22E-02	6.68E-02
	264.65	59.80	1.74E-01		-1.18E-02	8.32E-02
	279.53	25.20	4.91E-01		5.10E-01	2.36E-01
	400.65	11.40	1.07E+00		2.70E-01	5.03E-01
RB-82	776.52	13.00	1.29E+00	1.29E+00	-1.53E-01	5.88E-01
RB-83	520.41	46.00	2.74E-01	2.74E-01	5.42E-02	1.28E-01
	529.64	30.30	4.38E-01		1.30E-01	2.05E-01
	552.65	16.40	8.34E-01		5.76E-02	3.90E-01
KR-85	513.99	0.43	4.13E+01	4.13E+01	4.48E+01	1.97E+01
SR-85	513.99	99.27	1.99E-01	1.99E-01	2.15E-01	9.49E-02
Y-88	898.02	93.40	1.49E-01	1.48E-01	3.49E-02	6.71E-02
	1836.01	99.38	1.48E-01		-6.92E-03	6.21E-02
NB-93M	16.57	9.43	1.42E+02	1.42E+02	1.44E+00	6.88E+01
NB-94	702.63	100.00	1.55E-01	1.51E-01	6.36E-02	7.21E-02
	871.10	100.00	1.51E-01		-2.76E-03	6.92E-02
NB-95	765.79	99.81	1.95E-01	1.95E-01	8.72E-02	9.11E-02
NB-95M	235.69	25.00	4.41E+00	4.41E+00	-3.43E-02	2.16E+00
ZR-95	724.18	43.70	3.62E-01	2.64E-01	6.70E-02	1.68E-01
	756.72	55.30	2.64E-01		1.07E-02	1.21E-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	1.29E+01	1.10E+01	-1.78E+00	6.19E+00
	739.58	12.80	1.10E+01		1.57E+00	5.10E+00
	778.00	4.50	3.09E+01		4.60E-01	1.42E+01
RU-103	497.08	89.00	1.65E-01	1.65E-01	2.61E-02	7.75E-02
RU-106	621.84	9.80	1.31E+00	1.31E+00	-1.76E-01	6.09E-01
AG-108M	433.93	89.90	1.35E-01	1.35E-01	4.32E-02	6.39E-02
	614.37	90.40	1.75E-01		-4.73E-01	8.24E-02
	722.95	90.50	1.47E-01		4.30E-02	6.74E-02
+ CD-109	88.03	* 3.72	5.86E+00	5.86E+00	6.77E+00	2.89E+00
AG-110M	657.75	93.14	1.49E-01	1.49E-01	-5.82E-02	6.90E-02
	677.61	10.53	1.41E+00		9.93E-01	6.54E-01
	706.67	16.46	9.26E-01		-1.35E-01	4.30E-01
	763.93	21.98	6.56E-01		-2.86E-01	3.02E-01
	884.67	71.63	2.07E-01		6.68E-02	9.43E-02
	1384.27	23.94	7.23E-01		1.44E-02	3.22E-01
CD-113M	263.70	0.02	4.35E+02	4.35E+02	-5.71E+01	2.08E+02
SN-113	255.12	1.93	5.93E+00	1.84E-01	-2.85E-01	2.84E+00
	391.69	64.90	1.84E-01		2.76E-02	8.69E-02
TE123M	159.00	84.10	1.04E-01	1.04E-01	-2.94E-02	5.03E-02
SB-124	602.71	97.87	1.52E-01	1.52E-01	-2.74E-02	7.10E-02
	645.85	7.26	1.93E+00		-2.49E-01	8.92E-01
	722.78	11.10	1.33E+00		3.89E-01	6.10E-01
	1691.02	49.00	1.65E-01		-2.67E-01	5.86E-02
I-125	35.49	6.49	3.75E+00	3.75E+00	4.95E-01	1.81E+00
SB-125	176.33	6.89	1.23E+00	3.85E-01	6.40E-01	5.88E-01
	427.89	29.33	3.85E-01		-2.73E-01	1.81E-01
	463.38	10.35	1.27E+00		1.13E+00	6.00E-01
	600.56	17.80	7.51E-01		-1.02E-01	3.50E-01
	635.90	11.32	1.20E+00		4.66E-01	5.60E-01
SB-126	414.70	83.30	2.33E-01	2.33E-01	-8.33E-02	1.10E-01
	666.33	99.60	2.43E-01		1.03E-02	1.13E-01
	695.00	99.60	2.39E-01		7.96E-02	1.11E-01
	720.50	53.80	4.13E-01		9.73E-02	1.90E-01
+ SN-126	87.57	* 37.00	5.81E-01	5.81E-01	6.72E-01	2.87E-01
SB-127	473.00	25.00	2.37E+00	2.02E+00	-7.25E-01	1.11E+00
	685.20	35.70	2.02E+00		-3.71E-01	9.39E-01
	783.80	14.70	5.43E+00		8.92E-01	2.52E+00
I-129	29.78	57.00	6.53E-01	6.53E-01	-4.83E-01	3.15E-01
	33.60	13.20	1.92E+00		-7.66E-01	9.25E-01
	39.58	7.52	2.34E+00		-1.17E+00	1.13E+00
I-131	284.30	6.05	3.86E+00	2.88E-01	-3.84E-02	1.84E+00
	364.48	81.20	2.88E-01		-4.33E-02	1.36E-01
	636.97	7.26	3.94E+00		2.65E-01	1.83E+00
	722.89	1.80	1.62E+01		4.74E+00	7.44E+00
TE-132	49.72	13.10	6.32E+00	8.01E-01	1.61E+00	3.06E+00
	228.16	88.00	8.01E-01		-2.76E-01	3.85E-01
BA-133	81.00	33.00	2.94E-01	2.55E-01	-1.01E-02	1.43E-01
	302.84	17.80	7.06E-01		9.35E-01	3.39E-01
	356.01	60.00	2.55E-01		-4.53E-02	1.23E-01
I-133	529.87	86.30	2.09E+02	2.09E+02	6.24E+01	9.79E+01
XE-133	81.00	38.00	8.50E-01	8.50E-01	-2.92E-02	4.14E-01
CS-134	563.23	8.38	1.80E+00	1.57E-01	4.99E-01	8.49E-01
	569.32	15.43	8.98E-01		-6.77E-02	4.21E-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	1.57E-01	1.57E-01	-1.02E-02	7.37E-02
	795.84	85.40	2.10E-01		1.88E-01	9.83E-02
	801.93	8.73	1.62E+00		6.36E-01	7.45E-01
CS-135	268.24	16.00	7.42E-01	7.42E-01	1.74E-02	3.57E-01
I-135	1131.51	22.50	7.14E+09	5.48E+09	1.05E+09	3.26E+09
	1260.41	28.60	5.48E+09		6.62E+08	2.47E+09
	1678.03	9.54	1.46E+10		-5.66E+09	6.30E+09
CS-136	153.22	7.46	1.84E+00	2.16E-01	5.45E-01	8.88E-01
	163.89	4.61	3.08E+00		2.15E+00	1.48E+00
	176.55	13.56	9.72E-01		3.69E-01	4.66E-01
	273.65	12.66	1.43E+00		-1.01E+00	6.87E-01
	340.57	48.50	5.12E-01		7.46E-01	2.47E-01
	818.50	99.70	2.16E-01		5.05E-02	9.85E-02
	1048.07	79.60	3.46E-01		1.11E-01	1.58E-01
	1235.34	19.70	1.78E+00		4.30E-01	8.22E-01
CS-137	661.65	85.12	1.74E-01	1.74E-01	6.96E-03	8.10E-02
LA-138	788.74	34.00	4.33E-01	2.30E-01	1.29E-01	2.00E-01
	1435.80	66.00	2.30E-01		-3.43E-02	1.01E-01
CE-139	165.85	80.35	1.09E-01	1.09E-01	-4.47E-02	5.26E-02
BA-140	162.64	6.70	2.12E+00	7.85E-01	5.71E-01	1.02E+00
	304.84	4.50	3.98E+00		-6.61E-01	1.90E+00
	423.70	3.20	5.67E+00		-1.89E+00	2.67E+00
	437.55	2.00	1.02E+01		6.65E-01	4.84E+00
	537.32	25.00	7.85E-01		-4.63E-02	3.66E-01
	537.32	25.00	7.85E-01		-4.63E-02	3.66E-01
LA-140	328.77	20.50	9.25E-01	2.90E-01	4.94E-01	4.41E-01
	487.03	45.50	4.13E-01		-5.66E-02	1.93E-01
	815.85	23.50	9.50E-01		4.86E-02	4.34E-01
	1596.49	95.49	2.90E-01		-1.94E-02	1.28E-01
CE-141	145.44	48.40	2.12E-01	2.12E-01	7.87E-02	1.02E-01
CE-143	57.36	11.80	8.96E+01	3.38E+01	-4.35E+01	4.35E+01
	293.26	42.00	3.38E+01		9.23E-01	1.63E+01
	664.55	5.20	2.80E+02		4.02E+01	1.31E+02
CE-144	133.54	10.80	7.56E-01	7.56E-01	-2.87E-02	3.65E-01
PM-144	476.78	42.00	2.74E-01	1.27E-01	-2.22E-02	1.28E-01
	618.01	98.60	1.27E-01		-2.59E-02	5.85E-02
	696.49	99.49	1.46E-01		1.32E-02	6.80E-02
PM-145	36.85	21.70	9.03E-01	4.97E-01	-5.75E-01	4.36E-01
	37.36	39.70	4.97E-01		1.65E-02	2.40E-01
	42.30	15.10	1.03E+00		1.75E-01	4.96E-01
	72.40	2.31	5.37E+00		-9.99E+00	2.63E+00
PM-146	453.90	39.94	2.78E-01	2.78E-01	3.97E-02	1.30E-01
	735.90	14.01	1.04E+00		-7.64E-02	4.82E-01
	747.13	13.10	1.04E+00		5.87E-01	4.81E-01
ND-147	91.11	28.90	7.28E-01	7.28E-01	7.91E-02	3.56E-01
	531.02	13.10	1.69E+00		2.84E-01	7.89E-01
PM-149	285.90	3.10	5.84E+01	5.84E+01	2.89E+00	2.78E+01
EU-152	121.78	20.50	3.93E-01	3.93E-01	1.97E-01	1.90E-01
	244.69	5.40	2.36E+00		6.96E-01	1.14E+00
	344.27	19.13	5.68E-01		4.76E-02	2.69E-01
	778.89	9.20	1.63E+00		-8.55E-02	7.54E-01
	964.01	10.40	1.67E+00		3.18E-01	7.69E-01
	1085.78	7.22	2.29E+00		9.98E-01	1.04E+00
	1112.02	9.60	1.89E+00		-5.21E-01	8.66E-01

Analysis Report for 1606065-11
CP-5017 05-10

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	9.49E-01	3.93E-01	-5.34E-02	4.13E-01
GD-153	97.43	31.30	2.64E-01	2.64E-01	-4.87E-01	1.28E-01
	103.18	22.20	3.56E-01		-2.40E-02	1.72E-01
EU-154	123.07	40.50	2.00E-01	2.00E-01	3.56E-02	9.67E-02
	723.30	19.70	6.75E-01		1.98E-01	3.10E-01
	873.19	11.50	1.30E+00		6.87E-02	5.97E-01
	996.32	10.30	1.45E+00		-7.73E-02	6.59E-01
	1004.76	17.90	8.42E-01		-1.28E-01	3.82E-01
	1274.45	35.50	5.79E-01		9.80E-02	2.65E-01
EU-155	86.50	30.90	3.56E-01	3.56E-01	1.19E-01	1.74E-01
	105.30	20.70	3.71E-01		-3.89E-02	1.79E-01
EU-156	811.77	10.40	1.78E+00	1.78E+00	1.01E-01	8.03E-01
	1153.47	7.20	3.61E+00		1.03E+00	1.64E+00
	1230.71	8.90	3.86E+00		2.05E+00	1.79E+00
HO-166M	184.41	72.60	1.55E-01	1.55E-01	2.56E-01	7.51E-02
	280.45	29.60	3.74E-01		1.18E-01	1.79E-01
	410.94	11.10	1.15E+00		7.77E-01	5.44E-01
	711.69	54.10	2.74E-01		1.30E-01	1.27E-01
TM-171	66.72	0.14	7.57E+01	7.57E+01	1.95E-01	3.68E+01
HF-172	81.75	4.52	2.10E+00	7.53E-01	-7.42E-02	1.02E+00
	125.81	11.30	7.53E-01		-2.55E-01	3.64E-01
LU-172	181.53	20.60	1.02E+00	5.49E-01	-1.78E+00	4.90E-01
	810.06	16.63	1.76E+00		-7.43E-01	7.90E-01
	912.12	15.25	4.95E+00		1.04E+01	2.37E+00
	1093.66	62.50	5.49E-01		-7.32E-02	2.44E-01
LU-173	100.72	5.24	1.55E+00	5.61E-01	6.03E-01	7.52E-01
	272.11	21.20	5.61E-01		2.17E-01	2.69E-01
HF-175	343.40	84.00	1.54E-01	1.54E-01	1.91E-02	7.35E-02
LU-176	88.34	13.30	8.63E-01	1.11E-01	-1.69E-01	4.22E-01
	201.83	86.00	1.21E-01		1.81E-02	5.85E-02
	306.78	94.00	1.11E-01		3.27E-03	5.28E-02
TA-182	67.75	41.20	2.67E-01	2.67E-01	9.98E-02	1.30E-01
	1121.30	34.90	7.49E-01		7.56E-01	3.51E-01
	1189.05	16.23	1.17E+00		-3.36E-01	5.35E-01
	1221.41	26.98	7.03E-01		1.10E-01	3.19E-01
	1231.02	11.44	2.07E+00		7.72E-01	9.60E-01
IR-192	308.46	29.68	3.42E-01	2.67E-01	-2.00E-01	1.61E-01
	468.07	48.10	2.67E-01		-2.69E-01	1.25E-01
HG-203	279.19	77.30	1.73E-01	1.73E-01	1.80E-01	8.28E-02
BI-207	569.67	97.72	1.41E-01	1.41E-01	8.13E-03	6.60E-02
	1063.62	74.90	2.11E-01		-2.18E-02	9.56E-02
+ TL-208	583.14	* 30.22	6.27E-01	2.43E-01	2.03E+00	2.99E-01
	860.37	4.48	3.77E+00		2.04E+00	1.75E+00
	2614.66	* 35.85	2.43E-01		1.34E+00	8.27E-02
BI-210M	262.00	45.00	2.29E-01	2.29E-01	5.04E-02	1.10E-01
	300.00	23.00	5.41E-01		-1.19E+00	2.60E-01
+ PB-210	46.50	* 4.25	3.79E+00	3.79E+00	2.35E+00	1.84E+00
PB-211	404.84	2.90	3.93E+00	3.93E+00	-2.33E+00	1.86E+00
	831.96	2.90	5.22E+00		6.47E-01	2.40E+00
+ BI-212	727.17	* 11.80	1.51E+00	1.51E+00	8.49E-01	7.12E-01
	1620.62	2.75	5.74E+00		3.49E+00	2.49E+00
+ PB-212	238.63	* 44.60	3.11E-01	3.11E-01	2.45E+00	1.51E-01
	300.09	3.41	3.65E+00		-8.04E+00	1.75E+00

Analysis Report for 1606065-11

CP-5017 05-10

	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	5.22E-01	5.22E-01	1.26E+00	2.51E-01
		1120.29		15.10	1.67E+00		1.34E+00	7.83E-01
		1764.49 *		15.80	5.57E-01		1.32E+00	2.09E-01
		2204.22		4.98	3.42E+00		1.77E+00	1.46E+00
+	PB-214	295.21 *		19.19	6.08E-01	4.73E-01	1.45E+00	2.91E-01
		351.92 *		37.19	4.73E-01		1.47E+00	2.29E-01
	RN-219	401.80		6.50	1.79E+00	1.79E+00	3.02E-01	8.44E-01
	RA-223	323.87		3.88	2.54E+00	2.54E+00	-2.86E+00	1.20E+00
	RA-224	240.98		3.95	5.83E+00	5.83E+00	3.26E+01	2.86E+00
	RA-225	40.00		31.00	8.48E-01	8.48E-01	-4.24E-01	4.10E-01
+	RA-226	186.21 *		3.28	5.15E+00	5.15E+00	5.71E+00	2.52E+00
	TH-227	50.10		8.40	1.40E+00	1.40E+00	3.56E-01	6.79E-01
		236.00		11.50	1.67E+00		-1.30E-02	8.17E-01
		256.20		6.30	1.76E+00		1.50E-01	8.47E-01
+	AC-228	338.32 *		11.40	1.46E+00	7.03E-01	2.58E+00	7.07E-01
		911.07 *		27.70	7.03E-01		2.48E+00	3.28E-01
		969.11 *		16.60	1.65E+00		1.46E+00	7.82E-01
	TH-230	48.44		16.90	8.31E-01	8.31E-01	1.49E-01	4.04E-01
		62.85		4.60	2.72E+00		3.81E+00	1.33E+00
		67.67		0.37	2.82E+01		1.05E+01	1.37E+01
	PA-231	283.67		1.60	6.64E+00	5.45E+00	-6.60E-02	3.17E+00
		302.67		2.30	5.45E+00		7.22E+00	2.62E+00
	TH-231	25.64		14.70	5.00E+00	1.53E+00	1.55E+00	2.42E+00
		84.21		6.40	1.53E+00		-1.46E+00	7.45E-01
	PA-233	311.98		38.60	3.03E-01	3.03E-01	-7.00E-02	1.43E-01
	PA-234	131.20		20.40	4.25E-01	4.25E-01	9.90E-02	2.06E-01
		733.99		8.80	1.66E+00		-9.00E-02	7.70E-01
		946.00		12.00	1.19E+00		9.17E-02	5.40E-01
+	PA-234M	1001.03 *		0.92	1.51E+01	1.51E+01	8.20E+00	6.80E+00
+	TH-234	63.29 *		3.80	4.33E+00	4.33E+00	3.97E+00	2.13E+00
	U-235	143.76		10.50	7.97E-01	7.97E-01	2.05E-01	3.84E-01
		163.35		4.70	1.86E+00		1.30E+00	8.98E-01
		205.31		4.70	2.24E+00		8.54E-01	1.08E+00
	NP-237	86.50		12.60	8.69E-01	8.69E-01	2.90E-01	4.25E-01
	NP-239	106.10		22.70	5.12E+00	5.12E+00	9.87E-01	2.48E+00
		228.18		10.70	1.39E+01		-4.77E+00	6.66E+00
		277.60		14.10	1.18E+01		9.17E+00	5.66E+00
	AM-241	59.54		35.90	3.03E-01	3.03E-01	-5.74E-02	1.47E-01
	AM-243	74.67		66.00	2.29E-01	2.29E-01	2.81E-01	1.12E-01
+	CM-243	209.75 *		3.29	3.83E+00	9.57E-01	4.65E+00	1.86E+00
		228.14		10.60	9.57E-01		-3.30E-01	4.60E-01
		277.60 *		14.00	1.59E+00		7.72E-01	7.77E-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 1606065-11
CP-5017 05-10

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 05-10

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:	3	180	131	110	84	96	82	88	
17:	103	63	84	76	54	63	70	52	
25:	53	66	59	49	38	56	48	54	
33:	61	49	46	46	63	60	43	70	
41:	63	61	71	55	57	81	150	84	
49:	51	66	61	56	55	82	81	62	
57:	77	65	78	82	91	91	133	187	
65:	93	90	83	88	96	95	79	114	
73:	101	127	269	241	316	372	129	70	
81:	82	96	69	106	106	86	133	141	
89:	120	120	132	90	227	200	67	62	
97:	47	64	59	78	71	55	44	51	
105:	58	65	55	65	66	54	46	41	
113:	68	56	55	57	44	53	31	50	
121:	66	49	50	62	51	51	70	63	
129:	72	80	52	55	44	50	53	50	
137:	42	40	59	43	47	51	44	65	
145:	55	42	50	48	50	41	49	43	
153:	50	53	52	42	47	52	53	31	
161:	44	44	58	46	47	48	42	35	
169:	54	43	36	40	31	45	45	36	
177:	33	42	33	30	29	42	44	39	
185:	49	105	110	44	45	46	43	47	
193:	36	38	38	37	45	30	40	34	
201:	33	46	34	40	33	41	27	38	
209:	54	82	44	31	48	24	29	35	
217:	29	36	31	30	32	27	39	32	
225:	31	31	18	30	30	36	27	26	
233:	34	30	26	26	38	128	435	208	
241:	50	96	61	26	14	27	35	31	
249:	32	17	44	27	28	28	29	32	
257:	29	21	36	17	28	21	15	26	
265:	25	20	20	24	22	53	52	25	
273:	17	19	18	13	42	35	26	24	
281:	29	25	16	18	21	16	31	28	
289:	17	26	18	19	22	27	61	102	
297:	34	17	18	38	41	26	23	24	
305:	26	19	22	6	20	14	10	11	
313:	14	16	14	10	24	20	15	17	
321:	15	15	9	17	11	19	20	26	
329:	33	10	26	10	21	14	21	21	
337:	27	50	90	36	16	21	16	16	
345:	16	19	12	13	12	19	29	143	
353:	109	29	13	19	20	21	12	17	
361:	18	17	7	23	12	13	14	15	

369: 14 14 14 17 13 17 19 11

Sample Title: CP-5017 05-10

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	17	11	22	14	21	14	15	21
385:	20	16	15	14	23	19	9	15
393:	9	12	13	8	17	13	19	14
401:	9	17	16	12	14	11	13	13
409:	19	25	14	18	14	15	13	10
417:	12	14	18	10	15	7	13	15
425:	14	7	12	17	11	14	9	17
433:	20	13	18	10	10	13	19	14
441:	17	11	12	11	7	12	13	10
449:	8	17	8	8	9	16	8	12
457:	12	6	8	8	9	10	23	25
465:	17	8	9	9	9	18	9	14
473:	12	6	7	7	17	13	10	10
481:	16	10	15	9	12	11	12	13
489:	6	6	12	7	9	15	8	8
497:	8	18	12	11	9	8	9	4
505:	12	15	11	13	12	27	54	50
513:	19	9	9	10	9	13	10	5
521:	9	10	8	8	6	9	9	12
529:	8	13	14	7	6	10	7	11
537:	7	10	7	11	15	8	5	8
545:	6	12	6	9	9	14	8	8
553:	13	11	9	5	10	9	9	14
561:	13	15	17	13	12	9	14	12
569:	10	13	9	9	9	12	9	9
577:	8	9	12	8	11	17	77	90
585:	20	6	11	7	3	7	7	6
593:	10	5	4	10	8	12	8	7
601:	10	8	9	10	11	10	17	19
609:	68	88	27	13	10	16	7	6
617:	10	5	12	5	6	9	12	6
625:	4	9	9	7	11	8	4	6
633:	9	5	9	12	11	7	7	4
641:	11	4	9	7	7	7	9	3
649:	8	9	7	14	7	11	5	8
657:	8	9	9	12	5	11	11	6
665:	13	12	8	5	9	8	11	10
673:	4	5	8	6	11	9	8	9
681:	10	4	6	8	9	12	10	7
689:	8	9	8	6	17	8	5	7
697:	7	7	6	4	12	11	9	12
705:	8	10	11	4	8	7	9	9
713:	7	11	8	5	4	7	5	8
721:	8	9	5	6	3	6	16	28
729:	7	8	8	9	8	5	9	5
737:	10	5	11	5	10	4	5	7
745:	4	8	4	5	6	11	2	4
753:	8	5	11	4	12	5	2	2
761:	9	2	8	7	6	5	9	12
769:	16	9	6	6	5	3	7	11
777:	5	1	6	7	7	14	8	5
785:	3	8	9	5	7	3	7	9
793:	8	10	12	16	9	7	9	2

801: 3 8 6 4 10 2 2 3

Sample Title: CP-5017 05-10

Channel	1	2	3	4	5	6	7	8	9	10
809:	2	2	5	7	5	6	3	6		
817:	5	4	9	5	4	4	2	11		
825:	1	7	2	5	7	8	5	4		
833:	8	7	7	14	6	7	5	12		
841:	6	3	5	8	3	6	3	8		
849:	4	2	4	5	3	5	7	4		
857:	5	6	4	12	13	7	8	2		
865:	7	3	6	4	8	11	6	3		
873:	6	4	7	4	4	6	9	3		
881:	2	10	3	4	6	4	8	3		
889:	1	6	4	8	2	5	6	3		
897:	2	5	5	4	4	1	5	5		
905:	3	3	6	6	5	14	69	45		
913:	13	7	7	5	2	4	4	5		
921:	9	3	4	4	3	2	6	7		
929:	9	3	5	2	4	10	8	5		
937:	8	4	9	3	4	5	5	3		
945:	3	3	3	7	8	3	5	6		
953:	6	3	3	5	3	4	2	4		
961:	3	4	5	8	12	8	7	13		
969:	30	29	7	8	4	4	3	6		
977:	5	7	5	4	5	7	5	3		
985:	3	2	5	5	3	4	5	6		
993:	3	5	7	4	4	4	5	8		
1001:	9	7	3	3	6	4	2	7		
1009:	6	5	7	6	1	5	8	4		
1017:	10	8	4	3	5	3	4	3		
1025:	8	2	6	3	3	4	8	7		
1033:	6	5	2	5	4	3	5	5		
1041:	5	5	9	2	5	5	7	3		
1049:	7	6	6	3	3	5	2	6		
1057:	4	5	5	4	3	3	3	5		
1065:	6	8	5	5	8	5	6	7		
1073:	6	2	5	4	3	3	8	5		
1081:	4	2	1	6	7	7	4	4		
1089:	5	2	4	1	6	2	2	4		
1097:	3	9	8	6	6	7	4	2		
1105:	6	1	7	4	4	6	6	2		
1113:	3	8	11	10	7	7	12	24		
1121:	13	8	9	4	2	3	6	5		
1129:	6	6	2	7	6	4	3	6		
1137:	11	1	1	2	4	4	3	4		
1145:	4	6	7	3	3	3	4	4		
1153:	6	3	7	6	6	2	7	5		
1161:	3	3	7	4	5	7	0	2		
1169:	4	6	6	5	3	9	7	3		
1177:	6	7	4	6	4	13	3	7		
1185:	6	4	4	3	5	8	8	3		
1193:	6	6	5	2	7	8	7	13		
1201:	3	6	10	7	3	2	8	4		
1209:	8	6	12	5	3	6	4	8		
1217:	2	7	6	3	6	2	6	3		
1225:	2	5	9	9	7	5	4	10		

1233: 10 8 4 5 7 5 8 5

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Channel	1	2	3	4	5	6	7	8	9
1241:	5	6	6	3	3	4	4	5	
1249:	2	5	4	5	2	2	5	4	
1257:	7	5	3	2	5	4	2	1	
1265:	5	3	2	0	4	7	5	2	
1273:	3	3	7	5	3	6	5	6	
1281:	5	4	4	4	3	4	5	5	
1289:	5	7	5	2	4	1	1	3	
1297:	5	2	3	6	3	2	1	2	
1305:	3	4	3	5	5	3	3	2	
1313:	2	3	3	3	1	6	2	1	
1321:	6	5	1	3	4	7	8	3	
1329:	3	2	1	2	2	4	3	1	
1337:	2	1	1	4	3	1	1	1	
1345:	0	2	5	4	1	4	4	2	
1353:	0	2	2	2	1	1	2	2	
1361:	0	1	5	3	2	4	3	2	
1369:	4	1	5	3	2	3	3	3	
1377:	2	7	1	3	4	1	2	2	
1385:	4	3	4	0	2	1	2	1	
1393:	1	2	2	1	2	3	1	1	
1401:	3	1	2	2	1	2	1	4	
1409:	1	3	0	1	2	2	4	2	
1417:	1	1	3	2	2	1	0	2	
1425:	1	3	1	5	2	2	1	2	
1433:	2	0	2	3	3	3	1	2	
1441:	3	4	2	1	0	1	1	4	
1449:	4	0	2	1	1	3	1	2	
1457:	1	4	36	129	185	59	6	1	
1465:	2	0	0	1	3	0	1	0	
1473:	2	2	0	4	4	3	2	0	
1481:	0	2	3	4	3	0	1	2	
1489:	2	0	0	1	2	1	3	3	
1497:	3	2	0	2	2	1	1	0	
1505:	4	5	0	1	5	3	0	2	
1513:	1	1	1	3	2	1	4	0	
1521:	1	1	0	1	2	2	0	0	
1529:	0	2	1	0	0	1	1	2	
1537:	2	0	0	0	0	0	0	0	
1545:	0	1	3	0	1	1	2	1	
1553:	0	2	1	0	1	0	1	0	
1561:	0	0	2	0	0	1	2	3	
1569:	2	1	0	1	4	2	1	0	
1577:	2	3	0	1	0	2	1	2	
1585:	3	0	10	2	4	0	0	3	
1593:	6	3	0	4	0	0	0	2	
1601:	3	0	1	1	0	0	0	1	
1609:	0	0	0	0	0	0	1	1	
1617:	0	2	2	1	2	3	2	2	
1625:	0	0	0	0	3	3	2	0	
1633:	1	1	0	0	2	2	1	1	
1641:	0	0	3	0	0	1	1	0	
1649:	1	0	0	2	0	0	1	1	
1657:	1	0	3	2	0	4	0	0	

1665: 1 1 0 0 0 0 0 1

Sample Title: CP-5017 05-10

Channel	1	2	3	4	5	6	7	8
1673:	2	1	2	2	1	0	1	2
1681:	2	2	3	3	1	3	0	0
1689:	0	0	0	1	0	1	0	2
1697:	0	1	3	0	0	1	1	0
1705:	0	0	1	2	0	0	2	1
1713:	1	0	1	0	0	0	0	1
1721:	1	1	1	0	3	0	0	3
1729:	2	3	0	1	1	1	0	1
1737:	1	0	1	0	1	1	0	1
1745:	0	0	1	0	1	0	1	0
1753:	2	0	1	0	1	1	0	0
1761:	2	4	4	11	5	2	0	1
1769:	0	1	0	0	0	1	2	2
1777:	0	3	0	0	0	1	1	4
1785:	0	0	0	0	1	2	0	1
1793:	0	1	1	0	0	2	0	1
1801:	1	1	1	0	0	0	0	0
1809:	1	0	2	1	1	1	0	0
1817:	2	0	0	0	0	1	1	1
1825:	2	1	1	2	3	0	1	2
1833:	0	0	2	1	2	1	0	1
1841:	1	0	1	1	1	4	2	4
1849:	1	2	0	0	1	3	1	1
1857:	0	1	2	3	1	2	0	0
1865:	2	1	0	1	1	0	1	1
1873:	1	1	1	0	0	0	0	1
1881:	0	1	1	1	1	0	1	2
1889:	1	0	1	1	0	4	0	1
1897:	0	1	1	1	0	0	1	0
1905:	1	2	0	2	1	0	1	1
1913:	2	0	1	0	1	0	1	0
1921:	2	1	3	3	0	0	0	0
1929:	2	2	2	0	2	0	1	0
1937:	0	0	0	1	1	0	1	1
1945:	2	0	1	0	0	0	3	0
1953:	1	2	1	0	0	0	0	0
1961:	0	0	1	0	1	0	0	1
1969:	0	1	1	3	1	0	0	0
1977:	3	0	1	0	1	0	1	1
1985:	2	1	1	0	0	0	0	0
1993:	3	1	0	1	1	1	1	0
2001:	0	0	1	3	1	0	1	0
2009:	0	1	3	2	0	0	0	0
2017:	1	0	0	1	0	2	0	0
2025:	1	0	0	0	0	0	0	0
2033:	1	2	0	1	2	0	0	0
2041:	0	2	0	0	1	0	0	0
2049:	0	1	0	0	0	0	0	0
2057:	1	0	0	0	0	0	1	0
2065:	0	0	2	0	0	1	0	1
2073:	0	0	0	0	1	1	0	1
2081:	0	0	1	0	2	2	1	0
2089:	0	1	0	0	0	1	1	0

2097: 0 0 0 1 2 1 3 3

Sample Title: CP-5017 05-10

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

2529: 0 2 2 0 0 1 1 0

Sample Title: CP-5017 05-10

Channel	1	2	3	4	5	6	7	8
2537:	0	0	0	1	0	0	0	0
2545:	1	0	1	0	0	0	0	0
2553:	0	1	0	0	1	0	0	1
2561:	1	0	0	0	1	0	0	0
2569:	0	0	0	0	0	0	0	0
2577:	1	0	1	0	0	1	0	0
2585:	0	0	1	1	0	0	0	0
2593:	0	0	0	0	0	0	3	0
2601:	0	0	0	0	2	0	0	0
2609:	0	1	1	4	12	12	16	3
2617:	0	0	0	0	0	0	0	0
2625:	0	0	1	0	0	1	0	1
2633:	0	1	0	1	0	0	0	0
2641:	1	0	0	0	0	1	0	1
2649:	0	0	0	0	0	1	0	0
2657:	0	0	0	0	0	0	0	0
2665:	0	1	0	0	1	0	0	1
2673:	0	0	1	0	0	0	0	0
2681:	0	0	0	0	1	0	0	1
2689:	0	0	0	0	0	0	0	0
2697:	0	1	0	1	0	0	0	0
2705:	0	0	0	0	0	0	0	1
2713:	1	0	0	0	0	0	0	1
2721:	0	0	0	0	0	0	0	0
2729:	1	0	1	0	0	0	0	1
2737:	0	0	0	0	0	0	0	0
2745:	0	0	0	0	0	0	0	1
2753:	0	0	1	1	0	0	0	0
2761:	0	0	0	0	0	1	0	0
2769:	0	0	0	0	0	1	0	0
2777:	1	0	0	0	1	0	0	1
2785:	0	0	1	1	0	0	1	1
2793:	0	0	0	0	0	0	2	0
2801:	0	1	1	0	0	0	0	1
2809:	0	0	1	0	0	0	0	0
2817:	0	0	0	2	0	0	1	0
2825:	0	0	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	1	0	0	0	0	1	0
2849:	0	0	0	0	0	0	0	1
2857:	0	0	0	0	0	0	1	1
2865:	1	0	0	2	0	0	0	0
2873:	0	1	0	0	0	0	1	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	1	0	1	2	1	0
2897:	0	0	0	0	0	1	0	0
2905:	1	1	0	0	0	0	0	0
2913:	0	0	1	0	1	0	0	0
2921:	0	0	0	0	0	0	3	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	1	0	1	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961: 0 0 0 0 0 0 0 1 0

Sample Title: CP-5017 05-10

Channel	1	2	3	4	5	6	7	8	9
2969:	1	0	0	1	0	0	1	0	
2977:	0	0	1	0	0	1	0	0	
2985:	0	0	0	0	1	0	0	1	
2993:	1	0	0	0	0	0	0	0	
3001:	1	0	0	0	0	1	0	0	
3009:	0	0	0	0	0	0	0	2	
3017:	0	0	0	0	0	0	0	0	
3025:	1	1	0	1	1	1	0	0	
3033:	0	0	1	0	0	0	0	0	
3041:	1	0	0	2	0	0	0	0	
3049:	1	0	0	0	0	1	0	0	
3057:	0	0	2	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	0	1	0	0	0	0	
3089:	0	0	0	0	0	0	0	0	
3097:	0	0	0	0	0	1	1	0	
3105:	1	0	0	0	0	0	0	0	
3113:	0	0	0	1	0	0	1	0	
3121:	1	0	0	1	0	1	0	0	
3129:	1	0	0	0	0	0	0	0	
3137:	0	0	0	1	0	1	0	0	
3145:	0	0	0	0	0	0	0	1	
3153:	0	0	0	0	1	1	0	0	
3161:	0	0	1	0	0	0	0	0	
3169:	0	0	0	0	1	0	0	0	
3177:	0	1	0	0	0	0	0	0	
3185:	0	0	0	0	0	0	1	0	
3193:	0	0	1	1	1	1	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	0	0	0	0	
3233:	0	1	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:	0	0	0	0	0	0	1	0	
3265:	0	0	0	0	0	0	0	0	
3273:	1	0	1	1	0	0	0	0	
3281:	0	0	0	0	0	0	0	0	
3289:	0	1	0	0	1	0	0	0	
3297:	0	0	0	0	0	0	1	0	
3305:	0	1	0	0	0	0	0	0	
3313:	0	1	0	0	0	0	1	0	
3321:	0	0	0	0	0	1	0	2	
3329:	0	0	0	0	0	0	0	0	
3337:	1	0	0	0	1	0	0	0	
3345:	1	1	0	0	0	0	1	1	
3353:	1	0	1	0	0	0	0	1	
3361:	0	0	0	0	0	0	0	0	
3369:	1	0	0	0	0	0	0	0	
3377:	0	0	0	0	0	0	0	0	
3385:	1	0	0	0	0	0	0	0	

3393: 0 0 1 0 0 0 0 0 0

Sample Title: CP-5017 05-10

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

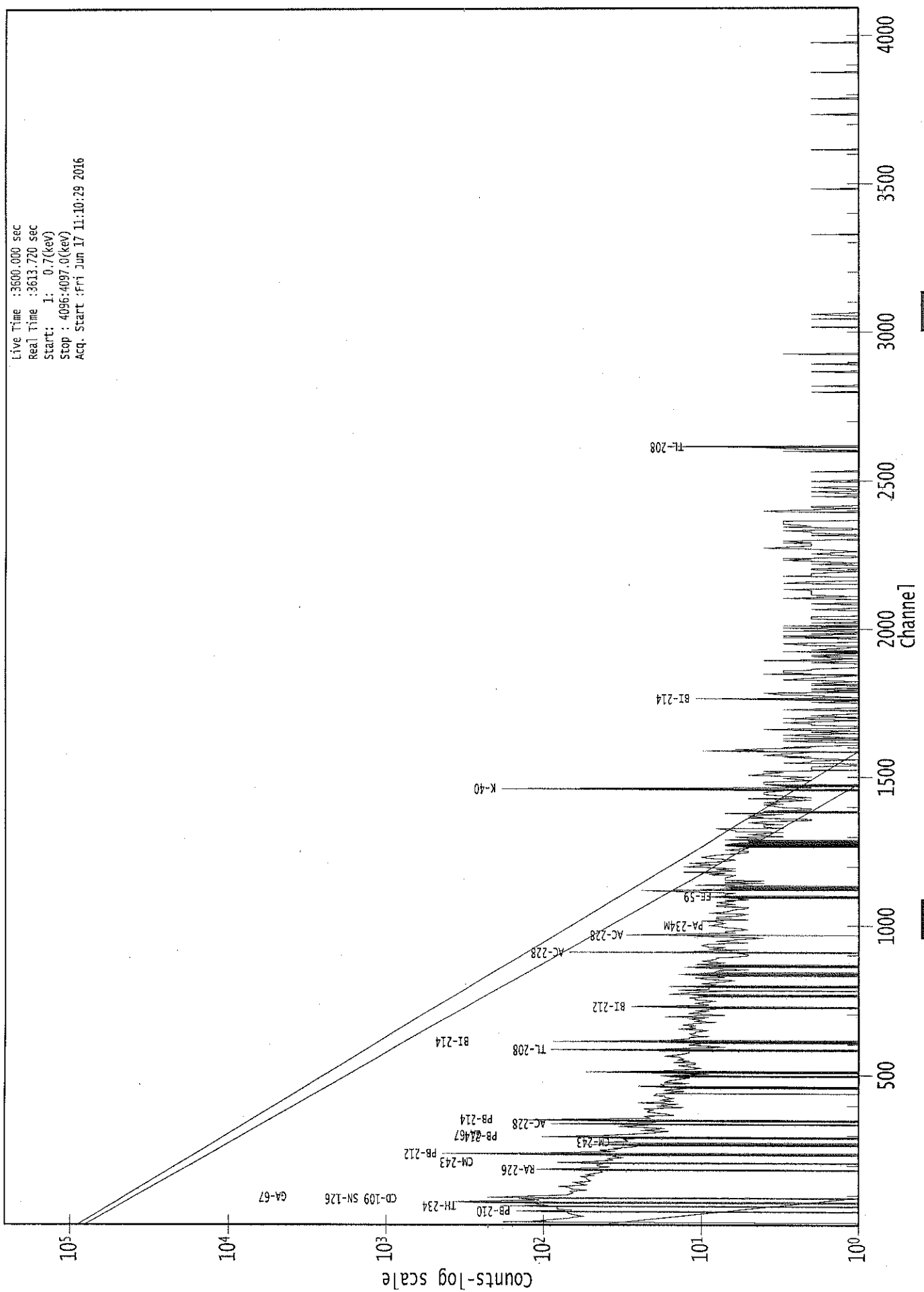
3825: 0 0 0 0 0 0 0 0 1

Sample Title: CP-5017 05-10

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	1	0
3849:	1	0	0	1	0	0	0	0
3857:	0	1	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	2	0	0	0	0	0
3881:	0	0	1	0	0	0	1	1
3889:	1	0	0	0	0	0	0	1
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	1
3913:	0	0	0	0	0	1	0	0
3921:	0	0	0	0	0	0	0	0
3929:	0	0	0	0	1	0	0	0
3937:	0	0	0	0	0	0	0	1
3945:	0	0	0	0	0	0	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	2	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	0	0	0	0	1
3993:	0	0	0	0	0	0	0	0
4001:	1	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:	0	0	0	0	0	1	0	0
4033:	0	0	0	0	1	0	0	0
4041:	0	0	0	1	0	0	0	1
4049:	0	1	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	0	0	0
4081:	0	0	0	1	0	0	0	0
4089:	0	1	0	0	0	0	0	0

0000039086.CNF

Live Time :3600.000 sec
Real Time :3613.720 sec
Start: 1: 0.7(keV)
Stop : 4096.4097.0(keV)
Acq. Start :Fri Jun 17 11:10:29 2016



Analysis Report for 1606065-12
CP-5017 10-15

C
6117

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1606065-12
Sample Description : CP-5017 10-15
Sample Type : SOIL

Sample Size : 3.451E+02 grams
Facility : Countroom

Sample Taken On : 6/8/2016 8:55:45AM
Acquisition Started : 6/17/2016 12:11:40PM

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 : 39093

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606065-12
CP-5017 10-15

PEAK LOCATE REPORT

Peak Locate Performed on : 6/17/2016 1:11:44PM
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	46.81	47.16	0.0000	0.00
2	76.93	77.28	0.0000	0.00
3	90.95	91.28	0.0000	0.00
4	93.67	94.00	0.0000	0.00
5	129.34	129.66	0.0000	0.00
6	186.56	186.86	0.0000	0.00
7	210.54	210.83	0.0000	0.00
8	239.82	240.11	0.0000	0.00
9	249.55	249.84	0.0000	0.00
10	270.81	271.08	0.0000	0.00
11	277.98	278.25	0.0000	0.00
12	295.85	296.12	0.0000	0.00
13	301.62	301.89	0.0000	0.00
14	338.91	339.16	0.0000	0.00
15	352.59	352.84	0.0000	0.00
16	409.08	409.31	0.0000	0.00
17	463.83	464.04	0.0000	0.00
18	507.61	507.80	0.0000	0.00
19	511.30	511.50	0.0000	0.00
20	520.06	520.26	0.0000	0.00
21	583.90	584.07	0.0000	0.00
22	609.97	610.13	0.0000	0.00
23	729.20	729.32	0.0000	0.00
24	767.94	768.05	0.0000	0.00
25	786.29	786.39	0.0000	0.00
26	795.63	795.72	0.0000	0.00
27	836.00	836.09	0.0000	0.00
28	862.03	862.10	0.0000	0.00
29	870.43	870.50	0.0000	0.00
30	911.96	912.02	0.0000	0.00
31	945.90	945.95	0.0000	0.00
32	965.16	965.20	0.0000	0.00
33	969.77	969.80	0.0000	0.00
34	1018.47	1018.49	0.0000	0.00
35	1052.97	1052.98	0.0000	0.00
36	1121.11	1121.09	0.0000	0.00
37	1199.19	1199.14	0.0000	0.00
38	1246.55	1246.49	0.0000	0.00
39	1309.29	1309.20	0.0000	0.00
40	1357.03	1356.92	0.0000	0.00
41	1377.91	1377.79	0.0000	0.00
42	1403.34	1403.22	0.0000	0.00

Analysis Report for 1606065-12
CP-5017 10-15

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1413.13	1413.00	0.0000	0.00
44	1461.57	1461.43	0.0000	0.00
45	1481.45	1481.30	0.0000	0.00
46	1495.30	1495.14	0.0000	0.00
47	1509.16	1509.00	0.0000	0.00
48	1513.72	1513.56	0.0000	0.00
49	1581.90	1581.71	0.0000	0.00
50	1589.06	1588.87	0.0000	0.00
51	1609.96	1609.76	0.0000	0.00
52	1631.16	1630.95	0.0000	0.00
53	1664.53	1664.31	0.0000	0.00
54	1721.58	1721.34	0.0000	0.00
55	1765.48	1765.22	0.0000	0.00
56	1798.58	1798.31	0.0000	0.00
57	1825.41	1825.13	0.0000	0.00
58	1896.41	1896.11	0.0000	0.00
59	2102.17	2101.78	0.0000	0.00
60	2170.62	2170.21	0.0000	0.00
61	2182.19	2181.78	0.0000	0.00
62	2195.95	2195.53	0.0000	0.00
63	2205.24	2204.82	0.0000	0.00
64	2414.01	2413.50	0.0000	0.00
65	2615.22	2614.64	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606065-12

CP-5017 10-15

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/17/2016 1:11:44PM

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	46.81	44 -	50	47.16	1.09E+02	73.10	8.98E+02	1.74
2	76.93	72 -	83	77.28	1.07E+03	152.42	2.34E+03	3.12
M 3	90.95	90 -	97	91.28	8.93E+01	50.18	7.02E+02	1.64
m 4	93.67	90 -	97	94.00	3.14E+02	76.22	9.20E+02	1.64
5	129.34	125 -	133	129.66	8.68E+01	84.06	1.03E+03	1.53
6	186.56	183 -	191	186.86	2.69E+02	81.93	8.74E+02	1.59
7	210.54	208 -	215	210.83	1.25E+02	62.45	5.64E+02	1.65
8	239.82	234 -	245	240.11	1.08E+03	104.10	8.11E+02	1.97
9	249.55	247 -	252	249.84	3.50E+01	40.12	2.94E+02	2.62
10	270.81	268 -	274	271.08	8.60E+01	49.18	3.76E+02	1.78
11	277.98	275 -	282	278.25	8.78E+01	50.68	3.64E+02	2.11
12	295.85	293 -	299	296.12	1.76E+02	52.37	3.71E+02	1.24
13	301.62	300 -	305	301.89	6.03E+01	39.36	2.53E+02	1.04
14	338.91	336 -	343	339.16	1.65E+02	51.30	3.30E+02	1.45
15	352.59	348 -	357	352.84	3.73E+02	65.51	4.00E+02	1.60
16	409.08	405 -	412	409.31	4.12E+01	39.75	2.36E+02	1.86
17	463.83	459 -	469	464.04	8.62E+01	49.38	2.76E+02	1.33
M 18	507.61	505 -	517	507.80	2.32E+01	26.29	9.84E+01	2.54
m 19	511.30	505 -	517	511.50	1.74E+02	40.64	1.42E+02	2.54
20	520.06	518 -	523	520.26	2.00E+01	25.50	1.14E+02	1.08
21	583.90	580 -	588	584.07	2.96E+02	49.02	1.84E+02	1.52
22	609.97	606 -	614	610.13	2.81E+02	49.43	2.04E+02	1.56
23	729.20	724 -	738	729.32	8.58E+01	51.03	2.30E+02	1.86
24	767.94	764 -	771	768.05	2.87E+01	28.91	1.21E+02	1.13
25	786.29	783 -	790	786.39	2.09E+01	26.68	1.06E+02	2.96
26	795.63	792 -	798	795.72	2.53E+01	26.38	1.07E+02	1.66
27	836.00	832 -	839	836.09	2.27E+01	26.76	1.05E+02	1.24
28	862.03	858 -	866	862.10	2.40E+01	26.63	9.41E+01	1.96
29	870.43	867 -	873	870.50	2.29E+01	21.37	6.61E+01	1.77
30	911.96	908 -	916	912.02	1.86E+02	38.40	1.12E+02	1.80
31	945.90	939 -	954	945.95	3.06E+01	38.52	1.37E+02	10.47
M 32	965.16	961 -	977	965.20	5.15E+01	20.74	4.96E+01	2.17
m 33	969.77	961 -	977	969.80	1.27E+02	26.94	3.85E+01	1.92
34	1018.47	1015 -	1022	1018.49	1.66E+01	20.20	5.08E+01	3.18
35	1052.97	1049 -	1057	1052.98	1.92E+01	24.42	7.76E+01	1.06
36	1121.11	1116 -	1126	1121.09	5.75E+01	34.35	1.27E+02	1.94
37	1199.19	1195 -	1204	1199.14	2.85E+01	32.03	1.31E+02	2.14
38	1246.55	1242 -	1252	1246.49	3.51E+01	33.38	1.24E+02	7.44
39	1309.29	1306 -	1313	1309.20	1.42E+01	15.49	2.76E+01	4.59
40	1357.03	1352 -	1362	1356.92	2.34E+01	19.59	3.92E+01	2.04

Analysis Report for 1606065-12

CP-5017 10-15

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1377.91	1373 - 1381	1377.79	2.37E+01	16.42	2.66E+01	4.81
M	42	1403.34	1398 - 1416	1403.22	1.82E+01	12.21	1.40E+01	2.39
m	43	1413.13	1398 - 1416	1413.00	6.92E+00	10.63	1.40E+01	2.18
	44	1461.57	1455 - 1467	1461.43	7.37E+02	58.22	5.18E+01	2.26
	45	1481.45	1477 - 1484	1481.30	7.95E+00	7.48	4.10E+00	2.06
	46	1495.30	1490 - 1499	1495.14	1.30E+01	13.86	2.00E+01	1.62
	47	1509.16	1506 - 1511	1509.00	1.30E+01	7.21	0.00E+00	1.98
	48	1513.72	1512 - 1517	1513.56	7.18E+00	7.87	7.64E+00	1.21
	49	1581.90	1578 - 1586	1581.71	1.05E+01	10.02	9.00E+00	3.63
	50	1589.06	1586 - 1591	1588.87	1.09E+01	10.20	1.22E+01	1.28
	51	1609.96	1606 - 1614	1609.76	7.50E+00	9.41	9.00E+00	1.91
	52	1631.16	1626 - 1634	1630.95	1.11E+01	11.52	1.37E+01	2.16
	53	1664.53	1660 - 1670	1664.31	1.69E+01	10.31	4.21E+00	8.48
	54	1721.58	1717 - 1725	1721.34	9.96E+00	8.26	4.08E+00	6.31
	55	1765.48	1759 - 1770	1765.22	5.20E+01	16.00	6.09E+00	3.24
	56	1798.58	1795 - 1800	1798.31	4.67E+00	5.74	2.67E+00	2.48
	57	1825.41	1823 - 1827	1825.13	6.00E+00	7.40	6.00E+00	2.57
	58	1896.41	1894 - 1898	1896.11	6.00E+00	6.67	4.00E+00	1.81
	59	2102.17	2096 - 2106	2101.78	1.75E+01	12.35	1.10E+01	4.66
	60	2170.62	2167 - 2172	2170.21	6.00E+00	7.35	6.00E+00	1.73
	61	2182.19	2177 - 2185	2181.78	7.50E+00	9.41	9.00E+00	1.75
	62	2195.95	2191 - 2198	2195.53	6.00E+00	8.49	8.00E+00	2.79
	63	2205.24	2201 - 2209	2204.82	1.10E+01	11.52	1.40E+01	3.87
	64	2414.01	2410 - 2416	2413.50	6.31E+00	6.65	3.38E+00	4.34
	65	2615.22	2609 - 2620	2614.64	9.39E+01	20.59	6.28E+00	1.99

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 : 6/17/2016 1:11:44PM

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	46.81	44 - 50	1.09E+02	73.10	8.98E+02	5.76E+01
	2	76.93	72 - 83	1.07E+03	152.42	2.34E+03	1.13E+02
M	3	90.95	90 - 97	8.93E+01	50.18	7.02E+02	4.36E+01

Analysis Report for 1606065-12

CP-5017 10-15

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	4	93.67	90 -	97	3.14E+02	76.22	9.20E+02	4.99E+01
	5	129.34	125 -	133	8.68E+01	84.06	1.03E+03	6.74E+01
	6	186.56	183 -	191	2.69E+02	81.93	8.74E+02	6.17E+01
	7	210.54	208 -	215	1.25E+02	62.45	5.64E+02	4.79E+01
	8	239.82	234 -	245	1.08E+03	104.10	8.11E+02	6.64E+01
	9	249.55	247 -	252	3.50E+01	40.12	2.94E+02	3.15E+01
	10	270.81	268 -	274	8.60E+01	49.18	3.76E+02	3.74E+01
	11	277.98	275 -	282	8.78E+01	50.68	3.64E+02	3.87E+01
	12	295.85	293 -	299	1.76E+02	52.37	3.71E+02	3.71E+01
	13	301.62	300 -	305	6.03E+01	39.36	2.53E+02	2.97E+01
	14	338.91	336 -	343	1.65E+02	51.30	3.30E+02	3.65E+01
	15	352.59	348 -	357	3.73E+02	65.51	4.00E+02	4.35E+01
	16	409.08	405 -	412	4.12E+01	39.75	2.36E+02	3.09E+01
	17	463.83	459 -	469	8.62E+01	49.38	2.76E+02	2.03E+01
M	18	507.61	505 -	517	2.32E+01	26.29	9.84E+01	1.63E+01
m	19	511.30	505 -	517	1.74E+02	40.64	1.42E+02	1.96E+01
	20	520.06	518 -	523	2.00E+01	25.50	1.14E+02	1.96E+01
	21	583.90	580 -	588	2.96E+02	49.02	1.84E+02	2.87E+01
	22	609.97	606 -	614	2.81E+02	49.43	2.04E+02	2.99E+01
	23	729.20	724 -	738	8.58E+01	51.03	2.30E+02	1.65E+01
	24	767.94	764 -	771	2.87E+01	28.91	1.21E+02	2.21E+01
	25	786.29	783 -	790	2.09E+01	26.68	1.06E+02	2.06E+01
	26	795.63	792 -	798	2.53E+01	26.38	1.07E+02	2.00E+01
	27	836.00	832 -	839	2.27E+01	26.76	1.05E+02	2.06E+01
	28	862.03	858 -	866	2.40E+01	26.63	9.41E+01	2.04E+01
	29	870.43	867 -	873	2.29E+01	21.37	6.61E+01	1.57E+01
	30	911.96	908 -	916	1.86E+02	38.40	1.12E+02	2.22E+01
	31	945.90	939 -	954	3.06E+01	38.52	1.37E+02	3.03E+01
M	32	965.16	961 -	977	5.15E+01	20.74	4.96E+01	1.16E+01
m	33	969.77	961 -	977	1.27E+02	26.94	3.85E+01	1.02E+01
	34	1018.47	1015 -	1022	1.66E+01	20.20	5.08E+01	1.52E+01
	35	1052.97	1049 -	1057	1.92E+01	24.42	7.76E+01	1.03E+01
	36	1121.11	1116 -	1126	5.75E+01	34.35	1.27E+02	2.53E+01
	37	1199.19	1195 -	1204	2.85E+01	32.03	1.31E+02	2.48E+01
	38	1246.55	1242 -	1252	3.51E+01	33.38	1.24E+02	2.56E+01
	39	1309.29	1306 -	1313	1.42E+01	15.49	2.76E+01	1.11E+01
	40	1357.03	1352 -	1362	2.34E+01	19.59	3.92E+01	1.40E+01
	41	1377.91	1373 -	1381	2.37E+01	16.42	2.66E+01	1.09E+01
M	42	1403.34	1398 -	1416	1.82E+01	12.21	1.40E+01	6.15E+00
m	43	1413.13	1398 -	1416	6.92E+00	10.63	1.40E+01	6.15E+00
	44	1461.57	1455 -	1467	7.37E+02	58.22	5.18E+01	1.73E+01
	45	1481.45	1477 -	1484	7.95E+00	7.48	4.10E+00	4.04E+00
	46	1495.30	1490 -	1499	1.30E+01	13.86	2.00E+01	9.73E+00
	47	1509.16	1506 -	1511	1.30E+01	7.21	0.00E+00	0.00E+00
	48	1513.72	1512 -	1517	7.18E+00	7.87	7.64E+00	4.74E+00
	49	1581.90	1578 -	1586	1.05E+01	10.02	9.00E+00	6.29E+00
	50	1589.06	1586 -	1591	1.09E+01	10.20	1.22E+01	6.39E+00
	51	1609.96	1606 -	1614	7.50E+00	9.41	9.00E+00	6.29E+00
	52	1631.16	1626 -	1634	1.11E+01	11.52	1.37E+01	7.72E+00
	53	1664.53	1660 -	1670	1.69E+01	10.31	4.21E+00	5.11E+00
	54	1721.58	1717 -	1725	9.96E+00	8.26	4.08E+00	4.38E+00

Analysis Report for 1606065-12

CP-5017 10-15

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
55	1765.48	1759 -	1770	5.20E+01	16.00	6.09E+00	5.71E+00
56	1798.58	1795 -	1800	4.67E+00	5.74	2.67E+00	3.11E+00
57	1825.41	1823 -	1827	6.00E+00	7.40	6.00E+00	4.56E+00
58	1896.41	1894 -	1898	6.00E+00	6.67	4.00E+00	3.72E+00
59	2102.17	2096 -	2106	1.75E+01	12.35	1.10E+01	7.47E+00
60	2170.62	2167 -	2172	6.00E+00	7.35	6.00E+00	4.50E+00
61	2182.19	2177 -	2185	7.50E+00	9.41	9.00E+00	6.29E+00
62	2195.95	2191 -	2198	6.00E+00	8.49	8.00E+00	5.70E+00
63	2205.24	2201 -	2209	1.10E+01	11.52	1.40E+01	7.74E+00
64	2414.01	2410 -	2416	6.31E+00	6.65	3.38E+00	3.58E+00
65	2615.22	2609 -	2620	9.39E+01	20.59	6.28E+00	5.73E+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 : 6/17/2016 1:11:44PM

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	46.81	44 -	50	47.16	1.09E+02	73.10	8.98E+02	PB-210
2	76.93	72 -	83	77.28	1.07E+03	152.42	2.34E+03	.....
M 3	90.95	90 -	97	91.28	8.93E+01	50.18	7.02E+02	ND-147
m 4	93.67	90 -	97	94.00	3.14E+02	76.22	9.20E+02	GA-67
5	129.34	125 -	133	129.66	8.68E+01	84.06	1.03E+03	.....
6	186.56	183 -	191	186.86	2.69E+02	81.93	8.74E+02	RA-226
7	210.54	208 -	215	210.83	1.25E+02	62.45	5.64E+02	CM-243
8	239.82	234 -	245	240.11	1.08E+03	104.10	8.11E+02	.....
9	249.55	247 -	252	249.84	3.50E+01	40.12	2.94E+02	.....
10	270.81	268 -	274	271.08	8.60E+01	49.18	3.76E+02	.....
11	277.98	275 -	282	278.25	8.78E+01	50.68	3.64E+02	CM-243 NP-239
12	295.85	293 -	299	296.12	1.76E+02	52.37	3.71E+02	PB-214
13	301.62	300 -	305	301.89	6.03E+01	39.36	2.53E+02	.....
14	338.91	336 -	343	339.16	1.65E+02	51.30	3.30E+02	AC-228

: 00670

Analysis Report for 1606065-12

CP-5017 10-15

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
15	352.59	348 -	357	352.84	3.73E+02	65.51	4.00E+02	PB-214
16	409.08	405 -	412	409.31	4.12E+01	39.75	2.36E+02	.....
17	463.83	459 -	469	464.04	8.62E+01	49.38	2.76E+02	SB-125
M 18	507.61	505 -	517	507.80	2.32E+01	26.29	9.84E+01	.....
m 19	511.30	505 -	517	511.50	1.74E+02	40.64	1.42E+02	.....
20	520.06	518 -	523	520.26	2.00E+01	25.50	1.14E+02	RB-83
21	583.90	580 -	588	584.07	2.96E+02	49.02	1.84E+02	TL-208
22	609.97	606 -	614	610.13	2.81E+02	49.43	2.04E+02	BI-214
23	729.20	724 -	738	729.32	8.58E+01	51.03	2.30E+02	.....
24	767.94	764 -	771	768.05	2.87E+01	28.91	1.21E+02	.....
25	786.29	783 -	790	786.39	2.09E+01	26.68	1.06E+02	.....
26	795.63	792 -	798	795.72	2.53E+01	26.38	1.07E+02	CS-134
27	836.00	832 -	839	836.09	2.27E+01	26.76	1.05E+02	.....
28	862.03	858 -	866	862.10	2.40E+01	26.63	9.41E+01	.....
29	870.43	867 -	873	870.50	2.29E+01	21.37	6.61E+01	NB-94
30	911.96	908 -	916	912.02	1.86E+02	38.40	1.12E+02	LU-172
								AC-228
M 31	945.90	939 -	954	945.95	3.06E+01	38.52	1.37E+02	PA-234
m 32	965.16	961 -	977	965.20	5.15E+01	20.74	4.96E+01	.....
33	969.77	961 -	977	969.80	1.27E+02	26.94	3.85E+01	AC-228
34	1018.47	1015 -	1022	1018.49	1.66E+01	20.20	5.08E+01	.....
35	1052.97	1049 -	1057	1052.98	1.92E+01	24.42	7.76E+01	.....
36	1121.11	1116 -	1126	1121.09	5.75E+01	34.35	1.27E+02	TA-182
								SC-46
								BI-214
37	1199.19	1195 -	1204	1199.14	2.85E+01	32.03	1.31E+02	.....
38	1246.55	1242 -	1252	1246.49	3.51E+01	33.38	1.24E+02	.....
39	1309.29	1306 -	1313	1309.20	1.42E+01	15.49	2.76E+01	.....
40	1357.03	1352 -	1362	1356.92	2.34E+01	19.59	3.92E+01	.....
41	1377.91	1373 -	1381	1377.79	2.37E+01	16.42	2.66E+01	.....
M 42	1403.34	1398 -	1416	1403.22	1.82E+01	12.21	1.40E+01	.....
m 43	1413.13	1398 -	1416	1413.00	6.92E+00	10.63	1.40E+01	.....
44	1461.57	1455 -	1467	1461.43	7.37E+02	58.22	5.18E+01	K-40
45	1481.45	1477 -	1484	1481.30	7.95E+00	7.48	4.10E+00	.....
46	1495.30	1490 -	1499	1495.14	1.30E+01	13.86	2.00E+01	.....
47	1509.16	1506 -	1511	1509.00	1.30E+01	7.21	0.00E+00	.....
48	1513.72	1512 -	1517	1513.56	7.18E+00	7.87	7.64E+00	.....
49	1581.90	1578 -	1586	1581.71	1.05E+01	10.02	9.00E+00	.....
50	1589.06	1586 -	1591	1588.87	1.09E+01	10.20	1.22E+01	.....
51	1609.96	1606 -	1614	1609.76	7.50E+00	9.41	9.00E+00	.....
52	1631.16	1626 -	1634	1630.95	1.11E+01	11.52	1.37E+01	.....
53	1664.53	1660 -	1670	1664.31	1.69E+01	10.31	4.21E+00	.....
54	1721.58	1717 -	1725	1721.34	9.96E+00	8.26	4.08E+00	.....
55	1765.48	1759 -	1770	1765.22	5.20E+01	16.00	6.09E+00	BI-214
56	1798.58	1795 -	1800	1798.31	4.67E+00	5.74	2.67E+00	.....
57	1825.41	1823 -	1827	1825.13	6.00E+00	7.40	6.00E+00	.....
58	1896.41	1894 -	1898	1896.11	6.00E+00	6.67	4.00E+00	.....
59	2102.17	2096 -	2106	2101.78	1.75E+01	12.35	1.10E+01	.....
60	2170.62	2167 -	2172	2170.21	6.00E+00	7.35	6.00E+00	.....
61	2182.19	2177 -	2185	2181.78	7.50E+00	9.41	9.00E+00	.....
62	2195.95	2191 -	2198	2195.53	6.00E+00	8.49	8.00E+00	.....
63	2205.24	2201 -	2209	2204.82	1.10E+01	11.52	1.40E+01	.....
64	2414.01	2410 -	2416	2413.50	6.31E+00	6.65	3.38E+00	.....
65	2615.22	2609 -	2620	2614.64	9.39E+01	20.59	6.28E+00	TL-208

Analysis Report for 1606065-12
CP-5017 10-15

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 : 6/17/2016 1:11:44PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.81	1.09E+02	73.10	1.70E-02	1.78E-03
	2	76.93	1.07E+03	152.42	2.77E-02	2.37E-03
M	3	90.95	8.93E+01	50.18	2.86E-02	2.68E-03
m	4	93.67	3.14E+02	76.22	2.86E-02	2.63E-03
	5	129.34	8.68E+01	84.06	2.67E-02	2.09E-03
	6	186.56	2.69E+02	81.93	2.24E-02	2.02E-03
	7	210.54	1.25E+02	62.45	2.08E-02	1.85E-03
	8	239.82	1.08E+03	104.10	1.92E-02	1.63E-03
	9	249.55	3.50E+01	40.12	1.87E-02	1.56E-03
	10	270.81	8.60E+01	49.18	1.77E-02	1.40E-03
	11	277.98	8.78E+01	50.68	1.74E-02	1.35E-03
	12	295.85	1.76E+02	52.37	1.67E-02	1.31E-03
	13	301.62	6.03E+01	39.36	1.64E-02	1.29E-03
	14	338.91	1.65E+02	51.30	1.52E-02	1.22E-03
	15	352.59	3.73E+02	65.51	1.47E-02	1.19E-03
	16	409.08	4.12E+01	39.75	1.33E-02	1.10E-03
	17	463.83	8.62E+01	49.38	1.21E-02	1.04E-03
M	18	507.61	2.32E+01	26.29	1.13E-02	9.94E-04
m	19	511.30	1.74E+02	40.64	1.12E-02	9.90E-04
	20	520.06	2.00E+01	25.50	1.11E-02	9.81E-04
	21	583.90	2.96E+02	49.02	1.02E-02	9.15E-04
	22	609.97	2.81E+02	49.43	9.82E-03	8.88E-04
	23	729.20	8.58E+01	51.03	8.54E-03	7.74E-04
	24	767.94	2.87E+01	28.91	8.19E-03	7.39E-04
	25	786.29	2.09E+01	26.68	8.04E-03	7.22E-04
	26	795.63	2.53E+01	26.38	7.97E-03	7.14E-04
	27	836.00	2.27E+01	26.76	7.66E-03	6.78E-04
	28	862.03	2.40E+01	26.63	7.47E-03	6.55E-04
	29	870.43	2.29E+01	21.37	7.41E-03	6.47E-04
	30	911.96	1.86E+02	38.40	7.14E-03	6.15E-04
	31	945.90	3.06E+01	38.52	6.94E-03	5.97E-04
M	32	965.16	5.15E+01	20.74	6.83E-03	5.87E-04
m	33	969.77	1.27E+02	26.94	6.80E-03	5.85E-04
	34	1018.47	1.66E+01	20.20	6.54E-03	5.60E-04

Analysis Report for 1606065-12

CP-5017 10-15

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	1052.97	1.92E+01	24.42	6.37E-03	5.42E-04
	36	1121.11	5.75E+01	34.35	6.06E-03	5.06E-04
	37	1199.19	2.85E+01	32.03	5.75E-03	4.75E-04
	38	1246.55	3.51E+01	33.38	5.59E-03	4.66E-04
	39	1309.29	1.42E+01	15.49	5.38E-03	4.55E-04
	40	1357.03	2.34E+01	19.59	5.24E-03	4.45E-04
	41	1377.91	2.37E+01	16.42	5.18E-03	4.40E-04
M	42	1403.34	1.82E+01	12.21	5.12E-03	4.34E-04
m	43	1413.13	6.92E+00	10.63	5.09E-03	4.31E-04
	44	1461.57	7.37E+02	58.22	4.97E-03	4.19E-04
	45	1481.45	7.95E+00	7.48	4.92E-03	4.14E-04
	46	1495.30	1.30E+01	13.86	4.89E-03	4.11E-04
	47	1509.16	1.30E+01	7.21	4.86E-03	4.07E-04
	48	1513.72	7.18E+00	7.87	4.85E-03	4.06E-04
	49	1581.90	1.05E+01	10.02	4.71E-03	3.89E-04
	50	1589.06	1.09E+01	10.20	4.69E-03	3.87E-04
	51	1609.96	7.50E+00	9.41	4.65E-03	3.82E-04
	52	1631.16	1.11E+01	11.52	4.61E-03	3.77E-04
	53	1664.53	1.69E+01	10.31	4.55E-03	3.69E-04
	54	1721.58	9.96E+00	8.26	4.46E-03	3.54E-04
	55	1765.48	5.20E+01	16.00	4.39E-03	3.43E-04
	56	1798.58	4.67E+00	5.74	4.35E-03	3.35E-04
	57	1825.41	6.00E+00	7.40	4.31E-03	3.28E-04
	58	1896.41	6.00E+00	6.67	4.22E-03	3.26E-04
	59	2102.17	1.75E+01	12.35	4.02E-03	3.26E-04
	60	2170.62	6.00E+00	7.35	3.97E-03	3.26E-04
	61	2182.19	7.50E+00	9.41	3.96E-03	3.26E-04
	62	2195.95	6.00E+00	8.49	3.95E-03	3.26E-04
	63	2205.24	1.10E+01	11.52	3.95E-03	3.26E-04
	64	2414.01	6.31E+00	6.65	3.84E-03	3.26E-04
	65	2615.22	9.39E+01	20.59	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 : 6/17/2016 1:11:44PM

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

: 00673

Analysis Report for 1606065-12

CP-5017 10-15

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.	
	1	46.81	1.09E+02	73.10	4.33E+01	8.35E+00	6.59E+01	7.36E+01
	2	76.93	1.07E+03	152.42			1.07E+03	1.52E+02
M	3	90.95	8.93E+01	50.18			8.93E+01	5.02E+01
m	4	93.67	3.14E+02	76.22	1.29E+02	7.14E+00	1.85E+02	7.66E+01
	5	129.34	8.68E+01	84.06			8.68E+01	8.41E+01
	6	186.56	2.69E+02	81.93	5.81E+01	8.50E+00	2.11E+02	8.24E+01
	7	210.54	1.25E+02	62.45			1.25E+02	6.24E+01
	8	239.82	1.08E+03	104.10	1.81E+01	5.76E+00	1.06E+03	1.04E+02
	9	249.55	3.50E+01	40.12			3.50E+01	4.01E+01
	10	270.81	8.60E+01	49.18			8.60E+01	4.92E+01
	11	277.98	8.78E+01	50.68			8.78E+01	5.07E+01
	12	295.85	1.76E+02	52.37	1.02E+00	5.38E+00	1.74E+02	5.26E+01
	13	301.62	6.03E+01	39.36			6.03E+01	3.94E+01
	14	338.91	1.65E+02	51.30	3.86E+00	4.98E+00	1.61E+02	5.15E+01
	15	352.59	3.73E+02	65.51	7.25E+00	4.86E+00	3.66E+02	6.57E+01
	16	409.08	4.12E+01	39.75			4.12E+01	3.97E+01
	17	463.83	8.62E+01	49.38			8.62E+01	4.94E+01
M	18	507.61	2.32E+01	26.29			2.32E+01	2.63E+01
m	19	511.30	1.74E+02	40.64	7.58E+01	5.38E+00	9.80E+01	4.10E+01
	20	520.06	2.00E+01	25.50			2.00E+01	2.55E+01
	21	583.90	2.96E+02	49.02	6.11E+00	3.78E+00	2.90E+02	4.92E+01
	22	609.97	2.81E+02	49.43	6.74E+00	3.64E+00	2.74E+02	4.96E+01
	23	729.20	8.58E+01	51.03			8.58E+01	5.10E+01
	24	767.94	2.87E+01	28.91			2.87E+01	2.89E+01
	25	786.29	2.09E+01	26.68			2.09E+01	2.67E+01
	26	795.63	2.53E+01	26.38			2.53E+01	2.64E+01
	27	836.00	2.27E+01	26.76			2.27E+01	2.68E+01
	28	862.03	2.40E+01	26.63			2.40E+01	2.66E+01
	29	870.43	2.29E+01	21.37			2.29E+01	2.14E+01
	30	911.96	1.86E+02	38.40	4.21E+00	2.98E+00	1.82E+02	3.85E+01
	31	945.90	3.06E+01	38.52			3.06E+01	3.85E+01
M	32	965.16	5.15E+01	20.74			5.15E+01	2.07E+01
m	33	969.77	1.27E+02	26.94			1.27E+02	2.69E+01
	34	1018.47	1.66E+01	20.20			1.66E+01	2.02E+01
	35	1052.97	1.92E+01	24.42			1.92E+01	2.44E+01
	36	1121.11	5.75E+01	34.35			5.75E+01	3.43E+01
	37	1199.19	2.85E+01	32.03			2.85E+01	3.20E+01
	38	1246.55	3.51E+01	33.38			3.51E+01	3.34E+01
	39	1309.29	1.42E+01	15.49			1.42E+01	1.55E+01
	40	1357.03	2.34E+01	19.59			2.34E+01	1.96E+01
	41	1377.91	2.37E+01	16.42			2.37E+01	1.64E+01
M	42	1403.34	1.82E+01	12.21			1.82E+01	1.22E+01
m	43	1413.13	6.92E+00	10.63			6.92E+00	1.06E+01
	44	1461.57	7.37E+02	58.22	6.83E+00	2.10E+00	7.30E+02	5.83E+01
	45	1481.45	7.95E+00	7.48			7.95E+00	7.48E+00
	46	1495.30	1.30E+01	13.86			1.30E+01	1.39E+01
	47	1509.16	1.30E+01	7.21			1.30E+01	7.21E+00
	48	1513.72	7.18E+00	7.87			7.18E+00	7.87E+00
	49	1581.90	1.05E+01	10.02			1.05E+01	1.00E+01
	50	1589.06	1.09E+01	10.20			1.09E+01	1.02E+01
	51	1609.96	7.50E+00	9.41			7.50E+00	9.41E+00
	52	1631.16	1.11E+01	11.52			1.11E+01	1.15E+01
	53	1664.53	1.69E+01	10.31			1.69E+01	1.03E+01
	54	1721.58	9.96E+00	8.26			9.96E+00	8.26E+00

Analysis Report for 1606065-12

CP-5017 10-15

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
55	1765.48	5.20E+01	16.00	1.66E+00	1.65E+00	5.03E+01	1.61E+01
56	1798.58	4.67E+00	5.74			4.67E+00	5.74E+00
57	1825.41	6.00E+00	7.40			6.00E+00	7.40E+00
58	1896.41	6.00E+00	6.67			6.00E+00	6.67E+00
59	2102.17	1.75E+01	12.35			1.75E+01	1.23E+01
60	2170.62	6.00E+00	7.35			6.00E+00	7.35E+00
61	2182.19	7.50E+00	9.41			7.50E+00	9.41E+00
62	2195.95	6.00E+00	8.49			6.00E+00	8.49E+00
63	2205.24	1.10E+01	11.52			1.10E+01	1.15E+01
64	2414.01	6.31E+00	6.65			6.31E+00	6.65E+00
65	2615.22	9.39E+01	20.59	4.95E+00	1.35E+00	8.89E+01	2.06E+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 : 6/17/2016 1:11:44PM
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	46.81	1.09E+02	73.10	4.33E+01	8.35E+00	6.59E+01	7.36E+01
2	76.93	1.07E+03	152.42			1.07E+03	1.52E+02
M	3	90.95	8.93E+01	50.18		8.93E+01	5.02E+01
m	4	93.67	3.14E+02	76.22	1.29E+02	7.14E+00	1.85E+02
5	129.34	8.68E+01	84.06			8.68E+01	8.41E+01
6	186.56	2.69E+02	81.93	5.81E+01	8.50E+00	2.11E+02	8.24E+01
7	210.54	1.25E+02	62.45			1.25E+02	6.24E+01
8	239.82	1.08E+03	104.10	1.81E+01	5.76E+00	1.06E+03	1.04E+02
9	249.55	3.50E+01	40.12			3.50E+01	4.01E+01
10	270.81	8.60E+01	49.18			8.60E+01	4.92E+01
11	277.98	8.78E+01	50.68			8.78E+01	5.07E+01
12	295.85	1.76E+02	52.37	1.02E+00	5.38E+00	1.74E+02	5.26E+01
13	301.62	6.03E+01	39.36			6.03E+01	3.94E+01
14	338.91	1.65E+02	51.30	3.86E+00	4.98E+00	1.61E+02	5.15E+01
15	352.59	3.73E+02	65.51	7.25E+00	4.86E+00	3.66E+02	6.57E+01
16	409.08	4.12E+01	39.75			4.12E+01	3.97E+01
17	463.83	8.62E+01	49.38			8.62E+01	4.94E+01

: 00675

Analysis Report for 1606065-12

CP-5017 10-15

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	18	507.61	2.32E+01	26.29			2.32E+01	2.63E+01
m	19	511.30	1.74E+02	40.64	7.58E+01	5.38E+00	9.80E+01	4.10E+01
	20	520.06	2.00E+01	25.50			2.00E+01	2.55E+01
	21	583.90	2.96E+02	49.02	6.11E+00	3.78E+00	2.90E+02	4.92E+01
	22	609.97	2.81E+02	49.43	6.74E+00	3.64E+00	2.74E+02	4.96E+01
	23	729.20	8.58E+01	51.03			8.58E+01	5.10E+01
	24	767.94	2.87E+01	28.91			2.87E+01	2.89E+01
	25	786.29	2.09E+01	26.68			2.09E+01	2.67E+01
	26	795.63	2.53E+01	26.38			2.53E+01	2.64E+01
	27	836.00	2.27E+01	26.76			2.27E+01	2.68E+01
	28	862.03	2.40E+01	26.63			2.40E+01	2.66E+01
	29	870.43	2.29E+01	21.37			2.29E+01	2.14E+01
	30	911.96	1.86E+02	38.40	4.21E+00	2.98E+00	1.82E+02	3.85E+01
	31	945.90	3.06E+01	38.52			3.06E+01	3.85E+01
M	32	965.16	5.15E+01	20.74			5.15E+01	2.07E+01
m	33	969.77	1.27E+02	26.94			1.27E+02	2.69E+01
	34	1018.47	1.66E+01	20.20			1.66E+01	2.02E+01
	35	1052.97	1.92E+01	24.42			1.92E+01	2.44E+01
	36	1121.11	5.75E+01	34.35			5.75E+01	3.43E+01
	37	1199.19	2.85E+01	32.03			2.85E+01	3.20E+01
	38	1246.55	3.51E+01	33.38			3.51E+01	3.34E+01
	39	1309.29	1.42E+01	15.49			1.42E+01	1.55E+01
	40	1357.03	2.34E+01	19.59			2.34E+01	1.96E+01
	41	1377.91	2.37E+01	16.42			2.37E+01	1.64E+01
M	42	1403.34	1.82E+01	12.21			1.82E+01	1.22E+01
m	43	1413.13	6.92E+00	10.63			6.92E+00	1.06E+01
	44	1461.57	7.37E+02	58.22	6.83E+00	2.10E+00	7.30E+02	5.83E+01
	45	1481.45	7.95E+00	7.48			7.95E+00	7.48E+00
	46	1495.30	1.30E+01	13.86			1.30E+01	1.39E+01
	47	1509.16	1.30E+01	7.21			1.30E+01	7.21E+00
	48	1513.72	7.18E+00	7.87			7.18E+00	7.87E+00
	49	1581.90	1.05E+01	10.02			1.05E+01	1.00E+01
	50	1589.06	1.09E+01	10.20			1.09E+01	1.02E+01
	51	1609.96	7.50E+00	9.41			7.50E+00	9.41E+00
	52	1631.16	1.11E+01	11.52			1.11E+01	1.15E+01
	53	1664.53	1.69E+01	10.31			1.69E+01	1.03E+01
	54	1721.58	9.96E+00	8.26			9.96E+00	8.26E+00
	55	1765.48	5.20E+01	16.00	1.66E+00	1.65E+00	5.03E+01	1.61E+01
	56	1798.58	4.67E+00	5.74			4.67E+00	5.74E+00
	57	1825.41	6.00E+00	7.40			6.00E+00	7.40E+00
	58	1896.41	6.00E+00	6.67			6.00E+00	6.67E+00
	59	2102.17	1.75E+01	12.35			1.75E+01	1.23E+01
	60	2170.62	6.00E+00	7.35			6.00E+00	7.35E+00
	61	2182.19	7.50E+00	9.41			7.50E+00	9.41E+00
	62	2195.95	6.00E+00	8.49			6.00E+00	8.49E+00
	63	2205.24	1.10E+01	11.52			1.10E+01	1.15E+01
	64	2414.01	6.31E+00	6.65			6.31E+00	6.65E+00
	65	2615.22	9.39E+01	20.59	4.95E+00	1.35E+00	8.89E+01	2.06E+01

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

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	0.912	1460.81	*	10.67	3.00E+01	3.53E+00
GA-67	0.514	93.31	*	35.70	2.76E+00	4.66E+00
		208.95		2.24		
		300.22		16.00		
ND-147	0.645	91.11	*	28.90	4.20E-01	2.39E-01
		531.02		13.10		
TL-208	0.827	583.14	*	30.22	2.06E+00	3.95E-01
		860.37		4.48		
		2614.66	*	35.85	1.42E+00	3.52E-01
PB-210	0.985	46.50	*	4.25	1.99E+00	2.23E+00
BI-214	0.845	609.31	*	46.30	1.31E+00	2.65E-01
		1120.29	*	15.10	1.37E+00	8.24E-01
		1764.49	*	15.80	1.58E+00	5.19E-01
		2204.22		4.98		
PB-214	0.933	295.21	*	19.19	1.19E+00	3.70E-01
		351.92	*	37.19	1.45E+00	2.86E-01
RA-226	0.981	186.21	*	3.28	6.26E+00	1.17E+01
AC-228	0.909	338.32	*	11.40	2.02E+00	6.69E-01
		911.07	*	27.70	2.00E+00	4.57E-01
		969.11	*	16.60	2.44E+00	5.60E-01
CM-243	0.351	209.75	*	3.29	3.98E+00	2.02E+00
		228.14		10.60		
		277.60	*	14.00	7.86E-01	4.57E-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

Analysis Report for 1606065-12
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UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 1:11:44PM
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	76.93	2.98151E-01	7.10		
5	129.34	2.40979E-02	48.45		
8	239.82	2.94896E-01	4.91		
9	249.55	9.72222E-03	57.32		
10	270.81	2.38929E-02	28.59		
13	301.62	1.67551E-02	32.62	Sum	
16	409.08	1.14422E-02	48.25		
17	463.83	2.39410E-02	28.65	Sum	
M	18	507.61	6.43389E-03	56.75	
m	19	511.30	2.72221E-02	20.92	
20	520.06	5.55556E-03	63.74		
23	729.20	2.38329E-02	29.74		
24	767.94	7.97441E-03	50.36		
25	786.29	5.81832E-03	63.70		
26	795.63	7.04114E-03	52.03	Sum	
27	836.00	6.30000E-03	58.99		
28	862.03	6.65493E-03	55.58	Sum	
29	870.43	6.36905E-03	46.60	Tol.	NB-94
31	945.90	8.50730E-03	62.89	Tol.	PA-234
M	32	965.16	1.43162E-02	20.12	
34	1018.47	4.61310E-03	60.81		
35	1052.97	5.34004E-03	63.52		
37	1199.19	7.91371E-03	56.22		
38	1246.55	9.75086E-03	47.54		
39	1309.29	3.94841E-03	54.49	Sum	
40	1357.03	6.49548E-03	41.89		
M	41	1377.91	6.58408E-03	34.63	
m	42	1403.34	5.06711E-03	33.46	
43	1413.13	1.92282E-03	76.78		
45	1481.45	2.20833E-03	47.06		
46	1495.30	3.61111E-03	53.29	Sum	
47	1509.16	3.61111E-03	27.74	Sum	
48	1513.72	1.99495E-03	54.82		
49	1581.90	2.91667E-03	47.74		
50	1589.06	3.02288E-03	46.86		
51	1609.96	2.08333E-03	62.72		
52	1631.16	3.09414E-03	51.72		
53	1664.53	4.69298E-03	30.51		
54	1721.58	2.76620E-03	41.48		
56	1798.58	1.29630E-03	61.55		
57	1825.41	1.66667E-03	61.66		
58	1896.41	1.66667E-03	55.59		
59	2102.17	4.86111E-03	35.28		
60	2170.62	1.66667E-03	61.24		
61	2182.19	2.08333E-03	62.72		

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
62	2195.95	1.66667E-03	70.71		
63	2205.24	3.05556E-03	52.37		
64	2414.01	1.75347E-03	52.69		

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	0.91	1460.81 *	10.67	3.00E+01	3.53E+00
GA-67	0.51	93.31 *	35.70	2.76E+00	4.66E+00
		208.95	2.24		
		300.22	16.00		
ND-147	0.64	91.11 *	28.90	4.20E-01	2.39E-01
		531.02	13.10		
TL-208	0.82	583.14 *	30.22	2.06E+00	3.95E-01
		860.37	4.48		
		2614.66 *	35.85	1.42E+00	3.52E-01
PB-210	0.98	46.50 *	4.25	1.99E+00	2.23E+00
BI-214	0.84	609.31 *	46.30	1.31E+00	2.65E-01
		1120.29 *	15.10	1.37E+00	8.24E-01
		1764.49 *	15.80	1.58E+00	5.19E-01
		2204.22	4.98		
PB-214	0.93	295.21 *	19.19	1.19E+00	3.70E-01
		351.92 *	37.19	1.45E+00	2.86E-01
RA-226	0.98	186.21 *	3.28	6.26E+00	1.17E+01
AC-228	0.90	338.32 *	11.40	2.02E+00	6.69E-01
		911.07 *	27.70	2.00E+00	4.57E-01
		969.11 *	16.60	2.44E+00	5.60E-01
CM-243	0.35	209.75 *	3.29	3.98E+00	2.02E+00
		228.14	10.60		
		277.60 *	14.00	7.86E-01	4.57E-01

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* = 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	0.912	3.00E+01	3.53E+00	
GA-67	0.514	2.76E+00	4.66E+00	
ND-147	0.645	4.20E-01	2.39E-01	
TL-208	0.827	1.70E+00	2.63E-01	
PB-210	0.985	1.99E+00	2.23E+00	
BI-214	0.845	1.37E+00	2.27E-01	
PB-214	0.933	1.35E+00	2.26E-01	
RA-226	0.981	6.26E+00	1.17E+01	
AC-228	0.909	2.14E+00	3.13E-01	
CM-243	0.351	9.42E-01	4.46E-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 1606065-12
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UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/17/2016 1:11:44PM
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	76.93	2.98151E-01	7.10		
5	129.34	2.40979E-02	48.45		
8	239.82	2.94896E-01	4.91		
9	249.55	9.72222E-03	57.32		
10	270.81	2.38929E-02	28.59		
13	301.62	1.67551E-02	32.62	Sum	
16	409.08	1.14422E-02	48.25		
17	463.83	2.39410E-02	28.65	Sum	
M	18	507.61	6.43389E-03	56.75	
m	19	511.30	2.72221E-02	20.92	
20	520.06	5.55556E-03	63.74		
23	729.20	2.38329E-02	29.74		
24	767.94	7.97441E-03	50.36		
25	786.29	5.81832E-03	63.70		
26	795.63	7.04114E-03	52.03	Sum	
27	836.00	6.30000E-03	58.99		
28	862.03	6.65493E-03	55.58	Sum	
29	870.43	6.36905E-03	46.60	Tol.	NB-94
31	945.90	8.50730E-03	62.89	Tol.	PA-234
M	32	965.16	1.43162E-02	20.12	
34	1018.47	4.61310E-03	60.81		
35	1052.97	5.34004E-03	63.52		
37	1199.19	7.91371E-03	56.22		
38	1246.55	9.75086E-03	47.54		
39	1309.29	3.94841E-03	54.49	Sum	
40	1357.03	6.49548E-03	41.89		
41	1377.91	6.58408E-03	34.63		
M	42	1403.34	5.06711E-03	33.46	
m	43	1413.13	1.92282E-03	76.78	
45	1481.45	2.20833E-03	47.06		
46	1495.30	3.61111E-03	53.29	Sum	
47	1509.16	3.61111E-03	27.74	Sum	
48	1513.72	1.99495E-03	54.82		
49	1581.90	2.91667E-03	47.74		
50	1589.06	3.02288E-03	46.86		

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
51	1609.96	2.08333E-03	62.72		
52	1631.16	3.09414E-03	51.72		
53	1664.53	4.69298E-03	30.51		
54	1721.58	2.76620E-03	41.48		
56	1798.58	1.29630E-03	61.55		
57	1825.41	1.66667E-03	61.66		
58	1896.41	1.66667E-03	55.59		
59	2102.17	4.86111E-03	35.28		
60	2170.62	1.66667E-03	61.24		
61	2182.19	2.08333E-03	62.72		
62	2195.95	1.66667E-03	70.71		
63	2205.24	3.05556E-03	52.37		
64	2414.01	1.75347E-03	52.69		

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	-8.77E-01	8.44E-01	8.44E-01
+	NA-22	1274.54	99.94	-8.25E-03	1.11E-01	1.11E-01
+	NA-24	1368.53	99.99	1.07E+02	1.09E+03	2.23E+03
		2754.09	99.86	-6.42E+02		1.09E+03
+	AL-26	1808.65	99.76	-8.39E-03	8.39E-02	8.39E-02
+	K-40	1460.81	* 10.67	3.00E+01	1.58E+00	1.58E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-6.92E-02	9.95E-02	9.95E-02
		78.34	96.00	1.28E-01		1.28E-01
+	SC-46	889.25	99.98	-2.34E-02	1.02E-01	1.02E-01
		1120.51	99.99	2.24E-01		1.89E-01
+	V-48	983.52	99.98	-2.65E-02	1.48E-01	1.51E-01
		1312.10	97.50	0.00E+00		1.48E-01
+	CR-51	320.08	9.83	-1.84E-02	8.72E-01	8.72E-01
+	MN-54	834.83	99.97	3.91E-02	1.17E-01	1.17E-01

Analysis Report for 1606065-12
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CO-56	846.75	99.96	4.33E-02	1.16E-01	1.16E-01
		1037.75	14.03	2.44E-01		8.94E-01
		1238.25	67.00	-2.10E-02		2.52E-01
		1771.40	15.51	-1.04E-01		5.50E-01
		2598.48	16.90	-1.84E-01		2.70E-01
+	CO-57	122.06	85.51	7.69E-03	7.83E-02	7.83E-02
		136.48	10.60	4.50E-01		6.70E-01
+	CO-58	810.76	99.40	1.62E-03	1.06E-01	1.06E-01
+	FE-59	1099.22	56.50	-5.80E-02	2.47E-01	2.47E-01
		1291.56	43.20	1.00E-02		3.10E-01
+	CO-60	1173.22	100.00	-1.56E-02	1.07E-01	1.25E-01
		1332.49	100.00	-2.48E-02		1.07E-01
+	ZN-65	1115.52	50.75	-3.34E-02	2.38E-01	2.38E-01
+	GA-67	93.31	* 35.70	2.76E+00	2.36E+00	2.36E+00
		208.95	2.24	1.50E+01		2.64E+01
		300.22	16.00	-6.27E+00		3.74E+00
+	SE-75	121.11	16.70	-1.71E-01	1.18E-01	4.09E-01
		136.00	59.20	6.02E-02		1.24E-01
		264.65	59.80	-6.03E-02		1.18E-01
		279.53	25.20	2.24E-01		3.35E-01
		400.65	11.40	2.07E-01		7.08E-01
+	RB-82	776.52	13.00	-2.45E-01	8.77E-01	8.77E-01
+	RB-83	520.41	46.00	4.93E-02	2.09E-01	2.09E-01
		529.64	30.30	-7.75E-03		2.98E-01
		552.65	16.40	-1.49E-01		5.54E-01
+	KR-85	513.99	0.43	5.66E+01	3.31E+01	3.31E+01
+	SR-85	513.99	99.27	2.72E-01	1.60E-01	1.60E-01
+	Y-88	898.02	93.40	1.35E-02	5.82E-02	1.19E-01
		1836.01	99.38	-2.97E-02		5.82E-02
+	NB-93M	16.57	9.43	-6.25E+01	1.01E+02	1.01E+02
+	NB-94	702.63	100.00	4.08E-02	1.10E-01	1.13E-01
		871.10	100.00	2.44E-02		1.10E-01
+	NB-95	765.79	99.81	1.09E-01	1.46E-01	1.46E-01
+	NB-95M	235.69	25.00	-2.81E+01	1.90E+00	1.90E+00
+	ZR-95	724.18	43.70	1.98E-02	1.88E-01	3.05E-01
		756.72	55.30	-5.24E-02		1.88E-01
+	MO-99	181.06	6.20	3.04E+00	8.70E+00	1.13E+01
		739.58	12.80	4.27E+00		8.70E+00
		778.00	4.50	1.99E+00		1.99E+01
+	RU-103	497.08	89.00	1.40E-02	1.13E-01	1.13E-01
+	RU-106	621.84	9.80	-3.43E-01	9.72E-01	9.72E-01
+	AG-108M	433.93	89.90	1.19E-02	9.25E-02	9.25E-02
		614.37	90.40	1.17E-02		1.13E-01
		722.95	90.50	4.86E-02		1.27E-01
+	CD-109	88.03	3.72	5.61E-01	2.62E+00	2.62E+00
+	AG-110M	657.75	93.14	-4.08E-02	1.00E-01	1.00E-01
		677.61	10.53	1.33E-01		9.69E-01
		706.67	16.46	9.69E-02		6.41E-01

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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
AG-110M	763.93	21.98	4.32E-02	1.00E-01	4.85E-01
	884.67	71.63	-4.91E-02		1.35E-01
	1384.27	23.94	7.82E-02		4.60E-01
+ CD-113M	263.70	0.02	-1.14E+02	2.94E+02	2.94E+02
+ SN-113	255.12	1.93	-3.32E-01	1.30E-01	3.83E+00
	391.69	64.90	1.90E-02		1.30E-01
+ TE123M	159.00	84.10	-1.49E-02	9.06E-02	9.06E-02
+ SB-124	602.71	97.87	-1.04E-02	1.06E-01	1.06E-01
	645.85	7.26	-5.73E-01		1.43E+00
	722.78	11.10	4.40E-01		1.15E+00
	1691.02	49.00	1.09E-02		2.27E-01
+ I-125	35.49	6.49	1.35E+00	3.67E+00	3.67E+00
+ SB-125	176.33	6.89	9.02E-02	3.12E-01	1.06E+00
	427.89	29.33	1.87E-01		3.12E-01
	463.38	10.35	1.56E+00		1.12E+00
	600.56	17.80	7.43E-02		5.35E-01
	635.90	11.32	2.54E-03		8.58E-01
+ SB-126	414.70	83.30	-2.02E-02	1.57E-01	1.67E-01
	666.33	99.60	5.74E-02		1.84E-01
	695.00	99.60	-5.50E-02		1.57E-01
	720.50	53.80	1.20E-01		3.37E-01
+ SN-126	87.57	37.00	5.56E-02	2.60E-01	2.60E-01
+ SB-127	473.00	25.00	6.91E-01	1.42E+00	1.66E+00
	685.20	35.70	-9.41E-02		1.42E+00
	783.80	14.70	-2.70E-01		3.64E+00
+ I-129	29.78	57.00	-3.05E-02	7.14E-01	7.14E-01
	33.60	13.20	-1.86E-01		1.90E+00
	39.58	7.52	4.96E-01		2.06E+00
+ I-131	284.30	6.05	4.20E-01	1.93E-01	2.52E+00
	364.48	81.20	2.87E-02		1.93E-01
	636.97	7.26	5.79E-02		2.93E+00
	722.89	1.80	5.38E+00		1.40E+01
+ TE-132	49.72	13.10	-1.41E+00	5.78E-01	5.90E+00
	228.16	88.00	-1.61E-01		5.78E-01
+ BA-133	81.00	33.00	-1.12E+00	1.50E-01	2.79E-01
	302.84	17.80	4.26E-01		4.66E-01
	356.01	60.00	-4.44E-01		1.50E-01
+ I-133	529.87	86.30	-3.83E+00	1.47E+02	1.47E+02
+ XE-133	81.00	38.00	-3.27E+00	8.12E-01	8.12E-01
+ CS-134	563.23	8.38	-2.63E-01	9.66E-02	1.22E+00
	569.32	15.43	1.25E-01		6.82E-01
	604.70	97.60	-1.45E-02		9.66E-02
	795.84	85.40	8.26E-02		1.44E-01
	801.93	8.73	2.69E-01		1.21E+00
+ CS-135	268.24	16.00	2.64E-01	5.19E-01	5.19E-01
+ I-135	1131.51	22.50	1.84E+08	4.06E+09	5.55E+09
	1260.41	28.60	-1.40E+09		4.06E+09
	1678.03	9.54	-3.03E+09		7.23E+09
+ CS-136	153.22	7.46	3.80E-01	1.59E-01	1.53E+00

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	163.89	4.61	1.55E-01	1.59E-01	2.47E+00
		176.55	13.56	7.38E-02		8.70E-01
		273.65	12.66	-1.67E+00		9.70E-01
		340.57	48.50	6.45E-01		3.69E-01
		818.50	99.70	-1.46E-02		1.59E-01
		1048.07	79.60	-1.46E-02		2.28E-01
		1235.34	19.70	-6.20E-01		1.18E+00
+	CS-137	661.65	85.12	1.42E-02	1.24E-01	1.24E-01
+	LA-138	788.74	34.00	1.29E-01	1.36E-01	3.32E-01
		1435.80	66.00	6.55E-03		1.36E-01
+	CE-139	165.85	80.35	1.45E-02	9.03E-02	9.03E-02
+	BA-140	162.64	6.70	2.80E-01	5.92E-01	1.74E+00
		304.84	4.50	-5.49E-01		2.52E+00
		423.70	3.20	-4.21E-02		4.53E+00
		437.55	2.00	1.41E+00		6.97E+00
		537.32	25.00	-1.37E-02		5.92E-01
+	LA-140	328.77	20.50	3.48E-01	1.66E-01	6.61E-01
		487.03	45.50	-1.15E-01		3.00E-01
		815.85	23.50	2.80E-01		7.00E-01
		1596.49	95.49	3.60E-02		1.66E-01
+	CE-141	145.44	48.40	6.23E-02	1.83E-01	1.83E-01
+	CE-143	57.36	11.80	-2.82E+01	2.50E+01	8.36E+01
		293.26	42.00	3.69E+01		2.50E+01
		664.55	5.20	1.70E+02		2.22E+02
+	CE-144	133.54	10.80	-2.08E-02	6.46E-01	6.46E-01
+	PM-144	476.78	42.00	-1.88E-01	9.68E-02	1.85E-01
		618.01	98.60	-2.19E-02		9.68E-02
		696.49	99.49	5.45E-03		1.06E-01
+	PM-145	36.85	21.70	3.53E-01	4.59E-01	8.77E-01
		37.36	39.70	-4.47E-02		4.59E-01
		42.30	15.10	4.73E-02		8.89E-01
		72.40	2.31	-2.01E+01		4.26E+00
+	PM-146	453.90	39.94	2.76E-02	2.30E-01	2.30E-01
		735.90	14.01	8.62E-02		7.39E-01
		747.13	13.10	-3.56E-01		7.65E-01
+	ND-147	91.11	* 28.90	4.20E-01	7.01E-01	7.01E-01
		531.02	13.10	1.71E-01		1.18E+00
+	PM-149	285.90	3.10	1.15E+01	3.94E+01	3.94E+01
+	EU-152	121.78	20.50	3.13E-02	3.19E-01	3.19E-01
		244.69	5.40	-9.65E-01		1.52E+00
		344.27	19.13	2.09E-03		3.89E-01
		778.89	9.20	2.85E-01		9.81E-01
		964.01	10.40	-9.67E-01		1.38E+00
		1085.78	7.22	7.90E-01		1.77E+00
		1112.02	9.60	-8.39E-02		1.29E+00
		1407.95	14.94	2.24E-01		8.41E-01
+	GD-153	97.43	31.30	4.57E-02	2.38E-01	2.38E-01
		103.18	22.20	8.14E-02		3.30E-01
+	EU-154	123.07	40.50	1.24E-01	1.63E-01	1.63E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	723.30	19.70	2.24E-01	1.63E-01	5.84E-01
		873.19	11.50	2.81E-02		9.78E-01
		996.32	10.30	-6.57E-01		1.03E+00
		1004.76	17.90	3.59E-02		6.37E-01
		1274.45	35.50	-2.31E-02		3.10E-01
+	EU-155	86.50	30.90	5.72E-01	3.25E-01	3.25E-01
		105.30	20.70	1.59E-01		3.36E-01
+	EU-156	811.77	10.40	-3.64E-01	1.36E+00	1.36E+00
		1153.47	7.20	8.27E-01		2.68E+00
		1230.71	8.90	1.47E+00		2.61E+00
+	HO-166M	184.41	72.60	2.27E-01	1.37E-01	1.37E-01
		280.45	29.60	-1.34E-01		2.41E-01
		410.94	11.10	-7.42E-02		8.45E-01
		711.69	54.10	8.80E-03		1.83E-01
+	TM-171	66.72	0.14	-6.75E+01	7.24E+01	7.24E+01
+	HF-172	81.75	4.52	-7.95E+00	6.19E-01	1.82E+00
		125.81	11.30	1.54E-01		6.19E-01
+	LU-172	181.53	20.60	1.81E-01	5.17E-01	8.70E-01
		810.06	16.63	1.93E-01		1.53E+00
		912.12	15.25	9.86E+00		3.81E+00
		1093.66	62.50	1.36E-01		5.17E-01
+	LU-173	100.72	5.24	4.48E-01	4.19E-01	1.39E+00
		272.11	21.20	4.58E-01		4.19E-01
+	HF-175	343.40	84.00	1.58E-02	9.97E-02	9.97E-02
+	LU-176	88.34	13.30	7.49E-01	7.33E-02	7.47E-01
		201.83	86.00	-6.91E-02		8.50E-02
		306.78	94.00	-1.24E-02		7.33E-02
+	TA-182	67.75	41.20	-1.68E-01	2.41E-01	2.41E-01
		1121.30	34.90	6.52E-01		5.33E-01
		1189.05	16.23	-1.23E-01		8.47E-01
		1221.41	26.98	6.41E-02		5.45E-01
		1231.02	11.44	7.99E-01		1.41E+00
+	IR-192	308.46	29.68	-2.81E-02	1.97E-01	2.64E-01
		468.07	48.10	-3.56E-02		1.97E-01
+	HG-203	279.19	77.30	1.52E-01	1.26E-01	1.26E-01
+	BI-207	569.67	97.72	3.84E-02	1.06E-01	1.06E-01
		1063.62	74.90	-8.58E-02		1.43E-01
+	TL-208	583.14	* 30.22	2.06E+00	2.64E-01	4.33E-01
		860.37	4.48	1.96E+00		2.53E+00
		2614.66	* 35.85	1.42E+00		2.64E-01
+	BI-210M	262.00	45.00	2.40E-02	1.59E-01	1.59E-01
		300.00	23.00	-6.22E-01		3.71E-01
+	PB-210	46.50	* 4.25	1.99E+00	3.64E+00	3.64E+00
+	PB-211	404.84	2.90	9.03E-02	2.66E+00	2.66E+00
		831.96	2.90	-4.32E-01		3.44E+00
+	BI-212	727.17	11.80	1.20E+00	1.20E+00	1.20E+00
		1620.62	2.75	2.05E-01		2.97E+00
+	PB-212	238.63	44.60	1.70E+00	3.92E-01	3.92E-01
		300.09	3.41	-4.20E+00		2.50E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-214	609.31	*	46.30	1.31E+00	3.03E-01	3.03E-01
		1120.29	*	15.10	1.37E+00		1.27E+00
		1764.49	*	15.80	1.58E+00		4.76E-01
		2204.22		4.98	1.37E+00		2.54E+00
+	PB-214	295.21	*	19.19	1.19E+00	3.59E-01	5.28E-01
		351.92	*	37.19	1.45E+00		3.59E-01
+	RN-219	401.80		6.50	1.92E-01	1.18E+00	1.18E+00
+	RA-223	323.87		3.88	2.17E-01	1.88E+00	1.88E+00
+	RA-224	240.98		3.95	2.84E+01	4.70E+00	4.70E+00
+	RA-225	40.00		31.00	1.80E-01	7.48E-01	7.48E-01
+	RA-226	186.21	*	3.28	6.26E+00	3.84E+00	3.84E+00
+	TH-227	50.10		8.40	-3.09E-01	7.11E-01	1.30E+00
		236.00		11.50	-1.05E+01		7.11E-01
		256.20		6.30	5.33E-02		1.11E+00
+	AC-228	338.32	*	11.40	2.02E+00	5.27E-01	9.63E-01
		911.07	*	27.70	2.00E+00		5.27E-01
		969.11	*	16.60	2.44E+00		1.10E+00
+	TH-230	48.44		16.90	3.89E-01	7.10E-01	7.10E-01
		62.85		4.60	3.26E+00		2.43E+00
		67.67		0.37	-1.77E+01		2.54E+01
+	PA-231	283.67		1.60	9.74E-01	3.60E+00	4.31E+00
		302.67		2.30	3.29E+00		3.60E+00
+	TH-231	25.64		14.70	-6.17E+01	1.35E+00	7.16E+00
		84.21		6.40	-2.74E+00		1.35E+00
+	PA-233	311.98		38.60	5.43E-02	2.47E-01	2.47E-01
+	PA-234	131.20		20.40	2.22E-01	3.55E-01	3.55E-01
		733.99		8.80	-1.13E-01		1.20E+00
		946.00		12.00	-4.18E-01		8.86E-01
+	PA-234M	1001.03		0.92	-6.69E-01	1.34E+01	1.34E+01
+	TH-234	63.29		3.80	3.56E+00	2.95E+00	2.95E+00
+	U-235	143.76		10.50	9.47E-02	6.89E-01	6.89E-01
		163.35		4.70	9.38E-02		1.49E+00
		205.31		4.70	1.05E+00		1.58E+00
+	NP-237	86.50		12.60	1.40E+00	7.93E-01	7.93E-01
+	NP-239	106.10		22.70	2.14E+00	4.53E+00	4.53E+00
		228.18		10.70	-2.80E+00		1.00E+01
		277.60		14.10	8.81E+00		8.87E+00
+	AM-241	59.54		35.90	-3.85E-02	2.70E-01	2.70E-01
+	AM-243	74.67		66.00	-7.20E-01	1.80E-01	1.80E-01
+	CM-243	209.75	*	3.29	3.98E+00	6.85E-01	3.14E+00
		228.14		10.60	-1.91E-01		6.85E-01
		277.60	*	14.00	7.86E-01		7.17E-01

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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
 ? = 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	8.44E-01	8.44E-01	-8.77E-01	3.95E-01
NA-22	1274.54	99.94	1.11E-01	1.11E-01	-8.25E-03	5.00E-02
NA-24	1368.53	99.99	2.23E+03	1.09E+03	1.07E+02	9.68E+02
	2754.09	99.86	1.09E+03		-6.42E+02	3.44E+02
AL-26	1808.65	99.76	8.39E-02	8.39E-02	-8.39E-03	3.51E-02
+ K-40	1460.81	* 10.67	1.58E+00	1.58E+00	3.00E+01	7.34E-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	9.95E-02	9.95E-02	-6.92E-02	4.85E-02
	78.34	96.00	1.28E-01		1.28E-01	6.31E-02
SC-46	889.25	99.98	1.02E-01	1.02E-01	-2.34E-02	4.68E-02
	1120.51	99.99	1.89E-01		2.24E-01	8.91E-02
V-48	983.52	99.98	1.51E-01	1.48E-01	-2.65E-02	6.90E-02
	1312.10	97.50	1.48E-01		0.00E+00	6.59E-02
CR-51	320.08	9.83	8.72E-01	8.72E-01	-1.84E-02	4.12E-01
MN-54	834.83	99.97	1.17E-01	1.17E-01	3.91E-02	5.47E-02
CO-56	846.75	99.96	1.16E-01	1.16E-01	4.33E-02	5.37E-02
	1037.75	14.03	8.94E-01		2.44E-01	4.12E-01
	1238.25	67.00	2.52E-01		-2.10E-02	1.18E-01
	1771.40	15.51	5.50E-01		-1.04E-01	2.28E-01
	2598.48	16.90	2.70E-01		-1.84E-01	8.55E-02
CO-57	122.06	85.51	7.83E-02	7.83E-02	7.69E-03	3.79E-02
	136.48	10.60	6.70E-01		4.50E-01	3.24E-01
CO-58	810.76	99.40	1.06E-01	1.06E-01	1.62E-03	4.87E-02
FE-59	1099.22	56.50	2.47E-01	2.47E-01	-5.80E-02	1.14E-01
	1291.56	43.20	3.10E-01		1.00E-02	1.40E-01
CO-60	1173.22	100.00	1.25E-01	1.07E-01	-1.56E-02	5.76E-02
	1332.49	100.00	1.07E-01		-2.48E-02	4.78E-02
ZN-65	1115.52	50.75	2.38E-01	2.38E-01	-3.34E-02	1.09E-01
+ GA-67	93.31	* 35.70	2.36E+00	2.36E+00	2.76E+00	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)
GA-67	208.95	2.24	2.64E+01	2.36E+00	1.50E+01	1.28E+01
	300.22	16.00	3.74E+00		-6.27E+00	1.79E+00
SE-75	121.11	16.70	4.09E-01	1.18E-01	-1.71E-01	1.98E-01
	136.00	59.20	1.24E-01		6.02E-02	5.99E-02
	264.65	59.80	1.18E-01		-6.03E-02	5.62E-02
	279.53	25.20	3.35E-01		2.24E-01	1.60E-01
	400.65	11.40	7.08E-01		2.07E-01	3.34E-01
RB-82	776.52	13.00	8.77E-01	8.77E-01	-2.45E-01	4.03E-01
RB-83	520.41	46.00	2.09E-01	2.09E-01	4.93E-02	9.85E-02
	529.64	30.30	2.98E-01		-7.75E-03	1.39E-01
	552.65	16.40	5.54E-01		-1.49E-01	2.59E-01
KR-85	513.99	0.43	3.31E+01	3.31E+01	5.66E+01	1.60E+01
SR-85	513.99	99.27	1.60E-01	1.60E-01	2.72E-01	7.68E-02
Y-88	898.02	93.40	1.19E-01	5.82E-02	1.35E-02	5.51E-02
	1836.01	99.38	5.82E-02		-2.97E-02	2.18E-02
NB-93M	16.57	9.43	1.01E+02	1.01E+02	-6.25E+01	4.68E+01
NB-94	702.63	100.00	1.13E-01	1.10E-01	4.08E-02	5.31E-02
	871.10	100.00	1.10E-01		2.44E-02	5.11E-02
NB-95	765.79	99.81	1.46E-01	1.46E-01	1.09E-01	6.86E-02
NB-95M	235.69	25.00	1.90E+00	1.90E+00	-2.81E+01	9.13E-01
ZR-95	724.18	43.70	3.05E-01	1.88E-01	1.98E-02	1.44E-01
	756.72	55.30	1.88E-01		-5.24E-02	8.71E-02
MO-99	181.06	6.20	1.13E+01	8.70E+00	3.04E+00	5.45E+00
	739.58	12.80	8.70E+00		4.27E+00	4.08E+00
	778.00	4.50	1.99E+01		1.99E+00	9.14E+00
RU-103	497.08	89.00	1.13E-01	1.13E-01	1.40E-02	5.34E-02
RU-106	621.84	9.80	9.72E-01	9.72E-01	-3.43E-01	4.54E-01
AG-108M	433.93	89.90	9.25E-02	9.25E-02	1.19E-02	4.37E-02
	614.37	90.40	1.13E-01		1.17E-02	5.32E-02
	722.95	90.50	1.27E-01		4.86E-02	5.96E-02
CD-109	88.03	3.72	2.62E+00	2.62E+00	5.61E-01	1.28E+00
AG-110M	657.75	93.14	1.00E-01	1.00E-01	-4.08E-02	4.66E-02
	677.61	10.53	9.69E-01		1.33E-01	4.53E-01
	706.67	16.46	6.41E-01		9.69E-02	2.99E-01
	763.93	21.98	4.85E-01		4.32E-02	2.26E-01
	884.67	71.63	1.35E-01		-4.91E-02	6.18E-02
	1384.27	23.94	4.60E-01		7.82E-02	2.06E-01
CD-113M	263.70	0.02	2.94E+02	2.94E+02	-1.14E+02	1.40E+02
SN-113	255.12	1.93	3.83E+00	1.30E-01	-3.32E-01	1.83E+00
	391.69	64.90	1.30E-01		1.90E-02	6.17E-02
TE123M	159.00	84.10	9.06E-02	9.06E-02	-1.49E-02	4.38E-02
SB-124	602.71	97.87	1.06E-01	1.06E-01	-1.04E-02	4.95E-02
	645.85	7.26	1.43E+00		-5.73E-01	6.65E-01
	722.78	11.10	1.15E+00		4.40E-01	5.40E-01
	1691.02	49.00	2.27E-01		1.09E-02	9.86E-02
	35.49	6.49	3.67E+00		3.67E+00	1.35E+00	1.78E+00
SB-125	176.33	6.89	1.06E+00	3.12E-01	9.02E-02	5.13E-01
	427.89	29.33	3.12E-01		1.87E-01	1.48E-01
	463.38	10.35	1.12E+00		1.56E+00	5.37E-01
	600.56	17.80	5.35E-01		7.43E-02	2.51E-01
	635.90	11.32	8.58E-01		2.54E-03	4.02E-01
	414.70	83.30	1.67E-01		1.57E-01	-2.02E-02	7.88E-02
SB-126	666.33	99.60	1.84E-01		5.74E-02	8.68E-02

Analysis Report for 1606065-12

CP-5017 10-15

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
SB-126	695.00	99.60	1.57E-01	1.57E-01	-5.50E-02	7.28E-02
	720.50	53.80	3.37E-01		1.20E-01	1.58E-01
SN-126	87.57	37.00	2.60E-01	2.60E-01	5.56E-02	1.27E-01
SB-127	473.00	25.00	1.66E+00	1.42E+00	6.91E-01	7.80E-01
	685.20	35.70	1.42E+00		-9.41E-02	6.63E-01
	783.80	14.70	3.64E+00		-2.70E-01	1.69E+00
I-129	29.78	57.00	7.14E-01	7.14E-01	-3.05E-02	3.45E-01
	33.60	13.20	1.90E+00		-1.86E-01	9.20E-01
	39.58	7.52	2.06E+00		4.96E-01	9.98E-01
I-131	284.30	6.05	2.52E+00	1.93E-01	4.20E-01	1.20E+00
	364.48	81.20	1.93E-01		2.87E-02	9.09E-02
	636.97	7.26	2.93E+00		5.79E-02	1.37E+00
	722.89	1.80	1.40E+01		5.38E+00	6.60E+00
TE-132	49.72	13.10	5.90E+00	5.78E-01	-1.41E+00	2.86E+00
BA-133	228.16	88.00	5.78E-01	1.50E-01	-1.61E-01	2.77E-01
	81.00	33.00	2.79E-01		-1.12E+00	1.36E-01
	302.84	17.80	4.66E-01		4.26E-01	2.23E-01
I-133	356.01	60.00	1.50E-01	1.47E+02	-4.44E-01	7.18E-02
	529.87	86.30	1.47E+02		-3.83E+00	6.89E+01
XE-133	81.00	38.00	8.12E-01	8.12E-01	-3.27E+00	3.97E-01
CS-134	563.23	8.38	1.22E+00	9.66E-02	-2.63E-01	5.77E-01
	569.32	15.43	6.82E-01		1.25E-01	3.23E-01
	604.70	97.60	9.66E-02		-1.45E-02	4.52E-02
	795.84	85.40	1.44E-01		8.26E-02	6.75E-02
	801.93	8.73	1.21E+00		2.69E-01	5.62E-01
CS-135	268.24	16.00	5.19E-01	5.19E-01	2.64E-01	2.49E-01
I-135	1131.51	22.50	5.55E+09	4.06E+09	1.84E+08	2.55E+09
	1260.41	28.60	4.06E+09		-1.40E+09	1.84E+09
	1678.03	9.54	7.23E+09		-3.03E+09	2.92E+09
	153.22	7.46	1.53E+00		1.59E-01	3.80E-01	7.39E-01
CS-136	163.89	4.61	2.47E+00	1.59E-01	1.55E-01	1.19E+00
	176.55	13.56	8.70E-01		7.38E-02	4.20E-01
	273.65	12.66	9.70E-01		-1.67E+00	4.63E-01
	340.57	48.50	3.69E-01		6.45E-01	1.78E-01
	818.50	99.70	1.59E-01		-1.46E-02	7.31E-02
	1048.07	79.60	2.28E-01		-1.46E-02	1.04E-01
	1235.34	19.70	1.18E+00		-6.20E-01	5.49E-01
	661.65	85.12	1.24E-01		1.24E-01	1.42E-02	5.85E-02
LA-138	788.74	34.00	3.32E-01	1.36E-01	1.29E-01	1.55E-01
CE-139	1435.80	66.00	1.36E-01	9.03E-02	6.55E-03	5.90E-02
	165.85	80.35	9.03E-02		1.45E-02	4.36E-02
BA-140	162.64	6.70	1.74E+00	5.92E-01	2.80E-01	8.42E-01
	304.84	4.50	2.52E+00		-5.49E-01	1.19E+00
	423.70	3.20	4.53E+00		-4.21E-02	2.15E+00
	437.55	2.00	6.97E+00		1.41E+00	3.29E+00
	537.32	25.00	5.92E-01		-1.37E-02	2.78E-01
LA-140	328.77	20.50	6.61E-01	1.66E-01	3.48E-01	3.15E-01
	487.03	45.50	3.00E-01		-1.15E-01	1.41E-01
	815.85	23.50	7.00E-01		2.80E-01	3.24E-01
	1596.49	95.49	1.66E-01		3.60E-02	7.21E-02
CE-141	145.44	48.40	1.83E-01	1.83E-01	6.23E-02	8.86E-02
CE-143	57.36	11.80	8.36E+01	2.50E+01	-2.82E+01	4.07E+01
	293.26	42.00	2.50E+01		3.69E+01	1.21E+01

Analysis Report for 1606065-12
CP-5017 10-15

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CE-143	664.55	5.20	2.22E+02	2.50E+01	1.70E+02	1.05E+02
CE-144	133.54	10.80	6.46E-01	6.46E-01	-2.08E-02	3.13E-01
PM-144	476.78	42.00	1.85E-01	9.68E-02	-1.88E-01	8.66E-02
	618.01	98.60	9.68E-02		-2.19E-02	4.53E-02
	696.49	99.49	1.06E-01		5.45E-03	4.96E-02
PM-145	36.85	21.70	8.77E-01	4.59E-01	3.53E-01	4.24E-01
	37.36	39.70	4.59E-01		-4.47E-02	2.22E-01
	42.30	15.10	8.89E-01		4.73E-02	4.31E-01
	72.40	2.31	4.26E+00		-2.01E+01	2.08E+00
PM-146	453.90	39.94	2.30E-01	2.30E-01	2.76E-02	1.09E-01
	735.90	14.01	7.39E-01		8.62E-02	3.45E-01
	747.13	13.10	7.65E-01		-3.56E-01	3.55E-01
+ ND-147	91.11	* 28.90	7.01E-01	7.01E-01	4.20E-01	3.44E-01
	531.02	13.10	1.18E+00		1.71E-01	5.53E-01
PM-149	285.90	3.10	3.94E+01	3.94E+01	1.15E+01	1.87E+01
EU-152	121.78	20.50	3.19E-01	3.19E-01	3.13E-02	1.54E-01
	244.69	5.40	1.52E+00		-9.65E-01	7.33E-01
	344.27	19.13	3.89E-01		2.09E-03	1.84E-01
	778.89	9.20	9.81E-01		2.85E-01	4.51E-01
	964.01	10.40	1.38E+00		-9.67E-01	6.50E-01
	1085.78	7.22	1.77E+00		7.90E-01	8.22E-01
	1112.02	9.60	1.29E+00		-8.39E-02	5.93E-01
	1407.95	14.94	8.41E-01		2.24E-01	3.82E-01
GD-153	97.43	31.30	2.38E-01	2.38E-01	4.57E-02	1.15E-01
	103.18	22.20	3.30E-01		8.14E-02	1.60E-01
EU-154	123.07	40.50	1.63E-01	1.63E-01	1.24E-01	7.89E-02
	723.30	19.70	5.84E-01		2.24E-01	2.75E-01
	873.19	11.50	9.78E-01		2.81E-02	4.54E-01
	996.32	10.30	1.03E+00		-6.57E-01	4.74E-01
	1004.76	17.90	6.37E-01		3.59E-02	2.94E-01
	1274.45	35.50	3.10E-01		-2.31E-02	1.40E-01
EU-155	86.50	30.90	3.25E-01	3.25E-01	5.72E-01	1.59E-01
	105.30	20.70	3.36E-01		1.59E-01	1.63E-01
EU-156	811.77	10.40	1.36E+00	1.36E+00	-3.64E-01	6.25E-01
	1153.47	7.20	2.68E+00		8.27E-01	1.23E+00
	1230.71	8.90	2.61E+00		1.47E+00	1.22E+00
HO-166M	184.41	72.60	1.37E-01	1.37E-01	2.27E-01	6.67E-02
	280.45	29.60	2.41E-01		-1.34E-01	1.15E-01
	410.94	11.10	8.45E-01		-7.42E-02	4.02E-01
	711.69	54.10	1.83E-01		8.80E-03	8.53E-02
TM-171	66.72	0.14	7.24E+01	7.24E+01	-6.75E+01	3.54E+01
HF-172	81.75	4.52	1.82E+00	6.19E-01	-7.95E+00	8.88E-01
	125.81	11.30	6.19E-01		1.54E-01	3.00E-01
LU-172	181.53	20.60	8.70E-01	5.17E-01	1.81E-01	4.19E-01
	810.06	16.63	1.53E+00		1.93E-01	7.07E-01
	912.12	15.25	3.81E+00		9.86E+00	1.84E+00
	1093.66	62.50	5.17E-01		1.36E-01	2.39E-01
LU-173	100.72	5.24	1.39E+00	4.19E-01	4.48E-01	6.77E-01
	272.11	21.20	4.19E-01		4.58E-01	2.02E-01
HF-175	343.40	84.00	9.97E-02	9.97E-02	1.58E-02	4.73E-02
LU-176	88.34	13.30	7.47E-01	7.33E-02	7.49E-01	3.66E-01
	201.83	86.00	8.50E-02		-6.91E-02	4.09E-02
	306.78	94.00	7.33E-02		-1.24E-02	3.47E-02

Analysis Report for 1606065-12
CP-5017 10-15

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TA-182	67.75	41.20	2.41E-01	2.41E-01	-1.68E-01	1.18E-01
	1121.30	34.90	5.33E-01		6.52E-01	2.52E-01
	1189.05	16.23	8.47E-01		-1.23E-01	3.90E-01
	1221.41	26.98	5.45E-01		6.41E-02	2.52E-01
	1231.02	11.44	1.41E+00		7.99E-01	6.58E-01
IR-192	308.46	29.68	2.64E-01	1.97E-01	-2.81E-02	1.25E-01
	468.07	48.10	1.97E-01		-3.56E-02	9.31E-02
HG-203	279.19	77.30	1.26E-01	1.26E-01	1.52E-01	6.05E-02
BI-207	569.67	97.72	1.06E-01	1.06E-01	3.84E-02	5.03E-02
	1063.62	74.90	1.43E-01		-8.58E-02	6.51E-02
+ TL-208	583.14	*	30.22	2.64E-01	2.06E+00	2.07E-01
	860.37		4.48		1.96E+00	1.18E+00
	2614.66	*	35.85		1.42E+00	1.10E-01
BI-210M	262.00	45.00	1.59E-01	1.59E-01	2.40E-02	7.57E-02
	300.00	23.00	3.71E-01		-6.22E-01	1.78E-01
+ PB-210	46.50	*	4.25	3.64E+00	1.99E+00	1.78E+00
PB-211	404.84	2.90	2.66E+00	2.66E+00	9.03E-02	1.25E+00
	831.96	2.90	3.44E+00		-4.32E-01	1.59E+00
BI-212	727.17	11.80	1.20E+00	1.20E+00	1.20E+00	5.69E-01
	1620.62	2.75	2.97E+00		2.05E-01	1.26E+00
PB-212	238.63	44.60	3.92E-01	3.92E-01	1.70E+00	1.92E-01
	300.09	3.41	2.50E+00		-4.20E+00	1.20E+00
+ BI-214	609.31	*	46.30	3.03E-01	1.31E+00	1.45E-01
	1120.29	*	15.10		1.37E+00	6.02E-01
	1764.49	*	15.80		1.58E+00	1.96E-01
	2204.22		4.98		1.37E+00	1.12E+00
+ PB-214	295.21	*	19.19	3.59E-01	1.19E+00	2.55E-01
	351.92	*	37.19		1.45E+00	1.74E-01
RN-219	401.80	6.50	1.18E+00	1.18E+00	1.92E-01	5.56E-01
RA-223	323.87	3.88	1.88E+00	1.88E+00	2.17E-01	8.94E-01
RA-224	240.98	3.95	4.70E+00	4.70E+00	2.84E+01	2.31E+00
RA-225	40.00	31.00	7.48E-01	7.48E-01	1.80E-01	3.62E-01
+ RA-226	186.21	*	3.28	3.84E+00	3.84E+00	6.26E+00
TH-227	50.10	8.40	1.30E+00	7.11E-01	-3.09E-01	6.29E-01
	236.00	11.50	7.11E-01		-1.05E+01	3.42E-01
	256.20	6.30	1.11E+00		5.33E-02	5.31E-01
+ AC-228	338.32	*	11.40	5.27E-01	2.02E+00	4.64E-01
	911.07	*	27.70		2.00E+00	2.49E-01
	969.11	*	16.60		2.44E+00	5.23E-01
TH-230	48.44	16.90	7.10E-01	7.10E-01	3.89E-01	3.45E-01
	62.85	4.60	2.43E+00		3.26E+00	1.19E+00
	67.67	0.37	2.54E+01		-1.77E+01	1.24E+01
PA-231	283.67	1.60	4.31E+00	3.60E+00	9.74E-01	2.05E+00
	302.67	2.30	3.60E+00		3.29E+00	1.72E+00
TH-231	25.64	14.70	7.16E+00	1.35E+00	-6.17E+01	3.49E+00
	84.21	6.40	1.35E+00		-2.74E+00	6.61E-01
PA-233	311.98	38.60	2.47E-01	2.47E-01	5.43E-02	1.17E-01
PA-234	131.20	20.40	3.55E-01	3.55E-01	2.22E-01	1.72E-01
	733.99	8.80	1.20E+00		-1.13E-01	5.58E-01
	946.00	12.00	8.86E-01		-4.18E-01	4.08E-01
PA-234M	1001.03	0.92	1.34E+01	1.34E+01	-6.69E-01	6.21E+00
TH-234	63.29	3.80	2.95E+00	2.95E+00	3.56E+00	1.44E+00
U-235	143.76	10.50	6.89E-01	6.89E-01	9.47E-02	3.34E-01

Analysis Report for 1606065-12
CP-5017 10-15

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
U-235	163.35	4.70	1.49E+00	6.89E-01	9.38E-02	7.21E-01
	205.31	4.70	1.58E+00		1.05E+00	7.60E-01
NP-237	86.50	12.60	7.93E-01	7.93E-01	1.40E+00	3.88E-01
NP-239	106.10	22.70	4.53E+00	4.53E+00	2.14E+00	2.20E+00
	228.18	10.70	1.00E+01		-2.80E+00	4.82E+00
	277.60	14.10	8.87E+00		8.81E+00	4.26E+00
AM-241	59.54	35.90	2.70E-01	2.70E-01	-3.85E-02	1.31E-01
AM-243	74.67	66.00	1.80E-01	1.80E-01	-7.20E-01	8.83E-02
+ CM-243	209.75 *	3.29	3.14E+00	6.85E-01	3.98E+00	1.53E+00
	228.14	10.60	6.85E-01		-1.91E-01	3.28E-01
	277.60 *	14.00	7.17E-01		7.86E-01	3.46E-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
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No Data Review Comments Entered.

369: 16 15 14 24 14 17 22 19

Sample Title: CP-5017 10-15

Channel	1	2	3	4	5	6	7	8
377:	20	15	14	15	24	18	17	18
385:	15	24	20	18	25	25	28	19
393:	17	16	16	21	18	15	15	22
401:	17	16	22	15	15	21	19	16
409:	19	32	27	10	19	13	17	20
417:	10	15	17	14	13	18	23	11
425:	14	20	15	17	17	17	20	12
433:	6	14	17	14	14	10	10	23
441:	12	13	17	10	17	14	12	7
449:	13	18	11	8	18	28	10	18
457:	18	13	16	14	13	23	24	57
465:	23	14	20	10	10	12	6	14
473:	14	15	10	7	7	8	10	13
481:	18	17	21	12	16	6	9	18
489:	13	7	7	14	12	14	12	13
497:	12	15	7	11	9	11	13	10
505:	6	11	18	12	20	27	68	76
513:	31	25	14	13	7	12	14	12
521:	20	8	11	8	11	11	5	15
529:	12	9	10	9	12	10	10	13
537:	16	8	12	11	12	12	13	8
545:	14	8	7	13	13	10	6	15
553:	8	8	13	8	7	13	18	12
561:	17	7	22	14	12	14	15	16
569:	7	15	17	18	13	14	8	10
577:	14	18	15	11	12	22	70	171
585:	61	17	12	12	4	14	8	11
593:	7	11	6	11	9	12	11	9
601:	15	12	11	6	10	10	12	12
609:	51	172	83	20	12	11	14	7
617:	12	10	10	7	11	9	14	5
625:	14	11	15	7	12	6	14	6
633:	6	8	16	8	13	8	13	6
641:	15	11	8	9	9	9	13	9
649:	8	11	10	10	7	9	8	10
657:	8	6	10	9	9	15	11	15
665:	13	15	14	13	7	9	10	10
673:	12	10	10	9	10	10	9	8
681:	13	9	6	12	9	10	9	10
689:	9	9	8	5	5	6	8	12
697:	12	10	12	12	19	10	12	12
705:	9	11	9	9	6	13	5	10
713:	9	8	12	10	7	9	7	18
721:	8	14	12	7	11	14	27	40
729:	17	13	10	6	14	9	9	6
737:	14	4	9	6	12	13	17	6
745:	5	7	6	10	9	16	4	9
753:	9	8	6	8	7	7	8	7
761:	8	9	9	5	10	12	9	12
769:	29	8	4	12	9	4	4	7
777:	5	9	4	10	4	5	5	6
785:	10	14	14	11	7	7	9	8
793:	8	7	18	25	9	4	10	7

801: 8 8 8 9 8 5 10 9

Sample Title: CP-5017 10-15

Channel	1	2	3	4	5	6	7	8
809:	4	8	6	5	8	7	6	6
817:	6	4	14	1	9	8	7	9
825:	8	3	12	7	6	10	5	6
833:	10	7	5	11	20	7	9	6
841:	5	6	13	9	7	13	6	6
849:	7	7	2	5	5	6	2	4
857:	7	4	4	7	11	17	11	8
865:	4	5	5	6	8	10	15	8
873:	4	5	9	7	7	7	4	8
881:	7	4	5	4	12	5	4	5
889:	7	7	8	3	6	5	6	7
897:	6	3	7	12	7	6	8	7
905:	8	8	9	4	9	10	49	100
913:	47	10	10	3	9	6	7	8
921:	7	6	14	3	4	6	7	3
929:	3	7	6	4	6	8	9	7
937:	4	4	4	4	8	10	10	6
945:	4	3	5	9	8	8	9	3
953:	3	5	4	4	6	7	8	2
961:	7	7	3	11	29	18	8	12
969:	45	62	20	3	7	5	6	5
977:	2	3	8	5	5	6	7	4
985:	3	8	5	8	4	7	6	10
993:	7	2	5	6	10	4	7	9
1001:	10	9	11	6	9	8	1	3
1009:	4	6	5	5	8	4	8	3
1017:	5	9	5	8	3	1	2	6
1025:	5	4	6	5	5	5	3	4
1033:	5	6	5	6	8	4	6	10
1041:	7	7	3	5	5	3	8	6
1049:	5	10	5	7	6	14	3	6
1057:	2	5	10	8	5	2	6	4
1065:	8	7	5	2	12	7	5	7
1073:	4	5	9	1	6	6	10	3
1081:	8	6	10	6	6	9	7	9
1089:	6	3	5	7	2	10	12	6
1097:	8	12	2	5	6	7	3	8
1105:	8	7	11	9	7	2	13	9
1113:	6	5	5	6	4	7	9	13
1121:	33	24	8	5	7	5	7	5
1129:	3	9	6	7	11	4	9	4
1137:	5	5	10	8	7	6	5	8
1145:	1	3	5	3	8	10	11	4
1153:	4	7	2	9	4	6	12	8
1161:	8	6	10	3	3	7	3	5
1169:	11	7	5	8	5	5	4	10
1177:	7	5	8	9	5	7	12	10
1185:	6	6	7	8	4	9	6	7
1193:	8	6	6	9	9	10	13	16
1201:	8	7	8	8	6	7	11	6
1209:	3	8	7	4	5	7	7	8
1217:	5	11	9	9	5	5	8	5
1225:	9	5	6	13	7	13	5	8

1233: 5 12 5 7 6 12 16 8

Sample Title: CP-5017 10-15

Channel	1	2	3	4	5	6	7	8	9
1241:	11	5	17	12	9	4	9	13	
1249:	10	10	3	5	3	10	3	7	
1257:	7	6	6	3	4	4	2	5	
1265:	8	6	2	3	3	7	3	4	
1273:	5	6	3	3	5	4	4	6	
1281:	7	7	5	1	3	6	5	4	
1289:	5	2	2	8	8	3	4	3	
1297:	9	6	6	7	4	3	7	2	
1305:	4	2	4	7	7	2	2	4	
1313:	0	2	4	4	3	3	6	4	
1321:	1	6	3	8	6	10	4	6	
1329:	3	5	3	2	4	5	3	5	
1337:	3	4	2	3	7	2	2	2	
1345:	4	2	3	2	5	3	1	1	
1353:	3	3	4	5	9	6	1	4	
1361:	5	2	3	1	1	1	2	3	
1369:	1	6	1	1	3	1	2	8	
1377:	4	6	7	6	0	2	4	6	
1385:	5	2	5	3	4	6	1	2	
1393:	0	4	2	1	1	1	3	1	
1401:	1	6	9	1	3	4	6	7	
1409:	5	4	4	1	4	1	2	0	
1417:	2	4	2	3	2	1	1	2	
1425:	0	3	1	2	3	1	1	3	
1433:	4	1	0	1	5	2	2	4	
1441:	0	1	3	1	1	1	2	1	
1449:	3	3	5	1	3	1	4	3	
1457:	5	3	7	97	293	265	68	8	
1465:	4	4	2	1	1	2	1	1	
1473:	2	1	2	1	0	1	0	1	
1481:	4	3	1	0	0	1	5	1	
1489:	0	2	3	0	1	1	4	6	
1497:	1	3	2	0	4	1	2	1	
1505:	0	0	1	2	6	4	0	0	
1513:	5	2	2	1	1	1	1	1	
1521:	1	2	0	1	2	0	2	2	
1529:	1	2	1	0	3	2	0	2	
1537:	2	0	1	2	1	1	1	2	
1545:	0	0	1	2	1	3	2	2	
1553:	0	2	1	1	4	2	1	1	
1561:	1	0	1	1	3	0	0	0	
1569:	2	0	2	3	0	3	1	3	
1577:	1	0	0	3	4	3	3	1	
1585:	1	0	1	3	10	3	0	3	
1593:	2	5	1	2	0	1	4	0	
1601:	3	2	1	1	1	0	1	1	
1609:	3	4	1	1	1	0	1	2	
1617:	0	1	2	1	3	2	1	1	
1625:	1	1	0	0	2	4	6	3	
1633:	1	1	0	1	2	0	2	1	
1641:	1	0	0	0	3	0	2	3	
1649:	1	2	1	0	2	2	0	0	
1657:	3	1	1	0	4	1	4	2	

1665: 3 1 1 1 2 0 0 0

Sample Title: CP-5017 10-15

Channel	1	2	3	4	5	6	7	8	9
1673:	1	2	0	0	2	0	1	1	
1681:	2	0	4	1	1	4	0	1	
1689:	1	1	4	1	3	4	2	2	
1697:	1	0	0	2	0	1	1	2	
1705:	1	1	2	0	0	1	1	1	
1713:	2	3	0	0	1	2	0	0	
1721:	3	3	1	2	0	0	0	0	
1729:	1	1	1	3	0	0	1	0	
1737:	2	2	1	0	2	0	0	1	
1745:	1	0	0	1	0	2	2	1	
1753:	0	1	0	0	1	1	0	1	
1761:	1	1	5	12	13	13	3	4	
1769:	2	0	0	1	0	1	0	3	
1777:	1	0	1	3	2	0	0	0	
1785:	0	1	1	2	2	2	0	0	
1793:	1	0	0	0	2	0	4	0	
1801:	1	1	1	1	1	2	0	1	
1809:	2	1	2	3	1	2	1	2	
1817:	2	1	2	0	2	3	0	3	
1825:	3	3	0	0	0	0	1	1	
1833:	0	1	0	0	0	1	1	1	
1841:	2	0	1	1	2	0	2	2	
1849:	5	1	1	1	0	1	0	0	
1857:	0	0	1	1	1	0	1	2	
1865:	0	2	1	1	0	1	1	0	
1873:	1	1	2	2	3	2	1	0	
1881:	1	0	0	0	0	0	1	1	
1889:	1	0	1	3	2	0	2	4	
1897:	2	0	0	0	1	1	2	2	
1905:	0	2	0	0	1	1	2	1	
1913:	1	2	2	1	0	2	1	1	
1921:	1	0	1	1	0	0	0	1	
1929:	1	1	0	2	1	0	0	2	
1937:	2	1	3	2	0	3	1	2	
1945:	1	0	1	0	0	0	2	2	
1953:	1	2	1	2	2	1	0	1	
1961:	3	1	2	1	2	0	1	1	
1969:	0	1	0	1	1	0	0	1	
1977:	0	0	1	0	1	1	0	2	
1985:	0	1	0	1	1	0	1	1	
1993:	0	1	0	1	1	2	2	0	
2001:	0	1	1	0	2	1	1	0	
2009:	1	1	1	1	2	0	0	0	
2017:	0	0	2	2	0	1	2	0	
2025:	0	0	2	0	1	1	1	1	
2033:	1	0	0	0	2	1	1	2	
2041:	0	1	0	0	1	1	0	2	
2049:	2	0	1	0	0	1	1	1	
2057:	0	1	0	0	0	1	1	1	
2065:	0	0	1	2	2	0	0	1	
2073:	0	0	0	0	0	2	1	0	
2081:	0	0	1	0	0	0	0	1	
2089:	2	0	1	2	2	2	0	1	

2097: 2 1 0 3 3 2 5 4

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

2529: 0 1 0 1 0 0 1 1

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Channel	1	2	3	4	5	6	7	8
2537:	0	0	0	0	0	0	0	1
2545:	0	1	0	3	0	0	1	0
2553:	2	0	0	0	0	0	1	0
2561:	0	0	1	0	0	0	0	0
2569:	0	1	0	0	0	2	0	2
2577:	0	0	0	0	0	0	1	0
2585:	0	0	1	0	0	0	2	0
2593:	0	0	0	1	0	0	0	0
2601:	0	0	0	0	2	1	0	0
2609:	0	1	1	3	6	29	40	9
2617:	4	2	1	1	0	0	1	0
2625:	0	0	0	1	0	0	0	1
2633:	1	0	2	0	0	0	0	0
2641:	1	0	0	0	0	1	0	0
2649:	1	1	0	2	2	0	0	0
2657:	0	0	0	0	0	0	1	2
2665:	1	0	0	0	0	0	0	0
2673:	0	0	2	0	1	0	0	2
2681:	0	0	0	1	0	0	0	0
2689:	2	0	0	1	0	0	1	0
2697:	0	0	0	0	3	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	2	0	0	2
2729:	0	0	0	0	0	0	1	0
2737:	0	1	0	1	0	1	0	0
2745:	0	0	1	3	0	0	0	0
2753:	1	0	0	0	0	0	0	0
2761:	1	1	0	0	1	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	0	1	1	0	0	0	0	0
2785:	0	0	0	0	0	0	1	0
2793:	0	0	0	0	0	0	0	0
2801:	0	1	1	0	0	1	1	0
2809:	0	0	0	1	1	1	0	0
2817:	0	2	1	0	0	0	1	0
2825:	0	1	0	0	1	0	0	1
2833:	0	0	0	0	1	0	0	0
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	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	0	0	1	0	2
2881:	0	1	0	0	0	0	0	0
2889:	0	0	0	0	0	0	0	0
2897:	0	0	1	1	0	0	0	0
2905:	1	0	0	0	2	1	1	0
2913:	0	0	1	0	1	1	0	1
2921:	0	1	0	0	0	0	1	0
2929:	1	0	0	0	0	0	0	0
2937:	1	1	0	0	1	2	0	1
2945:	0	0	0	0	0	0	0	0
2953:	1	0	0	0	0	0	0	0

2961: 0 0 0 1 0 0 2 0

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

3393: 0 1 0 0 0 0 0 0

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

3825: 1 0 0 0 0 0 0 0 0

Sample Title: CP-5017 10-15

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	1	0	0	0	1	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	1	1	0	0	0	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	1
3881:	0	0	1	0	0	0	0	0
3889:	1	0	0	0	1	0	0	1
3897:	0	0	0	1	0	0	0	0
3905:	0	0	1	0	0	1	0	1
3913:	0	0	1	0	0	0	0	0
3921:	0	1	0	0	0	0	0	0
3929:	0	0	0	0	0	0	1	0
3937:	0	1	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:	0	0	1	0	0	0	0	0
3977:	0	0	1	0	0	0	0	1
3985:	0	0	0	0	1	0	0	0
3993:	0	0	0	0	1	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	1	0
4041:	0	0	1	0	0	0	1	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	0	0	1

***** GENIE QUALITY ASSURANCE *****

Last Results Report
6/17/16 6:54:07 AM

✓
6/17

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D000000004GAW-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: 6/17/16 6:38:20 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 935.2 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 keV	5.8841E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 keV	6.6133E+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	1.8369E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	2.2102E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	2.6132E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Co-60	2.8010E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	3.2130E+000	
Boundary Limits: [5.000E-001, 3.500E+000]		< : : : >
Decay corrected activity	1.2554E+005	
Boundary Limits: [1.200E-001, 1.816E-001]		< : : : >
Decay corrected activity	6.7746E+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	1.0531E+005	
Boundary Limits: [7.892E-002, 1.184E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Decay corrected activity	2.5364E+005	
Boundary Limits: [1.695E-001, 2.543E-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
 6/17/16 5:40:01 AM

6117

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: 6/17/16 5:24:20 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	6.6180E+002				
Boundary Limits: [6.600E+002, 6.640E+002]		<	:	:	>
Peak centroid 1332.49 keV	1.3325E+003				
Boundary Limits: [1.331E+003, 1.334E+003]		<	:	:	>
Peak centroid 1836.1 keV	1.8361E+003				
Boundary Limits: [1.833E+003, 1.838E+003]		<	:	:	>
Peak FWHM Am-241	1.4141E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak FWHM Cs-137	1.7543E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak FWHM Co-60	2.3699E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Peak FWHM Y-88	2.5712E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Decay corrected activity	1.6817E+005				
Boundary Limits: [1.223E-001, 1.834E-001]		<	:	:	>
Decay corrected activity	6.5217E+004				
Boundary Limits: [4.969E-002, 7.453E-002]		<	:	:	>

Decay corrected activity 1.0349E+005
Boundary Limits: [7.972E-002, 1.120E-001] < : : : >

Parameter Description Value Deviation/Flags
[Mean +/- Std. Dev.] < LU : SD : UD : BS >

Decay corrected activity 2.2895E+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
 6/17/16 5:39:51 AM

✓
0117

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: 6/17/16 5:24:12 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 Boundary Limits: [5.800E+001, 6.100E+001]	6.0000E+001	< : : : >
Peak centroid 661.65 keV Boundary Limits: [6.600E+002, 6.640E+002] Trend Test: The last 9 samples exhibit a bias trend.	6.6145E+002	< : : : >
Peak centroid 1332.49 ke Boundary Limits: [1.331E+003, 1.334E+003] Trend Test: The last 9 samples exhibit a bias trend.	1.3322E+003	< : : : >
Peak centroid 1836.1 keV Boundary Limits: [1.834E+003, 1.838E+003] Trend Test: The last 9 samples exhibit a bias trend.	1.8355E+003	< : : : >
Peak FWHM Am-241 Boundary Limits: [5.000E-001, 3.000E+000]	1.3829E+000	< : : : >
Peak FWHM Cs-137 Boundary Limits: [5.000E-001, 3.000E+000]	2.0277E+000	< : : : >
Peak FWHM Co-60 Boundary Limits: [5.000E-001, 3.000E+000]	2.0018E+000	< : : : >
Peak FWHM Y-88 Boundary Limits: [5.000E-001, 3.000E+000] Trend Test: The last 9 samples exhibit a bias trend.	2.3760E+000	< : : : >
Decay corrected activity Boundary Limits: [1.224E-001, 1.836E-001]	1.5275E+005	< : : : >
Decay corrected activity	6.3372E+004	

Boundary Limits: [4.971E-002, 7.457E-002] < : : : >

Decay corrected activity 9.9512E+004
Boundary Limits: [7.978E-002, 1.197E-001] < : : : >

Parameter Description Value Deviation/Flags
[Mean +/- Std. Dev.] < LU : SD : UD : BS >

Decay corrected activity 2.2389E+005
Boundary Limits: [1.714E-001, 2.571E-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
6/17/16 7:11:39 AM

6/17

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: 6/17/16 6:56:07 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 918.5 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 keV	6.0493E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 keV	6.6246E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 keV	1.3334E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1836.01 keV	1.8366E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	8.5950E-001	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	2.1036E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.1715E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-90	2.8952E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.7597E+004	
Boundary Limits: [1.170E-002, 1.754E-002]		<Ab : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Decay corrected activity 6.4198E+003
Boundary Limits: [4.716E-003, 7.075E-003] < : : : >

Parameter Description Value Deviation/Flags
[Mean +/- Std. Dev.] < LU : SD : UD : BS >

Decay corrected activity 1.1028E+004
Boundary Limits: [7.572E-003, 1.136E-002] < : : : >

Decay corrected activity 1.9175E+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
 6/17/16 6:07:30 AM

✓
 6117

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D000000004B.QCK

Detector: GE4
 Geometry: <None>
 Certificate: <None>
 Sample ID: QA Background Ch
 Sample Desc: QA Count
 Sample Quantity: 1.0000E+000
 Sample Date: 6/17/16 5:52:16 AM
 Measurement Date: 6/17/16 5:52:18 AM
 Elapsed Live Time: 900.0 seconds
 Elapsed Real Time: 900.2 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE4 [SD: 9.5336E+000+/-157.06]	1.5811E+000	-5.0633E-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
 6/17/16 6:07:22 AM

✓
 6117

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000003B.QCK

Detector: GE3
 Geometry: <None>
 Certificate: <None>
 Sample ID: QA Background Ch
 Sample Desc: QA Count
 Sample Quantity: 1.0000E+000
 Sample Date: 6/17/16 5:52:08 AM
 Measurement Date: 6/17/16 5:52:10 AM
 Elapsed Live Time: 900.0 seconds
 Elapsed Real Time: 902.7 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE3 [SD: 2.2359E+003+/-1365.6]	1.6340E+003	-4.4075E-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
 6/17/16 6:07:14 AM

✓
6117

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000002B.QCK

Detector: GE2
 Geometry: <None>
 Certificate: <None>
 Sample ID: QA Background Ch
 Sample Desc: QA Count
 Sample Quantity: 1.0000E+000
 Sample Date: 6/17/16 5:52:00 AM
 Measurement Date: 6/17/16 5:52:02 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	3.4633E+000	3.7823E-002
[SD:-2.4341E+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)

 ***** G E N I E Q U A L I T Y A S S U R A N C E *****

Last Results Report
 6/17/16 6:07:05 AM

6117

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: 6/17/16 5:51:52 AM
 Measurement Date: 6/17/16 5:51:53 AM
 Elapsed Live Time: 900.0 seconds
 Elapsed Real Time: 900.1 seconds

Parameter Description	Value	Deviation/Flags
[Mean +/- Std. Dev.]		< LU : SD : UD : BS >
DAILY BKG CT RATE GE1	2.2922E+000	7.0750E-003
[SD: 2.2817E+000+/- 1.491]		< : : : >
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)