AUXIER & ASSOCIATES, INC.

PAP/KAN

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #16-06064-OR

August 17, 2016

Eberline Analytical
Oak Ridge Laboratory
OAK RIDGE, TN

TABLE OF CONTENTS

Eberline Services – Oak Ridge Laboratory

LABORATORY DATA SUPPORT CHECKLIST

MP-001-3

Eberline Services Work Order # 16-U6064

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	JED	Sample Log-In
		6/29/16	KBS	Data Compilation
		7-14-16	MLT	First Technical Data Review
		7/15/16	MLT	Second Technical Data Review
		8/4/16		Data Entry/Electronic Deliverable
		8/4/16		Case Narrative
		8/16/16	KBS	Electronic Deliverable Proof
		8/16/16	MLT	Samples Analyzed within Holding Time Yes? [X] No? [ ]
		8/16/16	MLT	QA/QC Review
		06/29/16	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

Radiological Health, Safety and Environmental Services
A USA Environmental, L.P. Company

16-06064

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
4	CP-5027.00-02	6/2/16	Soil in Plastic Bag	CP-5013.10-15	6/8/16	Soil in Plastic Bag
5	CP-5014.00-02	6/7/16	Soil in Plastic Bag	CP-5011.00-02	"	Soil in Plastic Bag
6	CP-5014.02-05	"	Soil in Plastic Bag	CP-5011.02-05	"	Soil in Plastic Bag
7	CP-5014.05-09	"	Soil in Plastic Bag	CP-5011.05-8.5	"	Soil in Plastic Bag
8	CP-5014.09-15	"	Soil in Plastic Bag	CP-5011.8.5-15	"	Soil in Plastic Bag
9	CP-5015.00-02	"	Soil in Plastic Bag	CP-5017.00-02	"	Soil in Plastic Bag
10	CP-5015.02-05	"	Soil in Plastic Bag	CP-5017.02-05	"	Soil in Plastic Bag
11	CP-5015.05-09	"	Soil in Plastic Bag	CP-5017.05-10	"	Soil in Plastic Bag
12	CP-5015.09-15	"	Soil in Plastic Bag	CP-5017.10-15	"	Soil in Plastic Bag
13	CP-5013.00-02	6/8/16	Soil in Plastic Bag			Soil in Plastic Bag
14	CP-5013.02-05	"	Soil in Plastic Bag			Soil in Plastic Bag
15	CP-5013.05-~~8.5~~ IDA 9.0 *	"	Soil in Plastic Bag			Soil in Plastic Bag

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

* Used IDA on sample container as client ID (CP-5013.05-09) Eyt 06/14/16

C:\a_Manuals\Forms\COC.xlsx

EBERLINE SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #	16-06064
Lab Deadline	7/5/2016
Analysis	UUISO - Level 4
Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	41	F1.1
	05	51	F1.1
	06	47	F1.1
	07	47	F1.1
	08	47	F1.1
	09	49	F1.1
	10	41	F1.1
	11	36	F1.1
	12	57	F1.1
	13	39	F1.1
	14	46	F1.1
	15	41	F1.1
REPORT ON DRY WEIGHT BASIS			

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1300	Kenyseay	6-15-16
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1025	Kenyseay	6-16-16
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1025	Pachelle	6-16-16
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1458	Pachell	6-21-16
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	Brian M	6-20-16 0745
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	084
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	6/22
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB	6/28/16 1740
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 #	**16-06064**
Lab Deadline	**7/5/2016**
Analysis	**ThISO - Level 4**
Sample Matrix	**Soil/Solid**

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	41	F1.1
	05	51	F1.1
	06	47	F1.1
	07	47	F1.1
	08	47	F1.1
	09	49	F1.1
	10	41	F1.1
	11	36	F1.1
	12	57	F1.1
	13	39	F1.1
REPORT ON DRY WEIGHT BASIS	**14**	46	F1.1
	15	41	F1.1

	Location (circle one)					Initials	Date
Received by	(Sample Storage)	(Rough Prep)	Prep	Separations	Count Room 1300	Kmyscej	6-15-16
Relinquished by	Sample Storage	(Rough Prep)	Prep	Separations	Count Room 1025	Kmyscej	6-16-16
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1025	[signature]	6-16-16
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1435	[signature]	6-21-16
Received by	Sample Storage	Rough Prep	Prep	(Separations)	Count Room	[signature]	6-29-16 0745
Relinquished by	Sample Storage	Rough Prep	Prep	(Separations)	Count Room	[signature]	6-29-16 0800
Received by	Sample Storage	Rough Prep	Prep	Separations	(Count Room)	[signature]	6-29-16 0855
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	(Count Room)	KB	6/29/16 1425
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 #	16-06064
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	41	F1.1
	05	51	F1.1
	06	47	F1.1
	07	47	F1.1
	08	47	F1.1
	09	49	F1.1
	10	41	F1.1
REPORT ON DRY WEIGHT BASIS	11	36	F1.1
	12	57	F1.1
	13	39	F1.1
	14	46	F1.1
Pb-212, Tl-208	15	41	F1.1

	Location (circle one)	Initials	Date
Received by	Sample Storage / Rough Prep / Prep / Separations / Count Room 1300	Kenyseij	6-15-16
Relinquished by	Sample Storage / Rough Prep / Prep / Separations / Count Room 1055	Kenysaij	6-16-16
Received by	Sample Storage / Rough Prep / Prep / Separations / Count Room	KB 6/16/16 1100	
Relinquished by	Sample Storage / Rough Prep / Prep / Separations / Count Room		6/17 0914
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		
Received by	Sample Storage / Rough Prep / Prep / Separations / Count Room		
Relinquished by	Sample Storage / Rough Prep / Prep / Separations / Count Room		

SECTION II

SAMPLE ACKNOWLEDGEMENT

Client Name	Contract/PO	Project Type	Date Received	Required Turnaround Days	Eberline Services Work Order
Auxier & Associates, Inc.	PAP-KAN	Environmental	06/14/2016	28	16-06064
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**	**Internal Deadline**	**Client Deadline**
PAP-KAN	PAP/KAN	H	07/05/2016	07/11/2016	07/12/2016

Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma	ThISO	UUISO																				Ttl
01	LCS	06/14/16	SO	F1.1	X	X	X																				3
02	BLANK	06/14/16	SO	F1.1	X	X	X																				3
03	DUP	06/14/16	SO	F1.1	X	X	X																				3
04	CP-5027 00-02	06/02/16 00:00	SO	F1.1	X	X	X																				3
05	CP-5014 00-02	06/07/16 00:00	SO	F1.1	X	X	X																				3
06	CP-5014 02-05	06/07/16 00:00	SO	F1.1	X	X	X																				3
07	CP-5014 05-09	06/07/16 00:00	SO	F1.1	X	X	X																				3
08	CP-5014 09-15	06/07/16 00:00	SO	F1.1	X	X	X																				3
09	CP-5015 00-02	06/07/16 00:00	SO	F1.1	X	X	X																				3
10	CP-5015 02-05	06/07/16 00:00	SO	F1.1	X	X	X																				3
11	CP-5015 05-09	06/07/16 00:00	SO	F1.1	X	X	X																				3
12	CP-5015 09-15	06/07/16 00:00	SO	F1.1	X	X	X																				3
13	CP-5013 00-02	06/08/16 00:00	SO	F1.1	X	X	X																				3
14	CP-5013 02-05	06/08/16 00:00	SO	F1.1	X	X	X																				3
15	CP-5013 05-09	06/08/16 00:00	SO	F1.1	X	X	X																				3
																											0
																											0
																											0
																											0
																											0
	Totals Per Analysis (non QA samples)				12	12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

EBERLINE SERVICES

Sample Log In Report

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

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

Invoice		Report Data	
	Accounts Payable		Cecilia Greene
	Auxier & Associates, Inc.		Auxier & Associates, Inc.
	9821 Cogdill Drive #1		9821 Cogdill Road, Suite 1
	Knoxville, TN 37932		Knoxville, TN 37932
Voice	865-675-3669	*Voice*	865-675-3669
Fax	865-675-3677	*Fax*	865-675-3677
Contact	Harvey Cohen		
Voice	301-718-8900		
Fax	301-718-8909		

Printed: 6/14/2016 4:08 PM

Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 16-06064

SAMPLE MATRIX/MATRICES: (CIRCLE ONE OR BOTH)

AQUEOUS NON-AQUEOUS

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

WERE SAMPLES:

Received in good condition?	(Y)	N	
If aqueous, properly preserved	Y	N	(N/A)

WERE CHAIN OF CUSTODY SEALS:

Present on outside of package?	(Y)	N
Unbroken on outside of package?	(Y)	N
Present on samples?	(Y)	N
Unbroken on samples?	(Y)	N
Was chain of custody present upon sample receipt?	(Y)	N

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

REMARKS: _____

SIGNATURE: James E Bailey DATE: 6-14-16

SECTION III

CASE NARRATIVE

EBERLINE SERVICES

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

EBS-OR-41114

August 17, 2016

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

CASE NARRATIVE
Work Order # 16-06064-OR

SAMPLE RECEIPT

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

CLIENT ID	LAB ID	CLIENT ID	LAB ID
CP-5027 00-02	16-06064-04	CP-5015 02-05	16-06064-10
CP-5014 00-02	16-06064-05	CP-5015 05-09	16-06064-11
CP-5014 02-05	16-06064-06	CP-5015 09-15	16-06064-12
CP-5014 05-09	16-06064-07	CP-5013 00-02	16-06064-13
CP-5014 09-15	16-06064-08	CP-5013 02-05	16-06064-14
CP-5015 00-02	16-06064-09	CP-5013 05-09	16-06064-15

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-235 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Uranium-238 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

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

Work Order Details:
SDG: 16-06064
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
16-06064-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/16/2016	16-06064	Cobalt-60	LANL ER-130 Modified	1.37E+02	5.48E+00				pCi/g
16-06064-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/16/2016	16-06064	Cesium-137	LANL ER-130 Modified	8.69E+01	3.48E+00				pCi/g
16-06064-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/16/2016	16-06064	Cobalt-60	LANL ER-130 Modified	1.45E+02	1.00E+01	1.25E+01	1.63E+00	1.34E+00	pCi/g
16-06064-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/16/2016	16-06064	Cesium-137	LANL ER-130 Modified	8.80E+01	8.48E+00	9.61E+00	2.15E+00	1.07E+00	pCi/g
16-06064-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/16/2016	16-06064	Actinium-228	LANL ER-130 Modified	-4.27E-02	1.61E-01	1.61E-01	2.49E-01	1.07E-01	pCi/g
16-06064-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/16/2016	16-06064	Bismuth-214	LANL ER-130 Modified	7.41E-02	8.08E-02	8.09E-02	1.53E-01	6.92E-02	pCi/g
16-06064-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/16/2016	16-06064	Potassium-40	LANL ER-130 Modified	1.39E-01	3.39E-01	3.39E-01	6.99E-01	2.77E-01	pCi/g
16-06064-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/16/2016	16-06064	Protactinium-231	LANL ER-130 Modified	-2.65E-01	1.22E+00	1.22E+00	1.86E+00	8.55E-01	pCi/g
16-06064-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-210	LANL ER-130 Modified	2.19E-01	3.00E-01	3.00E-01	4.95E-01	2.36E-01	pCi/g
16-06064-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-212	LANL ER-130 Modified	1.11E-03	5.82E-02	5.82E-02	9.37E-02	4.38E-02	pCi/g
16-06064-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-214	LANL ER-130 Modified	8.81E-02	8.03E-02	8.05E-02	1.48E-01	6.85E-02	pCi/g
16-06064-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/16/2016	16-06064	Thallium-208	LANL ER-130 Modified	1.05E-02	1.25E-01	1.25E-01	2.11E-01	9.47E-02	pCi/g
16-06064-03	DUP	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Actinium-228	LANL ER-130 Modified	8.33E-01	1.78E-01	1.83E-01	4.00E-01	1.89E-01	pCi/g
16-06064-03	DUP	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Bismuth-214	LANL ER-130 Modified	1.44E+00	1.79E-01	1.94E-01	1.84E-01	8.73E-02	pCi/g
16-06064-03	DUP	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Potassium-40	LANL ER-130 Modified	1.23E+01	1.70E+00	1.81E+00	1.17E+00	5.44E-01	pCi/g
16-06064-03	DUP	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Protactinium-231	LANL ER-130 Modified	-3.98E-01	6.47E-01	6.47E-01	2.69E+00	1.30E+00	pCi/g
16-06064-03	DUP	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-210	LANL ER-130 Modified	1.11E+00	1.14E+00	1.15E+00	1.90E+00	9.28E-01	pCi/g
16-06064-03	DUP	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-212	LANL ER-130 Modified	9.15E-01	1.27E-01	1.35E-01	2.15E-01	1.05E-01	pCi/g
16-06064-03	DUP	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-214	LANL ER-130 Modified	1.50E+00	1.67E-01	1.84E-01	2.61E-01	1.27E-01	pCi/g
16-06064-03	DUP	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Thallium-208	LANL ER-130 Modified	7.42E-01	1.33E-01	1.38E-01	3.64E-02	2.22E-01	pCi/g
16-06064-04	DO	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Actinium-228	LANL ER-130 Modified	8.43E-01	1.81E-01	1.86E-01	5.07E-01	2.43E-01	pCi/g
16-06064-04	DO	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Bismuth-214	LANL ER-130 Modified	1.49E+00	1.83E-01	1.98E-01	1.81E-01	8.59E-02	pCi/g
16-06064-04	DO	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Potassium-40	LANL ER-130 Modified	1.19E+01	1.65E+00	1.76E+00	1.09E+00	5.04E-01	pCi/g
16-06064-04	DO	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Protactinium-231	LANL ER-130 Modified	2.48E-01	1.81E+00	1.81E+00	2.65E+00	1.27E+00	pCi/g
16-06064-04	DO	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-210	LANL ER-130 Modified	1.27E+00	1.15E+00	1.15E+00	1.90E+00	9.26E-01	pCi/g
16-06064-04	DO	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-212	LANL ER-130 Modified	8.36E-01	1.16E-01	1.24E-01	2.16E-01	1.06E-01	pCi/g
16-06064-04	DO	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-214	LANL ER-130 Modified	1.45E+00	1.79E-01	1.94E-01	2.45E-01	1.19E-01	pCi/g
16-06064-04	DO	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/16/2016	16-06064	Thallium-208	LANL ER-130 Modified	5.48E-01	1.34E-01	1.37E-01	3.64E-02	1.52E-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
Final Report of Analysis

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

Work Order Details:
SDG: 16-06064
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
16-06064-05	TRG	CP-5014 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Actinium-228	LANL ER-130 Modified	1.42E+00	2.26E-01	2.38E-01	4.12E-01	1.96E-01	pCi/g
16-06064-05	TRG	CP-5014 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Bismuth-214	LANL ER-130 Modified	1.53E+00	1.85E-01	2.01E-01	2.17E-01	1.04E-01	pCi/g
16-06064-05	TRG	CP-5014 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Potassium-40	LANL ER-130 Modified	1.84E+01	2.11E+00	2.32E+00	9.26E-01	4.27E-01	pCi/g
16-06064-05	TRG	CP-5014 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Protactinium-231	LANL ER-130 Modified	2.25E+00	1.42E+00	1.43E+00	2.52E+00	1.21E+00	pCi/g
16-06064-05	TRG	CP-5014 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-210	LANL ER-130 Modified	2.76E+00	1.38E+00	1.38E+00	2.18E+00	1.06E+00	pCi/g
16-06064-05	TRG	CP-5014 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-212	LANL ER-130 Modified	8.38E-01	1.52E-01	1.58E-01	2.50E-01	1.23E-01	pCi/g
16-06064-05	TRG	CP-5014 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-214	LANL ER-130 Modified	1.70E+00	2.04E-01	2.22E-01	2.99E-01	1.46E-01	pCi/g
16-06064-05	TRG	CP-5014 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Thallium-208	LANL ER-130 Modified	1.12E+00	1.68E-01	1.78E-01	1.94E-01	1.33E-01	pCi/g
16-06064-06	TRG	CP-5014 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Actinium-228	LANL ER-130 Modified	1.29E+00	2.65E-01	2.73E-01	5.41E-01	2.60E-01	pCi/g
16-06064-06	TRG	CP-5014 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Bismuth-214	LANL ER-130 Modified	3.53E+00	3.32E-01	3.78E-01	2.80E-01	1.35E-01	pCi/g
16-06064-06	TRG	CP-5014 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Potassium-40	LANL ER-130 Modified	1.99E+01	2.39E+00	2.60E+00	1.15E+00	5.38E-01	pCi/g
16-06064-06	TRG	CP-5014 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Protactinium-231	LANL ER-130 Modified	-1.35E-01	1.08E+00	1.08E+00	2.79E+00	1.34E+00	pCi/g
16-06064-06	TRG	CP-5014 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-210	LANL ER-130 Modified	2.42E+00	1.27E+00	1.28E+00	2.04E+00	9.95E-01	pCi/g
16-06064-06	TRG	CP-5014 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-212	LANL ER-130 Modified	1.30E+00	2.03E-01	2.14E-01	2.25E-01	1.10E-01	pCi/g
16-06064-06	TRG	CP-5014 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-214	LANL ER-130 Modified	3.89E+00	4.75E-01	5.16E-01	2.51E-01	1.22E-01	pCi/g
16-06064-06	TRG	CP-5014 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Thallium-208	LANL ER-130 Modified	8.32E-01	1.58E-01	1.63E-01	9.52E-02	1.64E-01	pCi/g
16-06064-07	TRG	CP-5014 05-09	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Actinium-228	LANL ER-130 Modified	2.08E+00	4.40E-01	4.53E-01	7.44E-01	3.49E-01	pCi/g
16-06064-07	TRG	CP-5014 05-09	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Bismuth-214	LANL ER-130 Modified	5.67E+00	5.55E-01	6.26E-01	5.68E-01	2.74E-01	pCi/g
16-06064-07	TRG	CP-5014 05-09	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Potassium-40	LANL ER-130 Modified	3.46E+01	4.22E+00	4.58E+00	2.89E+00	1.36E+00	pCi/g
16-06064-07	TRG	CP-5014 05-09	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Protactinium-231	LANL ER-130 Modified	4.33E-01	3.51E+00	3.51E+00	5.72E+00	2.74E+00	pCi/g
16-06064-07	TRG	CP-5014 05-09	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-210	LANL ER-130 Modified	9.64E+00	3.58E+00	3.61E+00	5.45E+00	2.66E+00	pCi/g
16-06064-07	TRG	CP-5014 05-09	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-212	LANL ER-130 Modified	2.86E+00	3.63E-01	3.92E-01	6.15E-01	3.02E-01	pCi/g
16-06064-07	TRG	CP-5014 05-09	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-214	LANL ER-130 Modified	6.29E+00	5.66E-01	6.52E-01	5.82E-01	2.83E-01	pCi/g
16-06064-07	TRG	CP-5014 05-09	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Thallium-208	LANL ER-130 Modified	1.92E+00	3.38E-01	3.52E-01	3.46E-01	2.95E-01	pCi/g
16-06064-08	TRG	CP-5014 09-15	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Actinium-228	LANL ER-130 Modified	3.13E+00	7.89E-01	8.05E-01	1.23E+00	5.74E-01	pCi/g
16-06064-08	TRG	CP-5014 09-15	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Bismuth-214	LANL ER-130 Modified	1.60E+00	5.17E-01	5.23E-01	9.18E-01	4.42E-01	pCi/g
16-06064-08	TRG	CP-5014 09-15	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Potassium-40	LANL ER-130 Modified	3.00E+01	5.36E+00	5.58E+00	3.24E+00	1.45E+00	pCi/g
16-06064-08	TRG	CP-5014 09-15	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Protactinium-231	LANL ER-130 Modified	-1.37E+00	2.70E+00	2.70E+00	8.06E+00	3.85E+00	pCi/g
16-06064-08	TRG	CP-5014 09-15	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-210	LANL ER-130 Modified	1.89E+00	1.46E+00	1.46E+00	2.34E+00	1.14E+00	pCi/g
16-06064-08	TRG	CP-5014 09-15	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-212	LANL ER-130 Modified	2.52E+00	5.11E-01	5.27E-01	6.46E-01	3.16E-01	pCi/g
16-06064-08	TRG	CP-5014 09-15	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-214	LANL ER-130 Modified	1.21E+00	4.36E-01	4.41E-01	6.25E-01	3.00E-01	pCi/g
16-06064-08	TRG	CP-5014 09-15	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Thallium-208	LANL ER-130 Modified	2.28E+00	8.70E-01	8.78E-01	1.27E+00	6.12E-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
Final Report of Analysis

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

Work Order Details:
SDG: 16-06064
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
16-06064-09	TRG	CP-5015 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Actinium-228	LANL ER-130 Modified	1.18E+00	2.28E-01	2.36E-01	3.56E-01	1.68E-01	pCi/g
16-06064-09	TRG	CP-5015 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Bismuth-214	LANL ER-130 Modified	1.01E+00	1.87E-01	1.94E-01	2.41E-01	1.16E-01	pCi/g
16-06064-09	TRG	CP-5015 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Potassium-40	LANL ER-130 Modified	1.95E+01	2.27E+00	2.48E+00	7.44E-01	3.34E-01	pCi/g
16-06064-09	TRG	CP-5015 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Protactinium-231	LANL ER-130 Modified	-2.80E-02	1.69E+00	1.69E+00	2.16E+00	1.03E+00	pCi/g
16-06064-09	TRG	CP-5015 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-210	LANL ER-130 Modified	1.26E+00	1.15E+00	1.15E+00	1.91E+00	9.30E-01	pCi/g
16-06064-09	TRG	CP-5015 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-212	LANL ER-130 Modified	1.09E+00	2.06E-01	2.13E-01	2.16E-01	1.06E-01	pCi/g
16-06064-09	TRG	CP-5015 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-214	LANL ER-130 Modified	1.04E+00	2.23E-01	2.29E-01	1.85E-01	8.89E-02	pCi/g
16-06064-09	TRG	CP-5015 00-02	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Thallium-208	LANL ER-130 Modified	9.67E-01	1.64E-01	1.71E-01	9.35E-02	1.41E-01	pCi/g
16-06064-10	TRG	CP-5015 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Actinium-228	LANL ER-130 Modified	1.63E+00	2.83E-01	2.96E-01	5.20E-01	2.48E-01	pCi/g
16-06064-10	TRG	CP-5015 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Bismuth-214	LANL ER-130 Modified	1.04E+00	1.77E-01	1.85E-01	2.59E-01	1.24E-01	pCi/g
16-06064-10	TRG	CP-5015 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Potassium-40	LANL ER-130 Modified	1.95E+01	2.36E+00	2.56E+00	1.03E+00	4.65E-01	pCi/g
16-06064-10	TRG	CP-5015 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Protactinium-231	LANL ER-130 Modified	4.04E-01	7.84E-01	7.85E-01	3.14E+00	1.51E+00	pCi/g
16-06064-10	TRG	CP-5015 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-210	LANL ER-130 Modified	2.09E+00	1.69E+00	1.69E+00	2.78E+00	1.37E+00	pCi/g
16-06064-10	TRG	CP-5015 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-212	LANL ER-130 Modified	1.43E+00	1.68E-01	1.83E-01	2.69E-01	1.32E-01	pCi/g
16-06064-10	TRG	CP-5015 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Lead-214	LANL ER-130 Modified	1.11E+00	1.96E-01	2.04E-01	3.12E-01	1.52E-01	pCi/g
16-06064-10	TRG	CP-5015 02-05	06/07/16 00:00	6/14/2016	6/16/2016	16-06064	Thallium-208	LANL ER-130 Modified	1.18E+00	2.09E-01	2.17E-01	2.28E-01	1.87E-01	pCi/g
16-06064-11	TRG	CP-5015 05-09	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Actinium-228	LANL ER-130 Modified	2.13E+00	3.60E-01	3.76E-01	6.51E-01	3.06E-01	pCi/g
16-06064-11	TRG	CP-5015 05-09	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Bismuth-214	LANL ER-130 Modified	1.48E+00	2.86E-01	2.96E-01	3.89E-01	1.86E-01	pCi/g
16-06064-11	TRG	CP-5015 05-09	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Potassium-40	LANL ER-130 Modified	2.68E+01	3.32E+00	3.59E+00	1.22E+00	5.35E-01	pCi/g
16-06064-11	TRG	CP-5015 05-09	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Protactinium-231	LANL ER-130 Modified	1.96E+00	2.94E+00	2.94E+00	4.54E+00	2.18E+00	pCi/g
16-06064-11	TRG	CP-5015 05-09	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-210	LANL ER-130 Modified	3.53E+00	2.52E+00	2.53E+00	4.13E+00	2.02E+00	pCi/g
16-06064-11	TRG	CP-5015 05-09	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-212	LANL ER-130 Modified	2.27E+00	2.65E-01	2.89E-01	3.76E-01	1.84E-01	pCi/g
16-06064-11	TRG	CP-5015 05-09	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-214	LANL ER-130 Modified	1.44E+00	2.37E-01	2.48E-01	3.57E-01	1.72E-01	pCi/g
16-06064-11	TRG	CP-5015 05-09	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Thallium-208	LANL ER-130 Modified	1.59E+00	2.62E-01	2.74E-01	2.07E-01	3.38E-01	pCi/g
16-06064-12	TRG	CP-5015 09-15	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Actinium-228	LANL ER-130 Modified	1.77E+00	6.32E-01	6.38E-01	1.25E+00	5.92E-01	pCi/g
16-06064-12	TRG	CP-5015 09-15	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Bismuth-214	LANL ER-130 Modified	1.47E+00	3.44E-01	3.52E-01	2.07E-01	2.26E-01	pCi/g
16-06064-12	TRG	CP-5015 09-15	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Potassium-40	LANL ER-130 Modified	2.74E+01	4.47E+00	4.68E+00	1.39E+00	5.66E-01	pCi/g
16-06064-12	TRG	CP-5015 09-15	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Protactinium-231	LANL ER-130 Modified	-1.33E+00	3.85E+00	3.85E+00	6.31E+00	3.02E+00	pCi/g
16-06064-12	TRG	CP-5015 09-15	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-210	LANL ER-130 Modified	4.51E-01	1.16E+00	1.16E+00	1.81E+00	8.82E-01	pCi/g
16-06064-12	TRG	CP-5015 09-15	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-212	LANL ER-130 Modified	2.06E+00	4.38E-01	4.51E-01	5.79E-01	2.84E-01	pCi/g
16-06064-12	TRG	CP-5015 09-15	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-214	LANL ER-130 Modified	9.98E-01	3.21E-01	3.25E-01	5.64E-01	2.73E-01	pCi/g
16-06064-12	TRG	CP-5015 09-15	06/07/16 00:00	6/14/2016	6/17/2016	16-06064	Thallium-208	LANL ER-130 Modified	1.50E+00	5.14E-01	5.20E-01	9.37E-01	4.49E-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
Final Report of Analysis

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

Work Order Details:
SDG: 16-06064
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
16-06064-13	TRG	CP-5013 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Actinium-228	LANL ER-130 Modified	1.24E+00	2.78E-01	2.86E-01	5.26E-01	2.54E-01	pCi/g
16-06064-13	TRG	CP-5013 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Bismuth-214	LANL ER-130 Modified	1.14E+00	1.57E-01	1.68E-01	2.49E-01	1.20E-01	pCi/g
16-06064-13	TRG	CP-5013 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Potassium-40	LANL ER-130 Modified	2.06E+01	2.28E+00	2.51E+00	8.65E-01	3.97E-01	pCi/g
16-06064-13	TRG	CP-5013 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Protactinium-231	LANL ER-130 Modified	6.98E-01	1.42E+00	1.42E+00	2.32E+00	1.11E+00	pCi/g
16-06064-13	TRG	CP-5013 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-210	LANL ER-130 Modified	2.22E+00	1.32E+00	1.32E+00	3.43E+00	1.69E+00	pCi/g
16-06064-13	TRG	CP-5013 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-212	LANL ER-130 Modified	1.39E+00	1.61E-01	1.76E-01	2.09E-01	1.03E-01	pCi/g
16-06064-13	TRG	CP-5013 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-214	LANL ER-130 Modified	1.32E+00	1.48E-01	1.63E-01	2.22E-01	1.08E-01	pCi/g
16-06064-13	TRG	CP-5013 00-02	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Thallium-208	LANL ER-130 Modified	1.04E+00	1.62E-01	1.70E-01	1.07E-01	1.51E-01	pCi/g
16-06064-14	TRG	CP-5013 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Actinium-228	LANL ER-130 Modified	1.39E+00	2.23E-01	2.34E-01	4.77E-01	2.27E-01	pCi/g
16-06064-14	TRG	CP-5013 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Bismuth-214	LANL ER-130 Modified	9.45E-01	1.66E-01	1.73E-01	2.21E-01	1.06E-01	pCi/g
16-06064-14	TRG	CP-5013 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Potassium-40	LANL ER-130 Modified	1.89E+01	2.29E+00	2.49E+00	1.07E+00	4.91E-01	pCi/g
16-06064-14	TRG	CP-5013 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Protactinium-231	LANL ER-130 Modified	1.69E-01	9.08E-01	9.08E-01	2.92E+00	1.40E+00	pCi/g
16-06064-14	TRG	CP-5013 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-210	LANL ER-130 Modified	2.65E+00	1.39E+00	1.40E+00	1.96E+00	9.57E-01	pCi/g
16-06064-14	TRG	CP-5013 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-212	LANL ER-130 Modified	1.45E+00	1.66E-01	1.81E-01	2.69E-01	1.32E-01	pCi/g
16-06064-14	TRG	CP-5013 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-214	LANL ER-130 Modified	1.03E+00	1.69E-01	1.77E-01	2.88E-01	1.40E-01	pCi/g
16-06064-14	TRG	CP-5013 02-05	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Thallium-208	LANL ER-130 Modified	1.11E+00	1.75E-01	1.84E-01	1.95E-01	1.06E-01	pCi/g
16-06064-15	TRG	CP-5013 05-09	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Actinium-228	LANL ER-130 Modified	2.30E+00	6.66E-01	6.76E-01	1.12E+00	5.21E-01	pCi/g
16-06064-15	TRG	CP-5013 05-09	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Bismuth-214	LANL ER-130 Modified	1.21E+00	3.27E-01	3.33E-01	9.03E-01	4.35E-01	pCi/g
16-06064-15	TRG	CP-5013 05-09	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Potassium-40	LANL ER-130 Modified	2.64E+01	4.71E+00	4.90E+00	2.29E+00	9.86E-01	pCi/g
16-06064-15	TRG	CP-5013 05-09	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Protactinium-231	LANL ER-130 Modified	-2.71E+00	4.84E+00	4.84E+00	7.62E+00	3.64E+00	pCi/g
16-06064-15	TRG	CP-5013 05-09	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-210	LANL ER-130 Modified	2.43E-01	1.39E+00	1.39E+00	2.12E+00	1.04E+00	pCi/g
16-06064-15	TRG	CP-5013 05-09	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-212	LANL ER-130 Modified	2.12E+00	3.88E-01	4.03E-01	6.25E-01	3.05E-01	pCi/g
16-06064-15	TRG	CP-5013 05-09	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Lead-214	LANL ER-130 Modified	1.64E+00	3.92E-01	4.01E-01	6.64E-01	3.20E-01	pCi/g
16-06064-15	TRG	CP-5013 05-09	06/08/16 00:00	6/14/2016	6/17/2016	16-06064	Thallium-208	LANL ER-130 Modified	1.87E+00	4.81E-01	4.91E-01	1.51E-01	5.07E-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

Eberline Analytical
Final Report of Analysis

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

Work Order Details:
SDG: 16-06064
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
16-06064-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	5.39E+00	1.46E-01				pCi/g
16-06064-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	6.46E+00	9.88E-01	1.27E+00	6.56E-02	7.62E-02	pCi/g
16-06064-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	1.07E-03	1.50E-02	1.50E-02	4.28E-02	4.33E-02	pCi/g
16-06064-03	DUP	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	1.89E+00	4.19E-01	4.80E-01	4.12E-02	5.29E-02	pCi/g
16-06064-04	DO	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	1.87E+00	4.16E-01	4.76E-01	5.56E-02	5.81E-02	pCi/g
16-06064-05	TRG	CP-5014 00-02	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	1.22E+00	2.84E-01	3.21E-01	4.96E-02	5.16E-02	pCi/g
16-06064-06	TRG	CP-5014 02-05	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	3.35E+00	6.81E-01	7.97E-01	5.21E-02	5.67E-02	pCi/g
16-06064-07	TRG	CP-5014 05-09	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	3.12E+00	6.55E-01	7.60E-01	8.33E-02	7.72E-02	pCi/g
16-06064-08	TRG	CP-5014 09-15	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	1.36E+00	3.10E-01	3.52E-01	3.70E-02	4.76E-02	pCi/g
16-06064-09	TRG	CP-5015 00-02	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	1.15E+00	2.73E-01	3.08E-01	5.86E-02	5.69E-02	pCi/g
16-06064-10	TRG	CP-5015 02-05	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	1.52E+00	3.95E-01	4.37E-01	6.42E-02	6.99E-02	pCi/g
16-06064-11	TRG	CP-5015 05-09	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	1.57E+00	3.83E-01	4.29E-01	5.81E-02	6.33E-02	pCi/g
16-06064-12	TRG	CP-5015 09-15	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	1.41E+00	3.33E-01	3.76E-01	4.61E-02	5.36E-02	pCi/g
16-06064-13	TRG	CP-5013 00-02	06/08/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	1.16E+00	2.78E-01	3.13E-01	4.78E-02	5.21E-02	pCi/g
16-06064-14	TRG	CP-5013 02-05	06/08/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	1.34E+00	3.26E-01	3.66E-01	7.44E-02	6.98E-02	pCi/g
16-06064-15	TRG	CP-5013 05-09	06/08/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-230	EML Th-01 Modified	1.94E+00	4.41E-01	5.02E-01	6.23E-02	5.43E-02	pCi/g
16-06064-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	5.09E+00	1.83E-01				pCi/g
16-06064-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	5.85E+00	9.10E-01	1.05E+00	6.55E-02	5.80E-03	pCi/g
16-06064-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	9.41E-03	2.04E-02	2.04E-02	4.02E-02	5.45E-03	pCi/g
16-06064-03	DUP	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	5.22E-01	1.67E-01	1.74E-01	5.91E-02	8.17E-04	pCi/g
16-06064-04	DO	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	6.63E-01	1.95E-01	2.04E-01	5.55E-02	7.51E-03	pCi/g
16-06064-05	TRG	CP-5014 00-02	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	9.18E-01	2.31E-01	2.45E-01	4.19E-02	3.70E-03	pCi/g
16-06064-06	TRG	CP-5014 02-05	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	9.59E-01	2.53E-01	2.67E-01	4.13E-02	2.51E-03	pCi/g
16-06064-07	TRG	CP-5014 05-09	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	1.10E+00	2.86E-01	3.02E-01	6.69E-02	1.29E-02	pCi/g
16-06064-08	TRG	CP-5014 09-15	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	1.15E+00	2.75E-01	2.93E-01	4.99E-02	6.75E-03	pCi/g
16-06064-09	TRG	CP-5015 00-02	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	1.20E+00	2.83E-01	3.02E-01	7.77E-02	2.64E-02	pCi/g
16-06064-10	TRG	CP-5015 02-05	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	1.24E+00	3.38E-01	3.55E-01	5.84E-02	5.17E-03	pCi/g
16-06064-11	TRG	CP-5015 05-09	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	1.19E+00	3.12E-01	3.29E-01	6.96E-02	1.22E-02	pCi/g
16-06064-12	TRG	CP-5015 09-15	06/07/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	1.34E+00	3.20E-01	3.41E-01	5.77E-02	9.01E-03	pCi/g
16-06064-13	TRG	CP-5013 00-02	06/08/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	8.06E-01	2.17E-01	2.28E-01	8.43E-02	3.17E-02	pCi/g
16-06064-14	TRG	CP-5013 02-05	06/08/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	1.20E+00	3.00E-01	3.18E-01	8.67E-02	2.83E-02	pCi/g
16-06064-15	TRG	CP-5013 05-09	06/08/16 00:00	6/14/2016	6/29/2016	16-06064	Thorium-232	EML Th-01 Modified	1.40E+00	3.41E-01	3.62E-01	4.33E-02	2.63E-03	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
Final Report of Analysis

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

Work Order Details:
SDG: 16-06064
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
16-06064-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	7.79E+00	2.80E-01				pCi/g
16-06064-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	6.09E+00	8.63E-01	9.66E-01	7.62E-02	1.75E-02	pCi/g
16-06064-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	8.21E-02	5.90E-02	5.93E-02	6.14E-02	1.68E-02	pCi/g
16-06064-03	DUP	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	1.48E+00	2.79E-01	2.98E-01	6.64E-02	2.09E-02	pCi/g
16-06064-04	DO	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	1.68E+00	2.96E-01	3.20E-01	5.15E-02	1.26E-02	pCi/g
16-06064-05	TRG	CP-5014 00-02	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	1.19E+00	2.48E-01	2.62E-01	3.99E-02	7.52E-03	pCi/g
16-06064-06	TRG	CP-5014 02-05	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	3.66E+00	5.80E-01	6.37E-01	8.18E-02	2.69E-02	pCi/g
16-06064-07	TRG	CP-5014 05-09	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	2.51E+00	3.63E-01	4.05E-01	3.47E-02	6.94E-03	pCi/g
16-06064-08	TRG	CP-5014 09-15	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	9.73E-01	2.16E-01	2.27E-01	7.22E-02	2.47E-02	pCi/g
16-06064-09	TRG	CP-5015 00-02	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	7.49E-01	1.85E-01	1.92E-01	5.33E-02	1.22E-02	pCi/g
16-06064-10	TRG	CP-5015 02-05	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	9.32E-01	2.14E-01	2.24E-01	4.61E-02	9.20E-03	pCi/g
16-06064-11	TRG	CP-5015 05-09	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	6.63E-01	2.05E-01	2.10E-01	8.36E-02	2.17E-02	pCi/g
16-06064-12	TRG	CP-5015 09-15	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	9.95E-01	2.72E-01	2.81E-01	8.78E-02	9.02E-03	pCi/g
16-06064-13	TRG	CP-5013 00-02	06/08/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	9.25E-01	2.23E-01	2.32E-01	6.37E-02	6.56E-03	pCi/g
16-06064-14	TRG	CP-5013 02-05	06/08/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	9.12E-01	2.47E-01	2.55E-01	5.61E-02	1.06E-02	pCi/g
16-06064-15	TRG	CP-5013 05-09	06/08/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-234	EML U-02 Modified	8.03E-01	2.27E-01	2.34E-01	6.33E-02	1.27E-02	pCi/g
16-06064-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	3.88E-01	1.66E-01	1.68E-01	9.40E-02	1.09E-02	pCi/g
16-06064-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	3.62E-02	4.60E-02	4.61E-02	6.88E-02	9.11E-03	pCi/g
16-06064-03	DUP	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	9.28E-02	6.68E-02	6.71E-02	6.29E-02	7.30E-03	pCi/g
16-06064-04	DO	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	1.16E-01	7.36E-02	7.40E-02	6.68E-02	9.86E-03	pCi/g
16-06064-05	TRG	CP-5014 00-02	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	6.48E-02	5.75E-02	5.77E-02	6.19E-02	6.12E-03	pCi/g
16-06064-06	TRG	CP-5014 02-05	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	2.04E-01	1.08E-01	1.09E-01	7.52E-02	8.76E-03	pCi/g
16-06064-07	TRG	CP-5014 05-09	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	2.19E-01	9.05E-02	9.18E-02	4.70E-02	4.64E-03	pCi/g
16-06064-08	TRG	CP-5014 09-15	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	7.42E-02	6.02E-02	6.05E-02	6.00E-02	5.95E-03	pCi/g
16-06064-09	TRG	CP-5015 00-02	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	3.47E-02	4.68E-02	4.69E-02	7.34E-02	1.08E-02	pCi/g
16-06064-10	TRG	CP-5015 02-05	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	9.52E-02	7.08E-02	7.11E-02	7.13E-02	1.25E-03	pCi/g
16-06064-11	TRG	CP-5015 05-09	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	6.27E-02	6.49E-02	6.51E-02	6.83E-02	3.98E-03	pCi/g
16-06064-12	TRG	CP-5015 09-15	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	5.11E-02	6.20E-02	6.21E-02	7.53E-02	4.39E-03	pCi/g
16-06064-13	TRG	CP-5013 00-02	06/08/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	9.82E-02	7.40E-02	7.43E-02	6.88E-02	6.81E-03	pCi/g
16-06064-14	TRG	CP-5013 02-05	06/08/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	1.63E-01	1.05E-01	1.06E-01	6.92E-02	4.04E-03	pCi/g
16-06064-15	TRG	CP-5013 05-09	06/08/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-235	EML U-02 Modified	7.61E-02	7.27E-02	7.29E-02	7.81E-02	6.23E-03	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
Final Report of Analysis

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

Work Order Details:
SDG: 16-06064
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
16-06064-01	LCS	KNOWN	06/14/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	7.54E+00	2.72E-01				pCi/g
16-06064-01	LCS	SPIKE	06/14/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	6.62E+00	9.20E-01	1.03E+00	7.06E-02	1.53E-02	pCi/g
16-06064-02	MBL	BLANK	06/14/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	-1.86E-04	1.97E-02	1.97E-02	5.84E-02	1.53E-02	pCi/g
16-06064-03	DUP	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	1.96E+00	3.38E-01	3.66E-01	5.67E-02	1.48E-02	pCi/g
16-06064-04	DO	CP-5027 00-02	06/02/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	1.36E+00	2.57E-01	2.75E-01	6.08E-02	1.85E-02	pCi/g
16-06064-05	TRG	CP-5014 00-02	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	1.27E+00	2.57E-01	2.73E-01	3.98E-02	7.60E-03	pCi/g
16-06064-06	TRG	CP-5014 02-05	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	4.25E+00	6.51E-01	7.19E-01	7.90E-02	2.51E-02	pCi/g
16-06064-07	TRG	CP-5014 05-09	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	2.77E+00	3.90E-01	4.37E-01	4.32E-02	1.07E-02	pCi/g
16-06064-08	TRG	CP-5014 09-15	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	8.68E-01	2.00E-01	2.10E-01	5.82E-02	1.53E-02	pCi/g
16-06064-09	TRG	CP-5015 00-02	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	9.06E-01	2.07E-01	2.17E-01	5.30E-02	1.23E-02	pCi/g
16-06064-10	TRG	CP-5015 02-05	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	7.95E-01	1.93E-01	2.02E-01	4.01E-02	7.64E-03	pCi/g
16-06064-11	TRG	CP-5015 05-09	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	7.68E-01	2.22E-01	2.29E-01	7.91E-02	1.95E-02	pCi/g
16-06064-12	TRG	CP-5015 09-15	06/07/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	1.02E+00	2.76E-01	2.85E-01	8.74E-02	9.14E-03	pCi/g
16-06064-13	TRG	CP-5013 00-02	06/08/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	9.81E-01	2.30E-01	2.40E-01	5.06E-02	1.03E-02	pCi/g
16-06064-14	TRG	CP-5013 02-05	06/08/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	1.12E+00	2.80E-01	2.91E-01	7.02E-02	1.52E-02	pCi/g
16-06064-15	TRG	CP-5013 05-09	06/08/16 00:00	6/14/2016	6/28/2016	16-06064	Uranium-238	EML U-02 Modified	8.40E-01	2.33E-01	2.41E-01	6.31E-02	1.28E-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

SECTION V

ANALYTICAL STANDARD

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

U-8

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Radionuclide:	U-238NAT	Customer:	TMA EBERLINE
Half Life:	(4.468 ± 0.005) x 10^9 years	P.O.No.:	OR2778
Catalog No.:	7338	Reference Date:	January 1 1995 12:00 PST.
Source No.:	479-50	Contained Radioactivity:	(Total U) 8.016 μCi
		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 μCi/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

EBERLINE SERVICES

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

CURRENT DATE 7/11/2016 0:00

SOLUTION REFERENCE # IPL 479-50 **SOLUTION #** U-8

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

Radionuclide $^{234, 235, 238}U$
Certified Activity 8.016E+00 µCi
Certified Concentration µCi per gram

Reference Date 1/1/1995 0:00

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 HNO_3

Dilution Instructions: **Dilution Solvent Used** 1M HNO_3

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 _____ Date: 7/11/2016 0:00

QC Approval _____ Date: 7/19/16

EBERLINE SERVICES

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

	MP-009	Date	7/11/2016 0:00
Solution Reference #	IPL 479-50	Solution #	U-8a

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

Radionuclide of Interest: $^{234, 235, 238}U$
Parent Solution Conc.: 1.7796E+04 dpm/ml

Reference Date: 1/1/1995 0:00

Chemical Composition of Standard Solution
Uranly Nitrate in 1M HNO_3

Dilution Instructions:

Dilution Solvent Used: 1M HNO_3

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution:	4.0000	ml
Total Activity:	7.1182E+04	dpm
Final Volume:	1000.00	ml

Final Activity Concentration: 7.1182E+01 dpm/ml

NOTES:

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

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

Isotopic ratios from manufacturer's data sheet

Expiration Date: July 6, 2017

Verified & Approved By _____ Date: 7/11/2016 0:00

QC Approval _____ Date: 7/19/16

RECORD COPY

Tracer Solution for Environmental Analysis & Disequilibrium Studies

Product Description & Measurement Certificate

Description	Principal radionuclide:	**uranium 232** (U-232)	Product code: **UDP10050**
	Daughter Nuclide:	Th-228	Batch Number: 92/232/67
Measurement	Reference date:		01 March 2000
	Radioactive concentration U-232		6.739E+03 becquerels per gram of solution
	which is equivalent to		1.821E-01 microcuries per gram of solution
	Mass of solution		5.35€ grams
	Volume of solution		5.035 millilitres
	Total activity of U-232		3.61E+04 becquerels
	which is equivalent to		9.76E-01 microcuries

Method of measurement (see reverse of this certificate)

Accuracy Random uncertainty is: ± 0.7% Systematic uncertainty: ± 0.5%
Overall uncertainty in the radioactive concentration quoted above: ± 1.7%
Overall uncertainty is defined on the reverse of this certificate.

Radionuclidic Purity 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

Isotopic Purity The isotopic composition, expressed as atom per cent at the reference date .

Not measured

Chemical Composition 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'.

Physical Data 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.

Remarks 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.**

EBERLINE SERVICES

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

CURRENT DATE 10/27/2015 0:00

SOLUTION REFERENCE # AEA/Amersham 92/232/67 **SOLUTION #** U-10

Principal Radionuclide	Half Life, Years	Half Life, Days
^{232}U	7.200E+01	2.630E+04

Radionuclide ^{232}U **Reference Date** 3/1/2000 0:00

Certified Activity 9.760E-01 µCi

Certified Concentration µCi per gram

Ampoule /Solution Gross Weight, Grams

Empty Ampoule Weight, Grams

Solution Net Weight, Grams

Total Activity in Ampoule 0.9760 µCi

Chemical Composition of Standard Solution

$^{232}U(NO_3)_6$ in 2M HNO_3

Dilution Instructions: **Dilution Solvent Used** 2M HNO_3

Dilute to a volume of 1000.00 **milliliters**

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

And after dilution the activity of this solution is 2.167E+03 **dpm/ml**

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

Expiration Date: October 26, 2016

Verified & Approved By _____ Date: 10/27/2015 0:00

QC Approval _____ Date: 10/28/15

EBERLINE SERVICES

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

	MP-009	Date	10/27/2015 0:00
Solution Reference #	AEA/Amersham 92/232/67	Solution #	U-10a

Principal Radionuclide	Half Life, Years	Half Life, Days
^{232}U	7.200E+01	2.630E+04

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

Reference Date: 3/1/2000 0:00

Chemical Composition of Standard Solution
$^{232}U(NO_3)_6$ in 2M HNO_3

Dilution Instructions:

Dilution Solvent Used: 2M HNO_3

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

Th-8

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Radionuclide:	Th-232	Customer:	TMA EBERLINE
Half Life:	(1.405± 0.006) x 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 μCi.
		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(NO3)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 μCi/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).

Ana U. Mena
QUALITY CONTROL

Nov. 8, 1993
Date Signed

ISOTOPE PRODUCTS LABORATORIES
1800 North Keystone Street
Burbank, California 91504
(818) 843 - 7000

EBERLINE SERVICES

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

CURRENT DATE 9/29/2015 0:00

SOLUTION REFERENCE # IPL 435-104-2 **SOLUTION #** Th-8

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

Radionuclide $^{232\ \&\ 228}Th$
Reference Date 11/1/1993 0:00
Certified Activity 9.330E-02 µCi
Certified Concentration µCi 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
$Th(NO_3)_4$ 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 _____ Date: 9/29/2015 0:00

QC Approval _____ Date: 9/30/15

EBERLINE SERVICES

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

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

Principal Radionuclide	Half Life, Years	Half Life, Days
$^{226\ \&\ 232}Th$	1.405E+10	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 Activity Concentration:	1.0355E+02 dpm/ml
Final Volume:	1000.00 ml		

NOTES:

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

Expiration Date: August 25, 2016

Verified & Approved By _____ Date: 9/29/2015 0:00

QC Approval _____ Date: 9/30/15

QA/QC REVIEWED
Date 10/14/91 Initials WT 10/14/91 WT

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Received
OCT 14 1991
TMA/Eberline
Oak Ridge Lab

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

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 µCi/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:	±2.0%
b. Random uncertainty in assay:	±0.5%
c. Random uncertainty in weighing(s):	±0.2%
d. Total uncertainty at the 99% confidence level:	±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)

QUALITY CONTROL

ISOTOPE PRODUCTS LABORATORIES
1800 No. Keystone Street.,
Burbank, California 91504
(818) 843 - 7000

EBERLINE SERVICES

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

CURRENT DATE 3/5/2016 0:00

SOLUTION REFERENCE # IPL 388-116 **SOLUTION #** Th-1

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

Radionuclide ^{230}Thorium
Certified Activity 1.036E+00 µCi
Certified Concentration µCi per gram

Reference Date 11/1/1991 0:00

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	µCi

Chemical Composition of Standard Solution
$^{230}Th(NO_3)_4$ in 0.1N HNO_3

Dilution Instructions:

Dilution Solvent Used 0.1N HNO_3

Dilute to a volume of 1000.00 **milliliters**

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

And after dilution the activity of this solution is 2.300E+03 **dpm/ml**

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

Expiration Date: February 8, 2017

Recertified By _____ Date: 3/5/2016 0:00

QC Approval _____ Date: 3/10/16

EBERLINE SERVICES

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

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

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

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

Chemical Composition of Standard Solution
$^{230}Th(NO_3)_4$ in 0.1N HNO_3

Dilution Instructions: **Dilution Solvent Used** 0.1N HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.2999E+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: February 8, 2017

Recertified By _____ Date: 3/5/2016 0:00

QC Approval _____ Date: 3/10/16

Th-18

Isotope Products Laboratories
An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

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: (Th-229 only)**	1.013 **µCi** 37.48 **kBq**

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

EBERLINE SERVICES

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

CURRENT DATE 9/29/2015 0:00

SOLUTION REFERENCE # IPL 867-54 **SOLUTION #** Th-18

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

Radionuclide ^{229}Th **Reference Date** 1/15/2002 0:00
Certified Activity 1.013E+00 µCi
Certified Concentration µCi per gram

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

Chemical Composition of Standard Solution
$^{229}Th(NO_3)_4$ in 0.1M HNO_3

Dilution Instructions: **Dilution Solvent Used** 0.1 M HNO_3

Dilute to a volume of 1000.00 **milliliters**

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

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

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

Expiration Date: August 24, 2016

Verified & Approved By _____ Date: 9/29/2015 0:00

QC Approval _____ Date: 9/30/15

EBERLINE SERVICES

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

MP-009

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

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

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

Chemical Composition of Standard Solution
$Th(NO_3)_4$ in 0.1M HNO_3

Dilution Instructions: **Dilution Solvent Used** 0.1M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

NOTES:

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

Expiration Date: August 24, 2016

Verified & Approved By _____ Date: 9/29/2015 0:00

QC Approval _____ Date: 9/30/15

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404-352-8677
Fax 404-352-2837
www.analyticsinc.com

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* γps/gram	This Source γps	Uncertainty* , % Type u_A	u_B	U	Calibration Method*
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 Form005 Rev. ---

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

SECTION VI

QUALITY CONTROL SAMPLE RESULTS SUMMARY

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06064	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		78.26%	15.86%	100.00%	3.60%	7.79E+00	2.80E-01	6.09E+00	9.66E-01	U-8a	3.20E+01	3.60E+00	5.40E-01
U-238		87.77%	15.63%	100.00%	3.60%	7.54E+00	2.72E-01	6.62E+00	1.03E+00	U-8a	3.10E+01	3.60E+00	5.40E-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

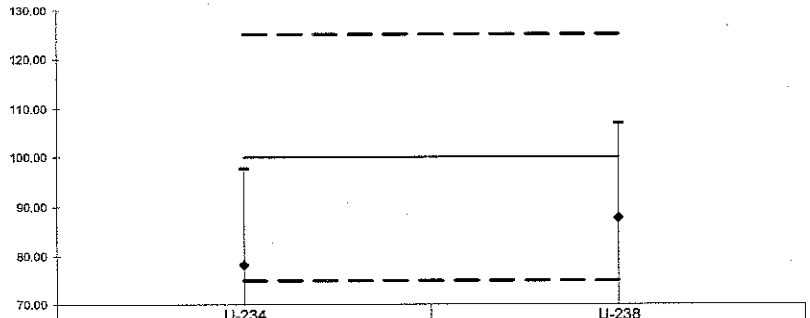
Analyte	*Normalized Difference*	*RPD*	*Original Result*	*Original CSU*	*Replicate Result*	*Replicate CSU*
U-234	0.90	12.72	1.68E+00	3.20E-01	1.48E+00	2.98E-01
U-238	2.60	36.55	1.36E+00	2.75E-01	1.96E+00	3.66E-01
U-235	0.46	22.56	1.16E-01	7.40E-02	9.28E-02	6.71E-02

QC Summary

LCS Relative Bias	*LCS % R*		*MS % R*	*MS ND*	*Rep RPD*	*Rep ND*
0.78	OK				OK	OK
0.88	OK				INV	OK
	OK				NA	OK

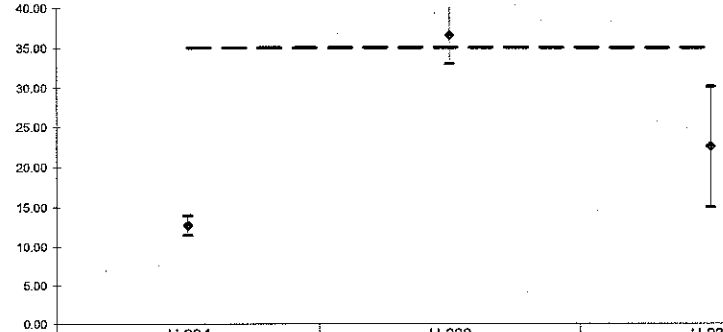
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06064	UUISO	1	pCi	g	Auxier & Associates, Inc.

LCS % Recovery



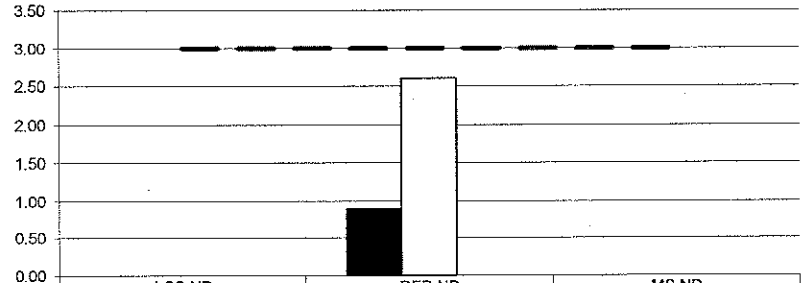
	U-234	U-238
Lower Error	58.80	68.54
Upper Error	97.72	107.00
%R	78.26	87.77
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	U-234	U-238	U-235
Lower Error	13.97	40.08	30.17
Upper Error	11.47	33.02	14.95
RPD	12.72	36.55	22.56
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	0.90	0.00
U-238	0.00	2.60	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06064	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		112.40%	18.25%	100.00%	3.60%	5.09E+00	1.83E-01	5.73E+00	1.04E+00	Th-8b	1.04E+02	3.60E+00	1.09E-01
TH-230		119.85%	19.66%	100.00%	2.70%	5.39E+00	1.46E-01	6.46E+00	1.27E+00	Th-1b	2.35E+01	2.70E+00	5.09E-01
TH-232		114.78%	17.88%	100.00%	3.60%	5.09E+00	1.83E-01	5.85E+00	1.05E+00	Th-8b	1.04E+02	3.60E+00	1.09E-01

Matrix Spike

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

Replicate Sample

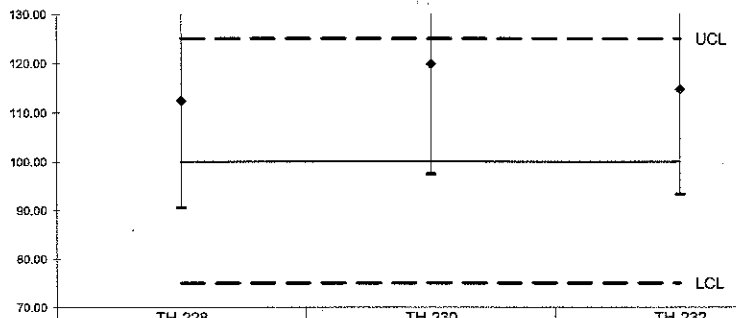
Analyte	*Normalized Difference*	*RPD*	*Original Result*	*Original CSU*	*Replicate Result*	*Replicate CSU*
TH-228	1.80	42.26	7.33E-01	2.23E-01	4.77E-01	1.66E-01
TH-230	0.08	1.39	1.87E+00	4.76E-01	1.89E+00	4.80E-01
TH-232	1.03	23.73	6.63E-01	2.04E-01	5.22E-01	1.74E-01

QC Summary

LCS Relative Bias	*LCS % R*		*MS % R*	*MS ND*	*Rep RPD*	*Rep ND*
1.12	OK				INV	OK
1.20	OK				OK	OK
1.15	OK				OK	OK

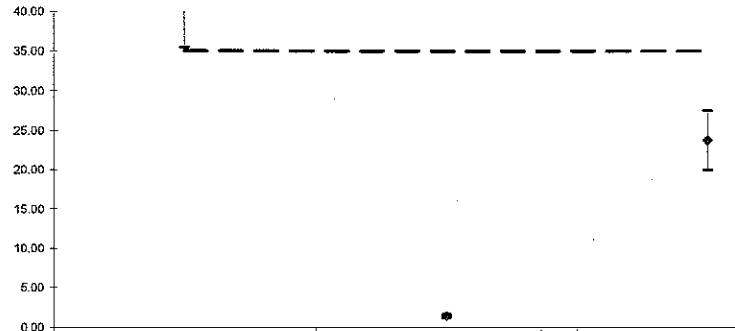
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06064	ThISO	1	pCi	g	Auxier & Associates, Inc.

LCS % Recovery



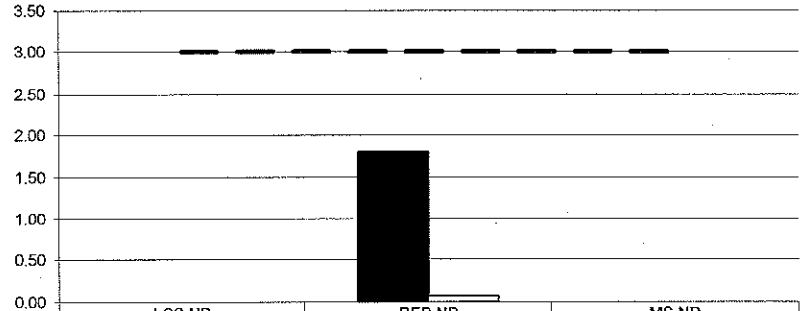
	TH-228	TH-230	TH-232
Lower Error	90.56	97.48	93.30
Upper Error	134.25	142.21	136.27
%R	112.40	119.85	114.78
LCL	75	75	75
Mean	100	100	100
UCL	125	125	125

Replicate Sample RPD



	TH-228	TH-230	TH-232
Lower Error	49.05	1.57	27.51
Upper Error	35.47	1.22	19.95
RPD	42.26	1.39	23.73
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.00	1.80	0.00
TH-230	0.00	0.08	0.00
UCL	3	3	3

No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06064	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		105.97%	8.61%	100.00%	4.00%	1.37E+02	5.48E+00	1.45E+02	1.25E+01	GAS-1302	1.37E+02	5.48E+00	7.36E+02
CS-137		101.29%	10.91%	100.00%	4.00%	8.69E+01	3.48E+00	8.80E+01	9.61E+00	GAS-1302	8.69E+01	3.48E+00	7.36E+02

Matrix Spike

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

Replicate Sample

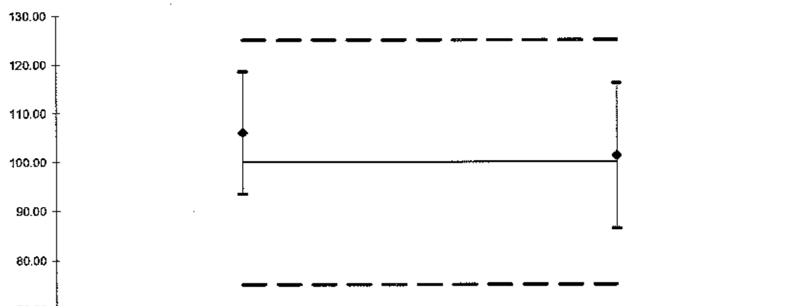
Analyte	*Normalized Difference*	*RPD*	*Original Result*	*Original CSU*	*Replicate Result*	*Replicate CSU*
AC-228	0.08	1.26	8.43E-01	1.86E-01	8.33E-01	1.83E-01
BI-214	0.34	3.28	1.49E+00	1.98E-01	1.44E+00	1.94E-01
K-40	0.29	3.08	1.19E+01	1.76E+00	1.23E+01	1.81E+00

QC Summary

LCS Relative Bias	*LCS % R*		*MS % R*	*MS ND*	*Rep RPD*	*Rep ND*
1.06	OK		<CS-137	AC-228>	OK	
1.01	OK		<CO-60	BI-214>	OK	OK
				K-40>	OK	OK

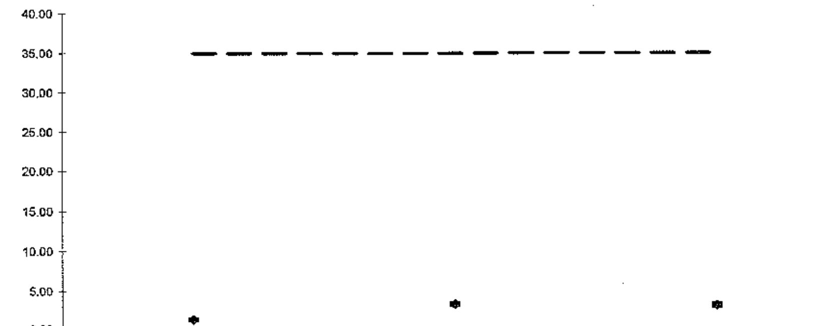
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
16-06064	Gamma	1	pCi	g	Auxier & Associates, Inc.

LCS % Recovery



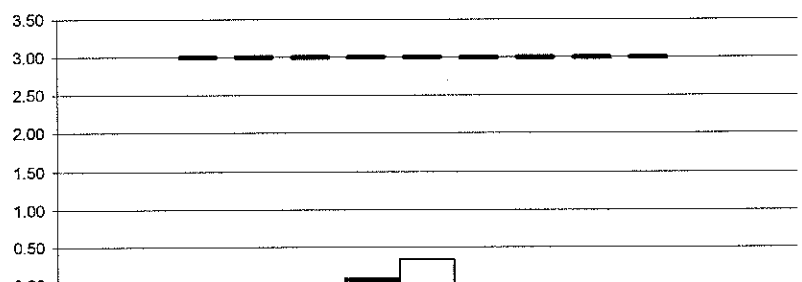
	CO-60	CS-137
Lower Error	93.36	86.37
Upper Error	118.57	116.20
%R	105.97	101.29
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	AC-228	BI-214	K-40
Lower Error	1.40	3.50	3.31
Upper Error	1.12	3.06	2.85
RPD	1.26	3.28	3.08
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
CO-60	0.00	0.08	0.00
CS-137	0.00	0.34	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

Version

SECTION VII

LABORATORY TECHNICIAN'S NOTES & RUN LOGS

ISO U NOTES

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	16-06064
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	06/17/16 09:38	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 J Pachella

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	16-06064
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	06/17/16 09:38	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	06/27/16 18:47	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.

6/27/16

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	16-06064
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	06/17/16 09:38	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	06/27/16 18:47	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	06/28/16 05:16	CHEM	TSMITH	Followed steps 12.1.7 to 12.4.5 in AP-005 . 9 Preciptiated and filtered samples for Uranium)

6/28/16 JMS

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order: 16-06064

Analysis Code: UUISO

Run: 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	6/27/2016
017741S	HCl - HF	6.5N - 0.04N	JDEMELAS	6/27/2016
017518D05	Hydrochloric Acid	0.5N	JDEMELAS	6/27/2016
017728S	Hydrochloric Acid	6.5N	JDEMELAS	6/27/2016
017746S	Hydrochloric Acid	8N	JDEMELAS	6/27/2016
017518P	Hydrochloric Acid	Reagent Grade	JDEMELAS	6/27/2016
017751S	HCl - NH4I	8N - 0.1M	JDEMELAS	6/27/2016
017713S	Carbon substrate	Solution	TSMITH	6/28/2016
017559P	Hydrofluoric Acid	Reagent Grade	TSMITH	6/28/2016
017340S	Neodymium Carrier	1 mg/ml	TSMITH	6/28/2016
017649P	Reagent Alcohol	Reagent Grade	TSMITH	6/28/2016
016606P	Titanous Chloride	Reagent Grade	TSMITH	6/28/2016

Alpha # 1

Date	Sample #	Client	Load Time	C Time	Analysis	Tech
6/24/16	System Bkgd	Lab	1509	16.40 hr	2	KB
6/27	Daily Pulse	LAB	0453	1	NA	—
6/27	1606093A(1-5)	Washington	0856	2.45 —	U4750	—
6/27	1606057A(1,2)	Auxier	0856	2.45 —	U4750	—
6/27/16	1606031B(1-4,6)	TN Dept. of Health	1159	16.40 hr	UU	K
6/28	Daily Pulse	LAB	0521	1	NA	—
6/28	1606104A(1-7)	USA	0835	2.45	Th750	—
6/28/16	1606064A(1-7)	Auxier	1140	24.00	UU	KB

Alpha #3

Date	Sampleset	Client	Load time	Ct time	Analyte	Tech
6/27/16	1606103A(1-7)	USA	1806	2hr50m	Rad	KB
6/27/16	1606068A(1-4)	UCOR	1803	2hr50m	Rad	KB
6/27/16	1606069A(1-4)	UCOR	1804	2hr50m	Rad	KB
6/28	Daily Pulse	Lab	0521	1	nA	—
6/28	1606104A(8-14)	USA	0835	245	Th230	—
6/28	1606103A(1-7)	USA	0836	245	Th230	—
6/28	1606069A(1-4)	UCOR	0836	245	Am241	—
6/28	1606069A(1-4)	UCOR	0837	245	Am243	—
6/28	1606075B(1-4)	UCOR	0837	245	Am243	—
6/28	1606069A(1)	UCOR	0838	245	Pu238	—
6/28/16	1606069A (2-4,9)	UCOR	1140	2hr50m	Iso-Pu	KB
6/28/16	1606069A(1-4)	UCOR	1141	2hr50m	Np	KB
6/28/16	1606069A (1-4)	UCOR	1141	2hr50m	Iso-Th	KB
6/28/16	1606069A(1-4)	UCOR	1142	2hr50m	Pu242	KB
6/28/16	Reagent 32RA(1)	Lab	1142	2hr50m	PUNT	KB
6/28/16	1606068A(1-4)	UCOR	1143	2hr50m	Th229	KB
6/28/16	1606064A(8-13)	Auxin	1144	2hr50m	UU	KB
6/28/16	1606064A(14-15)	Auxin	1144	2hr50m	UU	KB

ISO-TH NOTES

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	16-06064
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	06/17/16 09:38	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 SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	16-06064
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	06/17/16 09:38	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 16:22	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 deiononized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.

6/28/16

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	16-06064
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	06/17/16 09:38	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 16:22	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 deiononized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.
3	06/29/16 05:03	CHEM	TSMITH	Followed steps 12.2.5 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Thorium)

6-29-16 JM

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
16-06064	
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	6/28/2016
017518P	Hydrochloric Acid	Reagent Grade	JDEMELAS	6/28/2016
017349P	Nitric Acid	Reagent Grade	JDEMELAS	6/28/2016
017756S	Hydrochloric Acid	8N	JDEMELAS	6/28/2016
017757S	Nitric Acid	8N	JDEMELAS	6/28/2016
017730S	Cerrium Carrier	0.1mg/ml	TSMITH	6/29/2016
017559P	Hydrofluoric Acid	Reagent Grade	TSMITH	6/29/2016
017649P	Reagent Alcohol	Reagent Grade	TSMITH	6/29/2016
017737S	Carbon substrate	Solution	TSMITH	6/29/2016

Ulpha #3

Date	Sample	Client	Load Time	Count Time	Analysis	Tech
6/27/16	1606103A(1-7)	USA	1806	2hr50	Rad	KB
6/27/16	1606068A(1-4)	UCOR	1803	2hr50	Rad	KB
6/27/16	1606069A(1-4)	UCOR	1804	2hr50	Rad	KB
6/28	Daily Pulser	Lab	0521	1	[illegible]	—
6/28	1606104A(8-14)	USA	0835	225	Th230	—
6/28	1606103A(1-7)	USA	0836	225	Th230	—
6/28	1606069A(1-4)	UCOR	0836	225	Am241	—
6/28	1606069A(1-4)	UCOR	0837	225	Am243	—
6/28	1606075B(1-4)	UCOR	0877	225	Am243	—
6/28	1606069A(4)	UCOR	0878	225	Pu230	—
6/28/16	1606069A(2-4,9)	UCOR	1140	2hr50	ISO-Pu	KB
6/28/16	1606069A(1-4)	UCOR	1141	2hr50	Np	KB
6/28/16	1606069A(1-4)	UCOR	1141	2hr50	ISO-Th	KB
6/28/16	1606069A(1-4)	UCOR	1142	2hr50	Pu242	KB
6/28/16	Reagent 32RA(1)	Lab	1142	2hr50	DUNT	KB
6/28/16	1606068A(1-4)	UCOR	1143	2hr50	Th229	KB
6/28/16	1606064A(8-13)	Auxier	1144	2hr50	UU	KB
6/28/16	1606064A(14-15)	Auxier	1144	2hr50	UU	KB
6/29	Daily Pulser	Lab	0772	1	[illegible]	—
6/29	1606129A(4,5)	MCL	0818	225	Pu230	—
6/29	1606069A(1-4)	UCOR	0819	225	U230	—
6/29	1606069ANT(4)	UCOR	0819	225	UUNT	—
6/29	1606069A(1-4)	UCOR	0820	225	Th229	—
6/29	1606065A(1-12)	Auxier	0821	225	UU230	—
6/29	1606077A(1-4)	USA	0821	225	UU230	—
6/29/16	1606064A(1-15)	Auxier	1124	2hr50	ISO-Th	KB
6/29/16	1606077A(3-4)	USA	1125	2hr50	UU	KB

GAMMA NOTES

GC 1

DATE	SAMPLE #	Client	Load Time	GC Time	Analysis Tech	
6/15	CAL14	LAB	0606	15	Y	—
6/15	1606060-07	USA	0734	1h	Y	—
6/15	1606060-11	USA	0836	1h	Y	—
6/15	1606060-15	USA	0939	1h	Y	—
6/15	1606061-03	USA	1112	1h	Y	"
6/15	1606061-04	USA	1213	1h	Y	"
6/15	1606033-07	Texcon	1040	15	Bc	—
6/15	1606033-08	Texcon	1015	15	Bc	—
6/15/16	1606061-09	USA	1315	1h	Y	ICB
6/15/16	1606061-12	USA	1416	1h	Y	ICB
6/15/16	1606061-15	USA	1518	1h	Y	ICB
6/15/16	1606040-05	Auxier	1618	1h	Y	ICB
6/15/16	1606040-07	Auxier	1719	1h	Y	ICB
6/15/16	1606040-11	Auxier	1819	1h	Y	ICB
6/16	CAL14	LAB	0524	15	Y	"
6/16	Drift B	LAB	0548	15	Y	"
6/16	CAL14	LAB	0607	15	Y	—
6/16	1606041-07	Auxier	0728	1h	Y	—
6/16	1606041-10	Auxier	0830	1h	Y	—
6/16	1606041-14	Auxier	0930	1h	Y	—
6/16	1606041-01	Auxier	1031	1h	Y	—
6/16	1606047-03	Texcon	1103	15	Bc	—
6/16/16	1606047-05	Texcon	1119	15	Bc	ICB
6/16/16	1606047-10	Texcon	1135	15	Bc	ICB
6/16	1606043-03	Auxier	1151	1h	Y	"
6/16	1606043-04	Auxier	1252	1h	Y	"
6/16/16	1606043-11	Auxier	1353	1h	Y	ICB
6/16/16	1606043-14	Auxier	1453	1hr	Y	ICB
6/16/16	1606064-05	Auxier	1554	1h	Y	ICB
6/16/16	1606064-07	Auxier	1655	1hr	Y	ICB

GE 1

DATE	SAMPLE #	Client	Load Time	CT. Time	Analysis	Tech
6117	GA714	LAS	0524	15	✓	[illegible]
6117	Dwlyn	LAS	0552	15	✓	[illegible]
6117	GA714	LAS	0611	15	✓	[illegible]
6117	1606064-13	Ausgier	0714	22	✓	[illegible]

GE 2

DATE	SAmple #	Client	Load Time	CT. Time	Analysis	Tech
6/14/16	1606059-15	USA	1546	1 hr	✓	KB
6/14/16	1606059-11	USA	1647	1 hr	✓	KB
6/14/16	1606059-14	USA	1749	1 hr	✓	KB
6/15	GFS 1401	LAB	0520	15	✓	[illegible]
6/15	Daily R	LAB	0544	15	✓	[illegible]
6/15	1606060-03	USA	0606	1h	✓	[illegible]
6/15	1606060-04	USA	0707	1h	✓	[illegible]
6/15	1606060-09	USA	0812	1h	✓	[illegible]
6/15	1606060-13	USA	0913	1h	✓	[illegible]
6/15	1606060-17	USA	1015	1h	✓	[illegible]
6/15	~~1606060~~ 1606061-06	USA	1116	1h	✓	[illegible]
6/15/16	1606061-07	USA	1217	1 hr	✓	KB
6/15/16	1606061-11	USA	1318	1 hr	✓	KB
6/15/16	1606061-13	USA	1419	1 hr	✓	KB
6/15/16	1606061-16	USA	1519	1 hr	✓	KB
6/15/16	1606040-06	Auxier	1620	1 hr	✓	KB
6/15/16	1606040-08	Auxier	1720	1 hr	✓	KB
6/15/16	1606040-12	Auxier	1821	1 hr	✓	KB
6/16	GFS 1401	LAB	0524	15	✓	[illegible]
6/16	Daily R	LAB	0548	15	✓	[illegible]
6/16	1606040-14	Auxier	0608	1h	✓	[illegible]
6/16	1606041-03	Auxier	0716	1h	✓	[illegible]
6/16	1606041-04	Auxier	0817	1h	✓	[illegible]
6/16	1606041-11	Auxier	0925	1h	✓	[illegible]
6/16	1606041-07	Auxier	1026	1h	✓	[illegible]
6/16/16	1606047-07	TexCom	1127	15	Ba	KB
6/16	1606047-12	Texcom	1146	15	Ba	[illegible]
6/16/16	1606043-06	Auxier	1203	1 hr	✓	KB
6/16	1606043-09	Auxier	1304	1h	✓	[illegible]
6/16/16	1606043-12	Auxier	1406	1 hr	✓	KB
6/16/16	1606043-15	Auxier	1507	1 hr	✓	KB
6/16/16	1606064-06	Auxier	1608	1 hr	✓	KB
6/16/16	1606064-09	Auxier	1709	1 hr	✓	KB

GE 3

DATE	Sample #	Client	Log Time	CT-Time	Analysis	Tech
6/16/16	1606041-05	Auxier	0716	1h	✓	C
6/16/16	1606041-08	Auxier	0827	1h	✓	C
6/16/16	1606041-12	Auxier	0925	1h	✓	C
6/16	1606041-15	Auxier	1026	1h	✓	C
6/16	1606047-08	~~Auxier~~ Texas	1127	15	Be	—
6/16	1606047-13	Texas	1146	15	Be	—
6/16/16	1606043-07	Auxier	1204	1h	✓	KB
6/16/16	1606043-08	Auxier	1253	1h	✓	C
6/16/16	1606043-10	Auxier	1304	1h	✓	C
6/16/16	1606043-13	Auxier	1400	1h	✓	KB
6/16/16	1606064-03	Auxier	1507	1h	✓	KB
6/16/16	1606064-04	Auxier	1608	1h	✓	KB
6/16/16	1606064-10	Auxier	1710	1h	✓	KB
6/16/16	1606068-03	LICOR	1811	8hr	✓	KB
6/17	GHS 1402	LAS	0524	15	✓	C
6/17	Duty R	LAS	0552	15	✓	C
6/17	1606064-11	Auxier	0614	1h	✓	—
6/17	1606064-14	Auxier	0717	1h	✓	—

DATE	sample #	Client	Load Time	CT. Time	Analysis	Tech
6/16	1606043-05	Auxier	1151	1h	✓	C
6/16/16	1606043-01	Auxier	1354	30 mins	✓	KB
6/16/16	1606043-02	Auxier	1426	1 hr	✓	KB
6/16/16	1606064-02	Auxier	1527	1 hr	✓	KB
6/16/16	1606064-01	Auxier	1628	30 min	✓	KB
6/16/16	1606064-03	Auxier	1659	1 hr	✓	KB
6/16/16	1606072-02	Indust. Env.	1803	6 hr	✓	KB
6/17	Client	LAB	0524	15	✓	C
6/17	Reagent	LAB	0558	15	✓	C
6/17	Method	LAB	0611	15	✓	—
6/17	1606064-12	Auxier	0704	1h	✓	—
6/17	1606064-11	Auxier	0808	1h	✓	—

SECTION VIII

ANALYTICAL DATA (ISOTOPIC URANIUM)

16-06064
UUISO
Run 1

Work Order	16-06064
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-5027 00-02	41	06/02/16 00:00	1.5583E+00
04	DO	CP-5027 00-02	41	06/02/16 00:00	1.5346E+00
05	TRG	CP-5014 00-02	51	06/07/16 00:00	1.5483E+00
06	TRG	CP-5014 02-05	47	06/07/16 00:00	1.5283E+00
07	TRG	CP-5014 05-09	47	06/07/16 00:00	1.5288E+00
08	TRG	CP-5014 09-15	47	06/07/16 00:00	1.5086E+00
09	TRG	CP-5015 00-02	49	06/07/16 00:00	1.5025E+00
10	TRG	CP-5015 02-05	41	06/07/16 00:00	1.5748E+00
11	TRG	CP-5015 05-09	36	06/07/16 00:00	1.5670E+00
12	TRG	CP-5015 09-15	57	06/07/16 00:00	1.5051E+00
13	TRG	CP-5013 00-02	39	06/08/16 00:00	1.5034E+00
14	TRG	CP-5013 02-05	46	06/08/16 00:00	1.5022E+00
15	TRG	CP-5013 05-09	41	06/08/16 00:00	1.5365E+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.

Eberline Services
Oak Ridge Laboratory
Analysis Sheet

16-06064
UUISO
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	0.6607	12.2		0.00								
02	MBL	0.6668	12.3		0.00								
03	DUP	0.6603	12.2		0.00								
04	DO	0.6527	12.1		0.00								
05	TRG	0.6656	12.3		0.00								
06	TRG	0.6598	12.2		0.00								
07	TRG	0.6591	12.2		0.00								
08	TRG	0.6603	12.2		0.00								
09	TRG	0.6601	12.2		0.00								
10	TRG	0.6602	12.2		0.00								
11	TRG	0.6601	12.2		0.00								
12	TRG	0.6603	12.2		0.00								
13	TRG	0.6588	12.2		0.00								
14	TRG	0.6539	12.1		0.00								
15	TRG	0.6616	12.3		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.

16-06064
UUISO
Run 1

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 09:32	JPACHELLA				
02	MBL			06/17/16 09:32	JPACHELLA				
03	DUP			06/17/16 09:32	JPACHELLA				
04	DO	06/16/16 08:54	KSALLINGS	06/17/16 09:32	JPACHELLA				
05	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:32	JPACHELLA				
06	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:32	JPACHELLA				
07	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:32	JPACHELLA				
08	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:32	JPACHELLA				
09	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:32	JPACHELLA				
10	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:32	JPACHELLA				
11	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:32	JPACHELLA				
12	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:32	JPACHELLA				
13	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:32	JPACHELLA				
14	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:32	JPACHELLA				
15	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:32	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.

Preliminary Data Report & Analytical Calculations

Work Order: 16-06064-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 16-06064
Client: Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-234	LCS	LCS	pCi/g	6.09E+00	8.63E-01	7.62E-02	7.79E+00	78.26	OK		OK	
02	U-234	MBL	BLANK	pCi/g	8.21E-02	5.90E-02	6.14E-02					OK	OK
03	U-234	DUP	CP-5027 00-02	pCi/g	1.48E+00	2.79E-01	6.64E-02				OK	OK	
04	U-234	DO	CP-5027 00-02	pCi/g	1.68E+00	2.96E-01	5.15E-02					OK	
05	U-234	TRG	CP-5014 00-02	pCi/g	1.19E+00	2.48E-01	3.99E-02					OK	
06	U-234	TRG	CP-5014 02-05	pCi/g	3.66E+00	5.80E-01	8.18E-02					OK	
07	U-234	TRG	CP-5014 05-09	pCi/g	2.51E+00	3.63E-01	3.47E-02					OK	
08	U-234	TRG	CP-5014 09-15	pCi/g	9.73E-01	2.16E-01	7.22E-02					OK	
09	U-234	TRG	CP-5015 00-02	pCi/g	7.49E-01	1.85E-01	5.33E-02					OK	
10	U-234	TRG	CP-5015 02-05	pCi/g	9.32E-01	2.14E-01	4.61E-02					OK	
11	U-234	TRG	CP-5015 05-09	pCi/g	6.63E-01	2.05E-01	8.36E-02					OK	
12	U-234	TRG	CP-5015 09-15	pCi/g	9.95E-01	2.72E-01	8.78E-02					OK	
13	U-234	TRG	CP-5013 00-02	pCi/g	9.25E-01	2.23E-01	6.37E-02					OK	
14	U-234	TRG	CP-5013 02-05	pCi/g	9.12E-01	2.47E-01	5.61E-02					OK	
15	U-234	TRG	CP-5013 05-09	pCi/g	8.03E-01	2.27E-01	6.33E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 16-06064-UUISO-1

Run	Analysis Code	Eberline Analytical Work Order	Client
1	UUISO	16-06064	Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-234	LCS	06/14/16 00:00	1.00E+00	121.94	0.00	0.00			
02	U-234	MBL	06/14/16 00:00	1.50E+00	101.15	0.00	0.00			
03	U-234	DUP	06/02/16 00:00	1.56E+00	99.41	0.00	0.00			
04	U-234	DO	06/02/16 00:00	1.53E+00	101.22	0.00	0.00			
05	U-234	TRG	06/07/16 00:00	1.55E+00	93.38	0.00	0.00			
06	U-234	TRG	06/07/16 00:00	1.53E+00	88.18	0.00	0.00			
07	U-234	TRG	06/07/16 00:00	1.53E+00	104.43	0.00	0.00			
08	U-234	TRG	06/07/16 00:00	1.51E+00	116.84	0.00	0.00			
09	U-234	TRG	06/07/16 00:00	1.50E+00	113.62	0.00	0.00			
10	U-234	TRG	06/07/16 00:00	1.57E+00	106.87	0.00	0.00			
11	U-234	TRG	06/07/16 00:00	1.57E+00	75.99	0.00	0.00			
12	U-234	TRG	06/07/16 00:00	1.51E+00	70.09	0.00	0.00			
13	U-234	TRG	06/08/16 00:00	1.50E+00	109.14	0.00	0.00			
14	U-234	TRG	06/08/16 00:00	1.50E+00	74.65	0.00	0.00			
15	U-234	TRG	06/08/16 00:00	1.54E+00	73.63	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 16-06064-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 16-06064
Client: Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-234	LCS	06/28/16 11:40		A_Spec	Alpha_003	170.03	4.51 E+02	4.00 E-03	16.1
02	U-234	MBL	06/28/16 11:40		A_Spec	Alpha_004	170.02	8.81 E+00	7.00 E-03	18.8
03	U-234	DUP	06/28/16 11:40		A_Spec	Alpha_010	170.02	1.63 E+02	1.00 E-02	19
04	U-234	DO	06/28/16 11:40		A_Spec	Alpha_011	170.03	1.95 E+02	5.00 E-03	19.9
05	U-234	TRG	06/28/16 11:40		A_Spec	Alpha_012	170	1.25 E+02	1.00 E-03	19.2
06	U-234	TRG	06/28/16 11:40		A_Spec	Alpha_014	170.02	3.39 E+02	1.10 E-02	18.2
07	U-234	TRG	06/28/16 11:40		A_Spec	Alpha_015	170.02	3.46 E+02	2.00 E-03	22.9
08	U-234	TRG	06/28/16 11:43		A_Spec	Alpha_055	170	1.05 E+02	1.20 E-02	16.2
09	U-234	TRG	06/28/16 11:43		A_Spec	Alpha_056	170	7.93 E+01	4.00 E-03	16.5
10	U-234	TRG	06/28/16 11:43		A_Spec	Alpha_057	170	9.67 E+01	2.00 E-03	16.4
11	U-234	TRG	06/28/16 11:43		A_Spec	Alpha_058	170	5.00 E+01	6.00 E-03	16.8
12	U-234	TRG	06/28/16 11:43		A_Spec	Alpha_059	170	6.80 E+01	0.00 E+00	17.2
13	U-234	TRG	06/28/16 11:43		A_Spec	Alpha_060	170	8.70 E+01	0.00 E+00	15.2
14	U-234	TRG	06/28/16 14:43		A_Spec	Alpha_033	170	6.78 E+01	1.00 E-03	17.6
15	U-234	TRG	06/28/16 14:43		A_Spec	Alpha_034	170	6.07 E+01	2.00 E-03	17.7

Preliminary Data Report & Analytical Calculations

Work Order: 16-06064-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 16-06064
Client: Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-238	LCS	LCS	pCi/g	6.62E+00	9.20E-01	7.06E-02	7.54E+00	87.77	OK		OK	
02	U-238	MBL	BLANK	pCi/g	-1.86E-04	1.97E-02	5.84E-02					OK	OK
03	U-238	DUP	CP-5027 00-02	pCi/g	1.96E+00	3.38E-01	5.67E-02				INV	OK	
04	U-238	DO	CP-5027 00-02	pCi/g	1.36E+00	2.57E-01	6.08E-02					OK	
05	U-238	TRG	CP-5014 00-02	pCi/g	1.27E+00	2.57E-01	3.98E-02					OK	
06	U-238	TRG	CP-5014 02-05	pCi/g	4.25E+00	6.51E-01	7.90E-02					OK	
07	U-238	TRG	CP-5014 05-09	pCi/g	2.77E+00	3.90E-01	4.32E-02					OK	
08	U-238	TRG	CP-5014 09-15	pCi/g	8.68E-01	2.00E-01	5.82E-02					OK	
09	U-238	TRG	CP-5015 00-02	pCi/g	9.06E-01	2.07E-01	5.30E-02					OK	
10	U-238	TRG	CP-5015 02-05	pCi/g	7.95E-01	1.93E-01	4.01E-02					OK	
11	U-238	TRG	CP-5015 05-09	pCi/g	7.68E-01	2.22E-01	7.91E-02					OK	
12	U-238	TRG	CP-5015 09-15	pCi/g	1.02E+00	2.76E-01	8.74E-02					OK	
13	U-238	TRG	CP-5013 00-02	pCi/g	9.81E-01	2.30E-01	5.06E-02					OK	
14	U-238	TRG	CP-5013 02-05	pCi/g	1.12E+00	2.80E-01	7.02E-02					OK	
15	U-238	TRG	CP-5013 05-09	pCi/g	8.40E-01	2.33E-01	6.31E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 16-06064-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 16-06064
Client: Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-238	LCS	06/14/16 00:00	1.00E+00	121.94	0.00	0.00			
02	U-238	MBL	06/14/16 00:00	1.50E+00	101.15	0.00	0.00			
03	U-238	DUP	06/02/16 00:00	1.56E+00	99.41	0.00	0.00			
04	U-238	DO	06/02/16 00:00	1.53E+00	101.22	0.00	0.00			
05	U-238	TRG	06/07/16 00:00	1.55E+00	93.38	0.00	0.00			
06	U-238	TRG	06/07/16 00:00	1.53E+00	88.18	0.00	0.00			
07	U-238	TRG	06/07/16 00:00	1.53E+00	104.43	0.00	0.00			
08	U-238	TRG	06/07/16 00:00	1.51E+00	116.84	0.00	0.00			
09	U-238	TRG	06/07/16 00:00	1.50E+00	113.62	0.00	0.00			
10	U-238	TRG	06/07/16 00:00	1.57E+00	106.87	0.00	0.00			
11	U-238	TRG	06/07/16 00:00	1.57E+00	75.99	0.00	0.00			
12	U-238	TRG	06/07/16 00:00	1.51E+00	70.09	0.00	0.00			
13	U-238	TRG	06/08/16 00:00	1.50E+00	109.14	0.00	0.00			
14	U-238	TRG	06/08/16 00:00	1.50E+00	74.65	0.00	0.00			
15	U-238	TRG	06/08/16 00:00	1.54E+00	73.63	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 16-06064-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 16-06064
Client: Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-238	LCS	06/28/16 11:40		A_Spec	Alpha_003	170.03	4.92 E+02	3.00 E-03	16.1
02	U-238	MBL	06/28/16 11:40		A_Spec	Alpha_004	170.02	-2.01 E-02	6.00 E-03	18.8
03	U-238	DUP	06/28/16 11:40		A_Spec	Alpha_010	170.02	2.18 E+02	6.00 E-03	19
04	U-238	DO	06/28/16 11:40		A_Spec	Alpha_011	170.03	1.58 E+02	9.00 E-03	19.9
05	U-238	TRG	06/28/16 11:40		A_Spec	Alpha_012	170	1.33 E+02	1.00 E-03	19.2
06	U-238	TRG	06/28/16 11:40		A_Spec	Alpha_014	170.02	3.95 E+02	1.00 E-02	18.2
07	U-238	TRG	06/28/16 11:40		A_Spec	Alpha_015	170.02	3.83 E+02	5.00 E-03	22.9
08	U-238	TRG	06/28/16 11:43		A_Spec	Alpha_055	170	9.40 E+01	6.00 E-03	16.2
09	U-238	TRG	06/28/16 11:43		A_Spec	Alpha_056	170	9.63 E+01	4.00 E-03	16.5
10	U-238	TRG	06/28/16 11:43		A_Spec	Alpha_057	170	8.28 E+01	1.00 E-03	16.4
11	U-238	TRG	06/28/16 11:43		A_Spec	Alpha_058	170	5.82 E+01	5.00 E-03	16.8
12	U-238	TRG	06/28/16 11:43		A_Spec	Alpha_059	170	7.00 E+01	0.00 E+00	17.2
13	U-238	TRG	06/28/16 11:43		A_Spec	Alpha_060	170	9.27 E+01	2.00 E-03	15.2
14	U-238	TRG	06/28/16 14:43		A_Spec	Alpha_033	170	8.35 E+01	3.00 E-03	17.6
15	U-238	TRG	06/28/16 14:43		A_Spec	Alpha_034	170	6.37 E+01	2.00 E-03	17.7

Preliminary Data Report & Analytical Calculations
Work Order: 16-06064-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 16-06064
Client: Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-235	LCS	LCS	pCi/g	3.88E-01	1.66E-01	9.40E-02					OK	
02	U-235	MBL	BLANK	pCi/g	3.62E-02	4.60E-02	6.88E-02					OK	OK
03	U-235	DUP	CP-5027 00-02	pCi/g	9.28E-02	6.68E-02	6.29E-02				NA	OK	
04	U-235	DO	CP-5027 00-02	pCi/g	1.16E-01	7.36E-02	6.68E-02					OK	
05	U-235	TRG	CP-5014 00-02	pCi/g	6.48E-02	5.75E-02	6.19E-02					OK	
06	U-235	TRG	CP-5014 02-05	pCi/g	2.04E-01	1.08E-01	7.52E-02					OK	
07	U-235	TRG	CP-5014 05-09	pCi/g	2.19E-01	9.05E-02	4.70E-02					OK	
08	U-235	TRG	CP-5014 09-15	pCi/g	7.42E-02	6.02E-02	6.00E-02					OK	
09	U-235	TRG	CP-5015 00-02	pCi/g	3.47E-02	4.68E-02	7.34E-02					OK	
10	U-235	TRG	CP-5015 02-05	pCi/g	9.52E-02	7.08E-02	7.13E-02					OK	
11	U-235	TRG	CP-5015 05-09	pCi/g	6.27E-02	6.49E-02	6.83E-02					OK	
12	U-235	TRG	CP-5015 09-15	pCi/g	5.11E-02	6.20E-02	7.53E-02					OK	
13	U-235	TRG	CP-5013 00-02	pCi/g	9.82E-02	7.40E-02	6.88E-02					OK	
14	U-235	TRG	CP-5013 02-05	pCi/g	1.63E-01	1.05E-01	6.92E-02					OK	
15	U-235	TRG	CP-5013 05-09	pCi/g	7.61E-02	7.27E-02	7.81E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 16-06064-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 16-06064
Client: Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-235	LCS	06/14/16 00:00	1.00E+00	121.94	0.00	0.00			
02	U-235	MBL	06/14/16 00:00	1.50E+00	101.15	0.00	0.00			
03	U-235	DUP	06/02/16 00:00	1.56E+00	99.41	0.00	0.00			
04	U-235	DO	06/02/16 00:00	1.53E+00	101.22	0.00	0.00			
05	U-235	TRG	06/07/16 00:00	1.55E+00	93.38	0.00	0.00			
06	U-235	TRG	06/07/16 00:00	1.53E+00	88.18	0.00	0.00			
07	U-235	TRG	06/07/16 00:00	1.53E+00	104.43	0.00	0.00			
08	U-235	TRG	06/07/16 00:00	1.51E+00	116.84	0.00	0.00			
09	U-235	TRG	06/07/16 00:00	1.50E+00	113.62	0.00	0.00			
10	U-235	TRG	06/07/16 00:00	1.57E+00	106.87	0.00	0.00			
11	U-235	TRG	06/07/16 00:00	1.57E+00	75.99	0.00	0.00			
12	U-235	TRG	06/07/16 00:00	1.51E+00	70.09	0.00	0.00			
13	U-235	TRG	06/08/16 00:00	1.50E+00	109.14	0.00	0.00			
14	U-235	TRG	06/08/16 00:00	1.50E+00	74.65	0.00	0.00			
15	U-235	TRG	06/08/16 00:00	1.54E+00	73.63	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 16-06064-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 16-06064
Client: Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-235	LCS	06/28/16 11:40		A_Spec	Alpha_003	170.03	2.33 E+01	4.00 E-03	16.1
02	U-235	MBL	06/28/16 11:40		A_Spec	Alpha_004	170.02	3.15 E+00	5.00 E-03	18.8
03	U-235	DUP	06/28/16 11:40		A_Spec	Alpha_010	170.02	8.32 E+00	4.00 E-03	19
04	U-235	DO	06/28/16 11:40		A_Spec	Alpha_011	170.03	1.10 E+01	6.00 E-03	19.9
05	U-235	TRG	06/28/16 11:40		A_Spec	Alpha_012	170	5.49 E+00	3.00 E-03	19.2
06	U-235	TRG	06/28/16 11:40		A_Spec	Alpha_014	170.02	1.53 E+01	4.00 E-03	18.2
07	U-235	TRG	06/28/16 11:40		A_Spec	Alpha_015	170.02	2.45 E+01	3.00 E-03	22.9
08	U-235	TRG	06/28/16 11:43		A_Spec	Alpha_055	170	6.49 E+00	3.00 E-03	16.2
09	U-235	TRG	06/28/16 11:43		A_Spec	Alpha_056	170	2.98 E+00	6.00 E-03	16.5
10	U-235	TRG	06/28/16 11:43		A_Spec	Alpha_057	170	8.00 E+00	0.00 E+00	16.4
11	U-235	TRG	06/28/16 11:43		A_Spec	Alpha_058	170	3.83 E+00	1.00 E-03	16.8
12	U-235	TRG	06/28/16 11:43		A_Spec	Alpha_059	170	2.83 E+00	1.00 E-03	17.2
13	U-235	TRG	06/28/16 11:43		A_Spec	Alpha_060	170	7.49 E+00	3.00 E-03	15.2
14	U-235	TRG	06/28/16 14:43		A_Spec	Alpha_033	170	9.83 E+00	1.00 E-03	17.6
15	U-235	TRG	06/28/16 14:43		A_Spec	Alpha_034	170	4.66 E+00	2.00 E-03	17.7

Count Room Report
Client: Auxier Associates, Inc.

16-06064-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	0.6607	12.2362		0.00		
02	MBL	BLANK	06/14/16 00:00	1.5000	0.6668	12.3491		0.00		
03	DUP	CP-5027 00-02	06/02/16 00:00	1.5583	0.6603	12.2288		0.00		
04	DO	CP-5027 00-02	06/02/16 00:00	1.5346	0.6527	12.0880		0.00		
05	TRG	CP-5014 00-02	06/07/16 00:00	1.5483	0.6656	12.3269		0.00		
06	TRG	CP-5014 02-05	06/07/16 00:00	1.5283	0.6598	12.2195		0.00		
07	TRG	CP-5014 05-09	06/07/16 00:00	1.5288	0.6591	12.2065		0.00		
08	TRG	CP-5014 09-15	06/07/16 00:00	1.5086	0.6603	12.2288		0.00		
09	TRG	CP-5015 00-02	06/07/16 00:00	1.5025	0.6601	12.2251		0.00		
10	TRG	CP-5015 02-05	06/07/16 00:00	1.5748	0.6602	12.2269		0.00		
11	TRG	CP-5015 05-09	06/07/16 00:00	1.5670	0.6601	12.2251		0.00		
12	TRG	CP-5015 09-15	06/07/16 00:00	1.5051	0.6603	12.2288		0.00		
13	TRG	CP-5013 00-02	06/08/16 00:00	1.5034	0.6588	12.2010		0.00		
14	TRG	CP-5013 02-05	06/08/16 00:00	1.5022	0.6539	12.1102		0.00		
15	TRG	CP-5013 05-09	06/08/16 00:00	1.5365	0.6616	12.2528		0.00		

Spike and Tracer Worksheet

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
16-06064	1	UUISO	6/17/2016 9:24	JPACHELLA		

LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	Volume Used (g)	Volume Used (g)	Volume Used (g)	Volume Used (g)	Known pCi	Error Estimate	Added pCi	Error Estimate	Known pCi	Error Estimate	Added pCi	Error Estimate
U-234	U-8a	32.000	6/17/2016	0.550	0.5402				7.79	0.280	0.00	0.000	0.00	0.000	0.00	0.000
U-238	U-8a	31.000	6/17/2016	0.550	0.5402				7.54	0.272	0.00	0.000	0.00	0.000	0.00	0.000
Tc-99 MS	Tc-2a	22043.636	7/5/2014	0.1												

Tracers

fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	U-232	U-10a	18.520	6/17/2016	0.6607	0.6500
02	U-232	U-10a	18.520	6/17/2016	0.6668	0.6500
03	U-232	U-10a	18.520	6/17/2016	0.6603	0.6500
04	U-232	U-10a	18.520	6/17/2016	0.6527	0.6500
05	U-232	U-10a	18.520	6/17/2016	0.6656	0.6500
06	U-232	U-10a	18.520	6/17/2016	0.6598	0.6500
07	U-232	U-10a	18.520	6/17/2016	0.6591	0.6500
08	U-232	U-10a	18.520	6/17/2016	0.6603	0.6500
09	U-232	U-10a	18.520	6/17/2016	0.6601	0.6500
10	U-232	U-10a	18.520	6/17/2016	0.6602	0.6500
11	U-232	U-10a	18.520	6/17/2016	0.6601	0.6500
12	U-232	U-10a	18.520	6/17/2016	0.6603	0.6500
13	U-232	U-10a	18.520	6/17/2016	0.6588	0.6500
14	U-232	U-10a	18.520	6/17/2016	0.6539	0.6500
15	U-232	U-10a	18.520	6/17/2016	0.6616	0.6500

Balance Printer Tapes

Tracer	LCS

Matrix Spike

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Printed: 6/17/2016 8:48 AM

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
16-06064	1	UUISO	grams	7/5/2016	JPACHELLA

Lab Fraction	Auxier & Associates, Inc. Client ID	Sample Type	Muffle Data	Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of 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-5027 00-02	DUP					1.5583E+00	1.5583E+00				
04	CP-5027 00-02	DO					1.5346E+00	1.5346E+00				
05	CP-5014 00-02	TRG					1.5483E+00	1.5483E+00				
06	CP-5014 02-05	TRG					1.5283E+00	1.5283E+00				
07	CP-5014 05-09	TRG					1.5288E+00	1.5288E+00				
08	CP-5014 09-15	TRG					1.5086E+00	1.5086E+00				
09	CP-5015 00-02	TRG					1.5025E+00	1.5025E+00				
10	CP-5015 02-05	TRG					1.5748E+00	1.5748E+00				
11	CP-5015 05-09	TRG					1.5670E+00	1.5670E+00				
12	CP-5015 09-15	TRG					1.5051E+00	1.5051E+00				
13	CP-5013 00-02	TRG					1.5034E+00	1.5034E+00				
14	CP-5013 02-05	TRG					1.5022E+00	1.5022E+00				
15	CP-5013 05-09	TRG					1.5365E+00	1.5365E+00				

Comments	

Technician: JPachella Date: 6/17/16

Eberline Services - Oak Ridge
Prep Logbook
Version 2.0 8/1999

Rough Sample Preparation Log Book

Printed: 6/16/2016 8:54 AM

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
16-06064	7/5/2016	6/15/2016	6/16/2016	6/17/2016	KSALLINGS

Eberline	Auxier & Associates, Inc.	Tare (g)	Gross (g)		Net (g)		Percent		Gamma		Special
Fraction	Client ID	Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	Info
04	CP-5027 00-02	14.5800	938.1400	838.2000	923.5600	823.6200	10.82%	89.18%	0.0000	0.0000	
05	CP-5014 00-02	14.6200	719.4900	615.3300	704.8700	600.7100	14.78%	85.22%	0.0000	0.0000	
06	CP-5014 02-05	14.6000	843.7600	680.6000	829.1600	666.0000	19.68%	80.32%	0.0000	0.0000	
07	CP-5014 05-09	14.5900	349.2000	278.6600	334.6100	264.0700	21.08%	78.92%	0.0000	0.0000	
08	CP-5014 09-15	14.6200	509.3300	399.7100	494.7100	385.0900	22.16%	77.84%	0.0000	0.0000	
09	CP-5015 00-02	14.5800	910.0800	854.4000	895.5000	839.8200	6.22%	93.78%	0.0000	0.0000	
10	CP-5015 02-05	14.5900	1240.2000	910.9200	1225.6100	896.3300	26.87%	73.13%	0.0000	0.0000	
11	CP-5015 05-09	14.5900	583.4700	462.0100	568.8800	447.4200	21.35%	78.65%	0.0000	0.0000	
12	CP-5015 09-15	14.5500	639.8800	499.5300	625.3300	484.9800	22.44%	77.56%	0.0000	0.0000	
13	CP-5013 00-02	14.5200	732.4100	615.5700	717.8900	601.0500	16.28%	83.72%	0.0000	0.0000	
14	CP-5013 02-05	14.5500	884.1200	726.5700	869.5700	712.0200	18.12%	81.88%	0.0000	0.0000	
15	CP-5013 05-09	14.5300	518.7000	415.6400	504.1700	401.1100	20.44%	79.56%	0.0000	0.0000	

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

Technician: Kenny Sallings Date:

KB 6/29/16

Apex-Alpha™

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification: 1606064A-UU
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/28/2016 5:53:00 AM
Acquisition Date/Time: 6/28/2016 11:40:11 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.661 mL
Effective Efficiency: 0.1966 +/- 0.0108
Counting Efficiency: 0.1612 +/- 0.0029 on 12/11/2015 2:46:09 PM
Chem. Recovery Factor: 1.2194 +/- 0.0702

Control Certificate Name: NatU_U-8A
Chem. Recov. of Control: U-238 0.772172 +/- 0.059468
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	406.15	9.74	0.85	0.00E+000	8.2
U-234		4.723	451.32	9.23	0.68	0.00E+000	16.2
U-235		4.372	23.32	41.27	0.68	0.00E+000	3.5
U-238		4.144	492.49	8.84	0.51	0.00E+000	11.4

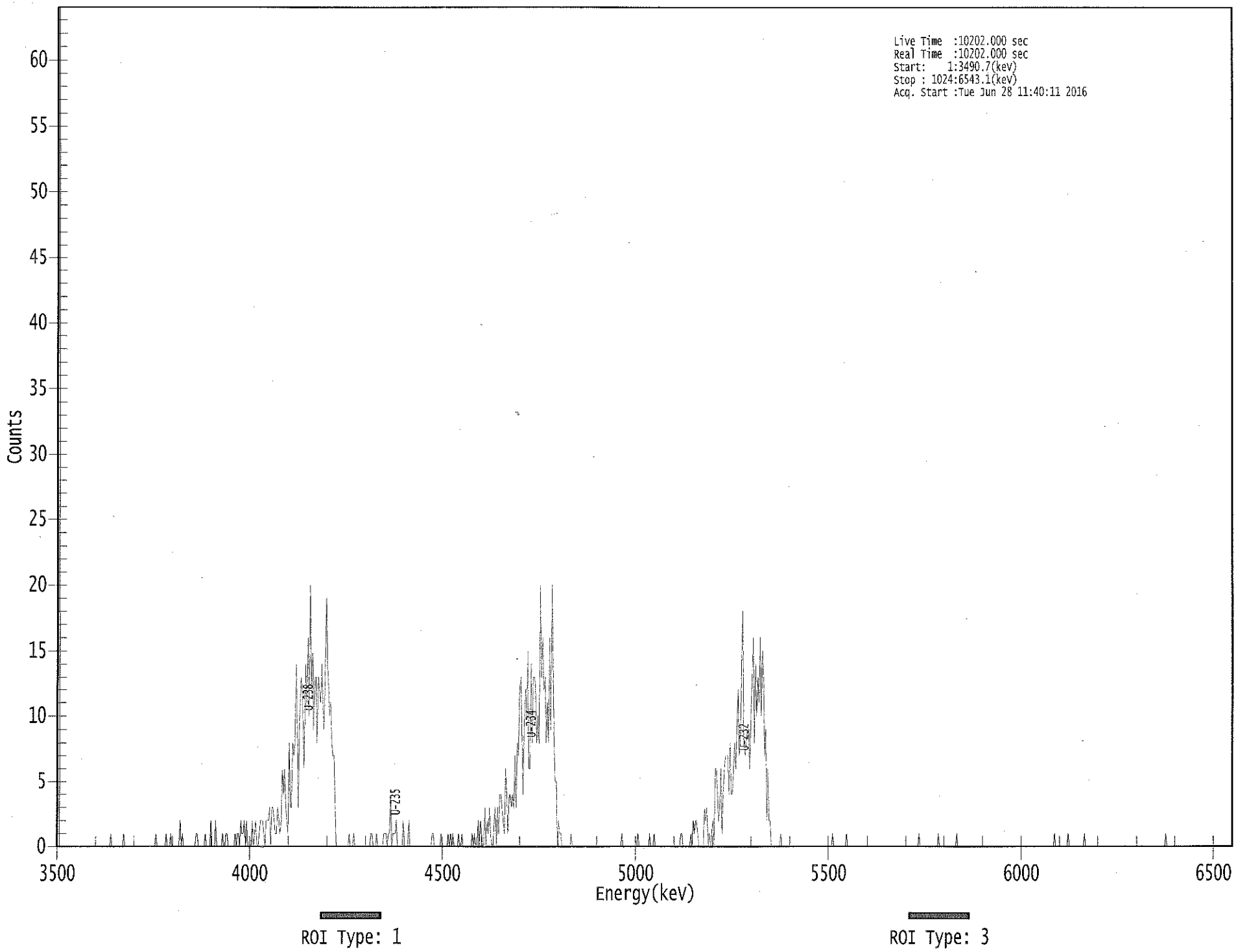
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	5.48E+000 +/- 5.89E-001	8.08E-002 +/- 8.68E-003
U-234	0.990	4761.50*	6.09E+000 +/- 8.63E-001	7.62E-002 +/- 8.17E-003
U-235	0.999	4385.50*	3.88E-001 +/- 1.66E-001	9.40E-002 +/- 1.01E-002
U-238	0.988	4184.40*	6.62E+000 +/- 9.20E-001	7.06E-002 +/- 7.57E-003

AG 6/29/16

0000155638.CNF



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

Sample Title: 01

Elapsed Live time: 10202
Elapsed Real Time: 10202

Channel								
1:	10202	10202	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	1
49:	0	0	0	0	0	0	0	0
57:	0	0	1	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	1	0
89:	0	0	0	0	0	0	0	1
97:	0	0	0	1	0	0	0	0
105:	0	0	0	2	0	1	0	0
113:	0	0	0	0	0	0	0	0
121:	0	1	1	0	0	0	0	0
129:	0	1	0	0	0	0	2	0
137:	0	0	2	0	0	0	0	0
145:	1	0	0	1	1	0	0	0
153:	0	0	0	1	0	1	1	0
161:	2	1	1	2	0	2	0	0
169:	0	0	2	0	1	2	0	0
177:	1	2	2	2	1	0	2	2
185:	2	3	0	3	3	2	1	1
193:	3	2	1	2	6	4	6	3
201:	2	1	8	3	3	8	7	8
209:	14	9	3	10	13	12	9	6
217:	14	11	16	10	20	12	15	9
225:	13	13	8	13	12	11	14	11
233:	9	14	19	14	12	10	11	8
241:	7	7	3	0	0	0	0	0
249:	0	0	0	0	0	0	1	0
257:	0	0	1	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	1	1	0	0	0	1	0
281:	0	0	0	0	1	1	1	0
289:	1	1	4	0	1	1	1	2
297:	0	0	0	0	0	2	0	0
305:	0	0	2	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	1	1
329:	0	0	0	0	0	0	1	0
337:	0	0	0	0	1	0	1	0
345:	1	0	0	0	0	1	0	0
353:	1	0	0	0	0	0	0	0
361:	0	1	0	1	0	0	2	0

369:	2	1	0	0	3	0	2	1

Sample Title: 01

Channel								
377:	3	1	0	0	2	3	0	3
385:	1	4	4	3	2	1	6	4
393:	1	4	4	3	4	3	7	3
401:	8	7	12	13	9	4	9	12
409:	10	15	6	6	14	8	13	13
417:	12	8	10	8	20	13	16	12
425:	13	8	11	8	16	9	20	14
433:	8	5	5	0	2	1	1	0
441:	0	0	0	0	0	0	0	1
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	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	0
505:	0	1	0	0	0	0	0	0
513:	0	0	0	1	0	0	0	1
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	1	1
545:	0	0	0	0	0	0	0	1
553:	0	2	1	2	2	1	0	0
561:	0	0	0	3	2	3	0	1
569:	0	1	2	0	6	6	4	2
577:	3	6	1	4	6	7	7	7
585:	4	8	4	4	6	8	6	9
593:	12	7	8	14	18	8	7	8
601:	9	9	6	10	13	16	8	14
609:	10	13	11	16	10	15	13	7
617:	9	2	6	2	2	0	0	0
625:	0	0	0	0	0	1	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	1	0	0	0	0	0
681:	0	0	0	0	0	0	1	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	1	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	1	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	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

Sample Title: 01

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	1	0	0	0	0
873:	0	0	0	0	0	0	0	1
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	1	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	1	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

KP 6/28/16

Apex-Alpha™

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification: 1606064A-UU
Sample Identification: 02
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.500E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/28/2016 5:53:00 AM
Acquisition Date/Time: 6/28/2016 11:40:12 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.667 mL
Effective Efficiency: 0.1900 +/- 0.0105
Counting Efficiency: 0.1879 +/- 0.0033 on 12/11/2015 2:46:10 PM
Chem. Recovery Factor: 1.0115 +/- 0.0587

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	396.15	9.86	0.85	0.00E+000	17.5
U-234		4.695	8.81	71.06	1.19	0.00E+000	2.9
U-235		4.397	3.15	126.68	0.85	0.00E+000	2.9
U-238		4.219	-0.02	10571.	1.02	0.00E+000	2.9

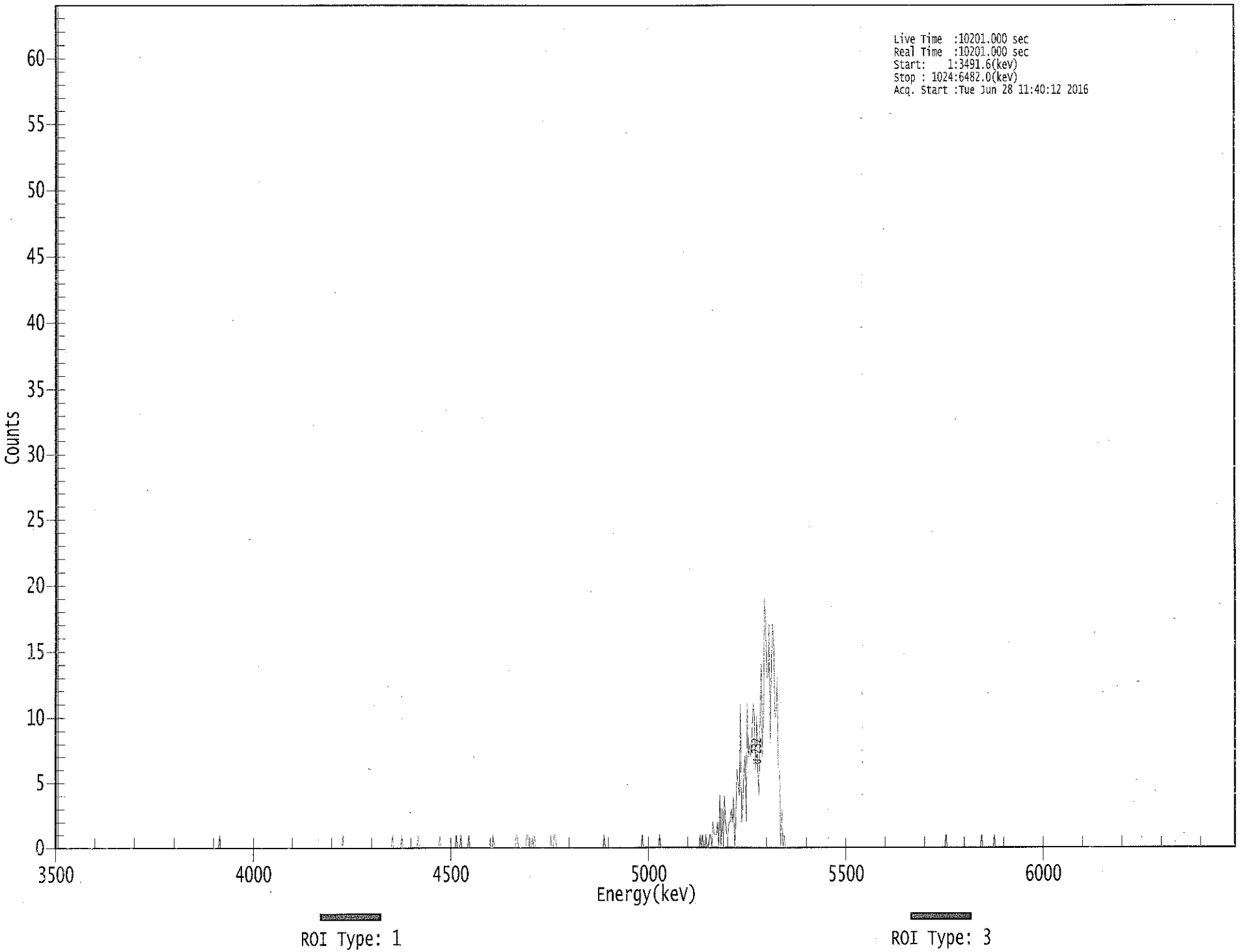
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	3.69E+000 +/- 4.00E-001	5.58E-002 +/- 6.05E-003
U-234	0.969	4761.50*	8.21E-002 +/- 5.90E-002	6.14E-002 +/- 6.65E-003
U-235	0.999	4385.50*	3.62E-002 +/- 4.60E-002	6.88E-002 +/- 7.46E-003
U-238	0.991	4184.40*	-1.86E-004 +/- 1.97E-002	5.84E-002 +/- 6.34E-003

KP 6/29/16

0000155639.CNF



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

Sample Title: 02

Elapsed Live time: 10201
Elapsed Real Time: 10201

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

369:	0	0	0	0	0	0	0	0

Sample Title: 02

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

Sample Title: 02

Channel								
809:	0	0	0	0	0	1	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	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

Apex-Alpha™

LCD 6/28/16

Sample Description: CP-5027 00-02-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification: 1606064A-UU
Sample Identification: 03
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.558E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/2/2016 5:53:00 AM
Acquisition Date/Time: 6/28/2016 11:40:13 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: 0.1884 +/- 0.0105
Counting Efficiency: 0.1895 +/- 0.0033 on 12/11/2015 2:46:10 PM
Chem. Recovery Factor: 0.9941 +/- 0.0580

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	5.259	388.98	9.95	1.02	0.00E+000	10.0
U-234		4.722	163.30	15.43	1.70	0.00E+000	11.7
U-235		4.367	8.32	71.13	0.68	0.00E+000	5.8
U-238		4.138	217.98	13.31	1.02	0.00E+000	6.5

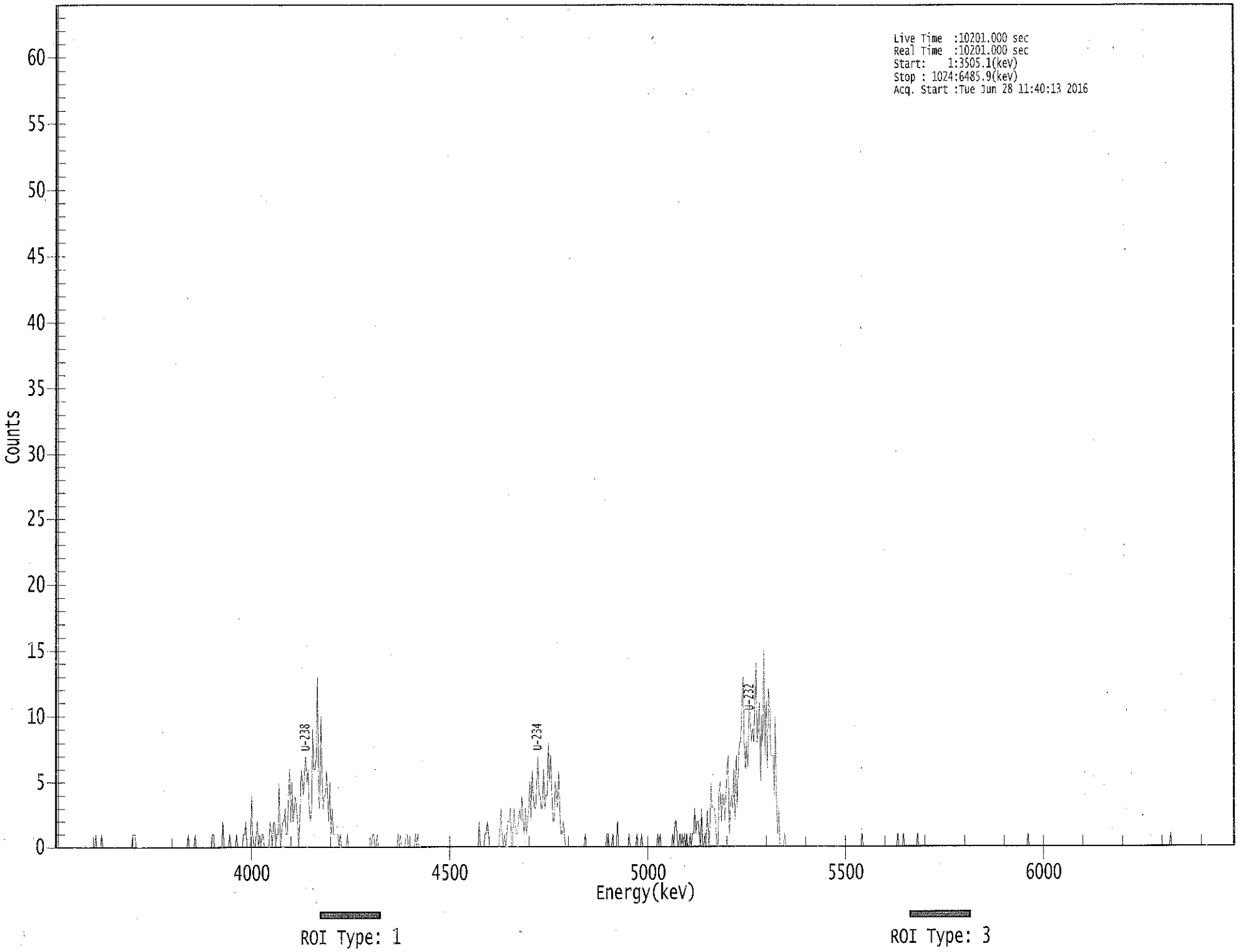
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.987	5302.50*	3.52E+000 +/- 3.85E-001	5.70E-002 +/- 6.23E-003
U-234	0.989	4761.50*	1.48E+000 +/- 2.79E-001	6.64E-002 +/- 7.26E-003
U-235	0.997	4385.50*	9.28E-002 +/- 6.68E-002	6.29E-002 +/- 6.88E-003
U-238	0.985	4184.40*	1.96E+000 +/- 3.38E-001	5.67E-002 +/- 6.20E-003

AG 6/29/16

0000155640.CNF



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

Sample Title: 03

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	1	0	0	0	0
41:	1	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	1	1	1	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	1	0	0	0	0
121:	0	1	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	1	1	0	0	0	0	0	0
145:	0	2	0	0	0	0	0	1
153:	0	0	0	0	0	1	0	0
161:	0	0	0	1	1	2	0	0
169:	0	0	4	1	0	0	1	2
177:	0	1	0	1	1	0	0	0
185:	0	0	2	1	0	2	2	0
193:	1	1	5	0	1	2	2	3
201:	1	1	4	6	2	5	2	3
209:	4	3	2	0	3	6	5	4
217:	6	7	5	6	3	2	3	9
225:	6	6	7	13	4	3	10	6
233:	3	4	4	6	4	2	5	1
241:	3	1	1	1	1	1	0	1
249:	0	0	0	0	0	1	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	1	1	0	0	1
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	1	0	1	0	0	0	0
305:	1	1	0	0	0	0	0	0
313:	1	0	1	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	2

369:	0	0	0	0	1	1	2	1

Sample Title: 03

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

801:	0	0	0	0	0	0	0	0

Sample Title: 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	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	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	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

KD 6/28/16

Apex-Alpha™

Sample Description: CP-5027 00-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification: 1606064A-UU
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.535E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/2/2016 5:53:00 AM
Acquisition Date/Time: 6/28/2016 11:40:14 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.653 mL
Effective Efficiency: 0.2013 +/- 0.0110
Counting Efficiency: 0.1989 +/- 0.0034 on 12/11/2015 2:46:14 PM
Chem. Recovery Factor: 1.0122 +/- 0.0580

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	410.79	9.70	2.21	0.00E+000	20.4
U-234		4.720	195.15	14.07	0.85	0.00E+000	8.3
U-235		4.375	10.98	62.28	1.02	0.00E+000	2.6
U-238		4.141	158.47	15.66	1.53	0.00E+000	6.3

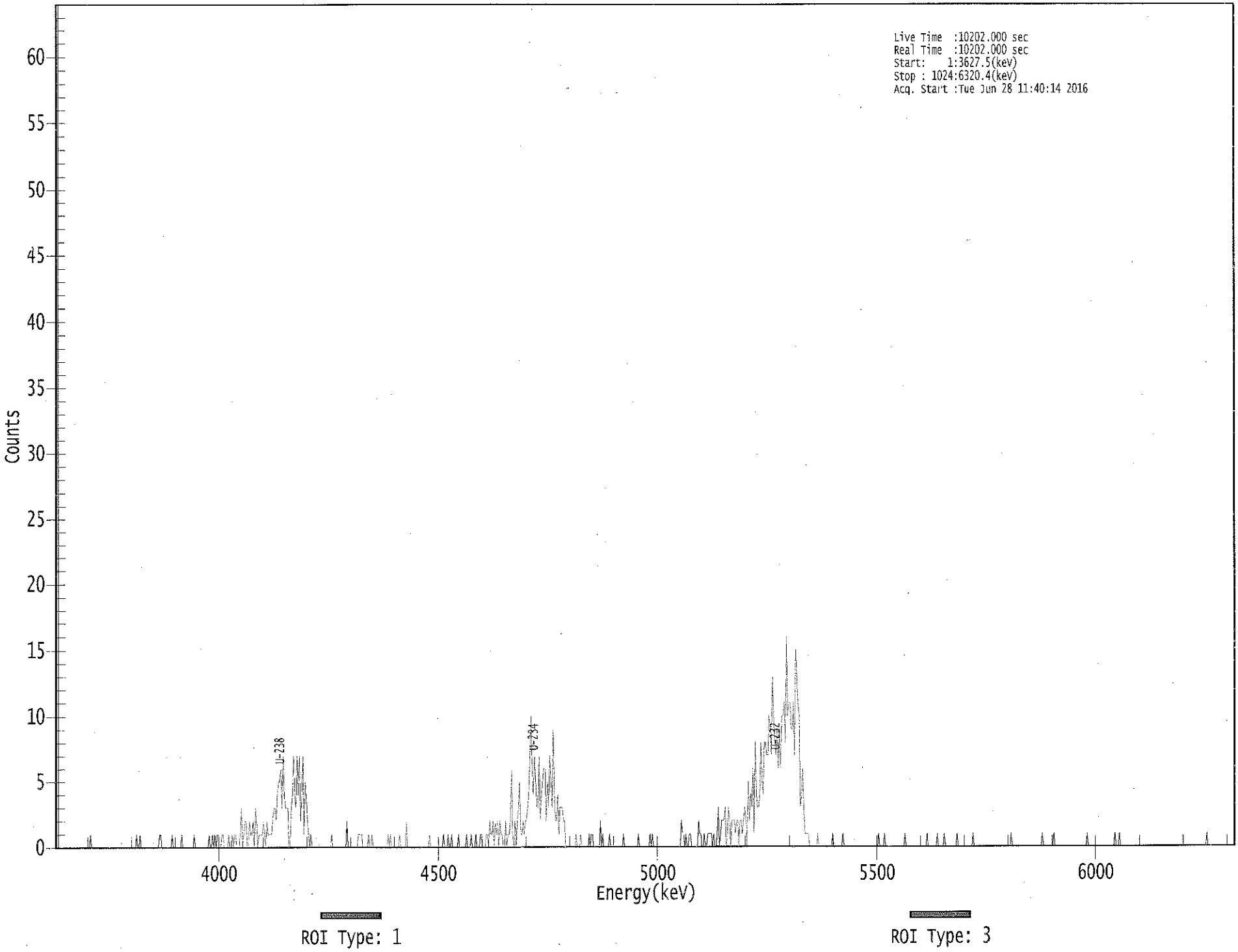
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	3.53E+000 +/- 3.78E-001	6.88E-002 +/- 7.36E-003
U-234	0.988	4761.50*	1.68E+000 +/- 2.96E-001	5.15E-002 +/- 5.50E-003
U-235	0.999	4385.50*	1.16E-001 +/- 7.36E-002	6.68E-002 +/- 7.15E-003
U-238	0.987	4184.40*	1.36E+000 +/- 2.57E-001	6.08E-002 +/- 6.51E-003

AG 6/29/16

0000155641.CNF



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

Sample Title: 04

Elapsed Live time: 10202
Elapsed Real Time: 10202

Channel								
1:	10202	10202	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	1	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	1	0
73:	0	1	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	1	1	0	0	0	0
97:	0	0	0	0	0	1	0	0
105:	0	0	0	0	0	1	0	0
113:	0	0	0	0	0	0	0	0
121:	1	0	0	0	0	0	0	0
129:	0	0	0	0	0	1	0	0
137:	1	0	1	0	1	1	0	0
145:	1	1	0	0	0	0	1	0
153:	0	1	0	1	1	0	0	0
161:	1	3	0	1	2	2	0	0
169:	2	1	1	2	0	3	2	0
177:	1	1	1	1	2	1	0	2
185:	1	1	1	1	2	3	3	2
193:	4	5	5	6	3	7	4	3
201:	3	3	0	0	3	4	7	4
209:	3	7	4	7	2	4	7	1
217:	5	4	2	1	0	1	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	1
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	2	0	0	0
257:	0	0	0	0	0	0	1	1
265:	1	1	0	0	0	0	0	1
273:	0	0	1	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	1	0	1	0	0	0	0	0
297:	0	0	1	0	0	0	0	0
305:	2	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	1	0	0	0
329:	0	0	0	0	0	0	0	0
337:	1	0	0	0	1	0	0	1
345:	0	0	0	0	0	1	0	0
353:	0	0	0	0	1	0	0	0
361:	1	0	0	0	1	0	0	0

369:	1	1	0	0	0	1	1	0

Sample Title: 04

Channel								
377:	2	1	1	2	0	2	1	2
385:	0	2	1	1	0	0	2	0
393:	1	1	2	6	1	0	2	0
401:	2	3	5	1	1	2	1	2
409:	2	3	4	7	10	6	4	7
417:	5	3	3	7	2	4	5	6
425:	6	2	5	3	7	5	3	9
433:	4	2	2	4	1	3	3	3
441:	2	2	0	0	0	0	0	0
449:	0	0	0	1	0	0	0	1
457:	0	0	0	0	0	0	1	0
465:	1	1	0	0	0	0	0	0
473:	2	0	1	0	0	0	0	0
481:	1	0	0	0	0	0	0	0
489:	0	0	0	0	1	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	1	0	1	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	2	1
545:	1	0	1	0	0	1	1	0
553:	0	0	0	0	0	2	1	1
561:	0	0	1	0	0	1	1	1
569:	1	0	1	0	0	1	3	0
577:	1	2	2	2	3	0	1	3
585:	2	0	2	2	2	1	2	2
593:	0	2	2	1	2	3	2	0
601:	5	2	4	3	6	1	8	4
609:	3	3	4	8	5	4	8	8
617:	7	7	10	9	7	13	10	8
625:	7	9	6	9	6	10	10	11
633:	8	16	10	11	11	9	9	11
641:	7	15	13	11	10	3	4	6
649:	3	1	1	1	1	0	0	0
657:	0	0	0	0	1	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	1	0	0	0	0	0	0
681:	0	0	1	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	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	1	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	1	0	0	0	0
761:	0	0	0	0	1	0	0	0
769:	0	0	1	0	0	0	0	0
777:	0	0	0	0	0	1	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	1	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	1	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	1
857:	0	0	0	0	0	0	0	0
865:	0	1	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	1	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	1	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	1	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™

WD 6/28/16

Sample Description: CP-5014 00-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification: 1606064A-UU
Sample Identification: 05
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.548E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/7/2016 5:53:00 AM
Acquisition Date/Time: 6/28/2016 11:40:16 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.666 mL
Effective Efficiency: 0.1793 +/- 0.0102
Counting Efficiency: 0.1919 +/- 0.0033 on 12/11/2015 2:46:15 PM
Chem. Recovery Factor: 0.9338 +/- 0.0554

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	5.273	372.98	10.16	1.02	0.00E+000	31.2
U-234		4.730	124.83	17.56	0.17	0.00E+000	5.6
U-235		4.425	5.49	88.08	0.51	0.00E+000	3.0
U-238		4.153	132.83	17.02	0.17	0.00E+000	20.0

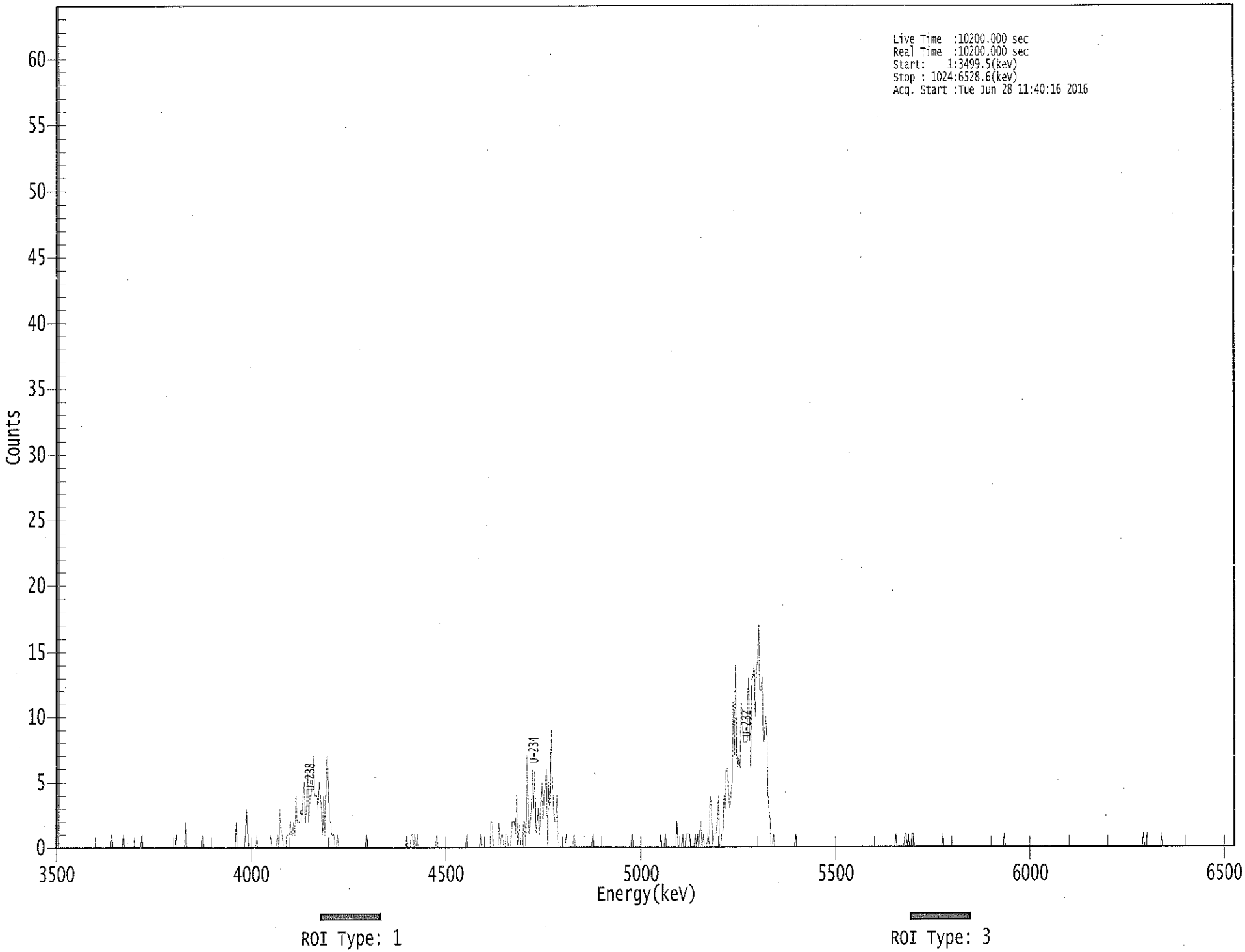
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	3.57E+000 +/- 3.97E-001	6.03E-002 +/- 6.71E-003
U-234	0.993	4761.50*	1.19E+000 +/- 2.48E-001	3.99E-002 +/- 4.44E-003
U-235	0.989	4385.50*	6.48E-002 +/- 5.75E-002	6.19E-002 +/- 6.89E-003
U-238	0.993	4184.40*	1.27E+000 +/- 2.57E-001	3.98E-002 +/- 4.42E-003

AG 6/29/16

0000155642.CNF



****
***** 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:	10200	10200	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	1	0	0	0	0	0	0	0
57:	0	0	1	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	1	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:	1	0	0	0	0	0	0	0
113:	2	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	1
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	2	0	0	0
161:	0	0	0	0	1	3	1	0
169:	0	0	0	0	0	0	1	0
177:	0	0	0	0	0	0	0	0
185:	0	0	1	0	0	0	0	0
193:	1	0	3	1	1	0	0	0
201:	1	1	1	2	1	1	2	1
209:	4	2	2	2	3	2	4	5
217:	2	3	6	2	4	4	5	7
225:	4	4	4	3	5	4	3	1
233:	4	1	5	7	5	2	2	1
241:	1	1	0	0	1	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	1	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:	1	0	0	0	1	1	0	1
313:	0	1	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	1	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	1	0	0	0
361:	0	0	0	0	0	0	0	0

369:	1	0	0	0	0	0	0	0

Sample Title: 05

Channel								
377:	0	2	2	0	0	0	0	0
385:	2	0	1	1	0	0	1	1
393:	0	0	0	2	2	2	1	4
401:	0	2	1	0	0	2	2	0
409:	7	3	1	2	3	6	3	6
417:	1	2	3	1	3	5	2	4
425:	5	6	0	5	2	9	5	3
433:	2	2	4	0	0	0	0	0
441:	0	0	1	0	0	0	0	0
449:	0	1	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	1	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	1	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	0	0	1	0	0	0
529:	1	0	0	0	0	0	0	0
537:	0	0	2	0	0	0	0	1
545:	0	0	1	1	1	1	0	0
553:	0	0	1	0	1	0	1	2
561:	0	1	0	0	0	1	0	4
569:	3	0	1	1	1	2	4	0
577:	0	1	1	4	3	6	6	4
585:	3	4	5	11	7	14	7	6
593:	7	6	11	10	8	8	8	8
601:	13	9	6	13	13	14	10	14
609:	14	17	12	12	13	8	8	10
617:	9	4	3	2	0	0	1	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	1	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:	1	0	0	0	0	0	0	0
737:	1	1	0	1	0	0	1	1
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	1	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	1	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	1
945:	0	0	1	0	0	0	0	0
953:	0	0	0	0	0	0	0	1
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

LCD 6/29/16

Sample Description: CP-5014 02-05
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification: 1606064A-UU
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.528E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/7/2016 5:53:00 AM
Acquisition Date/Time: 6/28/2016 11:40:17 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: 0.1608 +/- 0.0096
Counting Efficiency: 0.1824 +/- 0.0032 on 12/11/2015 2:46:16 PM
Chem. Recovery Factor: 0.8818 +/- 0.0549

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	5.273	331.79	10.80	2.21	0.00E+000	11.8
U-234		4.731	339.13	10.68	1.87	0.00E+000	22.8
U-235		4.409	15.32	51.36	0.68	0.00E+000	2.9
U-238		4.150	395.30	9.88	1.70	0.00E+000	9.6

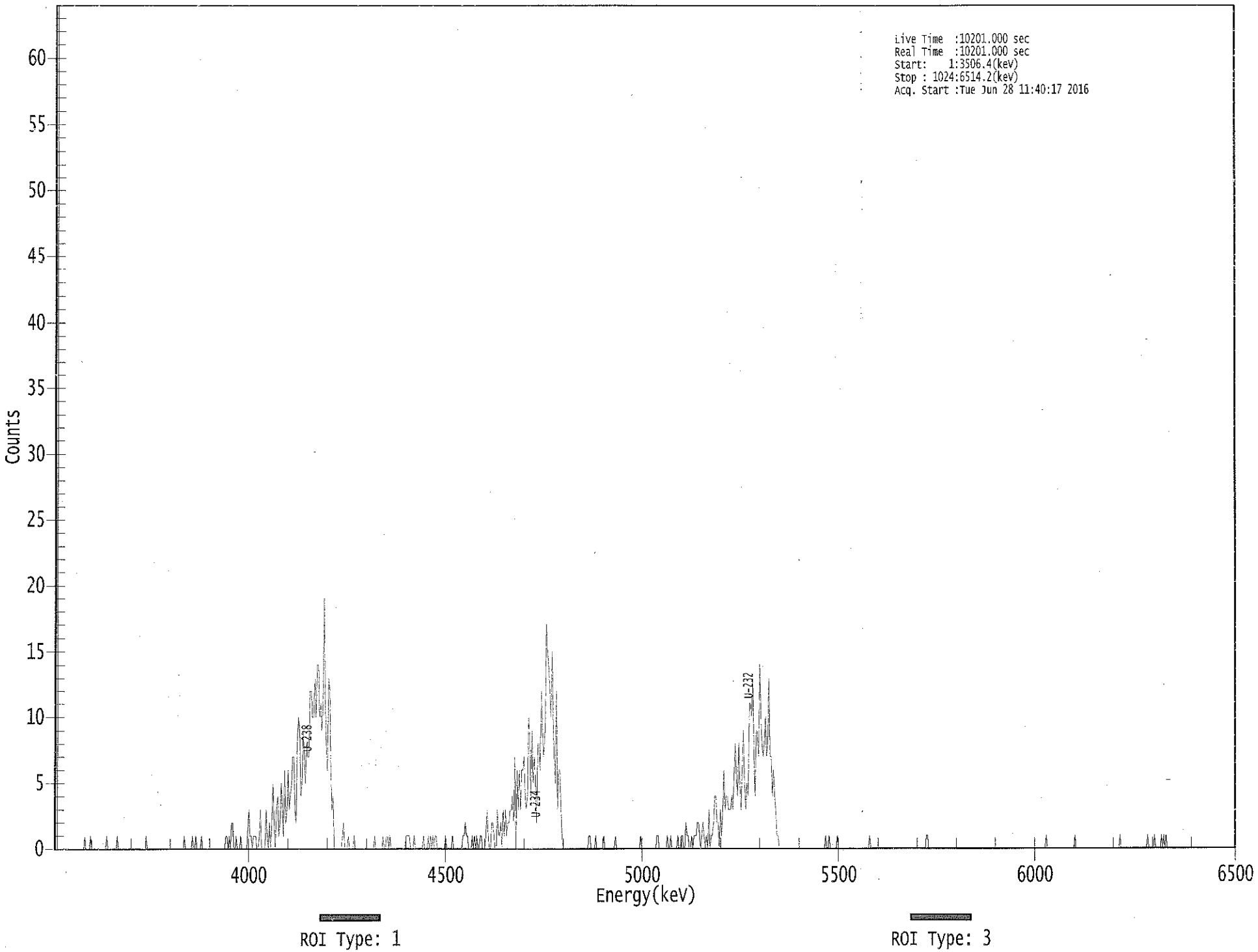
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	3.59E+000 +/- 4.20E-001	8.64E-002 +/- 1.01E-002
U-234	0.993	4761.50*	3.66E+000 +/- 5.80E-001	8.18E-002 +/- 9.57E-003
U-235	0.996	4385.50*	2.04E-001 +/- 1.08E-001	7.52E-002 +/- 8.80E-003
U-238	0.992	4184.40*	4.25E+000 +/- 6.51E-001	7.90E-002 +/- 9.25E-003

AG 6/29/16

0000155643.CNF



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

Sample Title: 06

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	1	0	0	0	0	1
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	1	0	0
49:	0	0	0	0	0	0	1	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	1
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	1	0	0	0	0	0	0	1
121:	0	0	1	0	0	0	0	1
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	1	1	0	1
153:	0	2	2	0	0	1	0	0
161:	0	1	0	0	0	0	0	1
169:	3	1	1	0	1	1	1	0
177:	0	1	3	0	0	0	0	3
185:	1	0	2	0	2	5	2	0
193:	3	4	1	2	5	3	1	6
201:	2	3	6	3	4	5	7	7
209:	3	2	8	10	9	4	5	9
217:	7	5	8	7	7	12	12	10
225:	10	13	10	14	14	10	11	9
233:	11	19	11	8	6	13	12	6
241:	3	4	0	0	0	0	0	0
249:	0	1	2	0	0	0	1	0
257:	0	0	0	1	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	1	0	0
281:	0	0	0	0	1	0	0	1
289:	1	0	1	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	1	1	1	1	0	0	0	1
313:	0	0	0	0	0	0	0	1
321:	0	0	0	1	0	1	0	1
329:	0	1	1	0	0	0	0	0
337:	0	0	1	0	0	0	0	0
345:	1	0	0	0	0	0	0	0
353:	0	1	1	2	1	1	0	0
361:	0	1	0	1	0	1	0	0

369:	1	1	0	0	0	1	3	1

Sample Title: 06

Channel								
377:	0	0	2	2	1	0	0	3
385:	1	1	2	0	3	1	3	1
393:	2	2	3	3	4	2	7	0
401:	6	3	6	3	6	6	7	4
409:	3	4	10	8	4	9	5	7
417:	5	2	8	8	6	12	9	7
425:	9	17	15	14	12	10	15	10
433:	7	5	12	3	6	6	3	1
441:	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	1	1
465:	0	0	0	0	1	0	0	0
473:	0	0	0	1	0	0	0	0
481:	0	0	0	0	0	1	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	1	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	1	1	0	0	0	0	0
529:	0	0	1	0	0	1	0	0
537:	0	0	0	1	0	0	1	1
545:	0	0	2	1	1	0	0	1
553:	0	1	1	1	2	2	1	0
561:	1	2	1	0	1	0	3	0
569:	1	1	2	4	4	2	2	0
577:	3	1	3	6	3	4	4	3
585:	3	3	4	3	6	8	5	4
593:	8	5	3	6	9	5	3	5
601:	4	11	11	10	13	7	4	9
609:	9	7	14	10	8	7	8	10
617:	7	8	13	7	7	4	6	4
625:	3	1	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	1	0	0	1	0
673:	0	0	0	0	0	1	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	1	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	1	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: 06

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	1	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	1	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	1	0	0	0	0	0
953:	1	0	0	0	0	0	1	0
961:	1	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

NCB 6/29/16

Apex-Alpha™

Sample Description: CP-5014 05-09
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification: 1606064A-UU
Sample Identification: 07
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.529E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/7/2016 5:53:00 AM
Acquisition Date/Time: 6/28/2016 11:40:18 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.659 mL
Effective Efficiency: 0.2394 +/- 0.0121
Counting Efficiency: 0.2292 +/- 0.0039 on 12/11/2015 2:46:18 PM
Chem. Recovery Factor: 1.0443 +/- 0.0558

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	5.265	493.32	8.83	0.68	0.00E+000	37.8
U-234		4.721	345.66	10.55	0.34	0.00E+000	27.9
U-235		4.386	24.49	40.09	0.51	0.00E+000	3.0
U-238		4.145	383.15	10.03	0.85	0.00E+000	23.9

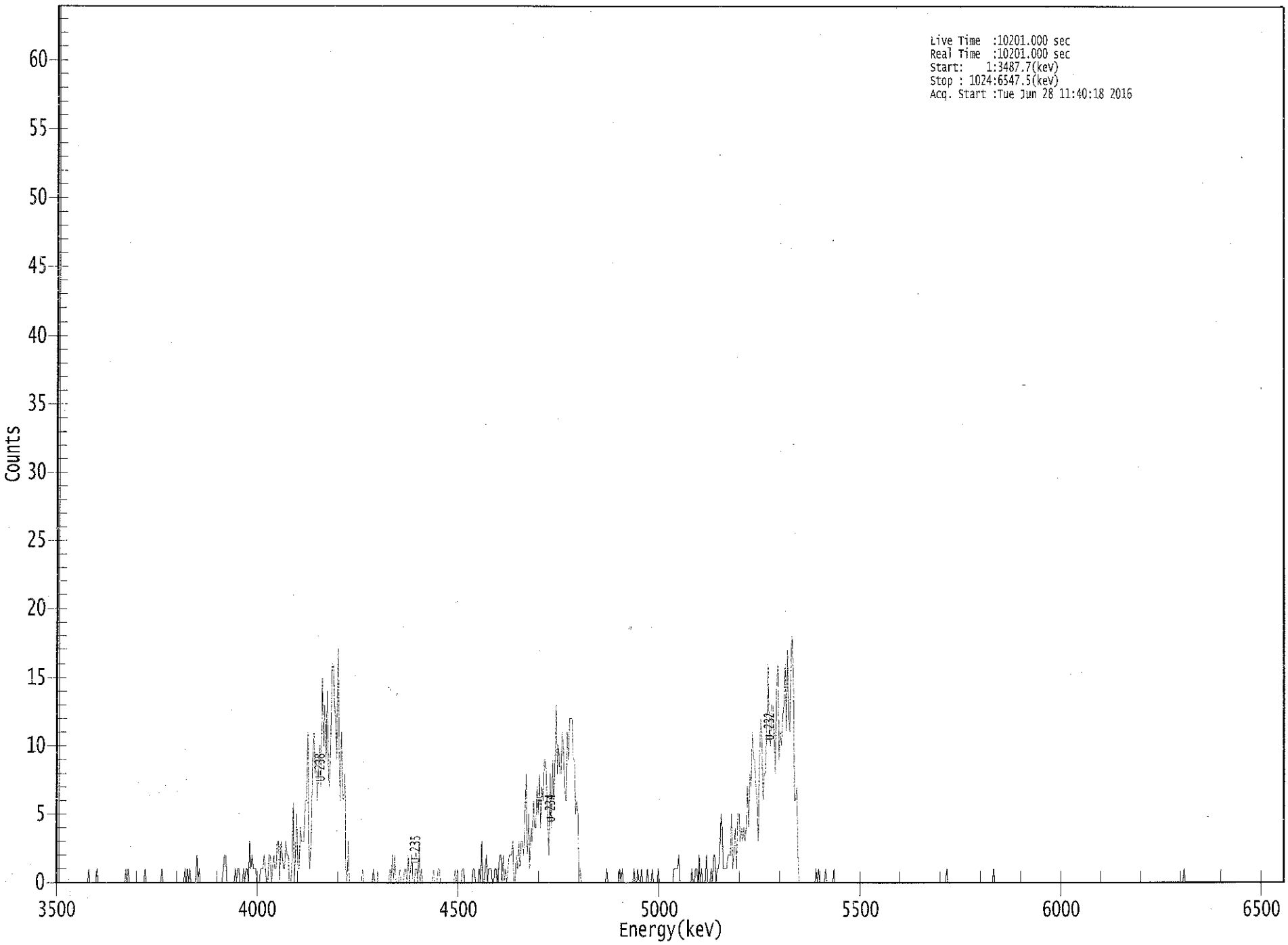
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.990	5302.50*	3.58E+000 +/- 3.55E-001	4.09E-002 +/- 4.06E-003
U-234	0.988	4761.50*	2.51E+000 +/- 3.63E-001	3.47E-002 +/- 3.44E-003
U-235	1.000	4385.50*	2.19E-001 +/- 9.05E-002	4.70E-002 +/- 4.66E-003
U-238	0.989	4184.40*	2.77E+000 +/- 3.90E-001	4.32E-002 +/- 4.29E-003

AG 6/29/16

0000155644.CNF



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

Sample Title: 07

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	1	0	0	0	0
33:	0	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	1	0	1	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	1	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	1	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	1	0	1	0	1
113:	0	0	0	0	0	2	0	1
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	1	2	2	0	0
145:	0	0	0	0	0	1	0	1
153:	1	0	0	0	1	0	1	1
161:	0	3	1	2	1	1	1	0
169:	0	0	1	1	1	2	1	0
177:	0	2	2	0	1	2	1	1
185:	3	3	0	3	2	1	1	3
193:	2	2	0	0	1	6	0	2
201:	5	1	1	4	3	3	3	6
209:	6	11	3	1	3	9	11	8
217:	9	6	9	10	7	15	10	13
225:	9	14	8	7	11	16	16	13
233:	12	9	17	10	6	11	6	6
241:	8	1	0	3	0	0	0	0
249:	0	0	0	0	0	0	0	1
257:	0	0	0	0	0	0	0	0
265:	1	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	1	0
281:	2	0	2	0	0	0	1	0
289:	0	0	1	1	0	2	0	1
297:	2	0	0	1	1	0	3	0
305:	1	0	0	0	0	0	0	0
313:	0	0	1	0	0	0	1	1
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	1	0	1	0
337:	0	0	1	1	0	0	0	0
345:	0	0	0	1	1	0	0	0
353:	1	0	3	0	0	1	2	0
361:	1	1	1	0	0	1	1	0

369:	1	2	2	0	2	0	1	0

Sample Title: 07

Channel								
377:	1	2	2	2	3	0	0	2
385:	1	3	1	3	3	2	5	8
393:	2	5	1	4	3	6	4	4
401:	7	5	8	4	7	6	9	9
409:	7	4	2	8	4	9	6	9
417:	13	8	10	8	8	11	10	7
425:	6	11	9	12	12	12	9	9
433:	5	6	5	0	1	0	0	0
441:	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	1	0	0	0	0	0
465:	0	0	0	0	0	1	0	1
473:	0	0	0	0	0	0	0	0
481:	0	1	0	0	1	0	0	1
489:	0	0	0	0	1	0	0	0
497:	1	0	0	0	0	1	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	1	1	1	1	2	0
521:	0	0	0	0	0	0	0	0
529:	0	1	0	0	1	1	0	2
537:	0	1	0	0	0	2	0	0
545:	0	1	0	2	2	0	1	1
553:	2	5	4	1	1	1	1	2
561:	2	2	5	1	2	4	1	5
569:	5	3	4	3	4	3	4	7
577:	4	8	7	11	9	9	7	6
585:	3	9	12	10	6	8	8	12
593:	16	11	10	13	13	11	8	14
601:	16	9	11	10	12	13	16	11
609:	17	12	11	17	18	14	6	6
617:	7	2	0	0	0	0	0	0
625:	0	0	0	0	0	0	0	0
633:	1	0	1	0	0	0	0	0
641:	1	0	0	0	0	0	0	1
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	1	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: 07

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	1	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

Apex-Alpha™

KS 6/29/16

Sample Description: CP-5014 09-15
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification: 1606064A-UU
Sample Identification: 08
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: 6/7/2016 5:53:00 AM
Acquisition Date/Time: 6/28/2016 11:43:11 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: 0.1898 +/- 0.0106
Counting Efficiency: 0.1625 +/- 0.0029 on 12/11/2015 11:36:31 AM
Chem. Recovery Factor: 1.1684 +/- 0.0682

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	5.291	391.81	9.92	1.19	0.00E+000	19.9
U-234		4.746	104.96	19.35	2.04	0.00E+000	7.9
U-235		4.402	6.49	80.40	0.51	0.00E+000	3.0
U-238		4.173	93.98	20.35	1.02	0.00E+000	11.9

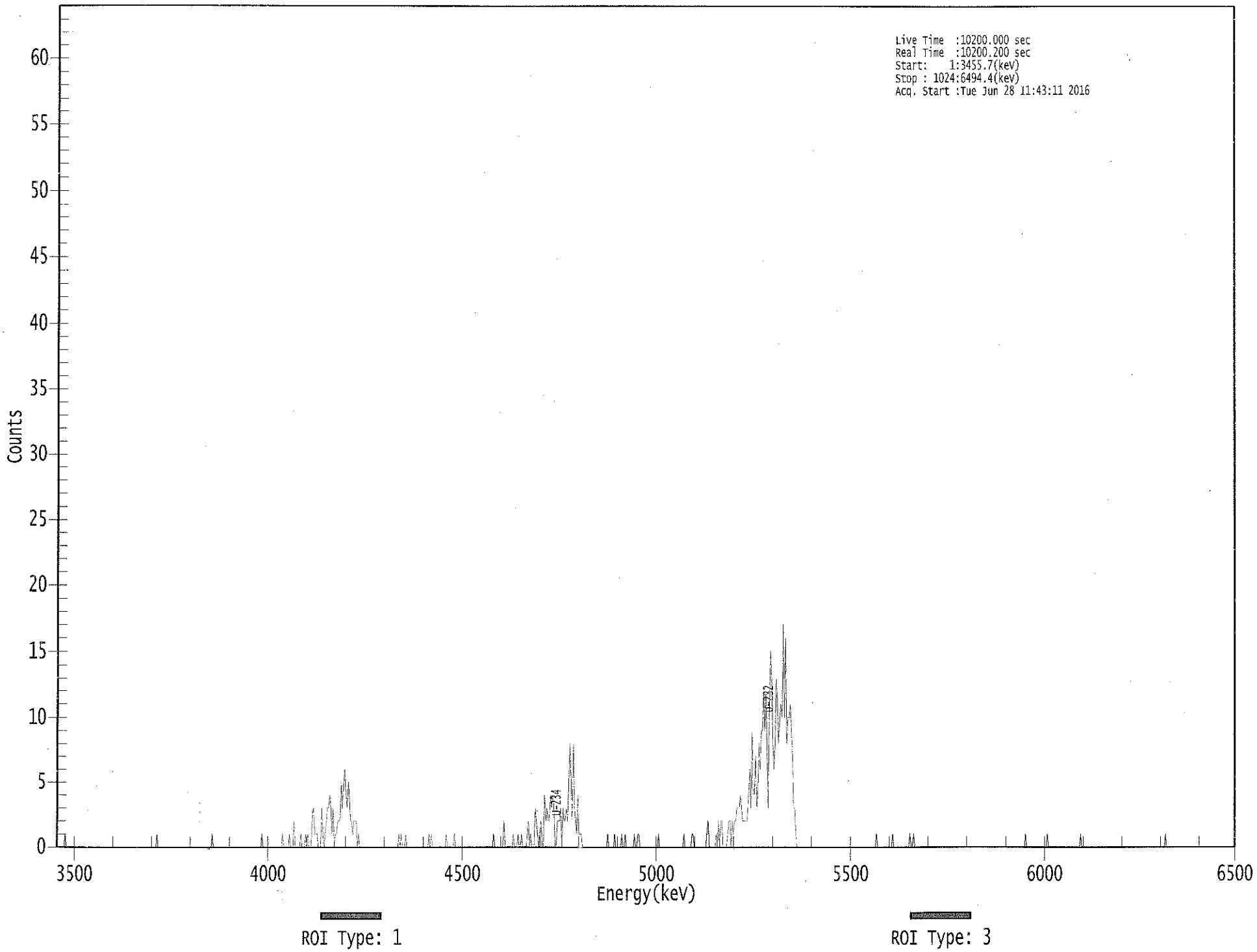
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	3.63E+000 +/- 3.96E-001	6.11E-002 +/- 6.66E-003
U-234	0.998	4761.50*	9.73E-001 +/- 2.16E-001	7.22E-002 +/- 7.87E-003
U-235	0.998	4385.50*	7.42E-002 +/- 6.02E-002	6.00E-002 +/- 6.54E-003
U-238	0.999	4184.40*	8.68E-001 +/- 2.00E-001	5.82E-002 +/- 6.34E-003

AG 6/29/16

0000155658.CNF



****
***** 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	1
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	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	1
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	1	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	1	0	0	0	2	0
209:	0	0	0	0	1	0	0	0
217:	1	0	1	0	0	0	3	3
225:	1	1	1	0	0	0	3	1
233:	0	1	2	3	3	4	3	1
241:	3	0	1	1	2	2	2	5
249:	3	5	6	4	3	5	4	2
257:	2	1	2	2	2	0	1	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	1	0	1	0	0	0	1
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	1	0	1	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	1	0	0	0	0	0
345:	0	1	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 08

Channel								
377:	0	0	0	1	0	0	0	0
385:	0	0	0	0	2	0	0	0
393:	0	0	0	0	1	0	0	0
401:	1	0	0	1	0	0	0	0
409:	1	2	0	1	0	0	0	3
417:	2	1	0	1	2	0	0	4
425:	2	3	2	2	4	3	4	3
433:	0	0	2	2	2	3	0	3
441:	2	2	3	2	5	8	5	2
449:	8	3	2	1	4	1	1	1
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	1	0
481:	0	0	0	0	1	0	0	0
489:	0	0	1	0	0	1	0	0
497:	0	0	0	0	0	1	0	0
505:	1	1	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	1	0	0	0	0	0
529:	0	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	0	0
545:	1	0	0	0	0	0	0	1
553:	1	0	0	0	0	0	0	0
561:	0	0	0	0	1	2	0	0
569:	0	0	0	0	1	0	2	0
577:	2	2	0	0	0	0	1	2
585:	2	0	2	1	2	2	3	3
593:	3	4	3	2	2	2	2	2
601:	4	6	3	9	4	4	7	3
609:	4	8	6	9	9	12	9	12
617:	8	3	10	15	13	8	6	8
625:	13	11	8	10	11	10	17	10
633:	16	8	10	10	11	9	7	3
641:	3	1	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	1
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	1	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	1	0	0	1
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	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: 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:	1	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	1	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	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	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

Apex-Alpha™

RB 6/29/16

Sample Description: CP-5015 00-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification: 1606064A-UU
Sample Identification: 09
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: 1.503E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/7/2016 5:53:00 AM
Acquisition Date/Time: 6/28/2016 11:43:13 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: 0.1871 +/- 0.0105
Counting Efficiency: 0.1647 +/- 0.0029 on 12/11/2015 11:36:29 AM
Chem. Recovery Factor: 1.1362 +/- 0.0666

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	386.15	9.99	0.85	0.00E+000	26.0
U-234		4.731	79.32	22.12	0.68	0.00E+000	3.5
U-235		4.381	2.98	134.36	1.02	0.00E+000	3.0
U-238		4.152	96.32	20.05	0.68	0.00E+000	5.8

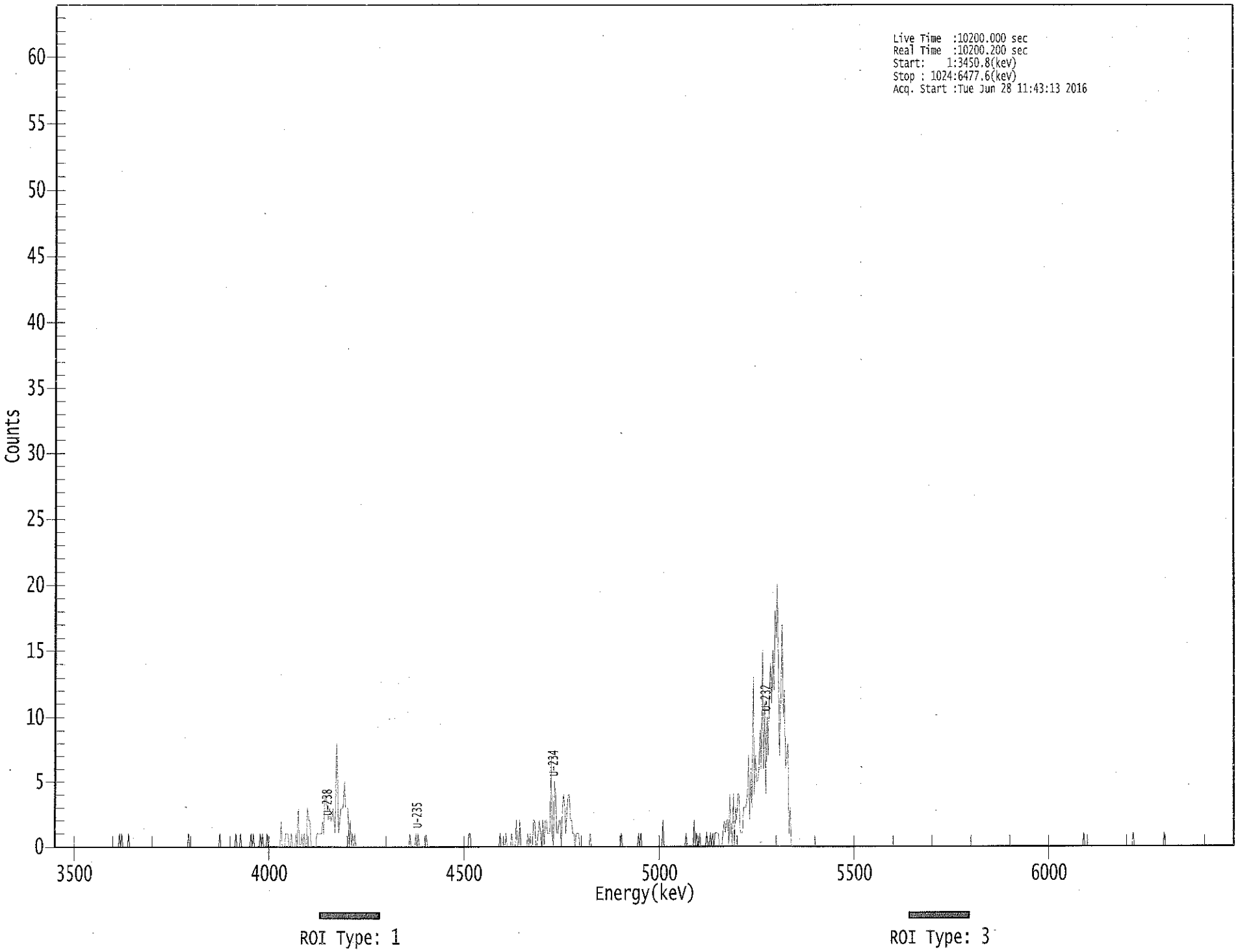
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	3.65E+000 +/- 4.00E-001	5.66E-002 +/- 6.20E-003
U-234	0.993	4761.50*	7.49E-001 +/- 1.85E-001	5.33E-002 +/- 5.84E-003
U-235	1.000	4385.50*	3.47E-002 +/- 4.68E-002	7.34E-002 +/- 8.04E-003
U-238	0.993	4184.40*	9.06E-001 +/- 2.07E-001	5.30E-002 +/- 5.81E-003

AG 6/29/16

0000155659.CNF



****
***** 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:	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:	1	0	1	0	0	0	0	0
65:	1	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	1	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	1
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	1	0	0
161:	0	1	0	0	0	0	0	0
169:	0	0	1	0	1	0	0	0
177:	0	0	1	0	1	0	0	0
185:	1	0	0	0	0	0	0	0
193:	0	0	0	0	2	0	0	0
201:	1	1	1	0	0	1	0	0
209:	0	1	0	3	0	0	1	0
217:	1	0	0	3	2	2	0	0
225:	0	0	0	1	1	1	1	1
233:	2	1	4	4	3	2	3	2
241:	2	3	2	1	8	6	1	2
249:	3	3	3	5	3	3	3	0
257:	2	0	1	0	1	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	1	0	0	0
313:	0	1	0	1	0	0	0	0
321:	0	0	1	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:	1	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 09

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	1	0	0	0	0	1
393:	0	0	0	0	1	0	0	0
401:	2	0	0	2	0	0	0	0
409:	0	0	1	0	1	0	0	2
417:	2	0	0	1	2	1	0	2
425:	0	2	2	1	1	1	7	1
433:	0	5	4	1	1	2	2	0
441:	3	4	3	1	3	4	4	2
449:	2	1	1	0	1	1	1	0
457:	0	0	0	0	0	0	0	0
465:	1	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	0
497:	0	0	0	0	0	0	0	0
505:	0	0	1	0	1	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	2
529:	0	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	1	0	0	0	0
553:	0	0	2	0	1	0	0	1
561:	0	0	0	0	0	1	0	0
569:	1	0	1	0	1	1	1	1
577:	0	0	0	1	2	1	2	2
585:	0	4	1	0	4	0	3	2
593:	4	4	1	1	1	3	3	3
601:	4	7	2	6	3	13	4	7
609:	5	5	6	9	6	15	6	11
617:	4	10	7	12	14	11	15	12
625:	18	16	20	12	7	12	17	10
633:	12	6	7	8	1	3	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

Sample Title: 09

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	1	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	1
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	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

Apex-Alpha™

Sample Description:	CP-5015 02-05
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification:	1606064A-UU
Sample Identification:	10
Sample Geometry:	Shelf 2
Procedure Description:	U iso
Detector Name:	Alpha_057
Chamber Serial Number:	01017326A
Detector Serial Number:	57
Env. Background:	System Bkgd 157602
Reagent Blank:	<not performed>
Sample Size:	1.575E+000 +/- 0.000E+000 gram
Sample Date/Time:	6/7/2016 5:53:00 AM
Acquisition Date/Time:	6/28/2016 11:43:04 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:	0.1748 +/- 0.0100
Counting Efficiency:	0.1636 +/- 0.0029 on 12/11/2015 11:36:28 AM
Chem. Recovery Factor:	1.0687 +/- 0.0643
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	360.83	10.32	0.17	0.00E+000	9.5
U-234		4.726	96.66	19.98	0.34	0.00E+000	7.4
U-235		4.387	8.00	73.50	0.00	0.00E+000	3.0
U-238		4.151	82.83	21.56	0.17	0.00E+000	9.2

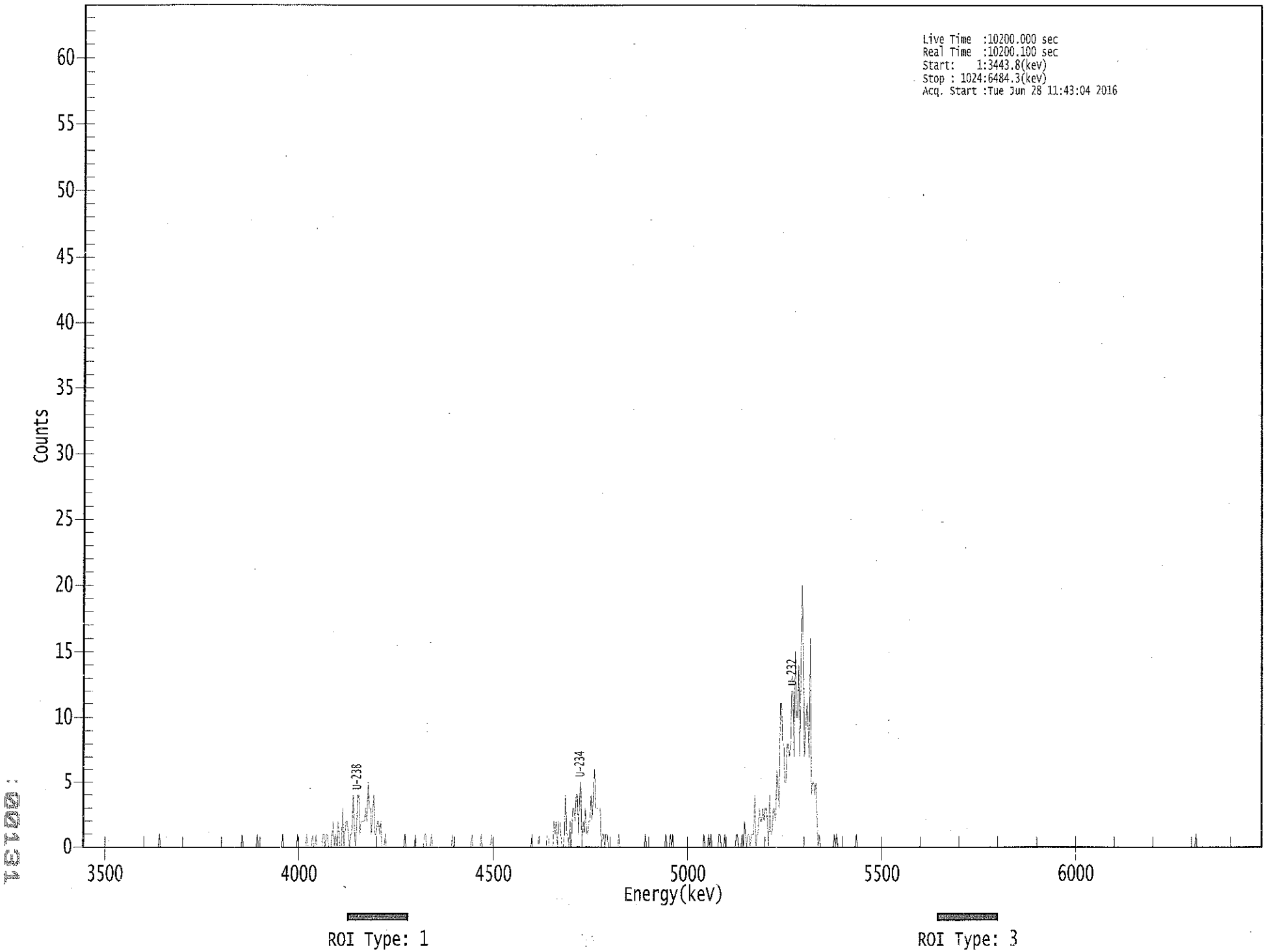
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	3.48E+000 +/- 3.92E-001	4.03E-002 +/- 4.54E-003
U-234	0.991	4761.50*	9.32E-001 +/- 2.14E-001	4.61E-002 +/- 5.19E-003
U-235	1.000	4385.50*	9.52E-002 +/- 7.08E-002	7.13E-002 +/- 8.03E-003
U-238	0.992	4184.40*	7.95E-001 +/- 1.93E-001	4.01E-002 +/- 4.51E-003

AK 6/29/16

0000155669.CNF



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

369:	0	0	0	0	0	0	0	0

Sample Title: 10

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	1	0	0
393:	0	0	0	1	0	0	0	0
401:	0	0	1	1	0	0	0	0
409:	2	1	2	0	2	2	1	0
417:	0	1	4	1	1	0	2	0
425:	3	3	2	4	4	1	4	5
433:	0	2	1	3	1	1	2	2
441:	4	2	4	6	3	3	3	3
449:	3	0	1	1	0	1	1	0
457:	0	0	0	0	0	0	0	0
465:	1	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	1
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	1	0	0	0	1	0	1
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	1	0	0	0	1	0
545:	1	0	0	0	0	0	0	1
553:	1	0	0	0	1	0	0	0
561:	0	0	0	0	0	0	1	1
569:	0	0	0	1	0	2	1	0
577:	1	1	0	1	1	1	4	0
585:	1	1	3	2	2	3	2	3
593:	3	2	0	4	1	1	3	3
601:	2	6	5	3	11	11	8	8
609:	5	5	8	8	7	8	12	12
617:	7	15	10	10	14	7	14	20
625:	15	7	9	11	10	7	16	4
633:	5	5	4	5	2	0	1	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	1	0	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:	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	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	1	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™

VB 6/29/16

Sample Description: CP-5015 05-09
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification: 1606064A-UU
Sample Identification: 11
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_058
Chamber Serial Number: 01017326B
Detector Serial Number: 58
Env. Background: System Bkgd 157603
Reagent Blank: <not performed>

Sample Size: 1.567E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/7/2016 5:53:00 AM
Acquisition Date/Time: 6/28/2016 11:43:05 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: 0.1277 +/- 0.0084
Counting Efficiency: 0.1680 +/- 0.0030 on 12/11/2015 11:36:26 AM
Chem. Recovery Factor: 0.7599 +/- 0.0518

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	5.273	263.49	12.09	0.51	0.00E+000	4.6
U-234		4.718	49.98	28.05	1.02	0.00E+000	4.0
U-235		4.371	3.83	102.72	0.17	0.00E+000	3.0
U-238		4.139	58.15	25.92	0.85	0.00E+000	4.5

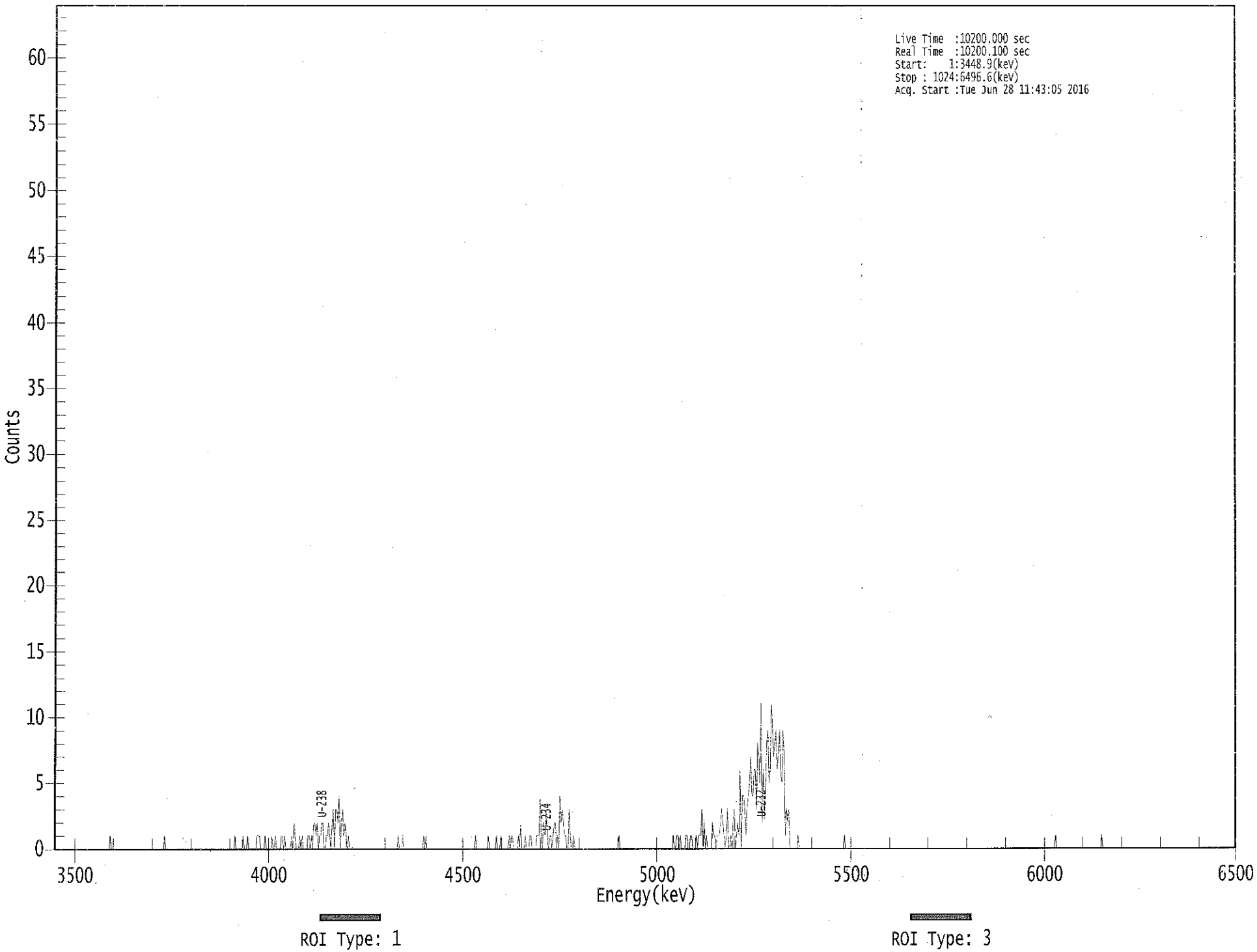
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	3.50E+000 +/- 4.51E-001	6.97E-002 +/- 8.99E-003
U-234	0.986	4761.50*	6.63E-001 +/- 2.05E-001	8.36E-002 +/- 1.08E-002
U-235	0.999	4385.50*	6.27E-002 +/- 6.49E-002	6.83E-002 +/- 8.81E-003
U-238	0.986	4184.40*	7.68E-001 +/- 2.22E-001	7.91E-002 +/- 1.02E-002

AG 6/29/16

0000155660.CNF



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

Sample Title: 11

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	1	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	1
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	1	0	0	0
161:	0	0	0	1	0	0	0	1
169:	0	0	0	0	0	0	0	1
177:	1	1	0	0	0	0	1	0
185:	0	0	0	0	1	0	0	1
193:	0	0	0	0	1	1	0	1
201:	0	0	0	0	0	1	0	2
209:	1	0	0	0	1	0	1	0
217:	0	0	0	1	1	0	1	0
225:	2	2	1	2	0	1	1	2
233:	2	0	0	1	1	2	1	0
241:	2	3	0	3	3	2	4	0
249:	2	3	1	2	1	0	1	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	1	0	0	0	1	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	1
321:	0	1	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	0
361:	0	0	0	0	1	0	0	0

369:	0	0	0	0	0	0	0	1

Sample Title: 11

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

801:	0	0	0	0	0	0	0	0

Sample Title: 11

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	1	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	1	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

LWB 6/28/16

Apex-Alpha™

Sample Description: CP-5015 09-15
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification: 1606064A-UU
Sample Identification: 12
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.505E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/7/2016 5:53:00 AM
Acquisition Date/Time: 6/28/2016 11:43:07 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: 0.1205 +/- 0.0081
Counting Efficiency: 0.1720 +/- 0.0030 on 12/11/2015 11:36:25 AM
Chem. Recovery Factor: 0.7009 +/- 0.0490

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.292	248.81	12.46	1.19	0.00E+000	5.1
U-234		4.739	68.00	23.94	0.00	0.00E+000	4.5
U-235		4.308	2.83	120.53	0.17	0.00E+000	3.0
U-238		4.158	70.00	23.59	0.00	0.00E+000	3.3

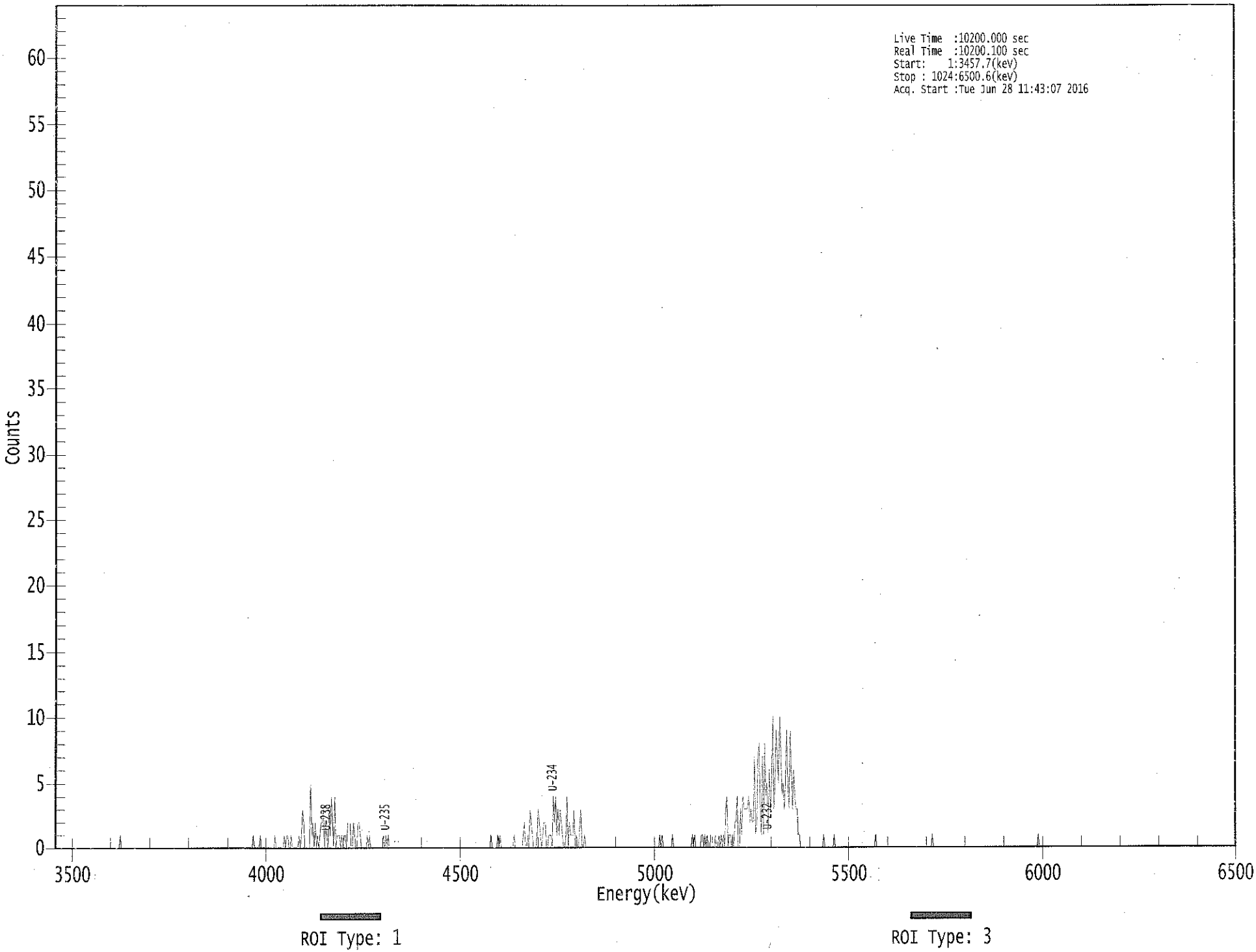
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	3.64E+000 +/- 4.83E-001	9.65E-002 +/- 1.28E-002
U-234	0.997	4761.50*	9.95E-001 +/- 2.72E-001	8.78E-002 +/- 1.16E-002
U-235	0.959	4385.50*	5.11E-002 +/- 6.20E-002	7.53E-002 +/- 9.98E-003
U-238	0.995	4184.40*	1.02E+000 +/- 2.76E-001	8.74E-002 +/- 1.16E-002

AG
6/29/16

0000155670.CNF



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

Sample Title: 12

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	0	0	0

Sample Title: 12

Channel								
377:	0	1	0	0	0	0	0	1
385:	0	1	0	0	0	0	0	0
393:	0	0	0	0	0	1	0	0
401:	0	0	0	0	0	1	2	0
409:	0	1	0	3	2	1	0	0
417:	0	1	3	2	1	0	1	2
425:	2	0	0	1	1	1	0	4
433:	2	4	1	3	1	3	2	1
441:	0	0	1	4	0	2	1	1
449:	1	3	0	1	0	0	2	3
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	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	1	0	1	0	0
529:	0	0	0	0	0	0	1	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	1
553:	0	1	0	0	0	0	0	1
561:	1	0	1	0	1	0	0	1
569:	1	0	0	1	0	0	1	0
577:	1	0	1	0	3	4	0	1
585:	1	0	1	0	2	2	4	0
593:	0	3	1	4	3	3	3	3
601:	4	2	3	2	2	7	1	2
609:	7	8	3	1	7	1	8	4
617:	5	1	6	3	5	10	3	5
625:	9	7	5	10	8	4	5	3
633:	5	9	5	3	9	6	3	6
641:	4	3	3	1	1	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	1	0	0	0	0	0	0
673:	0	0	1	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	1	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	1
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: 12

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

Apex-Alpha™

UB 6/28/16

Sample Description: CP-5013 00-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification: 1606064A-UU
Sample Identification: 13
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.503E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/8/2016 5:53:00 AM
Acquisition Date/Time: 6/28/2016 11:43:09 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.659 mL
Effective Efficiency: 0.1661 +/- 0.0098
Counting Efficiency: 0.1522 +/- 0.0027 on 12/11/2015 11:36:23 AM
Chem. Recovery Factor: 1.0914 +/- 0.0671

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	342.15	10.61	0.85	0.00E+000	27.5
U-234		4.727	87.00	21.13	0.00	0.00E+000	4.4
U-235		4.402	7.49	74.41	0.51	0.00E+000	3.0
U-238		4.154	92.66	20.41	0.34	0.00E+000	7.4

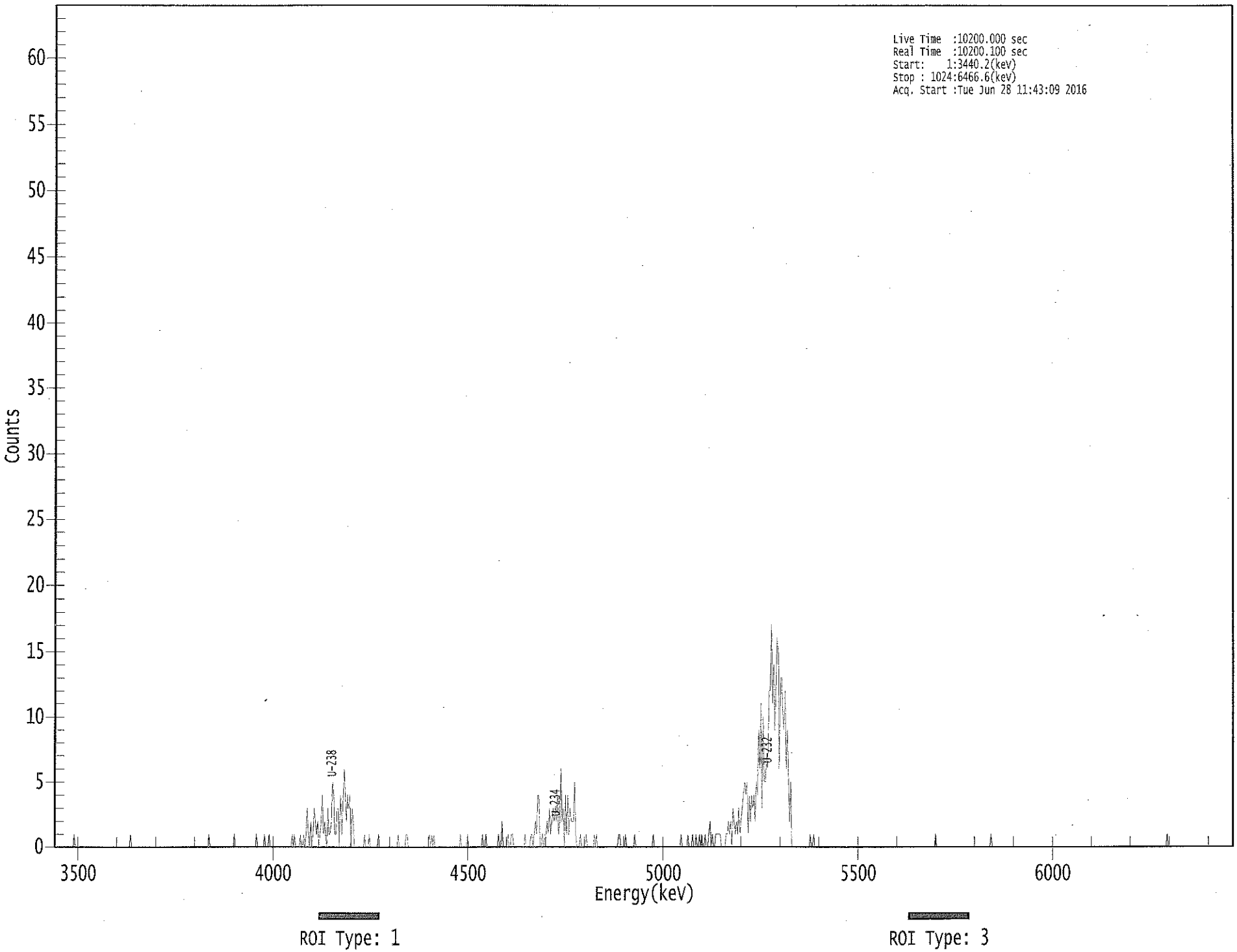
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	3.64E+000 +/- 4.20E-001	6.37E-002 +/- 7.34E-003
U-234	0.992	4761.50*	9.25E-001 +/- 2.23E-001	6.37E-002 +/- 7.35E-003
U-235	0.998	4385.50*	9.82E-002 +/- 7.40E-002	6.88E-002 +/- 7.93E-003
U-238	0.993	4184.40*	9.81E-001 +/- 2.30E-001	5.06E-002 +/- 5.84E-003

AG 6/29/16

0000155671.CNF



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

Sample Title: 13

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	1	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	1	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	1	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	1	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	1
177:	0	0	0	0	0	0	1	0
185:	0	0	1	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	1	0
209:	1	0	0	0	0	1	0	0
217:	1	0	1	3	1	0	2	0
225:	1	3	2	1	2	0	1	2
233:	4	1	2	1	0	3	1	1
241:	2	5	4	1	1	3	3	0
249:	4	1	3	6	4	2	4	3
257:	4	0	3	2	0	0	0	0
265:	0	0	0	0	0	1	0	0
273:	0	1	0	0	0	0	0	0
281:	0	1	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	1	0	0	0	0	0
305:	0	1	1	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	1	0	1
329:	0	1	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:	1	0	0	0	0	0	1	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	1	0	0	1	0

Sample Title: 13

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

Channel								
809:	0	0	0	0	1	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	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	1	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™

Sample Description:	CP-5013 02-05
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification:	1606064A-UU
Sample Identification:	14
Sample Geometry:	Shelf 2
Procedure Description:	U iso
Detector Name:	Alpha_033
Chamber Serial Number:	04026479A
Detector Serial Number:	91132
Env. Background:	System Bkgd 157579
Reagent Blank:	<not performed>
Sample Size:	1.502E+000 +/- 0.000E+000 gram
Sample Date/Time:	6/8/2016 5:53:00 AM
Acquisition Date/Time:	6/28/2016 2:43:02 PM
Acquisition Live Time:	170.0 minutes
Acquisition Real Time:	170.0 minutes
Tracer Certificate:	U232_UU-10A
Tracer Quantity:	0.654 mL
Effective Efficiency:	0.1315 +/- 0.0086
Counting Efficiency:	0.1762 +/- 0.0031 on 12/11/2015 8:20:59 AM
Chem. Recovery Factor:	0.7465 +/- 0.0504
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	5.244	268.83	11.96	0.17	0.00E+000	5.1
U-234		4.710	67.83	23.83	0.17	0.00E+000	4.0
U-235		4.369	9.83	63.14	0.17	0.00E+000	6.0
U-238		4.119	83.49	21.53	0.51	0.00E+000	3.0

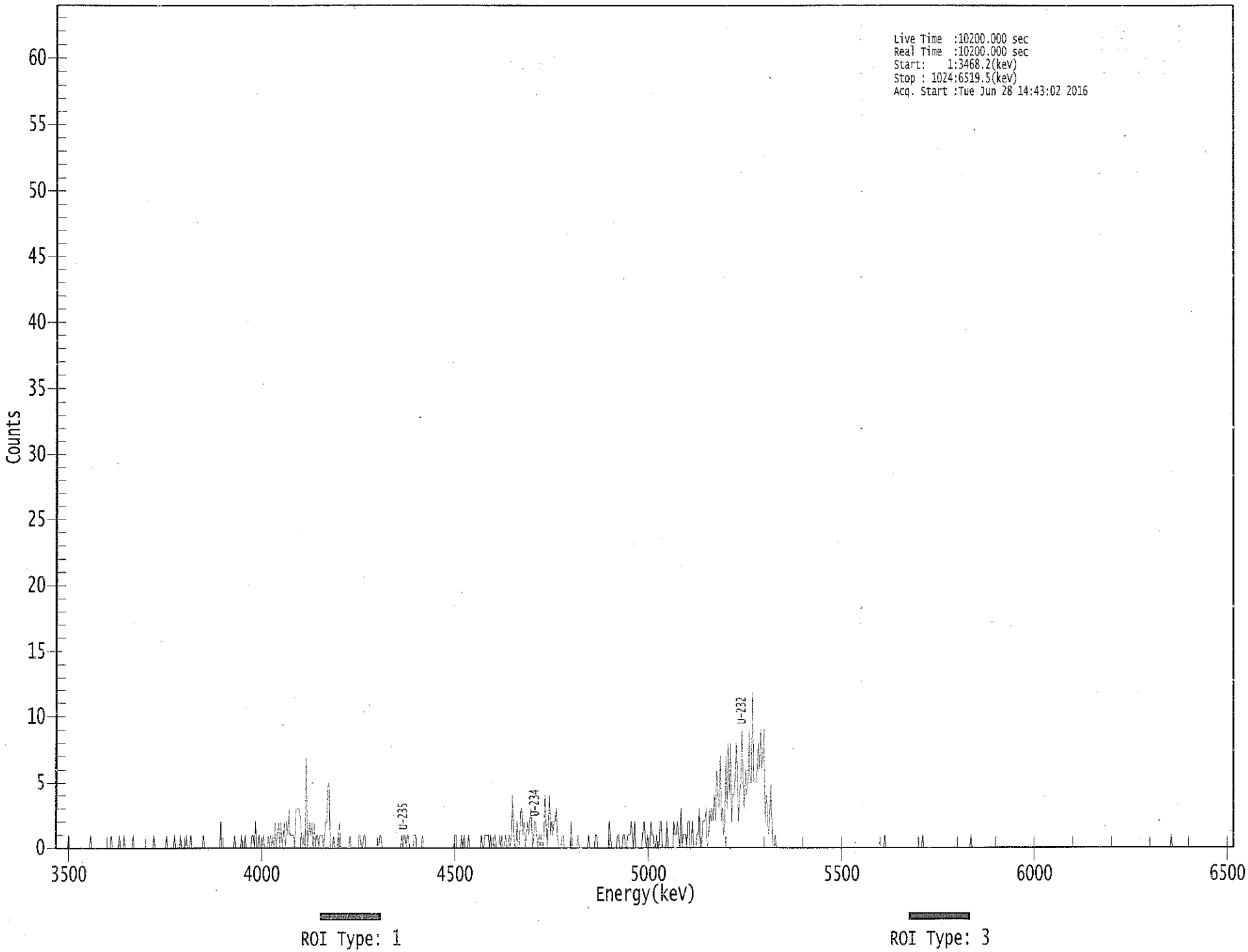
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.976	5302.50*	3.61E+000 +/- 4.62E-001	5.61E-002 +/- 7.17E-003
U-234	0.981	4761.50*	9.12E-001 +/- 2.47E-001	5.61E-002 +/- 7.17E-003
U-235	0.998	4385.50*	1.63E-001 +/- 1.05E-001	6.92E-002 +/- 8.84E-003
U-238	0.970	4184.40*	1.12E+000 +/- 2.80E-001	7.02E-002 +/- 8.98E-003

AG 6/29/16

0000155674.CNF



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

Sample Title: 14

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	1	0	0	1	1	1	1

Sample Title: 14

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

801:	0	0	0	0	0	0	0	0

Sample Title: 14

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:	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

Apex-Alpha™

LCD 6/29/16

Sample Description: CP-5013 05-09
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001556
Batch Identification: 1606064A-UU
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_034
Chamber Serial Number: 04026479B
Detector Serial Number: 91136
Env. Background: System Bkgd 157580
Reagent Blank: <not performed>

Sample Size: 1.536E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/8/2016 5:53:00 AM
Acquisition Date/Time: 6/28/2016 2:43:04 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.662 mL
Effective Efficiency: 0.1305 +/- 0.0085
Counting Efficiency: 0.1772 +/- 0.0031 on 12/11/2015 8:20:57 AM
Chem. Recovery Factor: 0.7363 +/- 0.0496

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	5.265	269.83	11.94	0.17	0.00E+000	4.8
U-234		4.719	60.66	25.25	0.34	0.00E+000	6.0
U-235		4.392	4.66	94.59	0.34	0.00E+000	3.0
U-238		4.146	63.66	24.64	0.34	0.00E+000	3.4

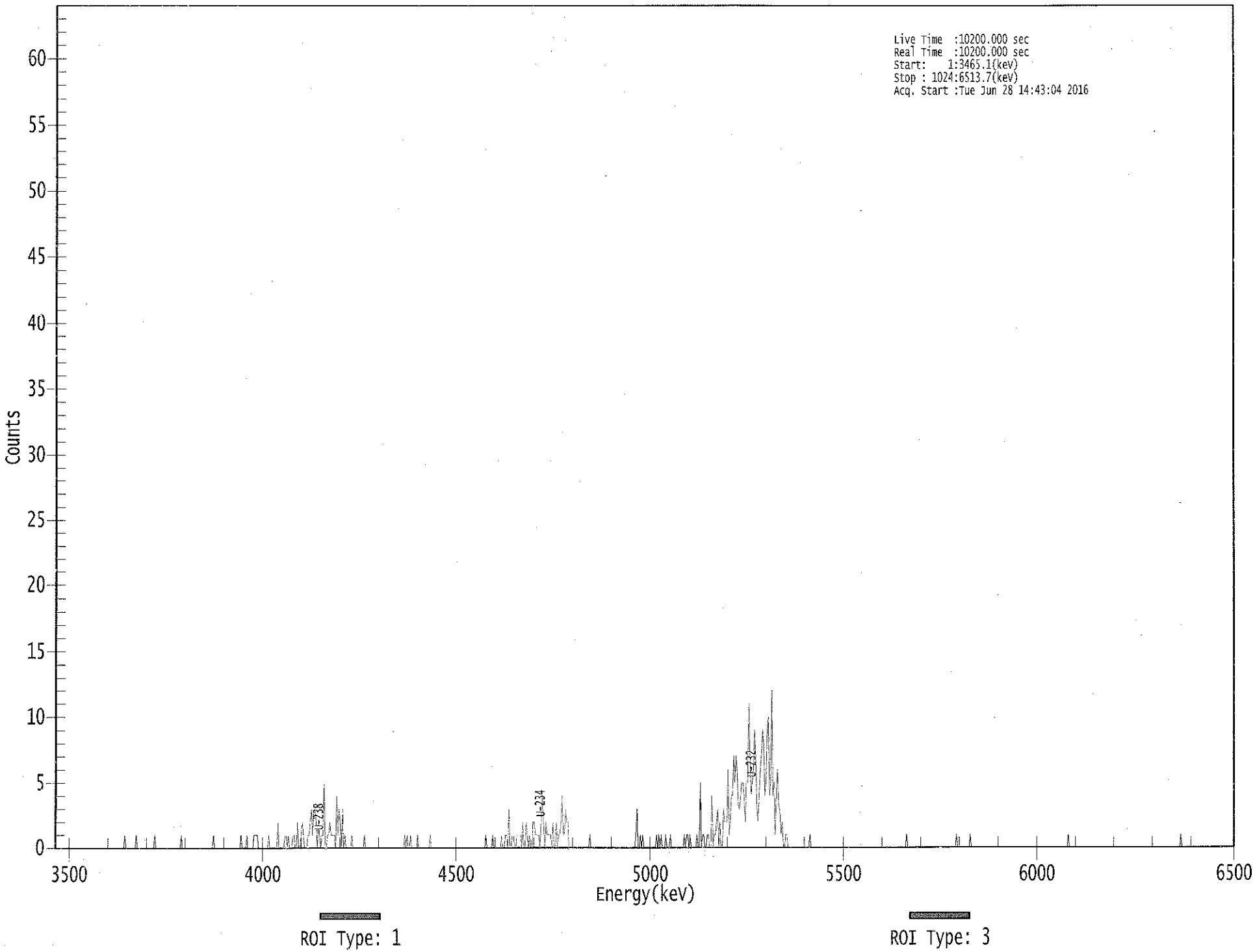
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.990	5302.50*	3.58E+000 +/- 4.56E-001	5.53E-002 +/- 7.06E-003
U-234	0.987	4761.50*	8.03E-001 +/- 2.27E-001	6.33E-002 +/- 8.08E-003
U-235	1.000	4385.50*	7.61E-002 +/- 7.27E-002	7.81E-002 +/- 9.97E-003
U-238	0.990	4184.40*	8.40E-001 +/- 2.33E-001	6.31E-002 +/- 8.05E-003

AG 6/29/16

0000155675.CNF



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

Sample Title: 15

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	1	0	0	0
65:	0	0	0	0	0	0	1	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	1	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	1	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	1	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	1	0	0	0	0	1	0
169:	0	0	0	0	1	1	1	1
177:	0	0	0	0	0	0	0	0
185:	0	1	0	0	0	0	0	0
193:	0	2	0	0	0	0	0	1
201:	1	0	1	0	0	0	1	1
209:	0	0	2	0	0	1	2	1
217:	0	0	0	1	1	2	3	1
225:	3	3	2	0	2	1	0	1
233:	1	5	0	0	1	1	2	1
241:	1	1	1	0	4	1	3	2
249:	0	3	0	1	0	0	0	0
257:	0	1	0	0	0	0	0	0
265:	0	0	0	0	1	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	1
305:	0	1	0	0	1	0	0	0
313:	0	0	1	0	0	0	0	0
321:	0	0	0	0	0	1	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	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	0	1	0	0

Sample Title: 15

Channel								
377:	0	0	0	1	0	0	0	0
385:	0	0	0	1	0	0	1	1
393:	0	3	0	0	1	1	0	0
401:	1	1	1	1	0	2	0	0
409:	2	1	0	1	0	0	2	2
417:	1	1	1	1	0	2	4	2
425:	0	2	1	1	1	1	0	2
433:	0	0	2	0	1	1	2	4
441:	1	1	3	2	2	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	1
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	1
505:	3	0	0	1	0	1	0	0
513:	0	0	0	0	0	0	0	0
521:	0	1	0	1	0	1	0	0
529:	0	1	0	0	0	1	0	0
537:	0	0	0	0	0	0	0	0
545:	0	1	0	1	1	0	1	0
553:	0	0	0	0	1	0	0	5
561:	0	1	1	0	0	1	1	0
569:	0	4	0	1	1	2	3	0
577:	2	0	0	3	2	2	2	6
585:	1	2	4	4	7	5	7	6
593:	3	3	4	5	5	4	2	5
601:	5	11	7	4	5	6	9	7
609:	3	2	4	6	7	9	8	4
617:	5	9	10	4	5	12	4	5
625:	1	4	6	3	3	1	2	0
633:	0	1	1	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	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:	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	1	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	1	0	0
785:	0	0	0	0	0	0	0	0
793:	0	1	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 15

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	1	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:	1	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

6/28/2016 5:38:29 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 6/28/2016
Time : 5:38:29 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	6/28/2016 5:22:17 AM
Alpha_004	21f	ALL	Passed	6/28/2016 5:22:17 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	6/28/2016 5:22:18 AM
Alpha_011	21f	ALL	Passed	6/28/2016 5:22:19 AM
Alpha_012	21f	ALL	Passed	6/28/2016 5:22:20 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	6/28/2016 5:22:21 AM
Alpha_015	21f	Peak Energy	Action	6/28/2016 5:22:22 AM
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:23 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:25 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:26 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:28 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:30 AM
Alpha_038	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:31 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:33 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	6/28/2016 5:22:35 AM
Alpha_041	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:37 AM
Alpha_042	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:40 AM
Alpha_043	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:42 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:45 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:47 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:50 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:53 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:55 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:22:58 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:23:01 AM
Alpha_051	Alpha Analyst100DC	ALL	Not Done	
Alpha_052	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:23:03 AM
Alpha_053	Alpha Analyst100DC	Peak FWHM	Action	6/28/2016 5:23:06 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:23:09 AM
Alpha_055	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:23:12 AM
Alpha_056	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:23:15 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:23:18 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:23:21 AM

Review of QA Results - Pulser Check

6/28/2016 5:38:29 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:23:24 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	6/28/2016 5:23:27 AM

APPROVED BY: C

APPROVAL DATE: 6/28/16

****
***** L I B R A R Y L I S T I N G R E P O R T *****
****

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)

16-06064
ThISO
Run 1

Work Order	16-06064
Analysis Code	ThISO
Run	1
Date Received	6/14/2016
Lab Deadline	7/6/2016
Client	Auxier & Associates, Inc.
Project	PAP-KAN
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EML Th-01 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	Th-229
Radiometric Sol#	Th-18a
Tracer Act (dpm/g)	22.46
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		06/14/16 00:00	1.0000E+00
02	MBL	BLANK		06/14/16 00:00	1.5000E+00
03	DUP	CP-5027 00-02	41	06/02/16 00:00	1.5139E+00
04	DO	CP-5027 00-02	41	06/02/16 00:00	1.5200E+00
05	TRG	CP-5014 00-02	51	06/07/16 00:00	1.5368E+00
06	TRG	CP-5014 02-05	47	06/07/16 00:00	1.5319E+00
07	TRG	CP-5014 05-09	47	06/07/16 00:00	1.5546E+00
08	TRG	CP-5014 09-15	47	06/07/16 00:00	1.5856E+00
09	TRG	CP-5015 00-02	49	06/07/16 00:00	1.5113E+00
10	TRG	CP-5015 02-05	41	06/07/16 00:00	1.5419E+00
11	TRG	CP-5015 05-09	36	06/07/16 00:00	1.5085E+00
12	TRG	CP-5015 09-15	57	06/07/16 00:00	1.5541E+00
13	TRG	CP-5013 00-02	39	06/08/16 00:00	1.5010E+00
14	TRG	CP-5013 02-05	46	06/08/16 00:00	1.5080E+00
15	TRG	CP-5013 05-09	41	06/08/16 00:00	1.5387E+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	0.4522	10.2		0.00								
02	MBL	0.2252	5.1		0.00								
03	DUP	0.2248	5.0		0.00								
04	DO	0.2238	5.0		0.00								
05	TRG	0.2252	5.1		0.00								
06	TRG	0.2207	5.0		0.00								
07	TRG	0.2221	5.0		0.00								
08	TRG	0.2273	5.1		0.00								
09	TRG	0.2239	5.0		0.00								
10	TRG	0.2222	5.0		0.00								
11	TRG	0.2244	5.0		0.00								
12	TRG	0.2241	5.0		0.00								
13	TRG	0.2242	5.0		0.00								
14	TRG	0.2250	5.1		0.00								
15	TRG	0.2245	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 t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS			06/17/16 09:00	JPACHELLA				
02	MBL			06/17/16 09:00	JPACHELLA				
03	DUP			06/17/16 09:00	JPACHELLA				
04	DO	06/16/16 08:54	KSALLINGS	06/17/16 09:00	JPACHELLA				
05	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:00	JPACHELLA				
06	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:00	JPACHELLA				
07	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:00	JPACHELLA				
08	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:00	JPACHELLA				
09	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:00	JPACHELLA				
10	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:00	JPACHELLA				
11	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:00	JPACHELLA				
12	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:00	JPACHELLA				
13	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:00	JPACHELLA				
14	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:00	JPACHELLA				
15	TRG	06/16/16 08:54	KSALLINGS	06/17/16 09:00	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.

Preliminary Data Report & Analytical Calculations

Work Order: 16-06064-ThISO-1

Run	Analysis Code	Eberline Analytical Work Order	Client
1	ThISO	16-06064	Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-228	LCS	LCS	pCi/g	5.73E+00	8.95E-01	7.20E-02	5.09E+00	112.40	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	1.07E-03	1.50E-02	4.27E-02					OK	OK
03	TH-228	DUP	CP-5027 00-02	pCi/g	4.77E-01	1.60E-01	6.06E-02				INV	OK	
04	TH-228	DO	CP-5027 00-02	pCi/g	7.33E-01	2.12E-01	7.19E-02					OK	
05	TH-228	TRG	CP-5014 00-02	pCi/g	3.42E-01	1.23E-01	5.37E-02					OK	
06	TH-228	TRG	CP-5014 02-05	pCi/g	7.36E-01	2.13E-01	6.95E-02					OK	
07	TH-228	TRG	CP-5014 05-09	pCi/g	1.01E+00	2.73E-01	9.62E-02					OK	
08	TH-228	TRG	CP-5014 09-15	pCi/g	1.55E+00	3.46E-01	6.65E-02					OK	
09	TH-228	TRG	CP-5015 00-02	pCi/g	1.16E+00	2.77E-01	5.98E-02					OK	
10	TH-228	TRG	CP-5015 02-05	pCi/g	1.22E+00	3.37E-01	8.57E-02					OK	
11	TH-228	TRG	CP-5015 05-09	pCi/g	1.46E+00	3.65E-01	6.38E-02					OK	
12	TH-228	TRG	CP-5015 09-15	pCi/g	1.30E+00	3.15E-01	5.90E-02					OK	
13	TH-228	TRG	CP-5013 00-02	pCi/g	9.23E-01	2.38E-01	6.83E-02					OK	
14	TH-228	TRG	CP-5013 02-05	pCi/g	1.12E+00	2.88E-01	8.67E-02					OK	
15	TH-228	TRG	CP-5013 05-09	pCi/g	1.49E+00	3.60E-01	4.42E-02					OK	

Work Order: 16-06064-ThISO-1

Client	Eberline Analytical Work Order	Analysis Code	Run
Auxier & Associates, Inc.	16-06064	ThISO	1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-228	LCS	06/14/16 00:00	1.00E+00	109.76	0.00	0.00			
02	TH-228	MBL	06/14/16 00:00	1.50E+00	139.81	0.00	0.00			
03	TH-228	DUP	06/02/16 00:00	1.51E+00	112.78	0.00	0.00			
04	TH-228	DO	06/02/16 00:00	1.52E+00	94.68	0.00	0.00			
05	TH-228	TRG	06/07/16 00:00	1.54E+00	119.48	0.00	0.00			
06	TH-228	TRG	06/07/16 00:00	1.53E+00	109.10	0.00	0.00			
07	TH-228	TRG	06/07/16 00:00	1.55E+00	90.22	0.00	0.00			
08	TH-228	TRG	06/07/16 00:00	1.59E+00	102.20	0.00	0.00			
09	TH-228	TRG	06/07/16 00:00	1.51E+00	103.95	0.00	0.00			
10	TH-228	TRG	06/07/16 00:00	1.54E+00	78.62	0.00	0.00			
11	TH-228	TRG	06/07/16 00:00	1.51E+00	84.06	0.00	0.00			
12	TH-228	TRG	06/07/16 00:00	1.55E+00	94.96	0.00	0.00			
13	TH-228	TRG	06/08/16 00:00	1.50E+00	113.53	0.00	0.00			
14	TH-228	TRG	06/08/16 00:00	1.51E+00	96.26	0.00	0.00			
15	TH-228	TRG	06/08/16 00:00	1.54E+00	97.39	0.00	0.00			

Work Order: 16-06064-ThISO-1

Run	Analysis Code	Eberline Analytical Work Order	Client
1	ThISO	16-06064	Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-228	LCS	06/29/16 11:23		A_Spec	Alpha_033	170	4.17 E+02	3.00 E-03	17.6
02	TH-228	MBL	06/29/16 11:23		A_Spec	Alpha_034	170	1.50 E-01	5.00 E-03	17.7
03	TH-228	DUP	06/29/16 11:23		A_Spec	Alpha_035	170	4.72 E+01	5.00 E-03	15.8
04	TH-228	DO	06/29/16 11:23		A_Spec	Alpha_036	170	7.25 E+01	9.00 E-03	18.7
05	TH-228	TRG	06/29/16 11:23		A_Spec	Alpha_037	170	3.82 E+01	5.00 E-03	16.5
06	TH-228	TRG	06/29/16 11:23		A_Spec	Alpha_038	170	7.26 E+01	8.00 E-03	16
07	TH-228	TRG	06/29/16 11:23		A_Spec	Alpha_039	170	9.76 E+01	2.00 E-02	18.6
08	TH-228	TRG	06/29/16 11:23		A_Spec	Alpha_040	170	1.71 E+02	1.00 E-02	18.5
09	TH-228	TRG	06/29/16 11:23		A_Spec	Alpha_041	170	1.28 E+02	7.00 E-03	19
10	TH-228	TRG	06/29/16 11:23		A_Spec	Alpha_042	170	9.76 E+01	8.00 E-03	17.9
11	TH-228	TRG	06/29/16 11:24		A_Spec	Alpha_043	170	1.29 E+02	4.00 E-03	18.9
12	TH-228	TRG	06/29/16 11:24		A_Spec	Alpha_044	170	1.32 E+02	5.00 E-03	18.6
13	TH-228	TRG	06/29/16 11:24		A_Spec	Alpha_045	170	9.93 E+01	1.00 E-02	17.1
14	TH-228	TRG	06/29/16 11:24		A_Spec	Alpha_046	170	1.08 E+02	1.50 E-02	18.1
15	TH-228	TRG	06/29/16 11:24		A_Spec	Alpha_047	170	1.41 E+02	1.00 E-03	17

Preliminary Data Report & Analytical Calculations

Work Order: 16-06064-ThISO-1

Run	Analysis Code	Eberline Analytical Work Order	Client
1	ThISO	16-06064	Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-230	LCS	LCS	pCi/g	6.46E+00	9.88E-01	6.56E-02	5.39E+00	119.85	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	1.07E-03	1.50E-02	4.28E-02					OK	OK
03	TH-230	DUP	CP-5027 00-02	pCi/g	1.89E+00	4.19E-01	4.12E-02				OK	OK	
04	TH-230	DO	CP-5027 00-02	pCi/g	1.87E+00	4.16E-01	5.56E-02					OK	
05	TH-230	TRG	CP-5014 00-02	pCi/g	1.22E+00	2.84E-01	4.96E-02					OK	
06	TH-230	TRG	CP-5014 02-05	pCi/g	3.35E+00	6.81E-01	5.21E-02					OK	
07	TH-230	TRG	CP-5014 05-09	pCi/g	3.12E+00	6.55E-01	8.33E-02					OK	
08	TH-230	TRG	CP-5014 09-15	pCi/g	1.36E+00	3.10E-01	3.70E-02					OK	
09	TH-230	TRG	CP-5015 00-02	pCi/g	1.15E+00	2.73E-01	5.86E-02					OK	
10	TH-230	TRG	CP-5015 02-05	pCi/g	1.52E+00	3.95E-01	6.42E-02					OK	
11	TH-230	TRG	CP-5015 05-09	pCi/g	1.57E+00	3.83E-01	5.81E-02					OK	
12	TH-230	TRG	CP-5015 09-15	pCi/g	1.41E+00	3.33E-01	4.61E-02					OK	
13	TH-230	TRG	CP-5013 00-02	pCi/g	1.16E+00	2.78E-01	4.78E-02					OK	
14	TH-230	TRG	CP-5013 02-05	pCi/g	1.34E+00	3.26E-01	7.44E-02					OK	
15	TH-230	TRG	CP-5013 05-09	pCi/g	1.94E+00	4.41E-01	6.23E-02					OK	

Work Order: 16-06064-ThISO-1

Run	Analysis Code	Eberline Analytical Work Order	Client
1	ThISO	16-06064	Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-230	LCS	06/14/16 00:00	1.00E+00	109.76	0.00	0.00			
02	TH-230	MBL	06/14/16 00:00	1.50E+00	139.81	0.00	0.00			
03	TH-230	DUP	06/02/16 00:00	1.51E+00	112.78	0.00	0.00			
04	TH-230	DO	06/02/16 00:00	1.52E+00	94.68	0.00	0.00			
05	TH-230	TRG	06/07/16 00:00	1.54E+00	119.48	0.00	0.00			
06	TH-230	TRG	06/07/16 00:00	1.53E+00	109.10	0.00	0.00			
07	TH-230	TRG	06/07/16 00:00	1.55E+00	90.22	0.00	0.00			
08	TH-230	TRG	06/07/16 00:00	1.59E+00	102.20	0.00	0.00			
09	TH-230	TRG	06/07/16 00:00	1.51E+00	103.95	0.00	0.00			
10	TH-230	TRG	06/07/16 00:00	1.54E+00	78.62	0.00	0.00			
11	TH-230	TRG	06/07/16 00:00	1.51E+00	84.06	0.00	0.00			
12	TH-230	TRG	06/07/16 00:00	1.55E+00	94.96	0.00	0.00			
13	TH-230	TRG	06/08/16 00:00	1.50E+00	113.53	0.00	0.00			
14	TH-230	TRG	06/08/16 00:00	1.51E+00	96.26	0.00	0.00			
15	TH-230	TRG	06/08/16 00:00	1.54E+00	97.39	0.00	0.00			

Run	Analysis Code	Eberline Analytical Work Order	Client
1	ThISO	16-06064	Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-230	LCS	06/29/16 11:23		A_Spec	Alpha_033	170	4.71 E+02	2.00 E-03	17.6
02	TH-230	MBL	06/29/16 11:23		A_Spec	Alpha_034	170	1.50 E-01	5.00 E-03	17.7
03	TH-230	DUP	06/29/16 11:23		A_Spec	Alpha_035	170	1.92 E+02	1.00 E-03	15.8
04	TH-230	DO	06/29/16 11:23		A_Spec	Alpha_036	170	1.89 E+02	4.00 E-03	18.7
05	TH-230	TRG	06/29/16 11:23		A_Spec	Alpha_037	170	1.38 E+02	4.00 E-03	16.5
06	TH-230	TRG	06/29/16 11:23		A_Spec	Alpha_038	170	3.37 E+02	3.00 E-03	16
07	TH-230	TRG	06/29/16 11:23		A_Spec	Alpha_039	170	3.07 E+02	1.40 E-02	18.6
08	TH-230	TRG	06/29/16 11:23		A_Spec	Alpha_040	170	1.53 E+02	1.00 E-03	18.5
09	TH-230	TRG	06/29/16 11:23		A_Spec	Alpha_041	170	1.29 E+02	7.00 E-03	19
10	TH-230	TRG	06/29/16 11:23		A_Spec	Alpha_042	170	1.24 E+02	3.00 E-03	17.9
11	TH-230	TRG	06/29/16 11:24		A_Spec	Alpha_043	170	1.41 E+02	3.00 E-03	18.9
12	TH-230	TRG	06/29/16 11:24		A_Spec	Alpha_044	170	1.47 E+02	2.00 E-03	18.6
13	TH-230	TRG	06/29/16 11:24		A_Spec	Alpha_045	170	1.27 E+02	3.00 E-03	17.1
14	TH-230	TRG	06/29/16 11:24		A_Spec	Alpha_046	170	1.32 E+02	1.00 E-02	18.1
15	TH-230	TRG	06/29/16 11:24		A_Spec	Alpha_047	170	1.87 E+02	0.00 E+00	17

Work Order: 16-06064-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 16-06064
Client: Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-232	LCS	LCS	pCi/g	5.85E+00	9.10E-01	6.55E-02	5.09E+00	114.78	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	9.41E-03	2.04E-02	4.02E-02					OK	OK
03	TH-232	DUP	CP-5027 00-02	pCi/g	5.22E-01	1.67E-01	5.91E-02				OK	OK	
04	TH-232	DO	CP-5027 00-02	pCi/g	6.63E-01	1.95E-01	5.55E-02					OK	
05	TH-232	TRG	CP-5014 00-02	pCi/g	9.18E-01	2.31E-01	4.19E-02					OK	
06	TH-232	TRG	CP-5014 02-05	pCi/g	9.59E-01	2.53E-01	4.13E-02					OK	
07	TH-232	TRG	CP-5014 05-09	pCi/g	1.10E+00	2.86E-01	6.69E-02					OK	
08	TH-232	TRG	CP-5014 09-15	pCi/g	1.15E+00	2.75E-01	4.99E-02					OK	
09	TH-232	TRG	CP-5015 00-02	pCi/g	1.20E+00	2.83E-01	7.77E-02					OK	
10	TH-232	TRG	CP-5015 02-05	pCi/g	1.24E+00	3.38E-01	5.84E-02					OK	
11	TH-232	TRG	CP-5015 05-09	pCi/g	1.19E+00	3.12E-01	6.96E-02					OK	
12	TH-232	TRG	CP-5015 09-15	pCi/g	1.34E+00	3.20E-01	5.77E-02					OK	
13	TH-232	TRG	CP-5013 00-02	pCi/g	8.06E-01	2.17E-01	8.43E-02					OK	
14	TH-232	TRG	CP-5013 02-05	pCi/g	1.20E+00	3.00E-01	8.67E-02					OK	
15	TH-232	TRG	CP-5013 05-09	pCi/g	1.40E+00	3.41E-01	4.33E-02					OK	

Client	Eberline Analytical Work Order	Analysis Code	Run
Auxier & Associates, Inc.	16-06064	ThISO	1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-232	LCS	06/14/16 00:00	1.00E+00	109.76	0.00	0.00			
02	TH-232	MBL	06/14/16 00:00	1.50E+00	139.81	0.00	0.00			
03	TH-232	DUP	06/02/16 00:00	1.51E+00	112.78	0.00	0.00			
04	TH-232	DO	06/02/16 00:00	1.52E+00	94.68	0.00	0.00			
05	TH-232	TRG	06/07/16 00:00	1.54E+00	119.48	0.00	0.00			
06	TH-232	TRG	06/07/16 00:00	1.53E+00	109.10	0.00	0.00			
07	TH-232	TRG	06/07/16 00:00	1.55E+00	90.22	0.00	0.00			
08	TH-232	TRG	06/07/16 00:00	1.59E+00	102.20	0.00	0.00			
09	TH-232	TRG	06/07/16 00:00	1.51E+00	103.95	0.00	0.00			
10	TH-232	TRG	06/07/16 00:00	1.54E+00	78.62	0.00	0.00			
11	TH-232	TRG	06/07/16 00:00	1.51E+00	84.06	0.00	0.00			
12	TH-232	TRG	06/07/16 00:00	1.55E+00	94.96	0.00	0.00			
13	TH-232	TRG	06/08/16 00:00	1.50E+00	113.53	0.00	0.00			
14	TH-232	TRG	06/08/16 00:00	1.51E+00	96.26	0.00	0.00			
15	TH-232	TRG	06/08/16 00:00	1.54E+00	97.39	0.00	0.00			

Run	Analysis Code	Eberline Analytical Work Order	Client
1	ThISO	16-06064	Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-232	LCS	06/29/16 11:23		A_Spec	Alpha_033	170	4.27 E+02	2.00 E-03	17.6
02	TH-232	MBL	06/29/16 11:23		A_Spec	Alpha_034	170	1.32 E+00	4.00 E-03	17.7
03	TH-232	DUP	06/29/16 11:23		A_Spec	Alpha_035	170	5.30 E+01	0.00 E+00	15.8
04	TH-232	DO	06/29/16 11:23		A_Spec	Alpha_036	170	6.73 E+01	4.00 E-03	18.7
05	TH-232	TRG	06/29/16 11:23		A_Spec	Alpha_037	170	1.05 E+02	2.00 E-03	16.5
06	TH-232	TRG	06/29/16 11:23		A_Spec	Alpha_038	170	9.68 E+01	1.00 E-03	16
07	TH-232	TRG	06/29/16 11:23		A_Spec	Alpha_039	170	1.09 E+02	7.00 E-03	18.6
08	TH-232	TRG	06/29/16 11:23		A_Spec	Alpha_040	170	1.30 E+02	4.00 E-03	18.5
09	TH-232	TRG	06/29/16 11:23		A_Spec	Alpha_041	170	1.35 E+02	1.70 E-02	19
10	TH-232	TRG	06/29/16 11:23		A_Spec	Alpha_042	170	1.02 E+02	2.00 E-03	17.9
11	TH-232	TRG	06/29/16 11:24		A_Spec	Alpha_043	170	1.08 E+02	6.00 E-03	18.9
12	TH-232	TRG	06/29/16 11:24		A_Spec	Alpha_044	170	1.39 E+02	5.00 E-03	18.6
13	TH-232	TRG	06/29/16 11:24		A_Spec	Alpha_045	170	8.86 E+01	2.00 E-02	17.1
14	TH-232	TRG	06/29/16 11:24		A_Spec	Alpha_046	170	1.18 E+02	1.60 E-02	18.1
15	TH-232	TRG	06/29/16 11:24		A_Spec	Alpha_047	170	1.35 E+02	1.00 E-03	17

Count Room Report
Client: Auxier Associates, Inc.

16-06064-ThISO-1 (pCi/g) in SO
Tracer ID: Th-18a

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	0.4522	10.1564		0.00		
02	MBL	BLANK	06/14/16 00:00	1.5000	0.2252	5.0580		0.00		
03	DUP	CP-5027 00-02	06/02/16 00:00	1.5139	0.2248	5.0490		0.00		
04	DO	CP-5027 00-02	06/02/16 00:00	1.5200	0.2238	5.0265		0.00		
05	TRG	CP-5014 00-02	06/07/16 00:00	1.5368	0.2252	5.0580		0.00		
06	TRG	CP-5014 02-05	06/07/16 00:00	1.5319	0.2207	4.9569		0.00		
07	TRG	CP-5014 05-09	06/07/16 00:00	1.5546	0.2221	4.9884		0.00		
08	TRG	CP-5014 09-15	06/07/16 00:00	1.5856	0.2273	5.1052		0.00		
09	TRG	CP-5015 00-02	06/07/16 00:00	1.5113	0.2239	5.0288		0.00		
10	TRG	CP-5015 02-05	06/07/16 00:00	1.5419	0.2222	4.9906		0.00		
11	TRG	CP-5015 05-09	06/07/16 00:00	1.5085	0.2244	5.0400		0.00		
12	TRG	CP-5015 09-15	06/07/16 00:00	1.5541	0.2241	5.0333		0.00		
13	TRG	CP-5013 00-02	06/08/16 00:00	1.5010	0.2242	5.0355		0.00		
14	TRG	CP-5013 02-05	06/08/16 00:00	1.5080	0.2250	5.0535		0.00		
15	TRG	CP-5013 05-09	06/08/16 00:00	1.5387	0.2245	5.0423		0.00		

Spike and Tracer Worksheet

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
16-06064	1	ThISO	6/17/2016 8:52	JPACHELLA	JmP	

LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	*Sol #*	*Activity dpm/g*	*Solution Date*	*Approx Addition*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*
Th-228	Th-8b	103.560	6/17/2016	**0.100**	**0.1092**				5.09	0.183	0.00	0.000	0.00	0.000	0.00	0.000
Th-230	Th-1b	23.520	6/17/2016	**0.500**	**0.5089**				5.39	0.146	0.00	0.000	0.00	0.000	0.00	0.000
Th-232	Th-8b	103.560	6/17/2016	**0.100**	**0.1092**				5.09	0.183	0.00	0.000	0.00	0.000	0.00	0.000
Tc-99 MS	Tc-2a	22043.636	7/5/2014	0.1												

Tracers

fraction	*Isotope*	*Sol #*	*Activity dpm/g*	*Solution Date*	*Volume Used (g)*	*Approx Addition*
01	**Th-229**	Th-18a	22.460	6/17/2016	**0.4522**	**0.2200**
02	**Th-229**	Th-18a	22.460	6/17/2016	**0.2252**	**0.2200**
03	**Th-229**	Th-18a	22.460	6/17/2016	**0.2248**	**0.2200**
04	**Th-229**	Th-18a	22.460	6/17/2016	**0.2238**	**0.2200**
05	**Th-229**	Th-18a	22.460	6/17/2016	**0.2252**	**0.2200**
06	**Th-229**	Th-18a	22.460	6/17/2016	**0.2207**	**0.2200**
07	**Th-229**	Th-18a	22.460	6/17/2016	**0.2221**	**0.2200**
08	**Th-229**	Th-18a	22.460	6/17/2016	**0.2273**	**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	**0.2222**	**0.2200**
11	**Th-229**	Th-18a	22.460	6/17/2016	**0.2244**	**0.2200**
12	**Th-229**	Th-18a	22.460	6/17/2016	**0.2241**	**0.2200**
13	**Th-229**	Th-18a	22.460	6/17/2016	**0.2242**	**0.2200**
14	**Th-229**	Th-18a	22.460	6/17/2016	**0.2250**	**0.2200**
15	**Th-229**	Th-18a	22.460	6/17/2016	**0.2245**	**0.2200**

Balance Printer Tapes

Tracer	LCS

Matrix Spike

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
16-06064	1	ThISO	grams	7/5/2016	JPACHELLA

Lab Fraction	Auxier & Associates, Inc. Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only 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-5027 00-02	DUP					1.5139E+00	1.5139E+00				
04	CP-5027 00-02	DO					1.5200E+00	1.5200E+00				
05	CP-5014 00-02	TRG					1.5368E+00	1.5368E+00				
06	CP-5014 02-05	TRG					1.5319E+00	1.5319E+00				
07	CP-5014 05-09	TRG					1.5546E+00	1.5546E+00				
08	CP-5014 09-15	TRG					1.5856E+00	1.5856E+00				
09	CP-5015 00-02	TRG					1.5113E+00	1.5113E+00				
10	CP-5015 02-05	TRG					1.5419E+00	1.5419E+00				
11	CP-5015 05-09	TRG					1.5085E+00	1.5085E+00				
12	CP-5015 09-15	TRG					1.5541E+00	1.5541E+00				
13	CP-5013 00-02	TRG					1.5010E+00	1.5010E+00				
14	CP-5013 02-05	TRG					1.5080E+00	1.5080E+00				
15	CP-5013 05-09	TRG					1.5387E+00	1.5387E+00				

Comments	

Technician: JPachella Date: 6/17/16

Eberline Services - Oak Ridge
Prep Logbook
Version 2.0 8/1999

Rough Sample Preparation Log Book

Printed: 6/16/2016 8:54 AM

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
16-06064	7/5/2016	6/15/2016	6/16/2016	6/17/2016	KSALLINGS

Eberline	Auxier & Associates, Inc.	Tare (g)	Gross (g)		Net (g)		Percent		Gamma		Special
Fraction	Client ID	Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	Info
04	CP-5027 00-02	14.5800	938.1400	838.2000	923.5600	823.6200	10.82%	89.18%	0.0000	0.0000	
05	CP-5014 00-02	14.6200	719.4900	615.3300	704.8700	600.7100	14.78%	85.22%	0.0000	0.0000	
06	CP-5014 02-05	14.6000	843.7600	680.6000	829.1600	666.0000	19.68%	80.32%	0.0000	0.0000	
07	CP-5014 05-09	14.5900	349.2000	278.6600	334.6100	264.0700	21.08%	78.92%	0.0000	0.0000	
08	CP-5014 09-15	14.6200	509.3300	399.7100	494.7100	385.0900	22.16%	77.84%	0.0000	0.0000	
09	CP-5015 00-02	14.5800	910.0800	854.4000	895.5000	839.8200	6.22%	93.78%	0.0000	0.0000	
10	CP-5015 02-05	14.5900	1240.2000	910.9200	1225.6100	896.3300	26.87%	73.13%	0.0000	0.0000	
11	CP-5015 05-09	14.5900	583.4700	462.0100	568.8800	447.4200	21.35%	78.65%	0.0000	0.0000	
12	CP-5015 09-15	14.5500	639.8800	499.5300	625.3300	484.9800	22.44%	77.56%	0.0000	0.0000	
13	CP-5013 00-02	14.5200	732.4100	615.5700	717.8900	601.0500	16.28%	83.72%	0.0000	0.0000	
14	CP-5013 02-05	14.5500	884.1200	726.5700	869.5700	712.0200	18.12%	81.88%	0.0000	0.0000	
15	CP-5013 05-09	14.5300	518.7000	415.6400	504.1700	401.1100	20.44%	79.56%	0.0000	0.0000	

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

Technician: Kenny Sallings

Date:

KB 6/29/16

Apex-Alpha™

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_033
Chamber Serial Number: 04026479A
Detector Serial Number: 91132
Env. Background: System Bkgd 157579
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/29/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:23:35 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.452 mL
Effective Efficiency: 0.1934 +/- 0.0122
Counting Efficiency: 0.1762 +/- 0.0031 on 12/11/2015 8:20:59 AM
Chem. Recovery Factor: 1.0976 +/- 0.0717

Control Certificate Name: NatTh_Th-8
Chem. Recov. of Control: TH-232 1.147813 +/- 0.097424
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	8.32	71.13	0.68	0.00E+000	0.0
TH-228		5.370	417.49	9.60	0.51	0.00E+000	13.4
TH-229	T	4.877	333.83	10.73	0.17	0.00E+000	21.4
TH-230		4.631	470.66	9.04	0.34	0.00E+000	14.1
TH-232		3.958	426.66	9.49	0.34	0.00E+000	25.7

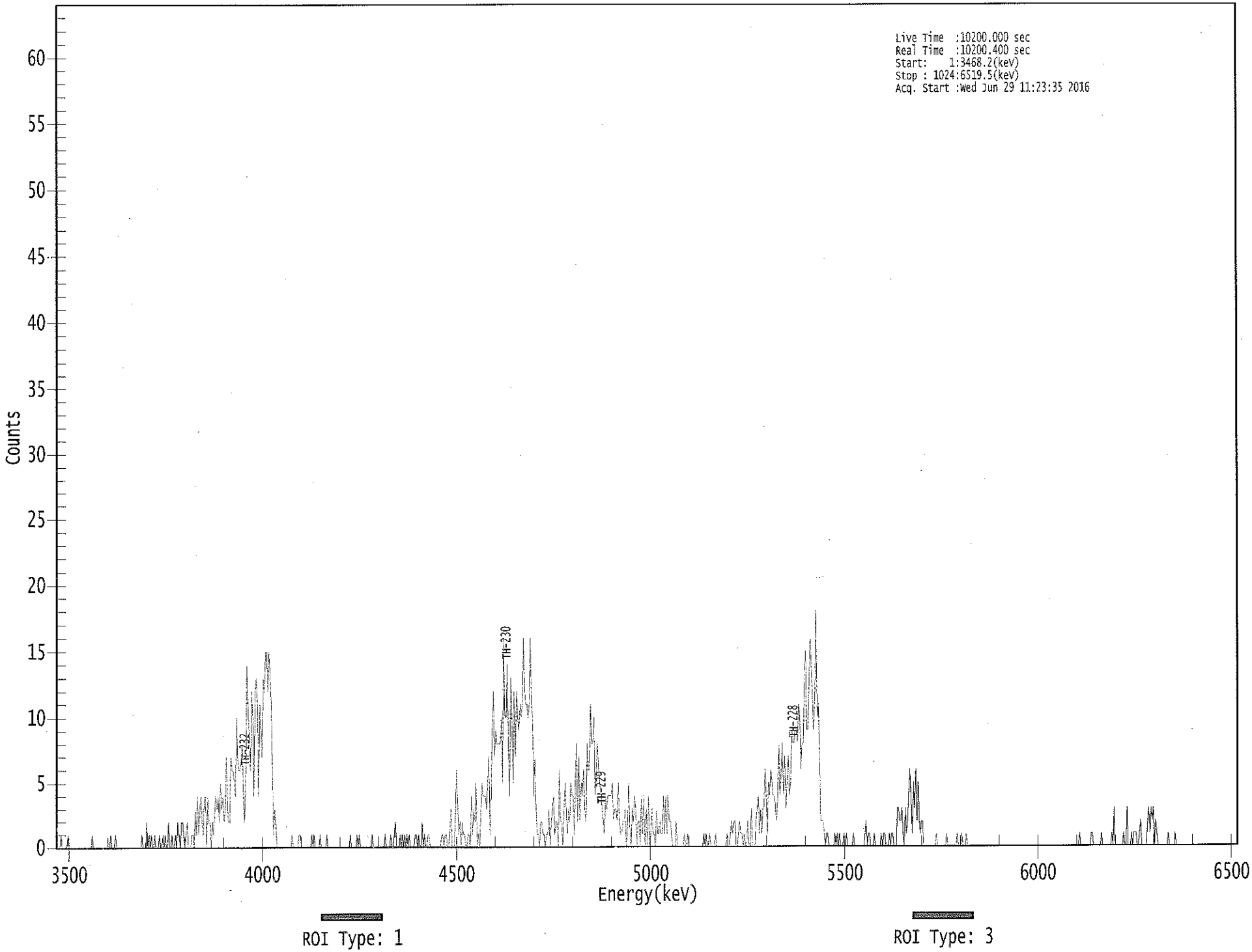
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.945	5850.00*	1.17E-001 +/- 8.44E-002	7.93E-002 +/- 9.78E-003
TH-228	0.995	5400.00*	5.73E+000 +/- 8.95E-001	7.20E-002 +/- 8.87E-003
TH-229	1.000	4872.00*	4.60E+000 +/- 5.67E-001	5.75E-002 +/- 7.09E-003
TH-230	0.991	4672.00*	6.46E+000 +/- 9.88E-001	6.56E-002 +/- 8.09E-003
TH-232	0.992	3997.00*	5.85E+000 +/- 9.10E-001	6.55E-002 +/- 8.08E-003

AG 6/29/16

0000155755.CNF



****
***** 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:	0	0	0	0	1	0	0	0
9:	0	0	1	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	1
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	1
49:	0	0	0	1	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	1	0	0	0	2	0
81:	1	0	1	0	0	1	0	0
89:	0	1	0	0	1	0	1	0
97:	0	2	0	0	1	0	0	1
105:	0	2	1	0	2	2	1	0
113:	1	2	0	0	0	1	1	0
121:	3	1	4	1	3	4	2	1
129:	4	4	0	4	2	2	0	2
137:	1	3	4	3	4	2	5	3
145:	4	2	3	7	3	2	2	7
153:	6	6	5	4	10	7	6	6
161:	7	8	4	2	6	14	10	9
169:	6	12	10	4	12	13	11	4
177:	11	9	7	13	12	15	15	12
185:	15	13	11	6	1	3	2	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	1	0	0	0
209:	0	0	1	1	0	0	0	0
217:	0	0	0	0	0	1	0	1
225:	0	0	0	0	1	0	0	0
233:	0	0	1	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	1	0
257:	0	0	0	0	1	0	1	0
265:	0	0	0	0	0	0	0	0
273:	0	1	0	0	0	0	0	0
281:	0	0	0	0	1	0	0	0
289:	0	1	0	0	1	2	0	0
297:	0	1	0	1	0	1	0	1
305:	0	1	0	0	0	0	1	1
313:	0	1	0	0	2	0	1	0
321:	0	1	1	0	0	0	0	0
329:	0	0	0	0	0	1	1	0
337:	1	1	0	0	1	3	0	0
345:	0	3	6	3	1	2	0	2
353:	1	1	0	0	1	1	0	4
361:	1	3	2	5	0	1	0	2

369:	5	4	4	4	3	5	7	1

Sample Title: 01

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

Sample Title: 01

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	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	1	0	0
889:	0	0	0	0	0	0	0	1
897:	1	0	0	0	0	0	0	0
905:	1	0	0	0	0	0	0	0
913:	0	1	0	3	0	0	0	0
921:	0	0	0	1	0	0	3	0
929:	0	0	1	0	1	1	1	0
937:	0	1	2	0	0	0	0	0
945:	2	3	1	3	2	3	0	2
953:	1	0	0	0	0	0	0	0
961:	0	0	1	0	0	0	0	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

Apex-Alpha™

RB 6/29/16

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 02
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_034
Chamber Serial Number: 04026479B
Detector Serial Number: 91136
Env. Background: System Bkgd 157580
Reagent Blank: <not performed>

Sample Size: 1.500E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/29/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:23:37 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: 0.2477 +/- 0.0187
Counting Efficiency: 0.1772 +/- 0.0031 on 12/11/2015 8:20:57 AM
Chem. Recovery Factor: 1.3981 +/- 0.1082

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		5.791	7.49	74.41	0.51	0.00E+000	3.0
TH-228		5.328	0.15	1397.8	0.85	0.00E+000	3.0
TH-229	T	4.879	213.00	13.46	0.00	0.00E+000	14.8
TH-230		4.502	0.15	1397.8	0.85	0.00E+000	3.0
TH-232		4.033	1.32	215.97	0.68	0.00E+000	3.0

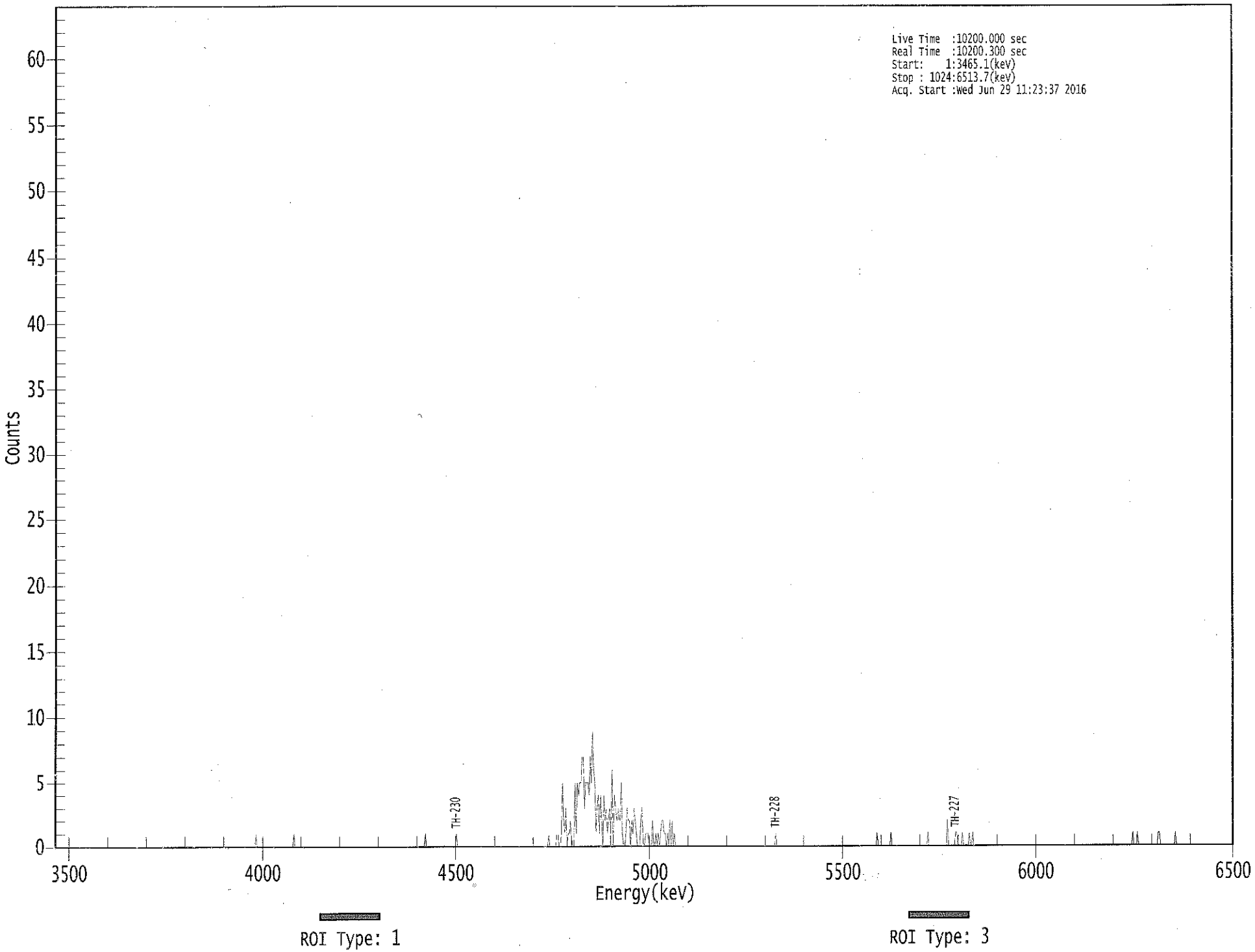
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.982	5850.00*	5.48E-002 +/- 4.16E-002	3.84E-002 +/- 5.67E-003
TH-228	0.973	5400.00*	1.07E-003 +/- 1.50E-002	4.27E-002 +/- 6.31E-003
TH-229	1.000	4872.00*	1.53E+000 +/- 2.25E-001	4.30E-002 +/- 6.35E-003
TH-230	0.860	4672.00*	1.07E-003 +/- 1.50E-002	4.28E-002 +/- 6.32E-003
TH-232	0.993	3997.00*	9.41E-003 +/- 2.04E-002	4.02E-002 +/- 5.94E-003

AG 6/29/16

0000155756.CNF



****
***** 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
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	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	1	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	1
209:	0	0	0	0	0	0	0	0
217:	0	0	0	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	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	1	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	1	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

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	0
401:	0	0	0	0	0	0	0	0
409:	0	0	0	0	0	0	0	0
417:	0	0	0	0	0	0	0	0
425:	0	0	0	0	1	0	0	0
433:	0	0	0	1	1	0	0	1
441:	5	2	1	3	0	1	1	2
449:	0	0	0	5	1	5	4	5
457:	5	7	7	3	5	5	5	4
465:	7	5	9	6	5	1	3	4
473:	1	4	2	0	4	2	3	1
481:	2	3	1	6	0	4	3	2
489:	3	2	2	5	1	0	0	1
497:	3	2	2	0	2	1	3	2
505:	1	0	0	0	2	3	0	0
513:	1	1	1	0	0	0	2	0
521:	0	1	0	1	0	1	2	2
529:	1	1	0	1	0	2	0	2
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	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	1	0	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	1	0	0	0	0	0	0
721:	0	0	0	0	0	1	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	1	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	2	0
777:	0	0	0	0	0	1	1	0
785:	0	0	0	1	0	0	0	0
793:	0	1	0	0	1	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 02

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	1
937:	0	0	0	1	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	1	1	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	1	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™

KD 6/29/16

Sample Description: CP-5027 00-02-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 03
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_035
Chamber Serial Number: 04026477A
Detector Serial Number: 58771
Env. Background: System Bkgd 157581
Reagent Blank: <not performed>

Sample Size: 1.514E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/2/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:23:38 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: 0.1777 +/- 0.0154
Counting Efficiency: 0.1575 +/- 0.0028 on 12/11/2015 8:20:56 AM
Chem. Recovery Factor: 1.1278 +/- 0.1000

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		5.811	6.66	78.18	0.34	0.00E+000	3.0
TH-228		5.356	47.15	28.84	0.85	0.00E+000	5.9
TH-229	T	4.867	152.49	15.90	0.51	0.00E+000	6.5
TH-230		4.640	191.83	14.16	0.17	0.00E+000	8.3
TH-232		3.968	53.00	27.18	0.00	0.00E+000	6.7

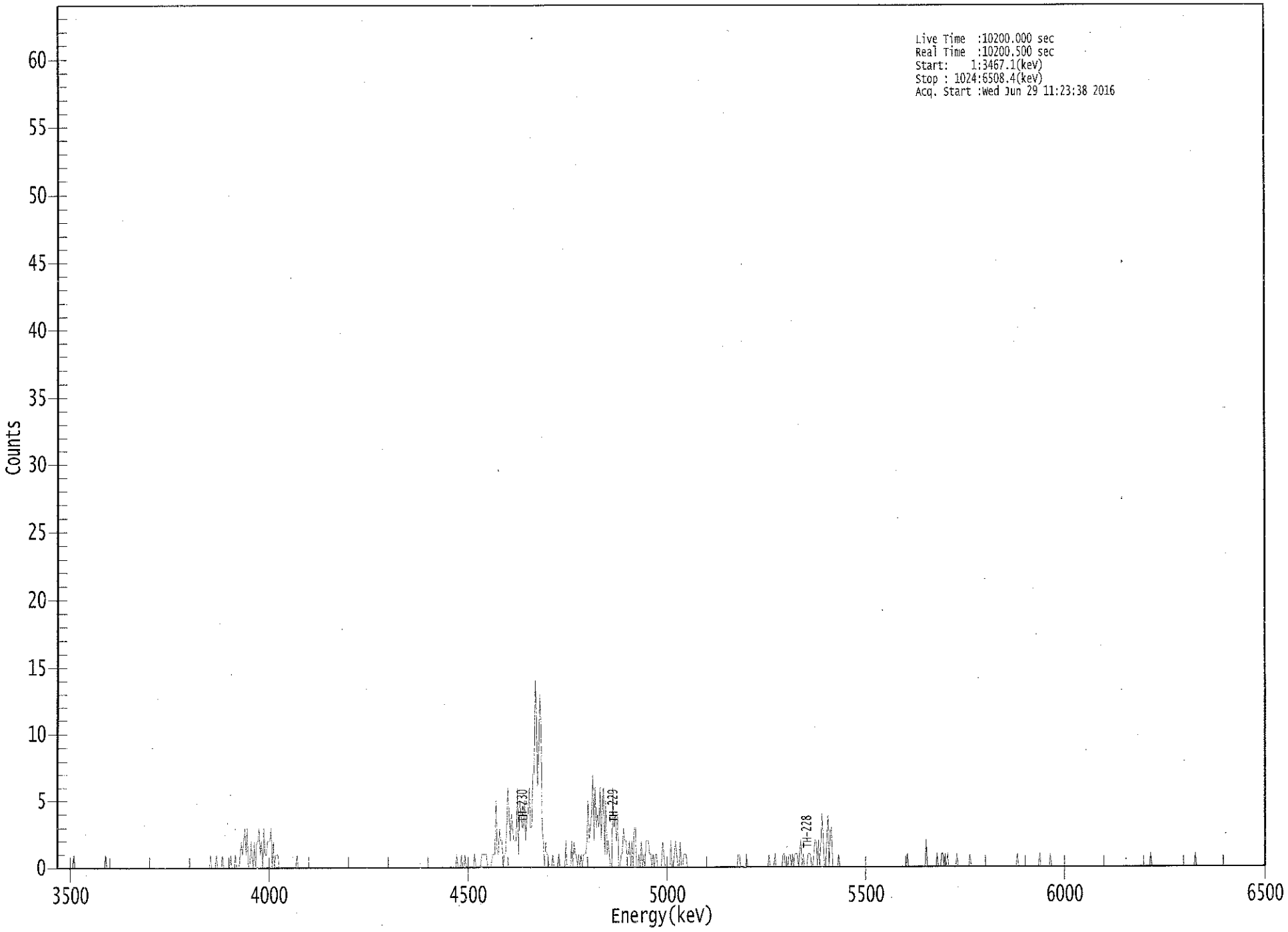
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.992	5850.00*	6.75E-002 +/- 5.40E-002	4.84E-002 +/- 8.24E-003
TH-228	0.990	5400.00*	4.77E-001 +/- 1.60E-001	6.06E-002 +/- 1.03E-002
TH-229	1.000	4872.00*	1.51E+000 +/- 2.57E-001	5.19E-002 +/- 8.84E-003
TH-230	0.995	4672.00*	1.89E+000 +/- 4.19E-001	4.12E-002 +/- 7.01E-003
TH-232	0.995	3997.00*	5.22E-001 +/- 1.67E-001	5.91E-002 +/- 1.01E-002

AG 6/29/16

0000155754.CNF



****
***** 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: 10201

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	1	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	1	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	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	1	0	0	0	0	1
137:	0	0	0	0	1	0	0	0
145:	0	0	0	1	0	0	0	1
153:	0	0	0	1	2	1	2	3
161:	1	3	0	0	2	1	0	2
169:	0	2	2	3	1	2	0	3
177:	1	1	2	2	2	3	0	2
185:	0	1	1	1	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	1	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	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	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	1	0	0	0	1	0
345:	0	1	0	0	0	0	0	0
353:	0	1	0	0	0	0	0	1
361:	1	1	1	1	0	0	0	0

369:	1	1	1	5	1	1	3	2

Sample Title: 03

Channel								
377:	2	0	1	1	3	6	4	2
385:	4	3	2	2	2	6	1	5
393:	4	3	3	5	2	4	4	6
401:	3	3	7	7	14	11	6	9
409:	13	10	3	2	0	2	1	1
417:	0	0	0	1	0	0	0	0
425:	1	0	0	0	0	0	2	0
433:	0	0	0	2	0	2	1	1
441:	0	1	0	1	0	1	1	1
449:	2	5	2	3	4	7	2	6
457:	3	4	3	6	2	5	6	1
465:	5	1	2	1	0	0	6	3
473:	4	2	4	0	0	1	1	3
481:	2	2	1	1	2	0	2	0
489:	3	3	0	0	1	0	2	0
497:	1	0	2	2	2	1	1	0
505:	1	0	1	1	0	0	0	0
513:	2	1	0	0	0	0	0	2
521:	0	0	1	2	1	0	0	2
529:	0	0	1	1	1	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	0
577:	1	1	0	0	0	0	0	1
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	1	0	0	0	0	1
609:	0	0	0	0	0	0	1	1
617:	0	0	0	1	1	0	1	0
625:	1	1	1	0	1	2	0	1
633:	0	0	0	1	1	1	0	0
641:	1	2	2	0	2	0	2	4
649:	2	0	0	2	4	0	3	3
657:	0	0	0	0	0	1	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	1
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	2
737:	0	0	0	0	0	0	0	0
745:	1	0	0	0	1	1	0	1
753:	0	1	0	0	0	0	0	0
761:	0	1	0	0	0	0	0	0
769:	0	0	0	0	1	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: 03

Channel								
809:	0	0	0	0	1	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	1
833:	0	0	0	0	0	0	0	0
841:	1	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	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	1	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	1	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

VCB 6/29/16

Apex-Alpha™

Sample Description: CP-5027 00-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_036
Chamber Serial Number: 04026477B
Detector Serial Number: 84167
Env. Background: System Bkgd 157582
Reagent Blank: <not performed>

Sample Size: 1.520E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/2/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:23:41 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: 0.1771 +/- 0.0154
Counting Efficiency: 0.1870 +/- 0.0033 on 12/11/2015 8:20:54 AM
Chem. Recovery Factor: 0.9468 +/- 0.0842

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		5.865	11.81	60.30	1.19	0.00E+000	3.0
TH-228		5.380	72.47	23.31	1.53	0.00E+000	12.6
TH-229	T	4.887	151.32	15.98	0.68	0.00E+000	4.1
TH-230		4.643	189.32	14.27	0.68	0.00E+000	16.1
TH-232		3.963	67.32	24.03	0.68	0.00E+000	11.9

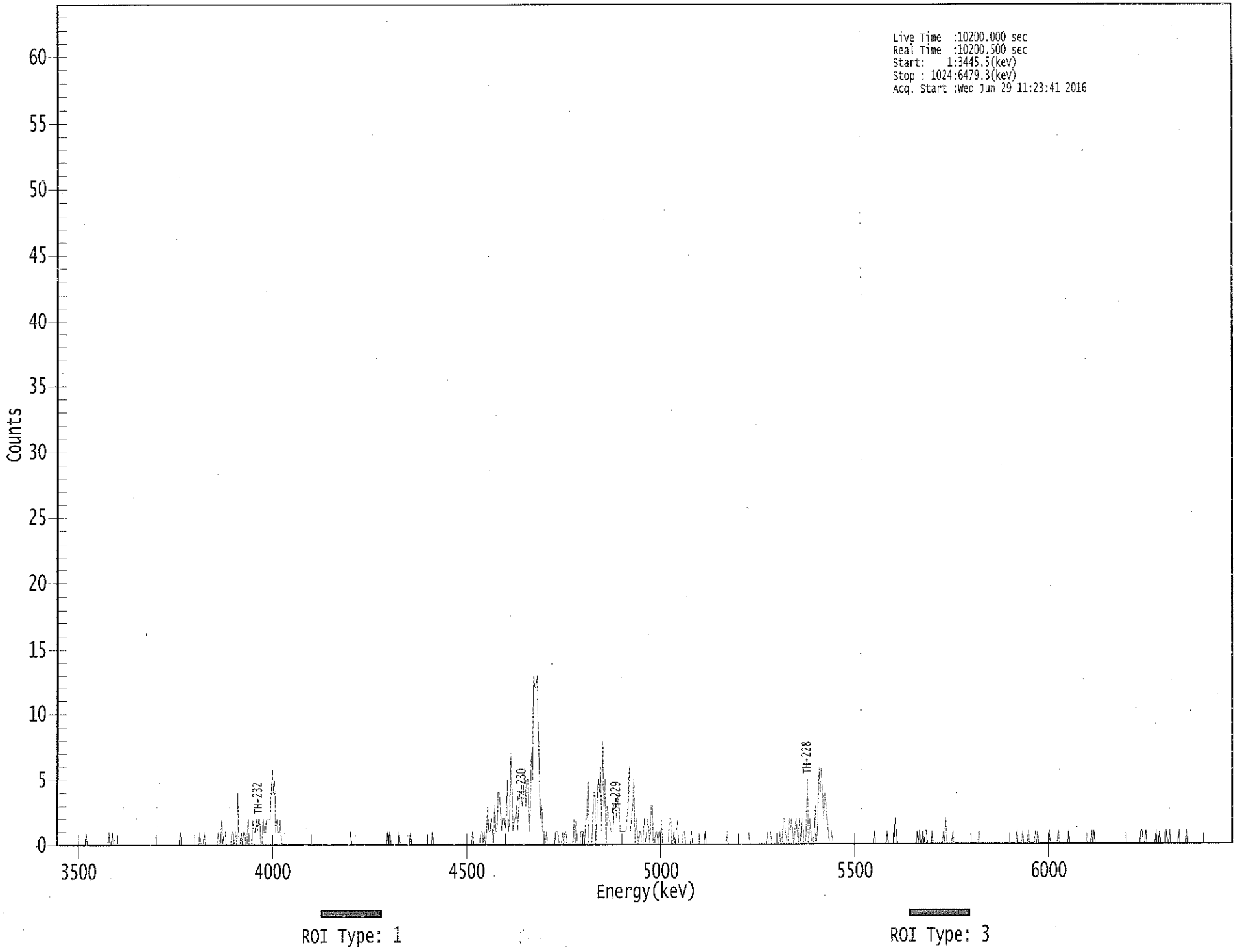
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	1.20E-001 +/- 7.49E-002	6.67E-002 +/- 1.14E-002
TH-228	0.998	5400.00*	7.33E-001 +/- 2.12E-001	7.19E-002 +/- 1.23E-002
TH-229	0.999	4872.00*	1.50E+000 +/- 2.56E-001	5.58E-002 +/- 9.54E-003
TH-230	0.996	4672.00*	1.87E+000 +/- 4.16E-001	5.56E-002 +/- 9.51E-003
TH-232	0.994	3997.00*	6.63E-001 +/- 1.95E-001	5.55E-002 +/- 9.49E-003

AG 6/29/16

0000155757.CNF



****
***** 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: 10201

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	1	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	1	0	0
49:	1	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	0	0	1	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	1	0	0	0
129:	1	0	0	0	0	0	0	0
137:	0	0	0	0	1	0	0	2
145:	0	1	1	0	0	0	0	0
153:	1	1	0	1	0	4	0	0
161:	1	0	1	1	0	0	2	0
169:	0	0	2	1	1	2	1	2
177:	2	0	0	2	1	1	2	2
185:	2	2	4	6	4	5	1	2
193:	1	1	2	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	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	1
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	1
289:	0	1	0	0	0	0	0	0
297:	0	1	0	0	0	0	0	0
305:	0	0	0	1	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	1	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	0
361:	0	1	0	0	0	0	0	0

369:	1	1	0	1	0	1	3	1

Sample Title: 04

Channel								
377:	1	2	1	0	3	1	1	4
385:	4	3	1	2	2	1	2	5
393:	1	2	7	4	1	2	2	3
401:	1	3	4	4	3	4	6	3
409:	5	5	1	3	7	5	13	12
417:	12	13	9	5	2	3	1	1
425:	0	1	0	0	0	0	0	0
433:	0	1	1	1	0	0	0	1
441:	0	1	1	0	0	0	0	0
449:	0	2	0	2	0	0	0	1
457:	1	1	0	2	2	5	0	0
465:	0	1	4	4	0	3	5	4
473:	6	1	8	3	5	0	3	2
481:	2	1	1	1	3	3	2	4
489:	3	1	1	1	1	1	1	2
497:	3	6	1	2	3	5	0	2
505:	1	0	1	1	0	0	2	0
513:	1	2	1	0	3	3	0	0
521:	1	1	0	1	0	2	0	0
529:	0	0	0	0	2	2	0	0
537:	1	0	1	2	0	0	0	0
545:	1	1	0	0	0	0	0	1
553:	0	0	0	0	0	0	0	0
561:	0	0	0	1	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	1	0
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	1	0	0	0	0	0	0
609:	0	0	0	0	0	0	0	0
617:	0	1	0	0	1	0	0	0
625:	0	0	0	0	1	0	0	2
633:	2	1	0	0	2	1	2	1
641:	0	1	2	1	0	2	0	2
649:	2	0	0	1	5	0	2	1
657:	0	0	1	3	0	2	6	4
665:	6	4	2	4	3	2	1	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	1	0
713:	0	0	0	0	0	0	0	0
721:	0	1	0	0	0	0	0	0
729:	2	1	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	1	0	1	0	0
753:	1	0	1	1	0	0	0	0
761:	1	0	0	0	0	0	0	0
769:	0	0	1	0	2	0	0	0
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	1	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	1	0	0	0	0	1
841:	0	0	0	0	1	0	0	0
849:	0	0	1	0	1	0	0	0
857:	0	0	0	0	0	0	1	0
865:	0	0	0	0	0	0	1	0
873:	0	0	0	0	0	0	0	1
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	1	0	1	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	1	1
945:	0	0	1	0	0	0	0	0
953:	0	0	0	1	0	0	1	0
961:	0	0	0	0	1	0	0	1
969:	0	0	0	0	0	0	0	1
977:	0	0	0	0	0	0	1	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-5014 00-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 05
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: 1.537E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/7/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:23:43 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: 0.1965 +/- 0.0163
Counting Efficiency: 0.1645 +/- 0.0029 on 12/11/2015 8:20:53 AM
Chem. Recovery Factor: 1.1948 +/- 0.1016

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		5.795	7.83	70.93	0.17	0.00E+000	3.0
TH-228		5.392	38.15	32.14	0.85	0.00E+000	3.5
TH-229	T	4.886	169.00	15.12	0.00	0.00E+000	3.0
TH-230		4.674	138.32	16.71	0.68	0.00E+000	5.3
TH-232		4.003	104.66	19.20	0.34	0.00E+000	8.8

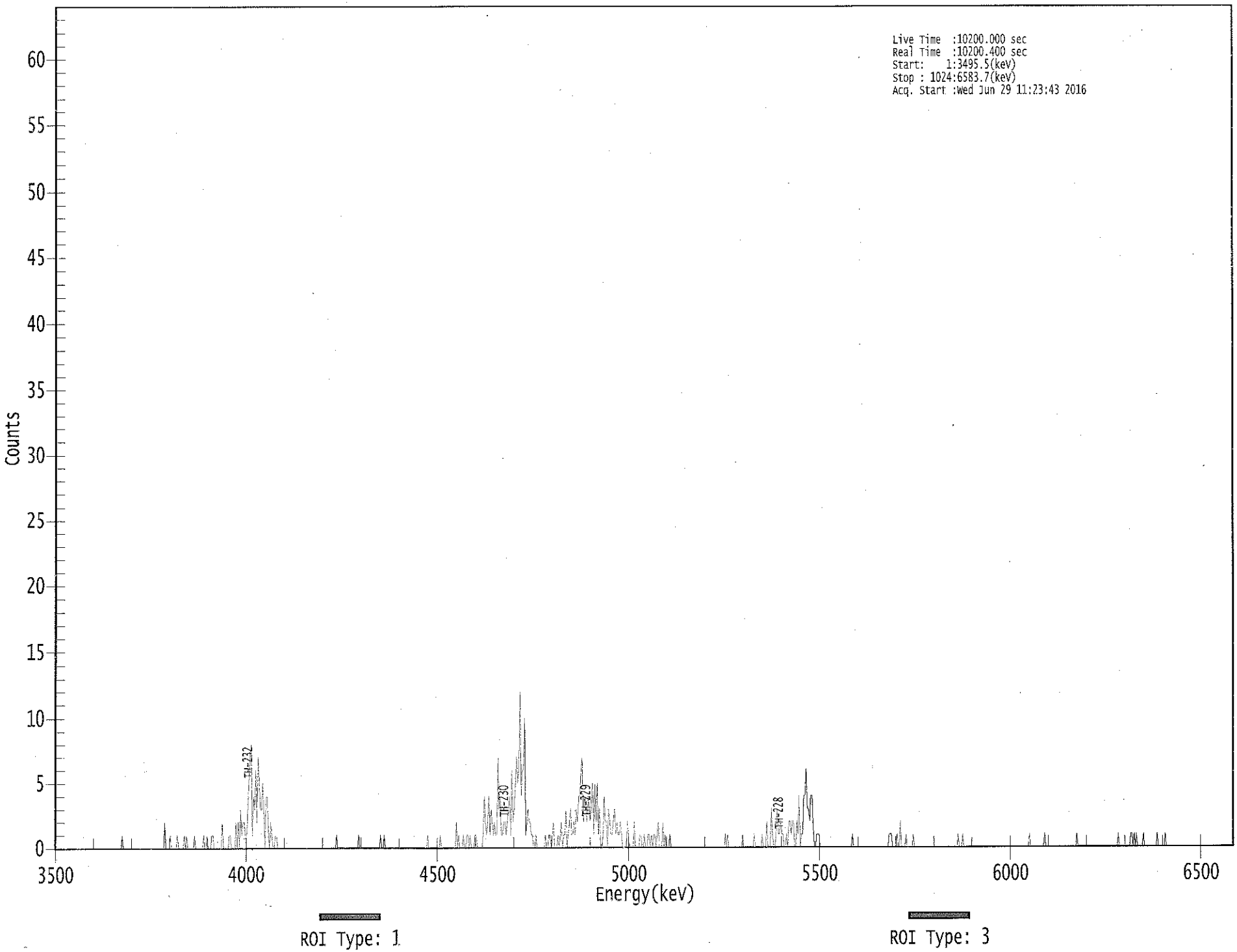
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.984	5850.00*	7.06E-002 +/- 5.14E-002	3.76E-002 +/- 6.13E-003
TH-228	1.000	5400.00*	3.42E-001 +/- 1.23E-001	5.37E-002 +/- 8.75E-003
TH-229	0.999	4872.00*	1.49E+000 +/- 2.43E-001	5.29E-002 +/- 8.61E-003
TH-230	1.000	4672.00*	1.22E+000 +/- 2.84E-001	4.96E-002 +/- 8.08E-003
TH-232	1.000	3997.00*	9.18E-001 +/- 2.31E-001	4.19E-002 +/- 6.83E-003

AG
6/29/16

0000155753.CNF



****
***** 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
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	1	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	2
97:	0	0	0	0	1	0	0	0
105:	0	0	1	0	0	0	0	0
113:	1	0	1	0	0	0	0	0
121:	0	1	0	0	0	0	0	0
129:	0	1	0	0	1	0	0	0
137:	1	1	0	0	0	0	0	0
145:	0	2	0	0	0	0	0	1
153:	1	0	0	0	0	2	0	2
161:	0	3	1	2	2	1	1	2
169:	5	7	8	1	4	3	6	2
177:	7	5	3	3	5	3	0	4
185:	4	1	0	2	1	0	0	1
193:	1	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	1	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	1
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	1	0	0	1	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	1	0	0	0	0
329:	0	0	0	0	0	0	1	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	2	0	1	0
353:	0	0	1	0	0	1	1	0
361:	1	0	0	0	1	1	0	0

369:	0	0	0	1	4	2	1	2

Sample Title: 05

Channel								
377:	4	1	3	2	1	2	1	1
385:	7	3	4	1	1	2	2	1
393:	2	3	4	1	6	2	3	5
401:	7	5	6	12	4	6	6	10
409:	1	2	3	2	2	1	1	0
417:	0	1	0	0	0	0	0	0
425:	0	1	0	0	1	1	0	1
433:	2	0	0	0	1	0	1	2
441:	0	1	1	3	0	1	2	3
449:	1	1	2	1	3	2	4	4
457:	6	7	2	4	3	2	4	3
465:	2	4	5	1	5	2	5	1
473:	3	0	0	1	4	2	2	0
481:	3	2	1	1	2	3	1	2
489:	1	1	2	1	0	0	0	0
497:	2	1	0	0	0	0	2	0
505:	0	0	0	1	1	0	0	1
513:	0	0	1	1	0	1	0	1
521:	1	0	1	2	0	0	0	2
529:	0	1	0	0	0	1	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	1	0	1
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	1	0	0	0
601:	0	0	0	0	0	0	1	0
609:	0	0	0	0	0	1	0	0
617:	0	2	0	0	0	3	1	0
625:	0	1	3	1	1	2	1	1
633:	0	0	1	0	2	2	1	2
641:	2	0	0	2	1	4	0	1
649:	1	4	4	6	3	3	2	4
657:	4	2	0	0	1	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	1	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	1	1	0	0
729:	0	0	1	0	0	2	0	0
737:	0	0	1	0	0	0	0	0
745:	1	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	1
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

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	1	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	1	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	1	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	0	0	0	0
929:	0	0	0	0	0	1	1	0
937:	1	0	1	0	0	0	0	0
945:	1	0	0	0	0	0	0	0
953:	0	0	0	0	1	0	0	0
961:	0	0	0	1	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™

KB 6/29/16

Sample Description: CP-5014 02-05
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 06
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: 1.532E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/7/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:23:45 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.221 mL
Effective Efficiency: 0.1746 +/- 0.0154
Counting Efficiency: 0.1601 +/- 0.0028 on 12/11/2015 8:20:51 AM
Chem. Recovery Factor: 1.0910 +/- 0.0983

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		5.848	14.66	51.88	0.34	0.00E+000	3.0
TH-228		5.385	72.64	23.25	1.36	0.00E+000	6.0
TH-229	T	4.864	147.15	16.21	0.85	0.00E+000	16.4
TH-230		4.642	337.49	10.68	0.51	0.00E+000	41.9
TH-232		3.974	96.83	19.94	0.17	0.00E+000	3.8

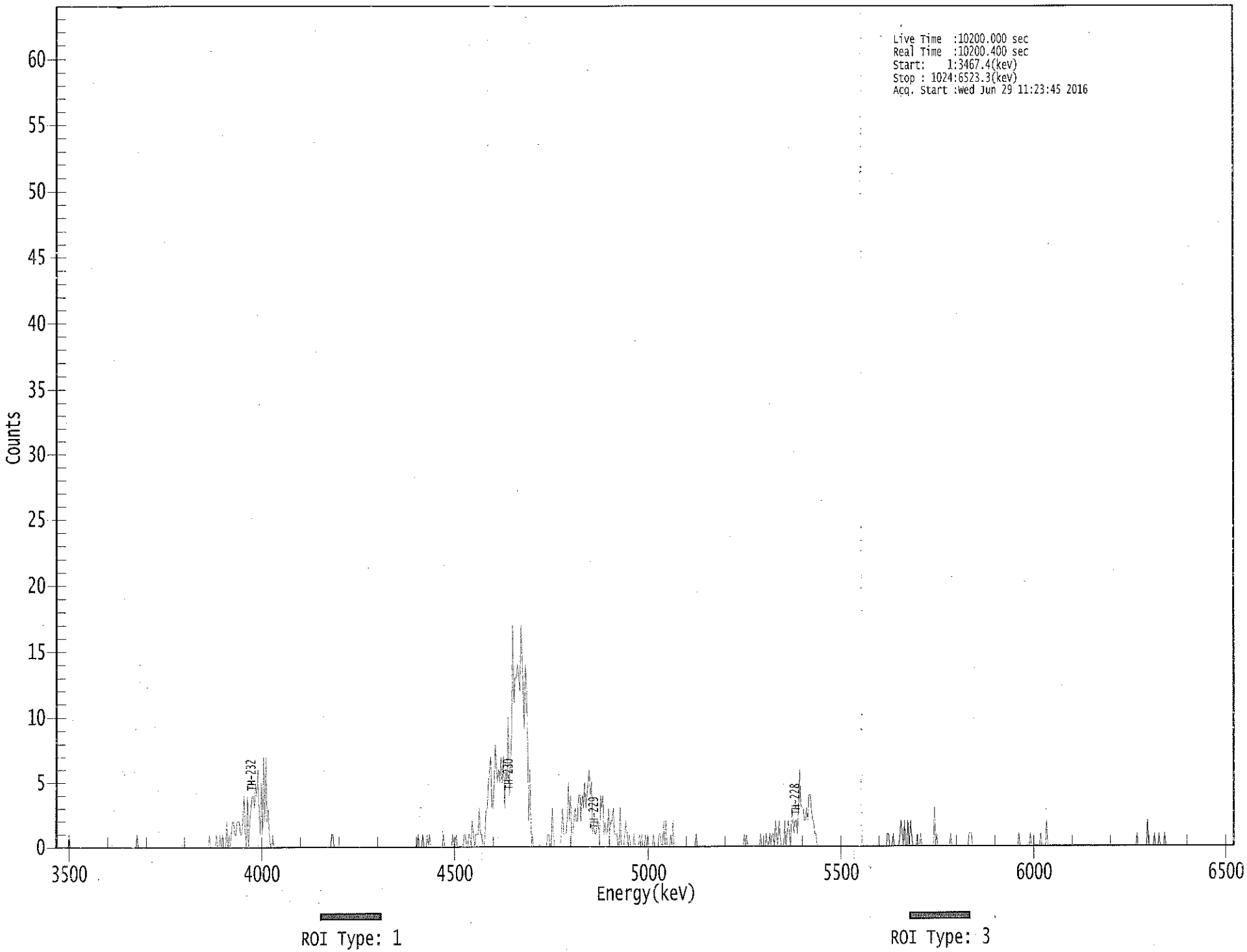
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.49E-001 +/- 8.16E-002	4.87E-002 +/- 8.43E-003
TH-228	0.999	5400.00*	7.36E-001 +/- 2.13E-001	6.95E-002 +/- 1.20E-002
TH-229	1.000	4872.00*	1.46E+000 +/- 2.54E-001	5.96E-002 +/- 1.03E-002
TH-230	0.995	4672.00*	3.35E+000 +/- 6.81E-001	5.21E-002 +/- 9.01E-003
TH-232	0.997	3997.00*	9.59E-001 +/- 2.53E-001	4.13E-002 +/- 7.16E-003

AG 6/29/16

0000155758.CNF



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

369:	1	1	0	0	1	3	3	5

Sample Title: 06

Channel								
377:	6	7	3	3	5	8	6	5
385:	6	5	7	5	7	3	6	5
393:	10	4	6	9	17	11	13	13
401:	14	13	12	17	15	12	9	14
409:	12	8	2	6	1	1	0	0
417:	0	0	0	0	0	0	0	0
425:	0	0	1	1	0	0	3	1
433:	0	0	0	0	0	0	1	3
441:	1	1	1	2	5	2	4	1
449:	1	2	3	2	2	4	4	2
457:	4	3	5	3	4	5	6	4
465:	5	1	2	1	1	2	2	0
473:	4	3	4	1	2	1	1	3
481:	1	2	2	3	1	1	1	0
489:	0	3	0	0	0	1	2	1
497:	0	1	0	0	0	1	0	0
505:	0	0	1	0	1	0	0	1
513:	0	1	0	0	0	0	1	0
521:	0	0	0	1	1	0	0	2
529:	0	2	0	0	0	1	0	2
537:	0	0	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	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	1	0	1
601:	0	0	0	0	0	0	0	0
609:	0	0	0	1	0	0	0	0
617:	1	0	0	1	0	1	1	0
625:	2	1	0	2	1	0	0	0
633:	2	0	1	2	1	0	3	2
641:	1	2	2	1	3	6	3	3
649:	3	2	2	3	2	4	4	3
657:	2	2	1	1	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	1	1	0	0	0	1	0
729:	0	0	0	0	1	2	1	0
737:	2	0	0	2	0	2	1	0
745:	0	0	0	1	0	0	1	0
753:	0	0	0	0	0	0	0	0
761:	0	0	3	0	1	0	0	0
769:	0	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:	1	1	1	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	1	0	0	0	0
841:	0	0	0	0	0	1	0	0
849:	0	0	0	0	0	0	1	0
857:	0	0	0	2	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	1	0	0	0	0	0
945:	0	0	0	2	0	0	0	0
953:	0	1	0	0	0	1	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 6/29/16

Apex-Alpha™

Sample Description: CP-5014 05-09
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 07
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: 1.555E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/7/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:23:48 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.222 mL
Effective Efficiency: 0.1680 +/- 0.0152
Counting Efficiency: 0.1862 +/- 0.0032 on 12/11/2015 8:20:49 AM
Chem. Recovery Factor: 0.9022 +/- 0.0831

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		5.859	14.79	55.24	2.21	0.00E+000	3.0
TH-228		5.391	97.60	20.24	3.40	0.00E+000	9.7
TH-229	T	4.880	142.43	16.66	3.57	0.00E+000	6.5
TH-230		4.643	306.62	11.24	2.38	0.00E+000	19.6
TH-232		3.962	108.81	18.91	1.19	0.00E+000	9.2

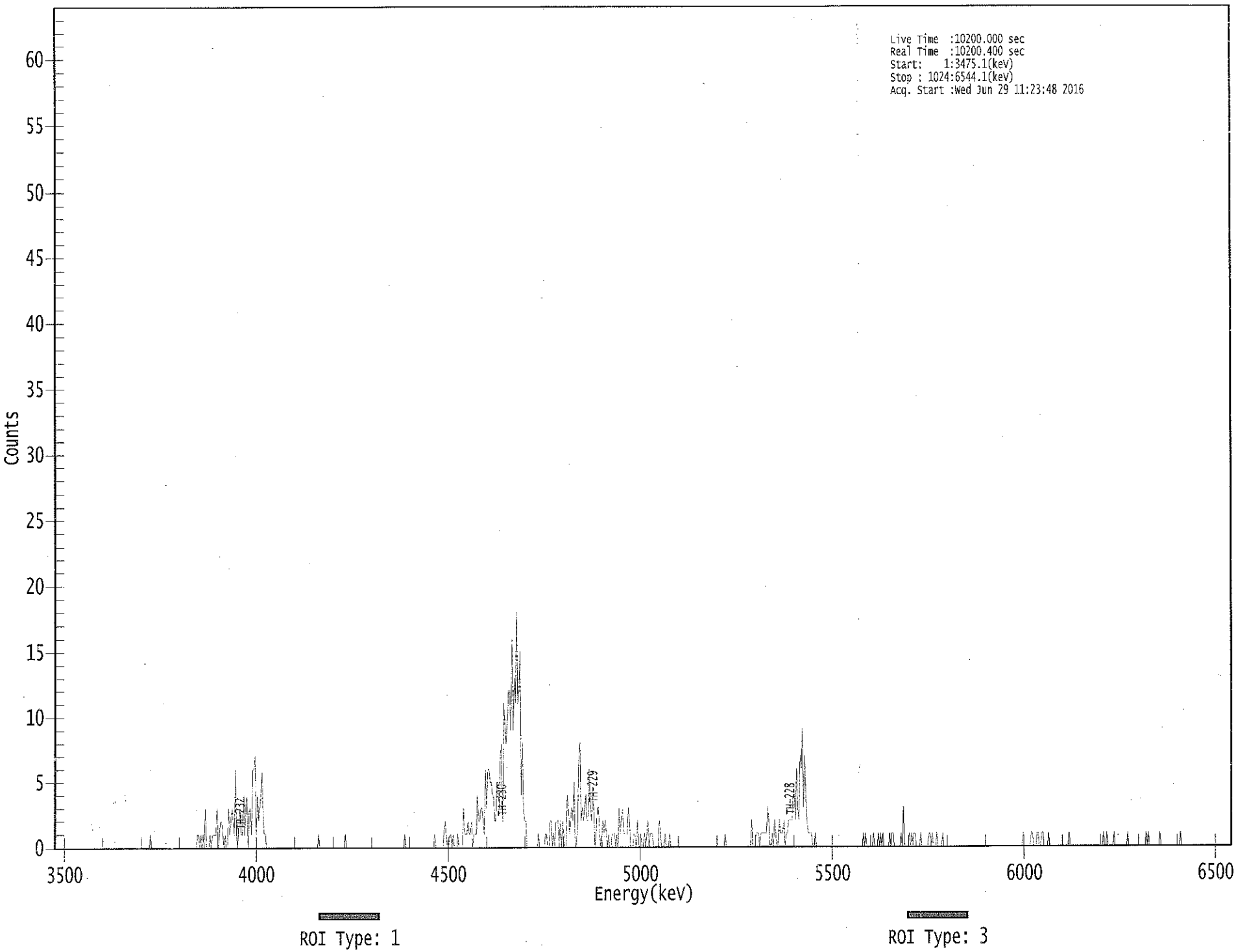
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.54E-001 +/- 8.95E-002	8.34E-002 +/- 1.48E-002
TH-228	1.000	5400.00*	1.01E+000 +/- 2.73E-001	9.62E-002 +/- 1.71E-002
TH-229	1.000	4872.00*	1.45E+000 +/- 2.58E-001	9.62E-002 +/- 1.71E-002
TH-230	0.996	4672.00*	3.12E+000 +/- 6.55E-001	8.33E-002 +/- 1.48E-002
TH-232	0.994	3997.00*	1.10E+000 +/- 2.86E-001	6.69E-002 +/- 1.19E-002

AG 6/29/16

0000155765.CNF



****
***** 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	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	1	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	1	1	0	1
129:	0	1	0	3	0	0	0	1
137:	0	1	1	1	1	3	0	1
145:	2	2	1	0	1	0	0	3
153:	1	2	3	2	1	6	1	0
161:	2	3	1	1	4	1	3	4
169:	0	3	3	1	6	6	7	1
177:	4	2	3	4	6	2	1	1
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	1	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	1	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	1	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:	0	0	1	0	0	0	0	0
337:	0	0	1	2	1	0	0	1
345:	1	0	1	0	0	0	1	0
353:	0	0	0	3	1	1	1	2
361:	1	1	2	0	1	1	1	4

369:	2	2	3	3	2	1	6	3

Sample Title: 07

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

801:	0	0	0	0	0	0	0	0

Sample Title: 07

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	1	0	0	0	0	0	0
849:	1	1	0	0	0	1	1	0
857:	0	1	1	0	0	0	0	1
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	1	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	1
913:	0	0	1	0	0	0	0	0
921:	1	0	0	0	0	0	0	0
929:	0	0	0	0	1	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	1	0	1	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	1	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-5014 09-15
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 08
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: 1.586E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/7/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:23:51 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.227 mL
Effective Efficiency: 0.1888 +/- 0.0159
Counting Efficiency: 0.1847 +/- 0.0032 on 12/11/2015 8:20:48 AM
Chem. Recovery Factor: 1.0220 +/- 0.0878

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		5.804	14.32	53.21	0.68	0.00E+000	3.7
TH-228		5.370	171.30	15.06	1.70	0.00E+000	6.4
TH-229	T	4.880	163.83	15.32	0.17	0.00E+000	10.0
TH-230		4.635	152.83	15.86	0.17	0.00E+000	5.2
TH-232		3.958	130.32	17.22	0.68	0.00E+000	5.2

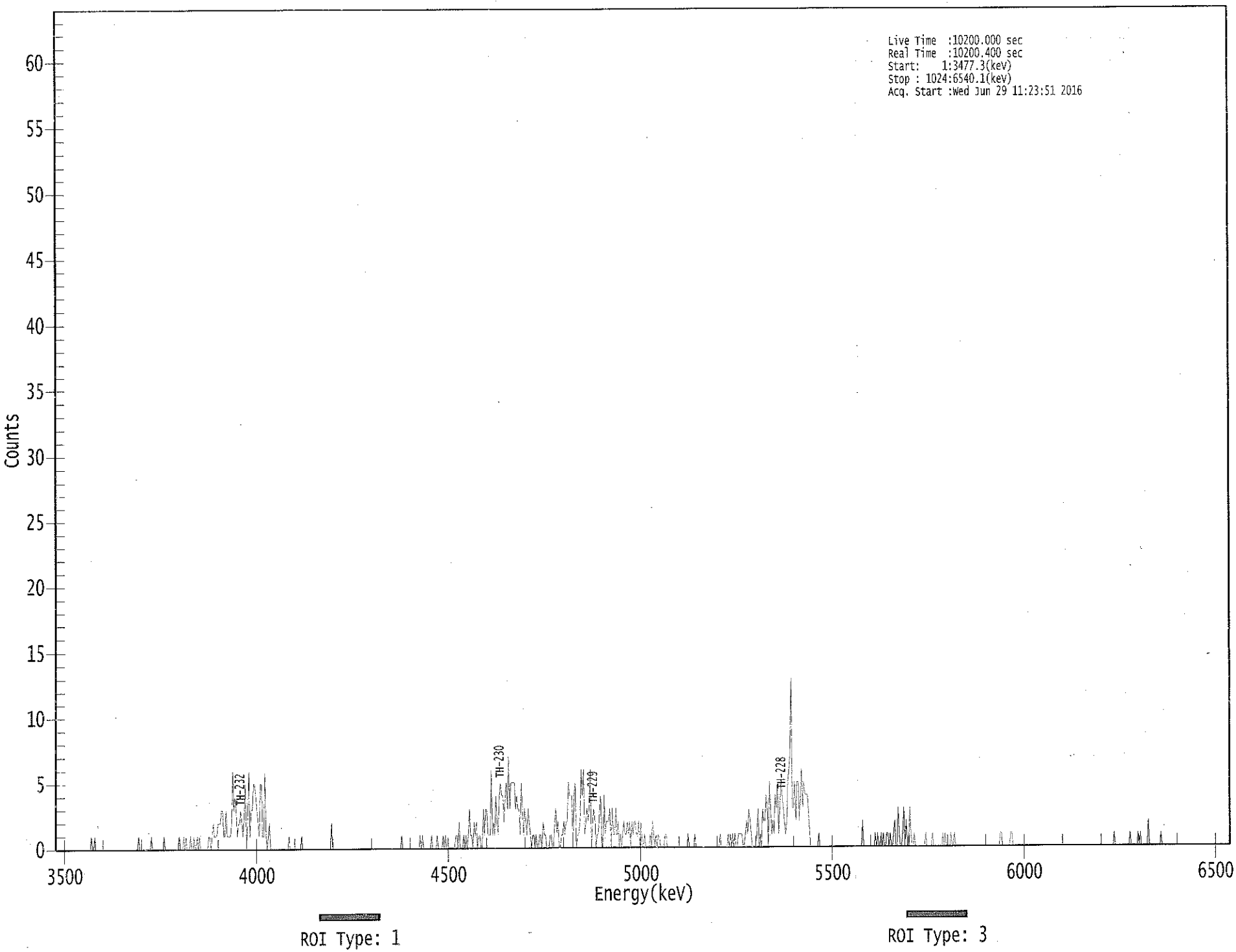
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.989	5850.00*	1.30E-001 +/- 7.26E-002	5.13E-002 +/- 8.46E-003
TH-228	0.995	5400.00*	1.55E+000 +/- 3.46E-001	6.65E-002 +/- 1.10E-002
TH-229	1.000	4872.00*	1.46E+000 +/- 2.40E-001	3.71E-002 +/- 6.12E-003
TH-230	0.993	4672.00*	1.36E+000 +/- 3.10E-001	3.70E-002 +/- 6.10E-003
TH-232	0.992	3997.00*	1.15E+000 +/- 2.75E-001	4.99E-002 +/- 8.23E-003

AG 6/29/16

0000155764.CNF



****
***** 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	1
33:	0	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	0	0	0
65:	0	0	0	0	0	0	0	0
73:	1	0	0	0	0	0	0	0
81:	0	0	0	1	0	0	0	0
89:	0	0	0	0	0	0	1	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	1	0	0	0	1
113:	0	1	0	0	0	1	0	0
121:	1	0	0	1	0	1	0	0
129:	0	0	0	0	0	1	1	0
137:	1	2	1	1	1	2	2	2
145:	3	3	1	1	3	1	1	1
153:	1	2	6	3	4	3	1	2
161:	2	3	2	1	3	5	0	2
169:	6	1	3	3	5	5	4	3
177:	2	1	5	5	1	1	6	1
185:	0	1	2	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	1	0	0	0	0
209:	0	0	0	0	0	0	1	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	2	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	1	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	1
329:	0	0	0	0	1	0	0	0
337:	0	1	0	1	0	0	0	0
345:	0	0	0	0	1	1	0	2
353:	0	0	0	1	0	1	0	1
361:	3	1	1	0	2	1	2	0

369:	1	1	0	0	3	1	3	3

Sample Title: 08

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

Sample Title: 08

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	1	1
825:	0	0	0	0	0	0	0	1
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	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	0	0	0	0	0
929:	0	0	0	0	0	0	0	1
937:	0	0	0	0	0	0	1	0
945:	1	0	0	0	0	0	0	2
953:	0	0	0	0	0	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

Apex-Alpha™

Sample Description:	CP-5015 00-02
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification:	1606064A-TH
Sample Identification:	09
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:	1.511E+000 +/- 0.000E+000 gram
Sample Date/Time:	6/7/2016 6:32:25 AM
Acquisition Date/Time:	6/29/2016 11:23:54 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:	0.1975 +/- 0.0164
Counting Efficiency:	0.1900 +/- 0.0033 on 12/11/2015 8:21:11 AM
Chem. Recovery Factor:	1.0395 +/- 0.0884
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		5.875	12.15	58.49	0.85	0.00E+000	3.0
TH-228		5.371	127.81	17.43	1.19	0.00E+000	4.4
TH-229	T	4.872	168.81	15.15	1.19	0.00E+000	4.3
TH-230		4.619	128.81	17.36	1.19	0.00E+000	8.6
TH-232		3.957	135.11	17.07	2.89	0.00E+000	5.1

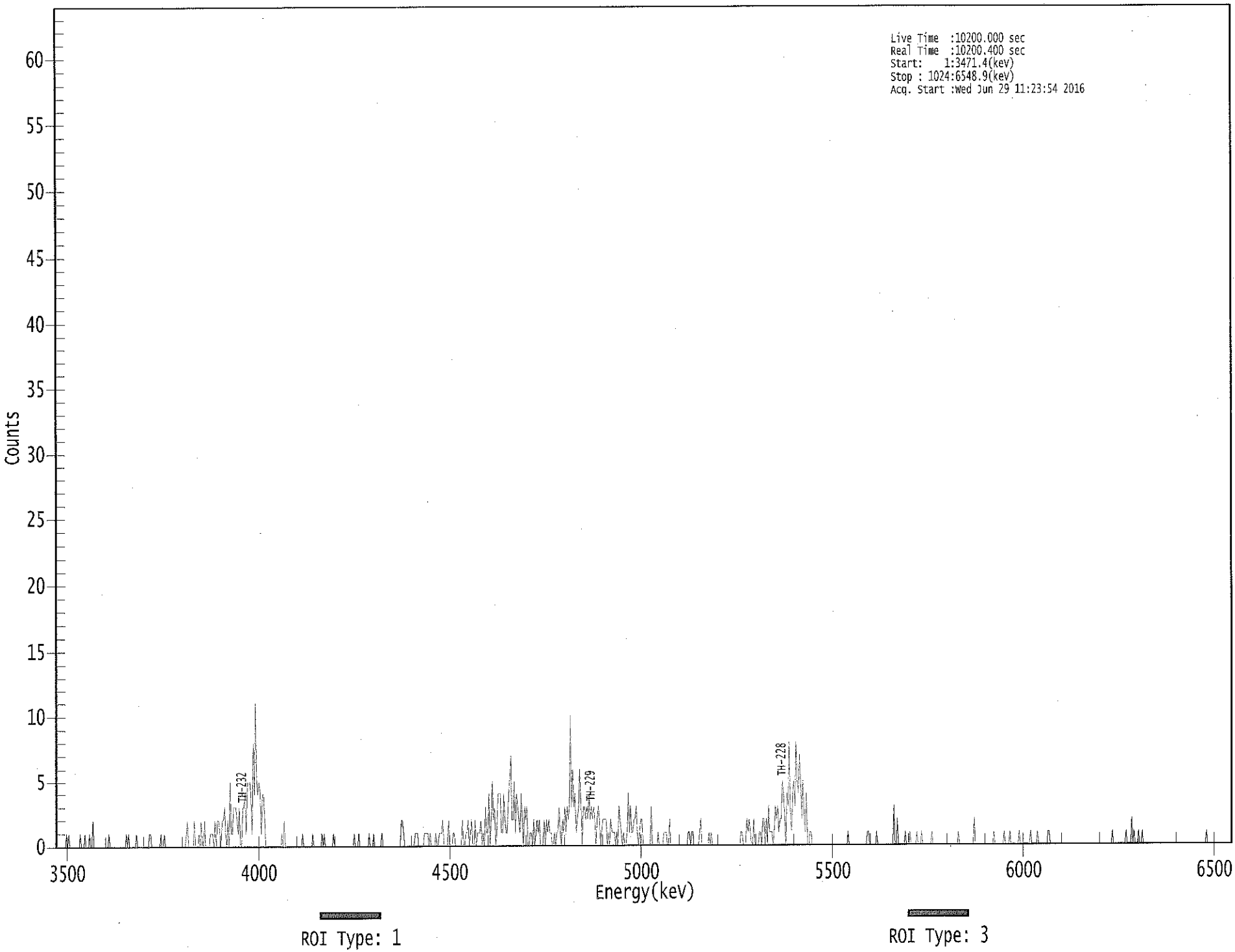
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.997	5850.00*	1.11E-001 +/- 6.73E-002	5.46E-002 +/- 8.92E-003
TH-228	0.996	5400.00*	1.16E+000 +/- 2.77E-001	5.98E-002 +/- 9.77E-003
TH-229	1.000	4872.00*	1.51E+000 +/- 2.46E-001	5.88E-002 +/- 9.59E-003
TH-230	0.986	4672.00*	1.15E+000 +/- 2.73E-001	5.86E-002 +/- 9.56E-003
TH-232	0.992	3997.00*	1.20E+000 +/- 2.83E-001	7.77E-002 +/- 1.27E-002

AG 6/29/16

0000155762.CNF



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

369:	1	2	0	1	0	3	1	1

Sample Title: 09

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

801:	0	0	0	0	0	0	0	0

Sample Title: 09

Channel								
809:	0	0	0	0	0	0	0	1
817:	0	0	0	0	0	0	0	0
825:	1	0	0	0	0	1	0	0
833:	0	0	0	0	0	1	0	0
841:	0	0	0	0	0	0	0	1
849:	0	0	0	0	0	1	0	0
857:	0	0	0	0	0	0	1	1
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	1	0	0	0	0	2
937:	0	1	0	0	0	1	0	0
945:	1	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:	1	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-5015 02-05
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 10
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: 1.542E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/7/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:23:56 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.222 mL
Effective Efficiency: 0.1406 +/- 0.0136
Counting Efficiency: 0.1789 +/- 0.0031 on 12/11/2015 8:21:10 AM
Chem. Recovery Factor: 0.7862 +/- 0.0774

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		5.880	10.15	64.46	0.85	0.00E+000	3.0
TH-228		5.322	97.64	20.00	1.36	0.00E+000	4.5
TH-229	T	4.878	119.32	18.00	0.68	0.00E+000	4.5
TH-230		4.585	124.49	17.61	0.51	0.00E+000	4.5
TH-232		3.948	101.66	19.48	0.34	0.00E+000	7.8

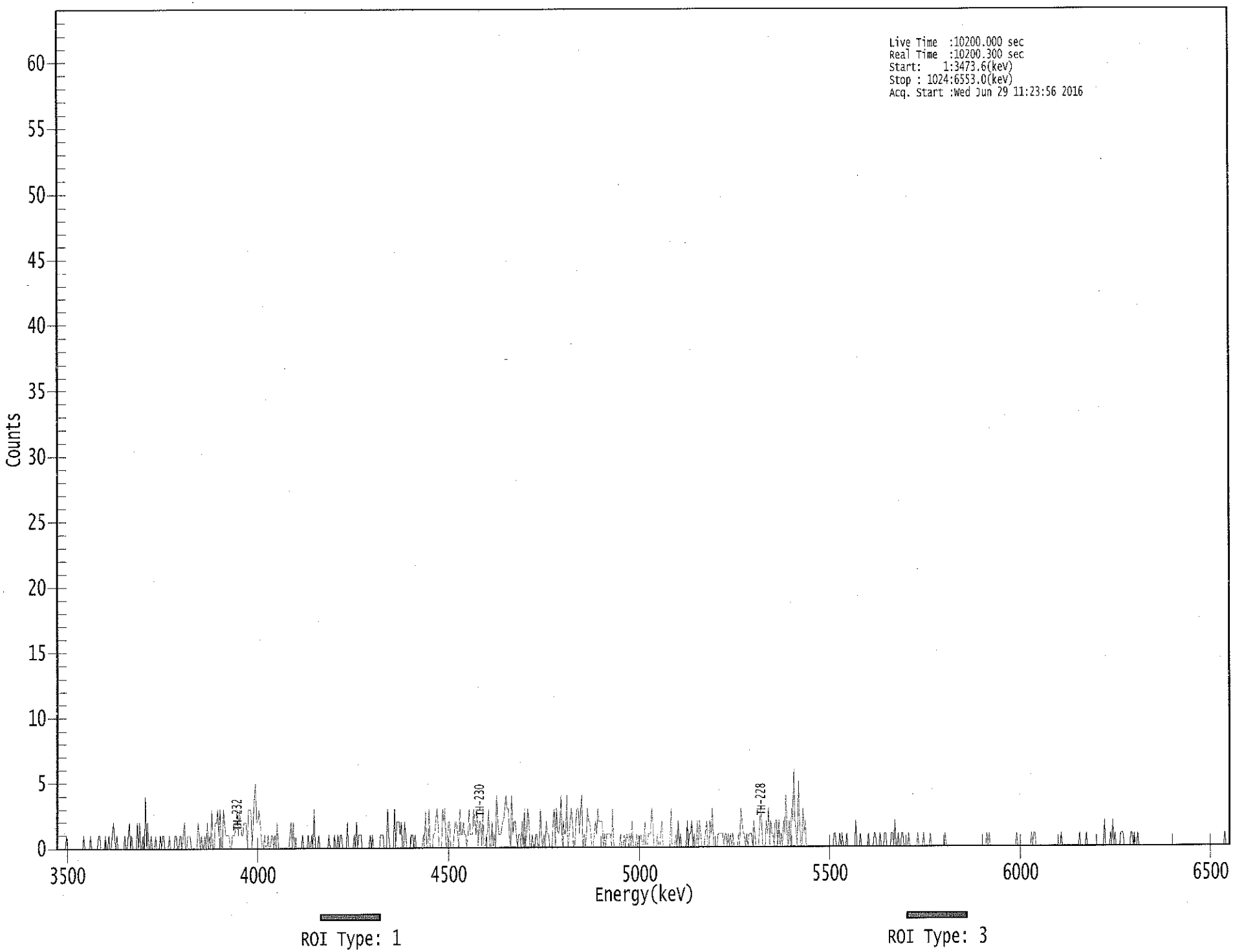
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.995	5850.00*	1.27E-001 +/- 8.57E-002	7.52E-002 +/- 1.43E-002
TH-228	0.969	5400.00*	1.22E+000 +/- 3.37E-001	8.57E-002 +/- 1.63E-002
TH-229	1.000	4872.00*	1.46E+000 +/- 2.78E-001	6.93E-002 +/- 1.32E-002
TH-230	0.961	4672.00*	1.52E+000 +/- 3.95E-001	6.42E-002 +/- 1.22E-002
TH-232	0.988	3997.00*	1.24E+000 +/- 3.38E-001	5.84E-002 +/- 1.11E-002

AG 6/29/16

0000155761.CNF



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

369:	2	2	0	3	0	0	1	1

Sample Title: 10

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

Channel								
809:	0	0	1	0	1	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	1	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	1	0	1	1	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	1	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	1	0	0	0	0
897:	0	1	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	2	0	0	0	0	1	0
921:	2	0	1	0	0	0	0	1
929:	1	1	0	0	0	0	0	0
937:	1	1	0	1	0	0	1	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	1	0	0	0	0	0

Apex-Alpha™

KB 6/29/16

Sample Description: CP-5015 05-09
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 11
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: 1.508E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/7/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:24:00 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: 0.1589 +/- 0.0146
Counting Efficiency: 0.1890 +/- 0.0033 on 12/11/2015 8:21:08 AM
Chem. Recovery Factor: 0.8406 +/- 0.0785

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		5.874	8.81	71.06	1.19	0.00E+000	4.5
TH-228		5.348	129.32	17.29	0.68	0.00E+000	4.7
TH-229	T	4.872	136.13	16.93	1.87	0.00E+000	6.7
TH-230		4.616	141.49	16.51	0.51	0.00E+000	4.5
TH-232		3.955	107.98	18.97	1.02	0.00E+000	4.0

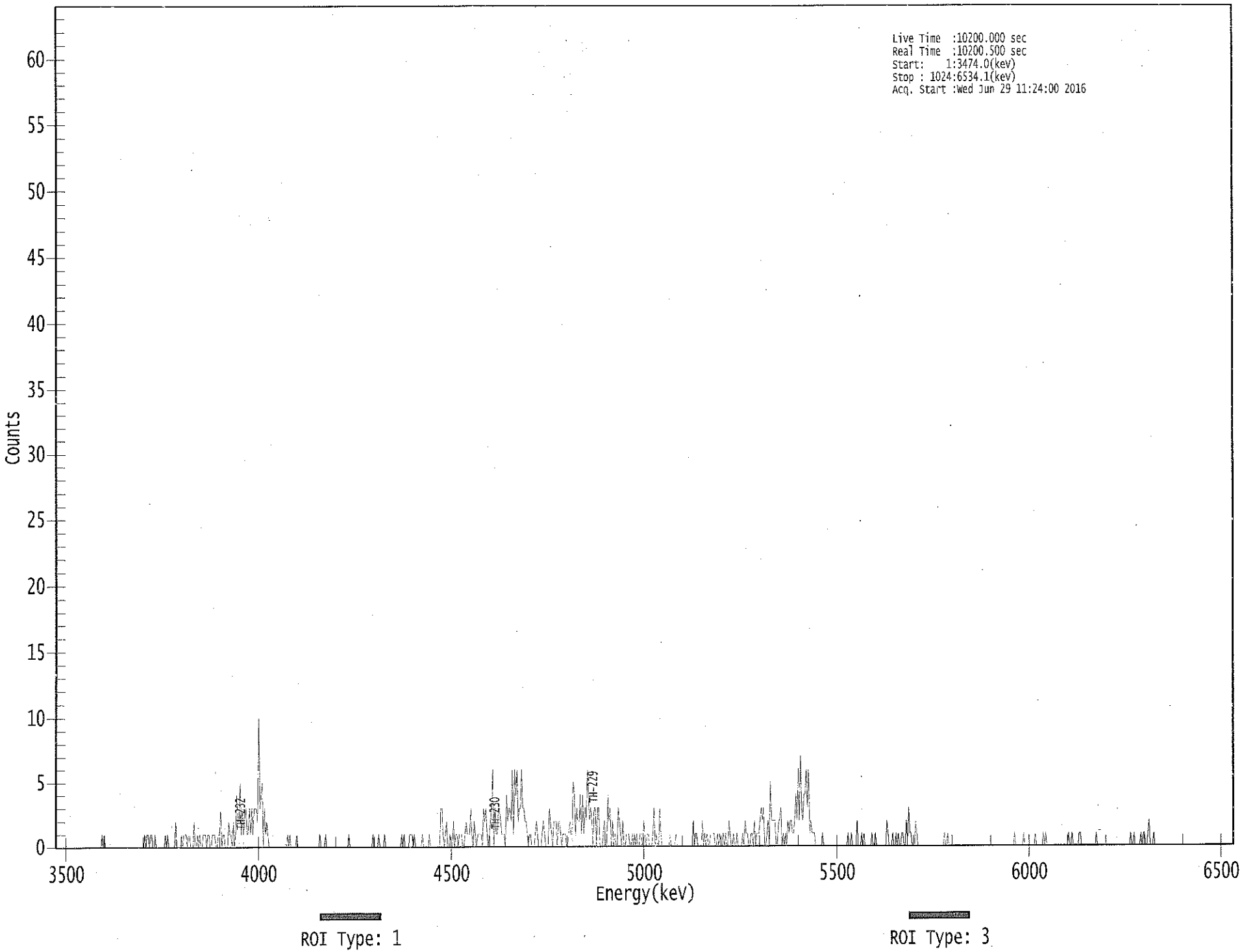
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.997	5850.00*	1.00E-001 +/- 7.34E-002	7.48E-002 +/- 1.35E-002
TH-228	0.986	5400.00*	1.46E+000 +/- 3.65E-001	6.38E-002 +/- 1.15E-002
TH-229	1.000	4872.00*	1.51E+000 +/- 2.72E-001	8.41E-002 +/- 1.51E-002
TH-230	0.984	4672.00*	1.57E+000 +/- 3.83E-001	5.81E-002 +/- 1.05E-002
TH-232	0.991	3997.00*	1.19E+000 +/- 3.12E-001	6.96E-002 +/- 1.25E-002

AG 6/29/16

0000155763.CNF



****
***** 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: 10201

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:	1	0	1	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	1	0	1
81:	1	0	1	1	0	0	1	0
89:	0	0	0	0	0	0	0	1
97:	0	1	0	0	0	0	0	0
105:	2	0	0	0	0	1	0	1
113:	1	1	0	1	1	0	0	0
121:	2	0	0	1	0	1	0	0
129:	1	1	1	0	1	1	0	0
137:	1	1	1	0	0	1	1	3
145:	0	1	1	0	0	0	2	1
153:	1	0	2	0	1	4	2	2
161:	5	1	3	1	3	3	1	1
169:	3	1	3	1	3	3	3	2
177:	10	3	4	5	0	3	1	2
185:	1	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	1	0	1	0	0	0	0
209:	0	1	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	1	0	0
233:	0	0	1	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	1	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	1	0	0	0	0
281:	1	0	0	0	0	1	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	1	0	1	0
305:	0	0	0	1	1	1	0	1
313:	0	0	0	0	0	0	1	0
321:	0	0	0	0	1	0	0	0
329:	0	0	0	0	0	0	3	3
337:	1	0	1	2	0	0	1	0
345:	0	2	0	1	1	0	1	1
353:	1	0	0	1	2	1	1	1
361:	3	1	0	2	1	0	1	1

369:	1	1	0	3	2	3	1	0

Sample Title: 11

Channel								
377:	1	2	3	6	0	3	1	1
385:	3	3	2	1	1	1	0	4
393:	2	3	3	2	6	1	6	4
401:	6	2	3	3	6	3	3	2
409:	2	1	0	1	1	0	0	0
417:	1	2	1	0	0	0	1	2
425:	1	0	0	0	3	2	1	0
433:	2	2	2	0	2	2	1	0
441:	1	1	1	0	0	1	2	1
449:	1	5	4	1	3	2	2	4
457:	1	4	1	3	2	6	4	2
465:	3	2	0	3	3	0	3	3
473:	0	0	0	1	2	0	0	4
481:	2	3	0	2	0	1	0	0
489:	3	2	1	0	2	0	0	1
497:	1	1	0	0	1	0	1	0
505:	1	0	0	1	1	0	2	1
513:	0	1	1	0	0	0	1	3
521:	0	1	0	0	3	1	0	0
529:	0	0	0	0	0	1	0	0
537:	0	0	1	0	0	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	2	0	1	1	0	0	0
561:	0	2	0	1	0	1	0	0
569:	1	1	1	1	0	0	1	0
577:	1	0	0	1	0	1	0	0
585:	2	1	0	0	1	0	0	1
593:	0	0	0	0	1	0	2	1
601:	1	0	0	1	1	0	2	0
609:	1	1	1	2	3	2	3	0
617:	0	1	2	0	5	2	2	2
625:	2	0	0	2	2	3	0	1
633:	0	1	0	2	1	2	2	1
641:	1	2	4	2	6	2	7	3
649:	2	4	4	6	3	6	1	2
657:	1	1	1	0	0	0	0	0
665:	0	1	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	1
689:	0	0	1	0	0	0	0	2
697:	0	0	0	1	0	1	0	0
705:	0	0	0	0	1	0	0	1
713:	0	0	0	0	0	0	0	0
721:	0	2	1	0	0	0	1	0
729:	0	1	0	1	0	0	1	1
737:	0	0	2	0	3	1	1	0
745:	0	0	2	1	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	1	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: 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:	1	0	0	0	0	0	0	0
841:	1	0	0	0	0	0	0	0
849:	0	0	1	0	0	0	0	0
857:	0	1	0	1	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	1
881:	0	0	1	0	0	0	0	0
889:	1	1	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	1
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	1	0	0
937:	1	0	0	0	0	0	1	0
945:	1	1	0	0	1	2	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

YCB 6/29/16

Apex-Alpha™

Sample Description: CP-5015 09-15
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 12
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: 1.554E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/7/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:24:03 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.224 mL
Effective Efficiency: 0.1770 +/- 0.0154
Counting Efficiency: 0.1864 +/- 0.0033 on 12/11/2015 8:21:07 AM
Chem. Recovery Factor: 0.9496 +/- 0.0844

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		5.845	11.32	60.27	0.68	0.00E+000	3.0
TH-228		5.347	132.15	17.11	0.85	0.00E+000	6.0
TH-229	T	4.869	151.49	15.96	0.51	0.00E+000	5.2
TH-230		4.625	146.66	16.21	0.34	0.00E+000	5.7
TH-232		3.953	139.15	16.67	0.85	0.00E+000	7.1

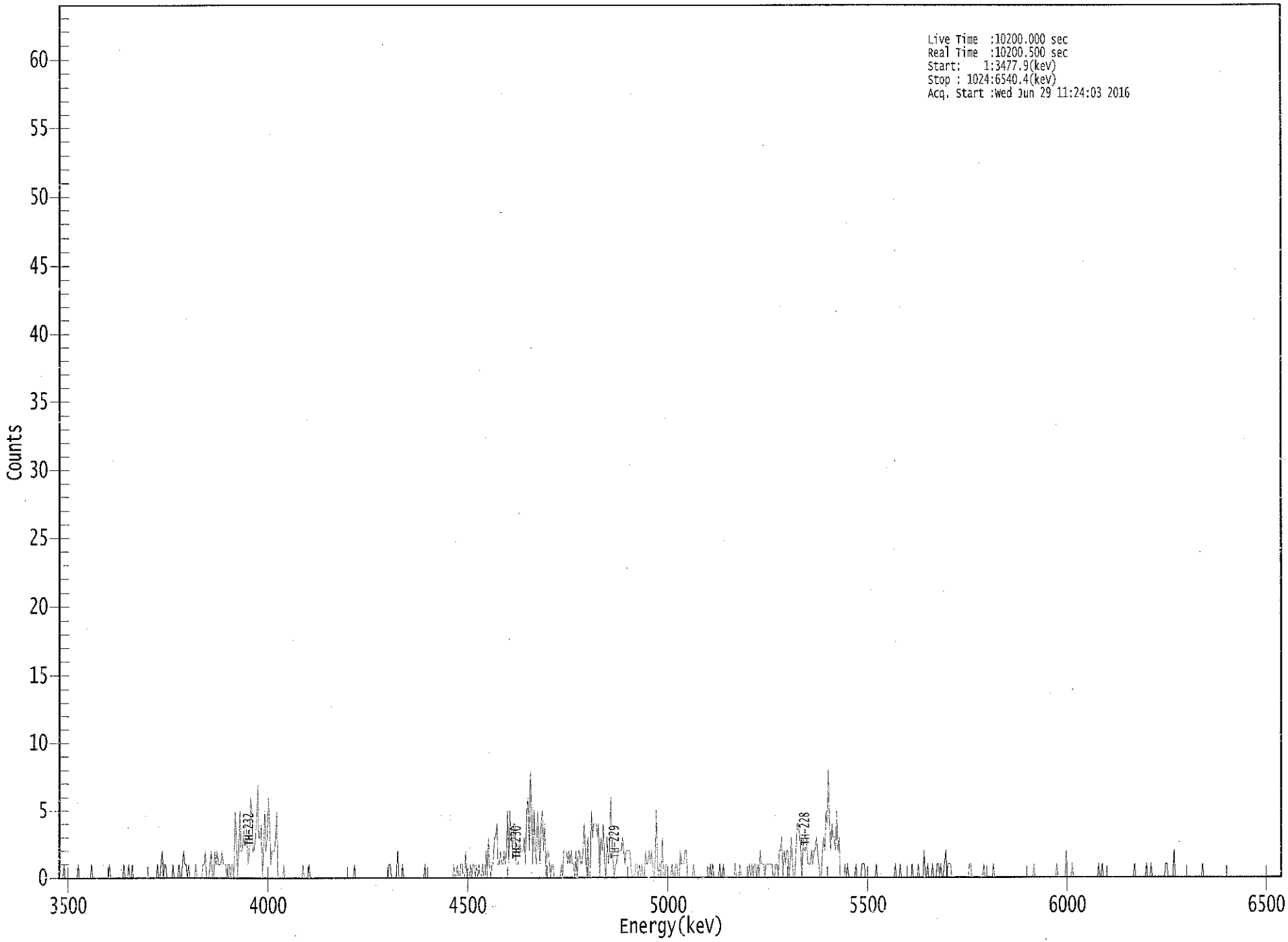
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.12E-001 +/- 7.02E-002	5.58E-002 +/- 9.53E-003
TH-228	0.986	5400.00*	1.30E+000 +/- 3.15E-001	5.90E-002 +/- 1.01E-002
TH-229	1.000	4872.00*	1.47E+000 +/- 2.50E-001	5.08E-002 +/- 8.67E-003
TH-230	0.988	4672.00*	1.41E+000 +/- 3.33E-001	4.61E-002 +/- 7.88E-003
TH-232	0.990	3997.00*	1.34E+000 +/- 3.20E-001	5.77E-002 +/- 9.84E-003

AG 6/29/16

0000155766.CNF



****
***** 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: 10201

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

369:	1	2	1	1	2	1	2	5

Sample Title: 12

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

801:	0	0	0	0	0	0	0	0

Sample Title: 12

Channel								
809:	0	0	0	0	0	0	0	1
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	1	0	0	0	0	0
841:	0	0	2	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	1	0	0
873:	1	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	1	0	0	0	0
905:	0	0	0	0	0	1	0	0
913:	0	1	0	0	0	0	0	0
921:	0	0	0	0	0	1	1	0
929:	0	0	0	0	2	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	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

Apex-Alpha™

VP 6/29/16

Sample Description: CP-5013 00-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 13
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: 1.501E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/8/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:24:06 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: 0.1941 +/- 0.0163
Counting Efficiency: 0.1710 +/- 0.0030 on 12/11/2015 8:21:05 AM
Chem. Recovery Factor: 1.1353 +/- 0.0972

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		5.843	6.81	82.43	1.19	0.00E+000	3.0
TH-228		5.386	99.30	19.86	1.70	0.00E+000	4.4
TH-229	T	4.880	166.15	15.25	0.85	0.00E+000	11.2
TH-230		4.645	127.49	17.40	0.51	0.00E+000	7.9
TH-232		3.969	88.60	21.29	3.40	0.00E+000	5.2

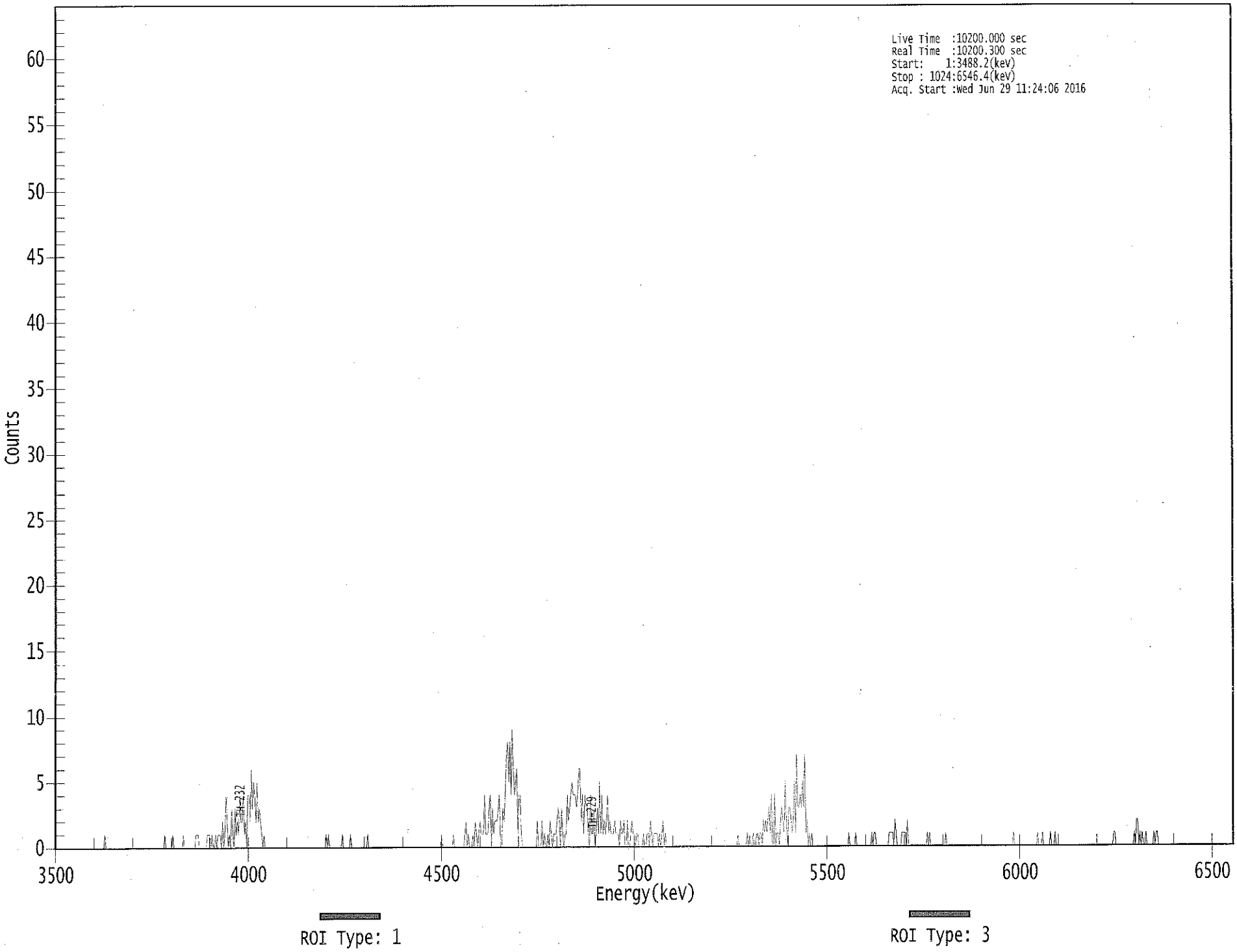
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	6.36E-002 +/- 5.35E-002	6.16E-002 +/- 1.01E-002
TH-228	0.999	5400.00*	9.23E-001 +/- 2.38E-001	6.83E-002 +/- 1.12E-002
TH-229	1.000	4872.00*	1.52E+000 +/- 2.49E-001	5.47E-002 +/- 8.98E-003
TH-230	0.996	4672.00*	1.16E+000 +/- 2.78E-001	4.78E-002 +/- 7.85E-003
TH-232	0.996	3997.00*	8.06E-001 +/- 2.17E-001	8.43E-002 +/- 1.38E-002

AG 6/29/16

0000155759.CNF



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

Sample Title: 13

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	1	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	1
97:	0	0	0	0	0	0	1	0
105:	0	0	0	0	0	0	0	1
113:	0	0	0	0	0	0	0	0
121:	0	0	1	1	1	0	0	0
129:	0	0	0	0	1	1	1	0
137:	1	0	0	1	0	1	1	1
145:	0	2	0	1	4	2	0	1
153:	0	3	1	0	3	1	2	1
161:	4	2	2	4	1	2	0	4
169:	4	2	6	3	5	4	2	5
177:	2	3	2	1	0	1	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	1	0	1	0	0
241:	0	0	0	0	0	0	0	0
249:	0	1	0	0	0	0	0	0
257:	1	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	1
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	1
337:	0	0	0	0	0	0	0	0
345:	0	1	0	0	0	0	0	0
353:	0	0	0	1	2	0	1	0
361:	0	0	1	0	2	1	0	1

369:	2	1	1	1	4	1	1	1

Sample Title: 13

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

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	1
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	1	0	0	0
857:	1	0	0	0	0	0	0	1
865:	0	0	0	1	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	1	1
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	1	0	2	2	0	1	0	1
945:	0	0	1	0	0	0	0	0
953:	0	1	0	1	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

VLB 6/29/16

Apex-Alpha™

Sample Description: CP-5013 02-05
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 14
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: 1.508E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/8/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:24:09 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: 0.1738 +/- 0.0153
Counting Efficiency: 0.1806 +/- 0.0032 on 12/11/2015 8:21:03 AM
Chem. Recovery Factor: 0.9626 +/- 0.0864

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		5.979	0.98	294.85	1.02	0.00E+000	3.0
TH-228		5.364	108.45	19.08	2.55	0.00E+000	4.1
TH-229	T	4.863	149.30	16.15	1.70	0.00E+000	6.3
TH-230		4.624	132.30	17.17	1.70	0.00E+000	10.4
TH-232		3.949	118.28	18.26	2.72	0.00E+000	12.8

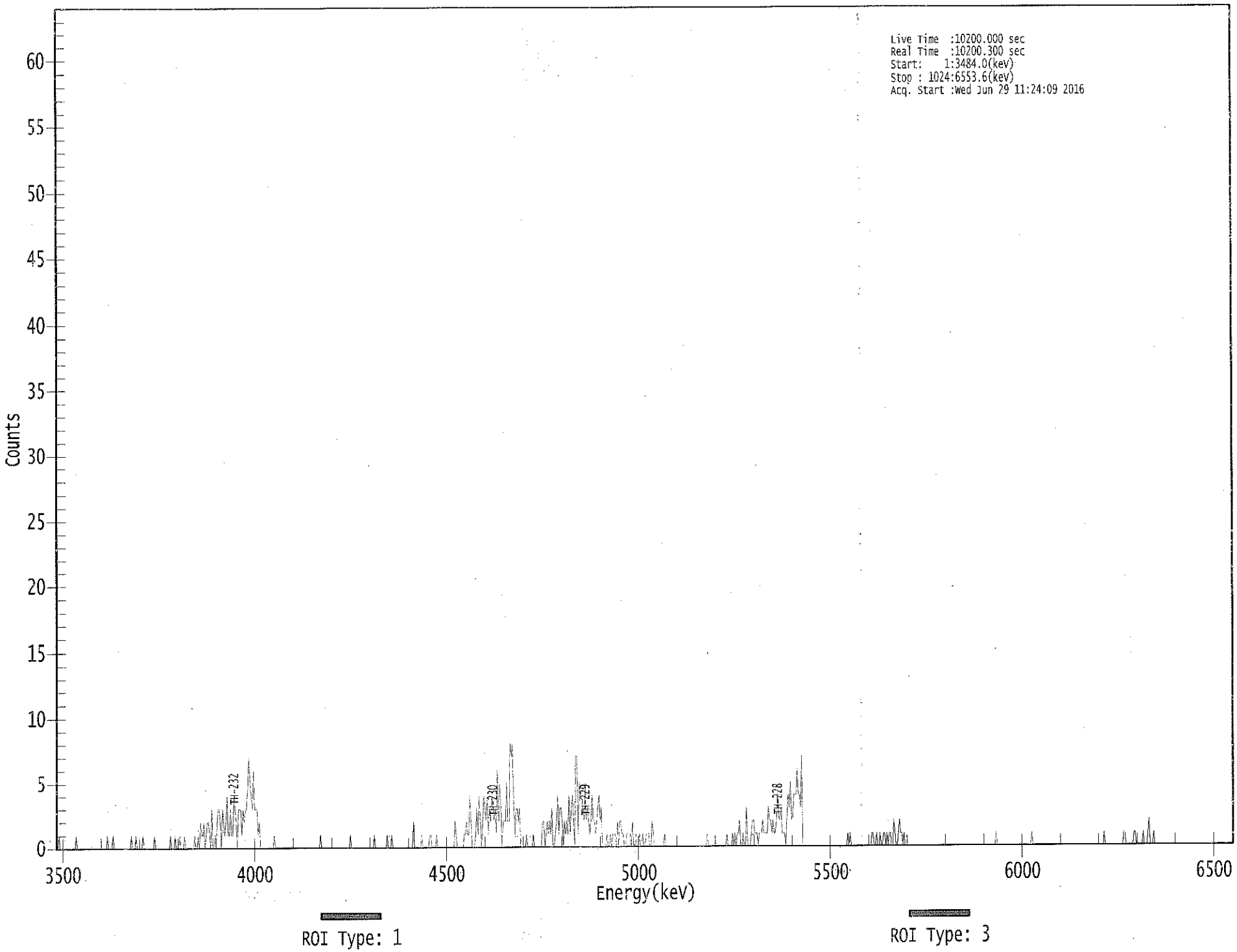
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.917	5850.00*	1.02E-002 +/- 3.01E-002	6.55E-002 +/- 1.13E-002
TH-228	0.993	5400.00*	1.12E+000 +/- 2.88E-001	8.67E-002 +/- 1.50E-002
TH-229	1.000	4872.00*	1.52E+000 +/- 2.62E-001	7.46E-002 +/- 1.29E-002
TH-230	0.988	4672.00*	1.34E+000 +/- 3.26E-001	7.44E-002 +/- 1.28E-002
TH-232	0.988	3997.00*	1.20E+000 +/- 3.00E-001	8.67E-002 +/- 1.50E-002

AG 6/29/16

0000155760.CNF



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

Sample Title: 14

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	2	0	2	4	3	2	4	1

Sample Title: 14

Channel								
377:	3	2	4	3	2	3	1	6
385:	2	5	3	0	2	2	2	5
393:	2	2	8	7	8	3	1	3
401:	3	2	3	0	0	0	0	0
409:	1	0	0	0	0	0	1	0
417:	0	0	0	0	0	0	2	2
425:	0	1	2	1	2	1	3	0
433:	0	1	2	4	1	3	3	2
441:	0	2	1	2	1	4	1	3
449:	4	2	0	7	7	1	5	4
457:	4	3	2	5	2	3	2	1
465:	2	4	2	2	1	2	3	4
473:	2	3	0	0	0	0	1	0
481:	0	1	0	1	1	1	0	2
489:	0	2	2	1	1	0	0	1
497:	1	1	1	0	2	0	0	1
505:	0	0	1	0	0	1	0	0
513:	1	1	1	0	0	2	1	0
521:	0	0	0	0	0	0	0	0
529:	1	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	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	1	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	1	0
585:	0	0	0	1	0	1	0	1
593:	1	2	0	0	1	0	0	3
601:	0	0	0	1	2	2	1	1
609:	1	0	1	1	1	2	1	1
617:	1	1	3	2	2	1	2	1
625:	1	2	4	2	2	3	1	1
633:	1	0	2	4	3	5	2	2
641:	4	4	4	6	4	4	3	7
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	1
689:	0	1	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	1	1	0	0
713:	1	0	0	1	0	0	1	1
721:	0	1	0	1	1	0	0	2
729:	1	0	0	1	2	1	1	0
737:	1	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: 14

Channel								
809:	0	0	0	0	0	0	0	0
817:	1	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	1
849:	0	0	0	0	0	0	0	0
857:	0	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	1	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	1
929:	1	0	0	0	0	0	0	0
937:	1	1	0	0	0	0	0	0
945:	1	0	0	0	1	2	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™

WP 6/29/16

Sample Description: CP-5013 05-09
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001557
Batch Identification: 1606064A-TH
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.539E+000 +/- 0.000E+000 gram
Sample Date/Time: 6/8/2016 6:32:25 AM
Acquisition Date/Time: 6/29/2016 11:24:12 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: 0.1660 +/- 0.0149
Counting Efficiency: 0.1705 +/- 0.0030 on 12/11/2015 8:21:02 AM
Chem. Recovery Factor: 0.9739 +/- 0.0889

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		5.887	11.66	58.37	0.34	0.00E+000	3.0
TH-228		5.315	140.83	16.53	0.17	0.00E+000	3.8
TH-229	T	4.850	142.32	16.48	0.68	0.00E+000	4.0
TH-230		4.599	187.00	14.37	0.00	0.00E+000	3.2
TH-232		3.920	134.83	16.89	0.17	0.00E+000	6.7

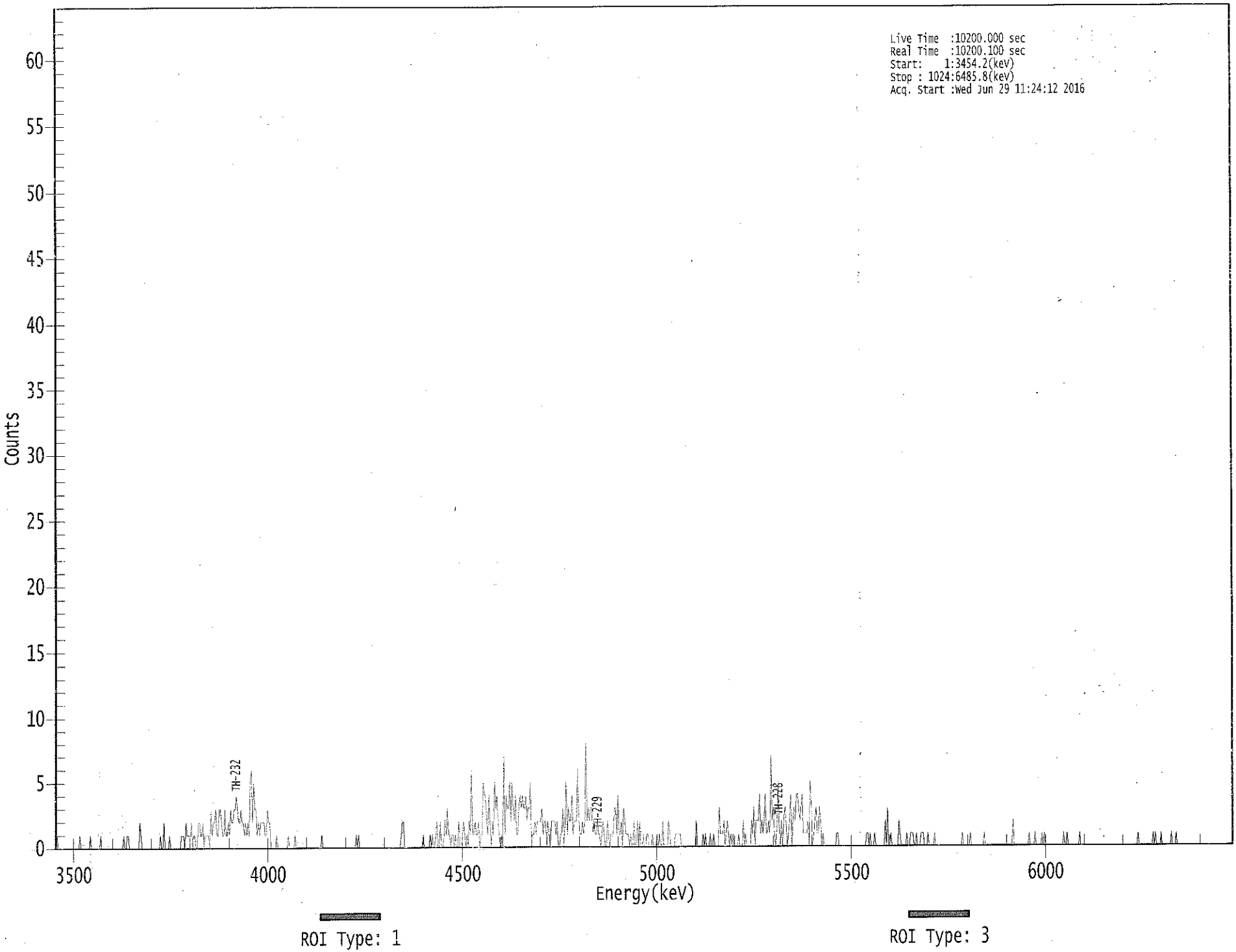
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.993	5850.00*	1.24E-001 +/- 7.57E-002	5.10E-002 +/- 8.95E-003
TH-228	0.963	5400.00*	1.49E+000 +/- 3.60E-001	4.42E-002 +/- 7.77E-003
TH-229	0.997	4872.00*	1.48E+000 +/- 2.60E-001	5.88E-002 +/- 1.03E-002
TH-230	0.973	4672.00*	1.94E+000 +/- 4.41E-001	6.23E-002 +/- 1.09E-002
TH-232	0.969	3997.00*	1.40E+000 +/- 3.41E-001	4.33E-002 +/- 7.60E-003

AG 6/29/16

0000155767.CNF



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

Sample Title: 15

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	1	1	5	4	4	2	1

Sample Title: 15

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

801:	0	0	0	0	0	0	1	0

Sample Title: 15

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	2
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	1	0	0
849:	0	0	1	0	0	0	0	0
857:	1	0	1	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	1	0	0	1	0
881:	0	0	0	0	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	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	1	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	1	0	1	0	0	0	0
961:	1	0	0	0	0	0	0	0
969:	0	1	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

6/29/2016 6:27:16 AM

Apex-Alpha™

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

Review of QA Results - Pulser Check

6/29/2016 6:27:16 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

****
***** L I B R A R Y L I S T I N G R E P O R T *****
****

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)

16-06064
Gamma
Run 1

Work Order	16-06064
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-5027 00-02	41	06/02/16 00:00	6.9516E+02
04	DO	CP-5027 00-02	41	06/02/16 00:00	6.9516E+02
05	TRG	CP-5014 00-02	51	06/07/16 00:00	5.2337E+02
06	TRG	CP-5014 02-05	47	06/07/16 00:00	5.7462E+02
07	TRG	CP-5014 05-09	47	06/07/16 00:00	2.1797E+02
08	TRG	CP-5014 09-15	47	06/07/16 00:00	3.3267E+02
09	TRG	CP-5015 00-02	49	06/07/16 00:00	5.8520E+02
10	TRG	CP-5015 02-05	41	06/07/16 00:00	6.0671E+02
11	TRG	CP-5015 05-09	36	06/07/16 00:00	3.8077E+02
12	TRG	CP-5015 09-15	57	06/07/16 00:00	4.3335E+02
13	TRG	CP-5013 00-02	39	06/08/16 00:00	5.3562E+02
14	TRG	CP-5013 02-05	46	06/08/16 00:00	6.3748E+02
15	TRG	CP-5013 05-09	41	06/08/16 00:00	3.4976E+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.

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								
13	TRG				0.00								
14	TRG				0.00								
15	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.

16-06064
Gamma
Run 1

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	06/16/16 08:54	KSALLINGS						
05	TRG	06/16/16 08:54	KSALLINGS						
06	TRG	06/16/16 08:54	KSALLINGS						
07	TRG	06/16/16 08:54	KSALLINGS						
08	TRG	06/16/16 08:54	KSALLINGS						
09	TRG	06/16/16 08:54	KSALLINGS						
10	TRG	06/16/16 08:54	KSALLINGS						
11	TRG	06/16/16 08:54	KSALLINGS						
12	TRG	06/16/16 08:54	KSALLINGS						
13	TRG	06/16/16 08:54	KSALLINGS						
14	TRG	06/16/16 08:54	KSALLINGS						
15	TRG	06/16/16 08:54	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: 16-06064-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	1.45E+02	1.00E+01	1.63E+00	1.37E+02	105.97	OK		06/14/16 00:00	1.00E+00	06/16/16 16:28	YES
01	CS-137	LCS	LCS	pCi/g	8.80E+01	8.48E+00	2.15E+00	8.69E+01	101.29	OK		06/14/16 00:00	1.00E+00	06/16/16 16:28	YES
02	AC-228	MBL	BLANK	pCi/g	-4.27E-02	1.61E-01	2.49E-01					06/14/16 00:00	1.00E+00	06/16/16 15:27	NO
02	BI-214	MBL	BLANK	pCi/g	7.41E-02	8.08E-02	1.53E-01					06/14/16 00:00	1.00E+00	06/16/16 15:27	NO
02	K-40	MBL	BLANK	pCi/g	1.39E-01	3.39E-01	6.99E-01					06/14/16 00:00	1.00E+00	06/16/16 15:27	NO
02	PA-231	MBL	BLANK	pCi/g	-2.65E-01	1.22E+00	1.86E+00					06/14/16 00:00	1.00E+00	06/16/16 15:27	NO
02	PB-210	MBL	BLANK	pCi/g	2.19E-01	3.00E-01	4.95E-01					06/14/16 00:00	1.00E+00	06/16/16 15:27	NO
02	PB-212	MBL	BLANK	pCi/g	1.11E-03	5.82E-02	9.37E-02					06/14/16 00:00	1.00E+00	06/16/16 15:27	NO
02	PB-214	MBL	BLANK	pCi/g	8.81E-02	8.03E-02	1.48E-01					06/14/16 00:00	1.00E+00	06/16/16 15:27	NO
02	TL-208	MBL	BLANK	pCi/g	1.05E-02	1.25E-01	2.11E-01					06/14/16 00:00	1.00E+00	06/16/16 15:27	NO
03	AC-228	DUP	CP-5027 00-02	pCi/g	8.33E-01	1.78E-01	4.00E-01				OK	06/02/16 00:00	6.95E+02	06/16/16 15:07	YES
03	BI-214	DUP	CP-5027 00-02	pCi/g	1.44E+00	1.79E-01	1.84E-01				OK	06/02/16 00:00	6.95E+02	06/16/16 15:07	YES
03	K-40	DUP	CP-5027 00-02	pCi/g	1.23E+01	1.70E+00	1.17E+00				OK	06/02/16 00:00	6.95E+02	06/16/16 15:07	YES
03	PA-231	DUP	CP-5027 00-02	pCi/g	-3.98E-01	6.47E-01	2.69E+00					06/02/16 00:00	6.95E+02	06/16/16 15:07	NO
03	PB-210	DUP	CP-5027 00-02	pCi/g	1.11E+00	1.14E+00	1.90E+00					06/02/16 00:00	6.95E+02	06/16/16 15:07	YES
03	PB-212	DUP	CP-5027 00-02	pCi/g	9.15E-01	1.27E-01	2.15E-01					06/02/16 00:00	6.95E+02	06/16/16 15:07	YES
03	PB-214	DUP	CP-5027 00-02	pCi/g	1.50E+00	1.67E-01	2.61E-01					06/02/16 00:00	6.95E+02	06/16/16 15:07	YES
03	TL-208	DUP	CP-5027 00-02	pCi/g	7.42E-01	1.33E-01	3.64E-02					06/02/16 00:00	6.95E+02	06/16/16 15:07	YES
04	AC-228	DO	CP-5027 00-02	pCi/g	8.43E-01	1.81E-01	5.07E-01					06/02/16 00:00	6.95E+02	06/16/16 16:08	YES
04	BI-214	DO	CP-5027 00-02	pCi/g	1.49E+00	1.83E-01	1.81E-01					06/02/16 00:00	6.95E+02	06/16/16 16:08	YES
04	K-40	DO	CP-5027 00-02	pCi/g	1.19E+01	1.65E+00	1.09E+00					06/02/16 00:00	6.95E+02	06/16/16 16:08	YES
04	PA-231	DO	CP-5027 00-02	pCi/g	2.48E-01	1.81E+00	2.65E+00					06/02/16 00:00	6.95E+02	06/16/16 16:08	NO
04	PB-210	DO	CP-5027 00-02	pCi/g	1.27E+00	1.15E+00	1.90E+00					06/02/16 00:00	6.95E+02	06/16/16 16:08	YES
04	PB-212	DO	CP-5027 00-02	pCi/g	8.36E-01	1.16E-01	2.16E-01					06/02/16 00:00	6.95E+02	06/16/16 16:08	YES
04	PB-214	DO	CP-5027 00-02	pCi/g	1.45E+00	1.79E-01	2.45E-01					06/02/16 00:00	6.95E+02	06/16/16 16:08	YES
04	TL-208	DO	CP-5027 00-02	pCi/g	5.48E-01	1.34E-01	3.64E-02					06/02/16 00:00	6.95E+02	06/16/16 16:08	YES
05	AC-228	TRG	CP-5014 00-02	pCi/g	1.42E+00	2.26E-01	4.12E-01					06/07/16 00:00	5.23E+02	06/16/16 15:54	YES
05	BI-214	TRG	CP-5014 00-02	pCi/g	1.53E+00	1.85E-01	2.17E-01					06/07/16 00:00	5.23E+02	06/16/16 15:54	YES
05	K-40	TRG	CP-5014 00-02	pCi/g	1.84E+01	2.11E+00	9.26E-01					06/07/16 00:00	5.23E+02	06/16/16 15:54	YES
05	PA-231	TRG	CP-5014 00-02	pCi/g	2.25E+00	1.42E+00	2.52E+00					06/07/16 00:00	5.23E+02	06/16/16 15:54	NO
05	PB-210	TRG	CP-5014 00-02	pCi/g	2.76E+00	1.38E+00	2.18E+00					06/07/16 00:00	5.23E+02	06/16/16 15:54	YES
05	PB-212	TRG	CP-5014 00-02	pCi/g	8.38E-01	1.52E-01	2.50E-01					06/07/16 00:00	5.23E+02	06/16/16 15:54	NO
05	PB-214	TRG	CP-5014 00-02	pCi/g	1.70E+00	2.04E-01	2.99E-01					06/07/16 00:00	5.23E+02	06/16/16 15:54	YES
05	TL-208	TRG	CP-5014 00-02	pCi/g	1.12E+00	1.68E-01	1.94E-01					06/07/16 00:00	5.23E+02	06/16/16 15:54	YES
06	AC-228	TRG	CP-5014 02-05	pCi/g	1.29E+00	2.65E-01	5.41E-01					06/07/16 00:00	5.75E+02	06/16/16 16:08	YES
06	BI-214	TRG	CP-5014 02-05	pCi/g	3.53E+00	3.32E-01	2.80E-01					06/07/16 00:00	5.75E+02	06/16/16 16:08	YES
06	K-40	TRG	CP-5014 02-05	pCi/g	1.99E+01	2.39E+00	1.15E+00					06/07/16 00:00	5.75E+02	06/16/16 16:08	YES
06	PA-231	TRG	CP-5014 02-05	pCi/g	-1.35E-01	1.08E+00	2.79E+00					06/07/16 00:00	5.75E+02	06/16/16 16:08	NO

Work Order: 16-06064-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
06	PB-210	TRG	CP-5014 02-05	pCi/g	2.42E+00	1.27E+00	2.04E+00					06/07/16 00:00	5.75E+02	06/16/16 16:08	YES
06	PB-212	TRG	CP-5014 02-05	pCi/g	1.30E+00	2.03E-01	2.25E-01					06/07/16 00:00	5.75E+02	06/16/16 16:08	YES
06	PB-214	TRG	CP-5014 02-05	pCi/g	3.89E+00	4.75E-01	2.51E-01					06/07/16 00:00	5.75E+02	06/16/16 16:08	YES
06	TL-208	TRG	CP-5014 02-05	pCi/g	8.32E-01	1.58E-01	9.52E-02					06/07/16 00:00	5.75E+02	06/16/16 16:08	YES
07	AC-228	TRG	CP-5014 05-09	pCi/g	2.08E+00	4.40E-01	7.44E-01					06/07/16 00:00	2.18E+02	06/16/16 16:55	YES
07	BI-214	TRG	CP-5014 05-09	pCi/g	5.67E+00	5.55E-01	5.68E-01					06/07/16 00:00	2.18E+02	06/16/16 16:55	YES
07	K-40	TRG	CP-5014 05-09	pCi/g	3.46E+01	4.22E+00	2.89E+00					06/07/16 00:00	2.18E+02	06/16/16 16:55	YES
07	PA-231	TRG	CP-5014 05-09	pCi/g	4.33E-01	3.51E+00	5.72E+00					06/07/16 00:00	2.18E+02	06/16/16 16:55	NO
07	PB-210	TRG	CP-5014 05-09	pCi/g	9.64E+00	3.58E+00	5.45E+00					06/07/16 00:00	2.18E+02	06/16/16 16:55	YES
07	PB-212	TRG	CP-5014 05-09	pCi/g	2.86E+00	3.63E-01	6.15E-01					06/07/16 00:00	2.18E+02	06/16/16 16:55	YES
07	PB-214	TRG	CP-5014 05-09	pCi/g	6.29E+00	5.66E-01	5.82E-01					06/07/16 00:00	2.18E+02	06/16/16 16:55	YES
07	TL-208	TRG	CP-5014 05-09	pCi/g	1.92E+00	3.38E-01	3.46E-01					06/07/16 00:00	2.18E+02	06/16/16 16:55	YES
08	AC-228	TRG	CP-5014 09-15	pCi/g	3.13E+00	7.89E-01	1.23E+00					06/07/16 00:00	3.33E+02	06/16/16 16:59	YES
08	BI-214	TRG	CP-5014 09-15	pCi/g	1.60E+00	5.17E-01	9.18E-01					06/07/16 00:00	3.33E+02	06/16/16 16:59	YES
08	K-40	TRG	CP-5014 09-15	pCi/g	3.00E+01	5.36E+00	3.24E+00					06/07/16 00:00	3.33E+02	06/16/16 16:59	YES
08	PA-231	TRG	CP-5014 09-15	pCi/g	-1.37E+00	2.70E+00	8.06E+00					06/07/16 00:00	3.33E+02	06/16/16 16:59	NO
08	PB-210	TRG	CP-5014 09-15	pCi/g	1.89E+00	1.46E+00	2.34E+00					06/07/16 00:00	3.33E+02	06/16/16 16:59	NO
08	PB-212	TRG	CP-5014 09-15	pCi/g	2.52E+00	5.11E-01	6.46E-01					06/07/16 00:00	3.33E+02	06/16/16 16:59	YES
08	PB-214	TRG	CP-5014 09-15	pCi/g	1.21E+00	4.36E-01	6.25E-01					06/07/16 00:00	3.33E+02	06/16/16 16:59	YES
08	TL-208	TRG	CP-5014 09-15	pCi/g	2.28E+00	8.70E-01	1.27E+00					06/07/16 00:00	3.33E+02	06/16/16 16:59	YES
09	AC-228	TRG	CP-5015 00-02	pCi/g	1.18E+00	2.28E-01	3.56E-01					06/07/16 00:00	5.85E+02	06/16/16 17:09	YES
09	BI-214	TRG	CP-5015 00-02	pCi/g	1.01E+00	1.87E-01	2.41E-01					06/07/16 00:00	5.85E+02	06/16/16 17:09	YES
09	K-40	TRG	CP-5015 00-02	pCi/g	1.95E+01	2.27E+00	7.44E-01					06/07/16 00:00	5.85E+02	06/16/16 17:09	YES
09	PA-231	TRG	CP-5015 00-02	pCi/g	-2.80E-02	1.69E+00	2.16E+00					06/07/16 00:00	5.85E+02	06/16/16 17:09	NO
09	PB-210	TRG	CP-5015 00-02	pCi/g	1.26E+00	1.15E+00	1.91E+00					06/07/16 00:00	5.85E+02	06/16/16 17:09	YES
09	PB-212	TRG	CP-5015 00-02	pCi/g	1.09E+00	2.06E-01	2.16E-01					06/07/16 00:00	5.85E+02	06/16/16 17:09	YES
09	PB-214	TRG	CP-5015 00-02	pCi/g	1.04E+00	2.23E-01	1.85E-01					06/07/16 00:00	5.85E+02	06/16/16 17:09	YES
09	TL-208	TRG	CP-5015 00-02	pCi/g	9.67E-01	1.64E-01	9.35E-02					06/07/16 00:00	5.85E+02	06/16/16 17:09	YES
10	AC-228	TRG	CP-5015 02-05	pCi/g	1.63E+00	2.83E-01	5.20E-01					06/07/16 00:00	6.07E+02	06/16/16 17:10	YES
10	BI-214	TRG	CP-5015 02-05	pCi/g	1.04E+00	1.77E-01	2.59E-01					06/07/16 00:00	6.07E+02	06/16/16 17:10	YES
10	K-40	TRG	CP-5015 02-05	pCi/g	1.95E+01	2.36E+00	1.03E+00					06/07/16 00:00	6.07E+02	06/16/16 17:10	YES
10	PA-231	TRG	CP-5015 02-05	pCi/g	4.04E-01	7.84E-01	3.14E+00					06/07/16 00:00	6.07E+02	06/16/16 17:10	NO
10	PB-210	TRG	CP-5015 02-05	pCi/g	2.09E+00	1.69E+00	2.78E+00					06/07/16 00:00	6.07E+02	06/16/16 17:10	YES
10	PB-212	TRG	CP-5015 02-05	pCi/g	1.43E+00	1.68E-01	2.69E-01					06/07/16 00:00	6.07E+02	06/16/16 17:10	YES
10	PB-214	TRG	CP-5015 02-05	pCi/g	1.11E+00	1.96E-01	3.12E-01					06/07/16 00:00	6.07E+02	06/16/16 17:10	YES
10	TL-208	TRG	CP-5015 02-05	pCi/g	1.18E+00	2.09E-01	2.28E-01					06/07/16 00:00	6.07E+02	06/16/16 17:10	YES
11	AC-228	TRG	CP-5015 05-09	pCi/g	2.13E+00	3.60E-01	6.51E-01					06/07/16 00:00	3.81E+02	06/17/16 06:14	YES
11	BI-214	TRG	CP-5015 05-09	pCi/g	1.48E+00	2.86E-01	3.89E-01					06/07/16 00:00	3.81E+02	06/17/16 06:14	YES

Work Order: 16-06064-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
11	K-40	TRG	CP-5015 05-09	pCi/g	2.68E+01	3.32E+00	1.22E+00					06/07/16 00:00	3.81E+02	06/17/16 06:14	YES
11	PA-231	TRG	CP-5015 05-09	pCi/g	1.96E+00	2.94E+00	4.54E+00					06/07/16 00:00	3.81E+02	06/17/16 06:14	NO
11	PB-210	TRG	CP-5015 05-09	pCi/g	3.53E+00	2.52E+00	4.13E+00					06/07/16 00:00	3.81E+02	06/17/16 06:14	YES
11	PB-212	TRG	CP-5015 05-09	pCi/g	2.27E+00	2.65E-01	3.76E-01					06/07/16 00:00	3.81E+02	06/17/16 06:14	YES
11	PB-214	TRG	CP-5015 05-09	pCi/g	1.44E+00	2.37E-01	3.57E-01					06/07/16 00:00	3.81E+02	06/17/16 06:14	YES
11	TL-208	TRG	CP-5015 05-09	pCi/g	1.59E+00	2.62E-01	2.07E-01					06/07/16 00:00	3.81E+02	06/17/16 06:14	YES
12	AC-228	TRG	CP-5015 09-15	pCi/g	1.77E+00	6.32E-01	1.25E+00					06/07/16 00:00	4.33E+02	06/17/16 07:04	NO
12	BI-214	TRG	CP-5015 09-15	pCi/g	1.47E+00	3.44E-01	2.07E-01					06/07/16 00:00	4.33E+02	06/17/16 07:04	YES
12	K-40	TRG	CP-5015 09-15	pCi/g	2.74E+01	4.47E+00	1.39E+00					06/07/16 00:00	4.33E+02	06/17/16 07:04	YES
12	PA-231	TRG	CP-5015 09-15	pCi/g	-1.33E+00	3.85E+00	6.31E+00					06/07/16 00:00	4.33E+02	06/17/16 07:04	NO
12	PB-210	TRG	CP-5015 09-15	pCi/g	4.51E-01	1.16E+00	1.81E+00					06/07/16 00:00	4.33E+02	06/17/16 07:04	NO
12	PB-212	TRG	CP-5015 09-15	pCi/g	2.06E+00	4.38E-01	5.79E-01					06/07/16 00:00	4.33E+02	06/17/16 07:04	YES
12	PB-214	TRG	CP-5015 09-15	pCi/g	9.98E-01	3.21E-01	5.64E-01					06/07/16 00:00	4.33E+02	06/17/16 07:04	YES
12	TL-208	TRG	CP-5015 09-15	pCi/g	1.50E+00	5.14E-01	9.37E-01					06/07/16 00:00	4.33E+02	06/17/16 07:04	NO
13	AC-228	TRG	CP-5013 00-02	pCi/g	1.24E+00	2.78E-01	5.26E-01					06/08/16 00:00	5.36E+02	06/17/16 07:14	NO
13	BI-214	TRG	CP-5013 00-02	pCi/g	1.14E+00	1.57E-01	2.49E-01					06/08/16 00:00	5.36E+02	06/17/16 07:14	YES
13	K-40	TRG	CP-5013 00-02	pCi/g	2.06E+01	2.28E+00	8.65E-01					06/08/16 00:00	5.36E+02	06/17/16 07:14	YES
13	PA-231	TRG	CP-5013 00-02	pCi/g	6.98E-01	1.42E+00	2.32E+00					06/08/16 00:00	5.36E+02	06/17/16 07:14	NO
13	PB-210	TRG	CP-5013 00-02	pCi/g	2.22E+00	1.32E+00	3.43E+00					06/08/16 00:00	5.36E+02	06/17/16 07:14	YES
13	PB-212	TRG	CP-5013 00-02	pCi/g	1.39E+00	1.61E-01	2.09E-01					06/08/16 00:00	5.36E+02	06/17/16 07:14	YES
13	PB-214	TRG	CP-5013 00-02	pCi/g	1.32E+00	1.48E-01	2.22E-01					06/08/16 00:00	5.36E+02	06/17/16 07:14	YES
13	TL-208	TRG	CP-5013 00-02	pCi/g	1.04E+00	1.62E-01	1.07E-01					06/08/16 00:00	5.36E+02	06/17/16 07:14	YES
14	AC-228	TRG	CP-5013 02-05	pCi/g	1.39E+00	2.23E-01	4.77E-01					06/08/16 00:00	6.37E+02	06/17/16 07:17	YES
14	BI-214	TRG	CP-5013 02-05	pCi/g	9.45E-01	1.66E-01	2.21E-01					06/08/16 00:00	6.37E+02	06/17/16 07:17	YES
14	K-40	TRG	CP-5013 02-05	pCi/g	1.89E+01	2.29E+00	1.07E+00					06/08/16 00:00	6.37E+02	06/17/16 07:17	YES
14	PA-231	TRG	CP-5013 02-05	pCi/g	1.69E-01	9.08E-01	2.92E+00					06/08/16 00:00	6.37E+02	06/17/16 07:17	NO
14	PB-210	TRG	CP-5013 02-05	pCi/g	2.65E+00	1.39E+00	1.96E+00					06/08/16 00:00	6.37E+02	06/17/16 07:17	NO
14	PB-212	TRG	CP-5013 02-05	pCi/g	1.45E+00	1.66E-01	2.69E-01					06/08/16 00:00	6.37E+02	06/17/16 07:17	YES
14	PB-214	TRG	CP-5013 02-05	pCi/g	1.03E+00	1.69E-01	2.88E-01					06/08/16 00:00	6.37E+02	06/17/16 07:17	YES
14	TL-208	TRG	CP-5013 02-05	pCi/g	1.11E+00	1.75E-01	1.95E-01					06/08/16 00:00	6.37E+02	06/17/16 07:17	YES
15	AC-228	TRG	CP-5013 05-09	pCi/g	2.30E+00	6.66E-01	1.12E+00					06/08/16 00:00	3.50E+02	06/17/16 08:07	YES
15	BI-214	TRG	CP-5013 05-09	pCi/g	1.21E+00	3.27E-01	9.03E-01					06/08/16 00:00	3.50E+02	06/17/16 08:07	YES
15	K-40	TRG	CP-5013 05-09	pCi/g	2.64E+01	4.71E+00	2.29E+00					06/08/16 00:00	3.50E+02	06/17/16 08:07	YES
15	PA-231	TRG	CP-5013 05-09	pCi/g	-2.71E+00	4.84E+00	7.62E+00					06/08/16 00:00	3.50E+02	06/17/16 08:07	NO
15	PB-210	TRG	CP-5013 05-09	pCi/g	2.43E-01	1.39E+00	2.12E+00					06/08/16 00:00	3.50E+02	06/17/16 08:07	NO
15	PB-212	TRG	CP-5013 05-09	pCi/g	2.12E+00	3.88E-01	6.25E-01					06/08/16 00:00	3.50E+02	06/17/16 08:07	NO
15	PB-214	TRG	CP-5013 05-09	pCi/g	1.64E+00	3.92E-01	6.64E-01					06/08/16 00:00	3.50E+02	06/17/16 08:07	YES
15	TL-208	TRG	CP-5013 05-09	pCi/g	1.87E+00	4.81E-01	1.51E-01					06/08/16 00:00	3.50E+02	06/17/16 08:07	YES

Count Room Report
Client: Auxier Associates, Inc.

16-06064-Gamma-1 (pCi/g) in SO
Tracer ID:

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-5027 00-02	06/02/16 00:00	695.1600				0.00		
04	DO	CP-5027 00-02	06/02/16 00:00	695.1600				0.00		
05	TRG	CP-5014 00-02	06/07/16 00:00	523.3700				0.00		
06	TRG	CP-5014 02-05	06/07/16 00:00	574.6200				0.00		
07	TRG	CP-5014 05-09	06/07/16 00:00	217.9700				0.00		
08	TRG	CP-5014 09-15	06/07/16 00:00	332.6700				0.00		
09	TRG	CP-5015 00-02	06/07/16 00:00	585.2000				0.00		
10	TRG	CP-5015 02-05	06/07/16 00:00	606.7100				0.00		
11	TRG	CP-5015 05-09	06/07/16 00:00	380.7700				0.00		
12	TRG	CP-5015 09-15	06/07/16 00:00	433.3500				0.00		
13	TRG	CP-5013 00-02	06/08/16 00:00	535.6200				0.00		
14	TRG	CP-5013 02-05	06/08/16 00:00	637.4800				0.00		
15	TRG	CP-5013 05-09	06/08/16 00:00	349.7600				0.00		

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

GAS-1302

94268

Sand in 16 Ounce PP Taral Jar Filled to Top

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

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

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

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

Calibration Methods: 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)

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

00266

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Printed: 6/16/2016 10:46 AM

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
16-06064	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-5027 00-02	DUP					6.9516E+02	6.9516E+02				
04	CP-5027 00-02	DO					6.9516E+02	6.9516E+02				
05	CP-5014 00-02	TRG					5.2337E+02	5.2337E+02				
06	CP-5014 02-05	TRG					5.7462E+02	5.7462E+02				
07	CP-5014 05-09	TRG					2.1797E+02	2.1797E+02				
08	CP-5014 09-15	TRG					3.3267E+02	3.3267E+02				
09	CP-5015 00-02	TRG					5.8520E+02	5.8520E+02				
10	CP-5015 02-05	TRG					6.0671E+02	6.0671E+02				
11	CP-5015 05-09	TRG					3.8077E+02	3.8077E+02				
12	CP-5015 09-15	TRG					4.3335E+02	4.3335E+02				
13	CP-5013 00-02	TRG					5.3562E+02	5.3562E+02				
14	CP-5013 02-05	TRG					6.3748E+02	6.3748E+02				
15	CP-5013 05-09	TRG					3.4976E+02	3.4976E+02				

Comments	

Technician: Kenny Sacs Date: 6/16/16

Eberline Services - Oak Ridge
Prep Logbook
Version 2.0 8/1999

Rough Sample Preparation Log Book

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
16-06064	7/5/2016	6/15/2016	6/16/2016	6/17/2016	KSALLINGS

Eberline	Auxier & Associates, Inc.	Tare (g)	Gross (g)		Net (g)		Percent		Gamma		Special Info
Fraction	Client ID	Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	
04	CP-5027 00-02	14.5800	938.1400	838.2000	923.5600	823.6200	10.82%	89.18%	0.0000	0.0000	
05	CP-5014 00-02	14.6200	719.4900	615.3300	704.8700	600.7100	14.78%	85.22%	0.0000	0.0000	
06	CP-5014 02-05	14.6000	843.7600	680.6000	829.1600	666.0000	19.68%	80.32%	0.0000	0.0000	
07	CP-5014 05-09	14.5900	349.2000	278.6600	334.6100	264.0700	21.08%	78.92%	0.0000	0.0000	
08	CP-5014 09-15	14.6200	509.3300	399.7100	494.7100	385.0900	22.16%	77.84%	0.0000	0.0000	
09	CP-5015 00-02	14.5800	910.0800	854.4000	895.5000	839.8200	6.22%	93.78%	0.0000	0.0000	
10	CP-5015 02-05	14.5900	1240.2000	910.9200	1225.6100	896.3300	26.87%	73.13%	0.0000	0.0000	
11	CP-5015 05-09	14.5900	583.4700	462.0100	568.8800	447.4200	21.35%	78.65%	0.0000	0.0000	
12	CP-5015 09-15	14.5500	639.8800	499.5300	625.3300	484.9800	22.44%	77.56%	0.0000	0.0000	
13	CP-5013 00-02	14.5200	732.4100	615.5700	717.8900	601.0500	16.28%	83.72%	0.0000	0.0000	
14	CP-5013 02-05	14.5500	884.1200	726.5700	869.5700	712.0200	18.12%	81.88%	0.0000	0.0000	
15	CP-5013 05-09	14.5300	518.7000	415.6400	504.1700	401.1100	20.44%	79.56%	0.0000	0.0000	

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

Technician: [signature] Date:Analysis: Rough Prep Logbook

Analysis: Gamma Page No. 9699

Apex-Gamma

Analysis Report for 1606064-01
GAS 1302

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1606064-01
Sample Description	: GAS 1302
Sample Type	: SOIL
Sample Size	: 7.360E+02 grams
Facility	: Countroom
Sample Taken On	: 7/1/2013 12:11:19PM
Acquisition Started	: 6/16/2016 4:28:01PM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1402
Live Time	: 1800.0 seconds
Real Time	: 1818.6 seconds
Dead Time	: 1.02 %
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	: 39032

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

Analysis Report for 1606064-01

GAS 1302

PEAK LOCATE REPORT

Peak Locate Performed on : 6/16/2016 4:58:23PM
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	22.64	21.88	0.0000	0.00
2	32.14	31.39	0.0000	0.00
3	53.81	53.07	0.0000	0.00
4	59.68	58.94	0.0000	0.00
5	88.00	87.27	0.0000	0.00
6	122.20	121.49	0.0000	0.00
7	136.96	136.25	0.0000	0.00
8	165.50	164.81	0.0000	0.00
9	361.07	360.46	0.0000	0.00
10	392.35	391.76	0.0000	0.00
11	661.55	661.08	0.0000	0.00
12	820.96	820.57	0.0000	0.00
13	899.73	899.38	0.0000	0.00
14	1172.79	1172.59	0.0000	0.00
15	1331.95	1331.84	0.0000	0.00
16	1606.90	1606.96	0.0000	0.00
17	1665.24	1665.34	0.0000	0.00
18	1672.81	1672.92	0.0000	0.00
19	1683.44	1683.55	0.0000	0.00
20	1713.45	1713.58	0.0000	0.00
21	1792.10	1792.28	0.0000	0.00
22	1835.04	1835.25	0.0000	0.00
23	1957.24	1957.53	0.0000	0.00
24	2066.54	2066.90	0.0000	0.00
25	2119.38	2119.79	0.0000	0.00
26	2281.48	2282.00	0.0000	0.00
27	2504.34	2505.03	0.0000	0.00
28	2613.05	2613.82	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606064-01

GAS 1302

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/16/2016 4:58:23PM

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	22.64	20 -	25	21.88	4.25E+04	682.27	5.80E+04	2.25
	2	32.14	30 -	35	31.39	7.25E+02	229.45	1.00E+04	2.06
M	3	53.81	44 -	63	53.07	1.67E+04	915.82	5.05E+04	6.63
m	4	59.68	44 -	63	58.94	5.65E+04	586.25	1.63E+04	2.27
	5	88.00	80 -	92	87.27	1.87E+04	532.47	2.45E+04	2.39
	6	122.20	114 -	125	121.49	2.66E+03	378.51	1.66E+04	2.25
	7	136.96	134 -	139	136.25	2.39E+02	192.37	7.19E+03	2.22
	8	165.50	162 -	168	164.81	2.03E+02	206.26	7.59E+03	1.24
	9	361.07	358 -	364	360.46	1.32E+02	149.98	4.01E+03	2.47
	10	392.35	389 -	395	391.76	1.41E+02	153.70	4.19E+03	2.24
	11	661.55	654 -	666	661.08	1.23E+04	285.69	3.84E+03	2.55
	12	820.96	817 -	825	820.57	1.99E+02	127.17	2.37E+03	4.73
	13	899.73	897 -	903	899.38	1.08E+02	113.39	2.26E+03	3.17
	14	1172.79	1165 -	1177	1172.59	9.95E+03	228.19	1.46E+03	2.69
	15	1331.95	1324 -	1339	1331.84	8.74E+03	195.97	3.39E+02	2.75
	16	1606.90	1604 -	1610	1606.96	9.42E+00	12.23	1.92E+01	1.24
	17	1665.24	1662 -	1668	1665.34	1.42E+01	11.36	1.16E+01	3.88
	18	1672.81	1669 -	1677	1672.92	2.41E+01	12.51	9.86E+00	5.67
	19	1683.44	1679 -	1688	1683.55	1.38E+01	13.86	1.84E+01	2.36
	20	1713.45	1710 -	1716	1713.58	8.82E+00	9.63	1.04E+01	4.42
	21	1792.10	1788 -	1796	1792.28	1.61E+01	12.20	1.19E+01	1.50
	22	1835.04	1832 -	1838	1835.25	1.19E+01	11.88	1.63E+01	1.71
	23	1957.24	1955 -	1960	1957.53	7.00E+00	7.62	6.00E+00	2.69
	24	2066.54	2064 -	2070	2066.90	7.30E+00	8.03	5.40E+00	1.98
	25	2119.38	2114 -	2124	2119.79	1.55E+01	12.02	1.10E+01	5.65
	26	2281.48	2279 -	2286	2282.00	8.00E+00	8.94	8.00E+00	2.11
	27	2504.34	2500 -	2509	2505.03	3.70E+01	12.17	0.00E+00	4.33
	28	2613.05	2609 -	2617	2613.82	1.10E+01	6.63	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

Analysis Report for 1606064-01

GAS 1302

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/16/2016 4:58:23PM

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	22.64	20 -	25	4.25E+04	682.27	5.80E+04	4.47E+02
	2	32.14	30 -	35	7.25E+02	229.45	1.00E+04	1.83E+02
M	3	53.81	44 -	63	1.67E+04	915.82	5.05E+04	3.69E+02
m	4	59.68	44 -	63	5.65E+04	586.25	1.63E+04	2.10E+02
	5	88.00	80 -	92	1.87E+04	532.47	2.45E+04	3.76E+02
	6	122.20	114 -	125	2.66E+03	378.51	1.66E+04	2.99E+02
	7	136.96	134 -	139	2.39E+02	192.37	7.19E+03	1.56E+02
	8	165.50	162 -	168	2.03E+02	206.26	7.59E+03	1.68E+02
	9	361.07	358 -	364	1.32E+02	149.98	4.01E+03	1.22E+02
	10	392.35	389 -	395	1.41E+02	153.70	4.19E+03	1.25E+02
	11	661.55	654 -	666	1.23E+04	285.69	3.84E+03	1.48E+02
	12	820.96	817 -	825	1.99E+02	127.17	2.37E+03	1.02E+02
	13	899.73	897 -	903	1.08E+02	113.39	2.26E+03	9.16E+01
	14	1172.79	1165 -	1177	9.95E+03	228.19	1.46E+03	9.10E+01
	15	1331.95	1324 -	1339	8.74E+03	195.97	3.39E+02	4.81E+01
	16	1606.90	1604 -	1610	9.42E+00	12.23	1.92E+01	8.69E+00
	17	1665.24	1662 -	1668	1.42E+01	11.36	1.16E+01	6.98E+00
	18	1672.81	1669 -	1677	2.41E+01	12.51	9.86E+00	6.38E+00
	19	1683.44	1679 -	1688	1.38E+01	13.86	1.84E+01	9.62E+00
	20	1713.45	1710 -	1716	8.82E+00	9.63	1.04E+01	6.23E+00
	21	1792.10	1788 -	1796	1.61E+01	12.20	1.19E+01	7.56E+00
	22	1835.04	1832 -	1838	1.19E+01	11.88	1.63E+01	7.96E+00
	23	1957.24	1955 -	1960	7.00E+00	7.62	6.00E+00	4.50E+00
	24	2066.54	2064 -	2070	7.30E+00	8.03	5.40E+00	4.88E+00
	25	2119.38	2114 -	2124	1.55E+01	12.02	1.10E+01	7.47E+00
	26	2281.48	2279 -	2286	8.00E+00	8.94	8.00E+00	5.70E+00
	27	2504.34	2500 -	2509	3.70E+01	12.17	0.00E+00	0.00E+00
	28	2613.05	2609 -	2617	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 1606064-01

GAS 1302

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/16/2016 4:58:23PM

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	22.64	20 -	25	21.88	4.25E+04	682.27	5.80E+04	.....
	2	32.14	30 -	35	31.39	7.25E+02	229.45	1.00E+04	.....
M	3	53.81	44 -	63	53.07	1.67E+04	915.82	5.05E+04	.....
m	4	59.68	44 -	63	58.94	5.65E+04	586.25	1.63E+04	AM-241
	5	88.00	80 -	92	87.27	1.87E+04	532.47	2.45E+04	CD-109 LU-176 SN-126
	6	122.20	114 -	125	121.49	2.66E+03	378.51	1.66E+04	CO-57 EU-152 EU-154
	7	136.96	134 -	139	136.25	2.39E+02	192.37	7.19E+03	CO-57 SE-75
	8	165.50	162 -	168	164.81	2.03E+02	206.26	7.59E+03	CE-139
	9	361.07	358 -	364	360.46	1.32E+02	149.98	4.01E+03	.....
	10	392.35	389 -	395	391.76	1.41E+02	153.70	4.19E+03	SN-113
	11	661.55	654 -	666	661.08	1.23E+04	285.69	3.84E+03	CS-137
	12	820.96	817 -	825	820.57	1.99E+02	127.17	2.37E+03	.....
	13	899.73	897 -	903	899.38	1.08E+02	113.39	2.26E+03	.....
	14	1172.79	1165 -	1177	1172.59	9.95E+03	228.19	1.46E+03	CO-60
	15	1331.95	1324 -	1339	1331.84	8.74E+03	195.97	3.39E+02	CO-60
	16	1606.90	1604 -	1610	1606.96	9.42E+00	12.23	1.92E+01	.....
	17	1665.24	1662 -	1668	1665.34	1.42E+01	11.36	1.16E+01	.....
	18	1672.81	1669 -	1677	1672.92	2.41E+01	12.51	9.86E+00	.....
	19	1683.44	1679 -	1688	1683.55	1.38E+01	13.86	1.84E+01	.....
	20	1713.45	1710 -	1716	1713.58	8.82E+00	9.63	1.04E+01	.....
	21	1792.10	1788 -	1796	1792.28	1.61E+01	12.20	1.19E+01	.....
	22	1835.04	1832 -	1838	1835.25	1.19E+01	11.88	1.63E+01	Y-88
	23	1957.24	1955 -	1960	1957.53	7.00E+00	7.62	6.00E+00	.....
	24	2066.54	2064 -	2070	2066.90	7.30E+00	8.03	5.40E+00	.....
	25	2119.38	2114 -	2124	2119.79	1.55E+01	12.02	1.10E+01	.....
	26	2281.48	2279 -	2286	2282.00	8.00E+00	8.94	8.00E+00	.....
	27	2504.34	2500 -	2509	2505.03	3.70E+01	12.17	0.00E+00	.....
	28	2613.05	2609 -	2617	2613.82	1.10E+01	6.63	0.00E+00	.....

Analysis Report for 1606064-01

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 : 6/16/2016 4:58:23PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	22.64	4.25E+04	682.27	3.04E-02	1.78E-03
	2	32.14	7.25E+02	229.45	2.90E-02	1.78E-03
M	3	53.81	1.67E+04	915.82	2.49E-02	1.78E-03
m	4	59.68	5.65E+04	586.25	2.39E-02	1.78E-03
	5	88.00	1.87E+04	532.47	1.96E-02	1.63E-03
	6	122.20	2.66E+03	378.51	1.59E-02	1.52E-03
	7	136.96	2.39E+02	192.37	1.47E-02	1.42E-03
	8	165.50	2.03E+02	206.26	1.28E-02	1.22E-03
	9	361.07	1.32E+02	149.98	6.45E-03	7.70E-04
	10	392.35	1.41E+02	153.70	5.96E-03	7.35E-04
	11	661.55	1.23E+04	285.69	3.57E-03	3.40E-04
	12	820.96	1.99E+02	127.17	2.89E-03	2.51E-04
	13	899.73	1.08E+02	113.39	2.64E-03	2.08E-04
	14	1172.79	9.95E+03	228.19	2.05E-03	1.73E-04
	15	1331.95	8.74E+03	195.97	1.83E-03	2.16E-04
	16	1606.90	9.42E+00	12.23	1.55E-03	1.59E-04
	17	1665.24	1.42E+01	11.36	1.50E-03	1.47E-04
	18	1672.81	2.41E+01	12.51	1.50E-03	1.45E-04
	19	1683.44	1.38E+01	13.86	1.49E-03	1.43E-04
	20	1713.45	8.82E+00	9.63	1.47E-03	1.36E-04
	21	1792.10	1.61E+01	12.20	1.42E-03	1.20E-04
	22	1835.04	1.19E+01	11.88	1.39E-03	1.11E-04
	23	1957.24	7.00E+00	7.62	1.32E-03	1.11E-04
	24	2066.54	7.30E+00	8.03	1.27E-03	1.11E-04
	25	2119.38	1.55E+01	12.02	1.24E-03	1.11E-04
	26	2281.48	8.00E+00	8.94	1.18E-03	1.11E-04
	27	2504.34	3.70E+01	12.17	1.10E-03	1.11E-04
	28	2613.05	1.10E+01	6.63	1.07E-03	1.11E-04

Analysis Report for 1606064-01

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 : 6/16/2016 4:58:23PM

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	22.64	4.25E+04	682.27			4.25E+04	6.82E+02
	2	32.14	7.25E+02	229.45			7.25E+02	2.29E+02
M	3	53.81	1.67E+04	915.82	1.87E+00	1.53E+00	1.67E+04	9.16E+02
m	4	59.68	5.65E+04	586.25			5.65E+04	5.86E+02
	5	88.00	1.87E+04	532.47			1.87E+04	5.32E+02
	6	122.20	2.66E+03	378.51			2.66E+03	3.79E+02
	7	136.96	2.39E+02	192.37			2.39E+02	1.92E+02
	8	165.50	2.03E+02	206.26			2.03E+02	2.06E+02
	9	361.07	1.32E+02	149.98			1.32E+02	1.50E+02
	10	392.35	1.41E+02	153.70			1.41E+02	1.54E+02
	11	661.55	1.23E+04	285.69	9.53E-01	1.28E+00	1.23E+04	2.86E+02
	12	820.96	1.99E+02	127.17			1.99E+02	1.27E+02
	13	899.73	1.08E+02	113.39			1.08E+02	1.13E+02
	14	1172.79	9.95E+03	228.19			9.95E+03	2.28E+02
	15	1331.95	8.74E+03	195.97			8.74E+03	1.96E+02
	16	1606.90	9.42E+00	12.23			9.42E+00	1.22E+01
	17	1665.24	1.42E+01	11.36			1.42E+01	1.14E+01
	18	1672.81	2.41E+01	12.51			2.41E+01	1.25E+01
	19	1683.44	1.38E+01	13.86			1.38E+01	1.39E+01
	20	1713.45	8.82E+00	9.63			8.82E+00	9.63E+00
	21	1792.10	1.61E+01	12.20			1.61E+01	1.22E+01
	22	1835.04	1.19E+01	11.88			1.19E+01	1.19E+01
	23	1957.24	7.00E+00	7.62			7.00E+00	7.62E+00
	24	2066.54	7.30E+00	8.03			7.30E+00	8.03E+00
	25	2119.38	1.55E+01	12.02			1.55E+01	1.20E+01
	26	2281.48	8.00E+00	8.94			8.00E+00	8.94E+00
	27	2504.34	3.70E+01	12.17			3.70E+01	1.22E+01
	28	2613.05	1.10E+01	6.63			1.10E+01	6.63E+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 1606064-01

GAS 1302

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/16/2016 4:58:23PM

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	22.64	4.25E+04	682.27			4.25E+04	6.82E+02
	2	32.14	7.25E+02	229.45			7.25E+02	2.29E+02
M	3	53.81	1.67E+04	915.82	1.87E+00	1.53E+00	1.67E+04	9.16E+02
m	4	59.68	5.65E+04	586.25			5.65E+04	5.86E+02
	5	88.00	1.87E+04	532.47			1.87E+04	5.32E+02
	6	122.20	2.66E+03	378.51			2.66E+03	3.79E+02
	7	136.96	2.39E+02	192.37			2.39E+02	1.92E+02
	8	165.50	2.03E+02	206.26			2.03E+02	2.06E+02
	9	361.07	1.32E+02	149.98			1.32E+02	1.50E+02
	10	392.35	1.41E+02	153.70			1.41E+02	1.54E+02
	11	661.55	1.23E+04	285.69	9.53E-01	1.28E+00	1.23E+04	2.86E+02
	12	820.96	1.99E+02	127.17			1.99E+02	1.27E+02
	13	899.73	1.08E+02	113.39			1.08E+02	1.13E+02
	14	1172.79	9.95E+03	228.19			9.95E+03	2.28E+02
	15	1331.95	8.74E+03	195.97			8.74E+03	1.96E+02
	16	1606.90	9.42E+00	12.23			9.42E+00	1.22E+01
	17	1665.24	1.42E+01	11.36			1.42E+01	1.14E+01
	18	1672.81	2.41E+01	12.51			2.41E+01	1.25E+01
	19	1683.44	1.38E+01	13.86			1.38E+01	1.39E+01
	20	1713.45	8.82E+00	9.63			8.82E+00	9.63E+00
	21	1792.10	1.61E+01	12.20			1.61E+01	1.22E+01
	22	1835.04	1.19E+01	11.88			1.19E+01	1.19E+01
	23	1957.24	7.00E+00	7.62			7.00E+00	7.62E+00
	24	2066.54	7.30E+00	8.03			7.30E+00	8.03E+00
	25	2119.38	1.55E+01	12.02			1.55E+01	1.20E+01
	26	2281.48	8.00E+00	8.94			8.00E+00	8.94E+00
	27	2504.34	3.70E+01	12.17			3.70E+01	1.22E+01
	28	2613.05	1.10E+01	6.63			1.10E+01	6.63E+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 1606064-01

GAS 1302

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	0.917	122.06	*	85.51	6.34E+01	1.09E+01
		136.48	*	10.60	4.97E+01	4.04E+01
CO-60	0.961	1173.22	*	100.00	1.46E+02	1.27E+01
		1332.49	*	100.00	1.44E+02	1.73E+01
CD-109	0.973	88.03	*	3.72	2.63E+03	2.79E+02
SN-113	0.565	255.12		1.93		
		391.69	*	64.90	5.00E+02	5.49E+02
SN-126	0.971	87.57	*	37.00	5.25E+01	4.62E+00
CS-137	0.998	661.65	*	85.12	8.80E+01	8.65E+00
CE-139	0.720	165.85	*	80.35	9.37E+01	9.54E+01
AM-241	0.997	59.54	*	35.90	1.35E+02	1.02E+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 : 6/16/2016 4:58:23PM
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	22.64	2.35933E+01	0.80		
	2	32.14	4.02939E-01	15.82		
M	3	53.81	9.25870E+00	2.75		
	9	361.07	7.32217E-02	56.90		
	12	820.96	1.10823E-01	31.87	S-Esc	
	13	899.73	5.98547E-02	52.62		

Analysis Report for 1606064-01

GAS 1302

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
16	1606.90	5.23392E-03	64.89		
17	1665.24	7.88889E-03	39.99		
18	1672.81	1.33716E-02	25.99		
19	1683.44	7.65700E-03	50.27		
20	1713.45	4.90079E-03	54.59		
21	1792.10	8.92677E-03	37.95		
22	1835.04	6.58333E-03	50.15	Sum	
23	1957.24	3.88889E-03	54.40		
24	2066.54	4.05556E-03	55.01		
25	2119.38	8.61111E-03	38.78		
26	2281.48	4.44444E-03	55.90		
27	2504.34	2.05556E-02	16.44	Sum	
28	2613.05	6.11111E-03	30.15		

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	6.34E+01	1.09E+01
		136.48	*	10.60	4.97E+01	4.04E+01
CO-60	0.96	1173.22	*	100.00	1.46E+02	1.27E+01
		1332.49	*	100.00	1.44E+02	1.73E+01
CD-109	0.97	88.03	*	3.72	2.63E+03	2.79E+02
SN-113	0.56	255.12		1.93		
		391.69	*	64.90	5.00E+02	5.49E+02
SN-126	0.97	87.57	*	37.00	5.25E+01	4.62E+00
CS-137	0.99	661.65	*	85.12	8.80E+01	8.65E+00
CE-139	0.72	165.85	*	80.35	9.37E+01	9.54E+01
AM-241	0.99	59.54	*	35.90	1.35E+02	1.02E+01

Analysis Report for 1606064-01

GAS 1302

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	CO-57	0.917	6.25E+01	1.05E+01	
	CO-60	0.961	1.45E+02	1.02E+01	
?	CD-109	0.973	2.63E+03	2.79E+02	
	SN-113	0.565	5.00E+02	5.49E+02	
?	SN-126	0.971	5.25E+01	4.62E+00	
	CS-137	0.998	8.80E+01	8.65E+00	
	CE-139	0.720	9.37E+01	9.54E+01	
	AM-241	0.997	1.35E+02	1.02E+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 1606064-01

GAS 1302

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/16/2016 4:58:23PM
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	22.64	2.35933E+01	0.80		
	2	32.14	4.02939E-01	15.82		
M	3	53.81	9.25870E+00	2.75		
	9	361.07	7.32217E-02	56.90		
	12	820.96	1.10823E-01	31.87	S-Esc	
	13	899.73	5.98547E-02	52.62		
	16	1606.90	5.23392E-03	64.89		
	17	1665.24	7.88889E-03	39.99		
	18	1672.81	1.33716E-02	25.99		
	19	1683.44	7.65700E-03	50.27		
	20	1713.45	4.90079E-03	54.59		
	21	1792.10	8.92677E-03	37.95		
	22	1835.04	6.58333E-03	50.15	Sum	
	23	1957.24	3.88889E-03	54.40		
	24	2066.54	4.05556E-03	55.01		
	25	2119.38	8.61111E-03	38.78		
	26	2281.48	4.44444E-03	55.90		
	27	2504.34	2.05556E-02	16.44	Sum	
	28	2613.05	6.11111E-03	30.15		

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

Analysis Report for 1606064-01

GAS 1302

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-8.42E+05	1.14E+07	1.14E+07
+		NA-22	1274.54		99.94	-6.45E-01	1.31E+00	1.31E+00
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	0.00E+00		1.00E+26
+		AL-26	1808.65		99.76	-4.06E-02	3.50E-01	3.50E-01
+		K-40	1460.81		10.67	9.45E-01	3.34E+00	3.34E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-1.81E+00	4.79E-01	4.79E-01
			78.34		96.00	-1.59E-01		5.14E-01
+		SC-46	889.25		99.98	1.43E+03	1.05E+04	1.09E+04
			1120.51		99.99	-8.70E+02		1.05E+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	1.87E+12	4.20E+12	4.20E+12
+		MN-54	834.83		99.97	5.87E+00	1.40E+01	1.40E+01
+		CO-56	846.75		99.96	9.00E+03	4.12E+03	1.78E+04
			1037.75		14.03	-1.93E+04		1.43E+05
			1238.25		67.00	-6.46E+03		1.41E+04
			1771.40		15.51	9.95E+03		3.46E+04
			2598.48		16.90	0.00E+00		4.12E+03
+		CO-57	122.06	*	85.51	6.34E+01	1.43E+01	1.43E+01
			136.48	*	10.60	4.97E+01		6.56E+01
+		CO-58	810.76		99.40	-4.27E+03	4.63E+04	4.63E+04
+		FE-59	1099.22		56.50	7.22E+06	3.05E+07	5.35E+07
			1291.56		43.20	1.09E+07		3.05E+07
+		CO-60	1173.22	*	100.00	1.46E+02	1.63E+00	2.71E+00
			1332.49	*	100.00	1.44E+02		1.63E+00
+		ZN-65	1115.52		50.75	2.05E+01	6.20E+01	6.20E+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	1.10E+04	4.31E+02	1.76E+03
			136.00		59.20	-7.33E+01		4.31E+02
			264.65		59.80	9.97E+01		5.99E+02
			279.53		25.20	-6.12E+01		1.41E+03
			400.65		11.40	-1.34E+02		3.89E+03
+		RB-82	776.52		13.00	-2.93E+13	4.60E+13	4.60E+13
+		RB-83	520.41		46.00	-2.18E+03	1.18E+04	1.18E+04
			529.64		30.30	-9.93E+03		1.79E+04
			552.65		16.40	-2.29E+03		3.31E+04
+		KR-85	513.99		0.43	2.90E+01	2.57E+02	2.57E+02
+		SR-85	513.99		99.27	1.10E+04	9.69E+04	9.69E+04
+		Y-88	898.02		93.40	-1.38E+02	4.49E+02	1.76E+03
			1836.01		99.38	-6.76E+01		4.49E+02
+		NB-93M	16.57		9.43	-2.48E+02	4.71E+00	4.71E+00
+		NB-94	702.63		100.00	7.59E-01	1.01E+00	1.01E+00
			871.10		100.00	4.42E-01		1.37E+00

Analysis Report for 1606064-01

GAS 1302

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		NB-95	765.79		99.81	4.13E+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	2.86E+04	2.33E+05	2.85E+05
			756.72		55.30	-1.80E+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	-8.42E+07	1.91E+08	1.91E+08
+		RU-106	621.84		9.80	3.50E+00	7.54E+01	7.54E+01
+		AG-108M	433.93		89.90	-4.57E-02	1.05E+00	1.05E+00
			614.37		90.40	-1.47E-01		1.06E+00
			722.95		90.50	-2.42E-01		1.14E+00
+		CD-109	88.03	*	3.72	2.63E+03	1.06E+02	1.06E+02
+		AG-110M	657.75		93.14	6.41E+02	3.22E+01	5.57E+01
			677.61		10.53	5.78E+01		1.84E+02
			706.67		16.46	-9.05E+01		1.22E+02
			763.93		21.98	-3.99E+01		9.88E+01
			884.67		71.63	-4.41E+00		3.90E+01
			1384.27		23.94	3.36E+00		3.22E+01
+		CD-113M	263.70		0.02	8.67E+02	3.46E+03	3.46E+03
+		SN-113	255.12		1.93	-4.27E+01	8.96E+02	2.38E+04
			391.69	*	64.90	5.00E+02		8.96E+02
+		TE123M	159.00		84.10	5.36E+00	3.21E+02	3.21E+02
+		SB-124	602.71		97.87	-5.84E+04	1.52E+05	2.38E+05
			645.85		7.26	8.65E+05		3.55E+06
			722.78		11.10	8.08E+04		2.34E+06
			1691.02		49.00	-4.10E+04		1.52E+05
+		I-125	35.49		6.49	-1.74E+06	1.23E+06	1.23E+06
+		SB-125	176.33		6.89	-3.50E+00	6.52E+00	1.66E+01
			427.89		29.33	1.18E+00		6.52E+00
			463.38		10.35	5.52E+00		2.04E+01
			600.56		17.80	-3.57E+00		1.08E+01
			635.90		11.32	6.43E-01		1.83E+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	5.25E+01	2.12E+00	2.12E+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	-6.44E+00	7.03E-01	7.03E-01
			33.60		13.20	-1.25E+01		2.28E+00
			39.58		7.52	-1.63E+01		4.52E+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

Analysis Report for 1606064-01

GAS 1302

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	@	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	-2.11E-01	1.55E+00	1.82E+00
			302.84		17.80	-1.30E+00		4.85E+00
			356.01		60.00	-1.69E-01		1.55E+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	-8.14E+00	2.56E+00	2.93E+01
			569.32		15.43	1.05E+01		1.62E+01
			604.70		97.60	-3.57E-01		2.56E+00
			795.84		85.40	1.08E+00		3.73E+00
			801.93		8.73	1.32E+01		3.64E+01
+		CS-135	268.24		16.00	-3.75E-01	4.29E+00	4.29E+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	8.80E+01	2.15E+00	2.15E+00
+		LA-138	788.74		34.00	2.32E-01	5.17E-01	3.44E+00
			1435.80		66.00	-1.17E-01		5.17E-01
+		CE-139	165.85	*	80.35	9.37E+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	1.00E+26		1.00E+26
+		CE-141	145.44		48.40	4.04E+09	1.07E+10	1.07E+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	-2.40E+01	6.29E+01	6.29E+01
+		PM-144	476.78		42.00	8.30E+00	7.68E+00	1.84E+01
			618.01		98.60	2.24E+00		7.68E+00
			696.49		99.49	-3.24E+00		7.74E+00
+		PM-145	36.85		21.70	-3.74E+00	8.85E-01	1.61E+00
			37.36		39.70	-2.62E+00		8.85E-01
			42.30		15.10	-5.97E+00		2.92E+00

Analysis Report for 1606064-01

GAS 1302

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		PM-145	72.40	2.31	1.06E+01	8.85E-01	2.23E+01
+		PM-146	453.90	39.94	1.49E+00	3.58E+00	3.58E+00
			735.90	14.01	-2.06E+00		1.08E+01
			747.13	13.10	-6.72E+00		1.15E+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	2.80E+00	3.20E+00
			244.69	5.40	-1.05E+00		1.47E+01
			344.27	19.13	-1.01E+00		4.61E+00
			778.89	9.20	-9.80E+00		1.40E+01
			964.01	10.40	-2.50E+00		1.74E+01
			1085.78	7.22	-1.28E+01		2.39E+01
			1112.02	9.60	6.85E+00		1.82E+01
			1407.95	14.94	-5.66E-01		2.80E+00
+		GD-153	97.43	31.30	-2.76E+01	2.85E+01	2.85E+01
			103.18	22.20	-1.97E+00		4.17E+01
+		EU-154	123.07	40.50	1.26E+01	1.78E+00	1.78E+00
			723.30	19.70	-1.38E+00		6.54E+00
			873.19	11.50	2.04E+00		1.51E+01
			996.32	10.30	-1.31E+01		1.74E+01
			1004.76	17.90	-2.51E+00		1.01E+01
			1274.45	35.50	-1.04E+00		2.11E+00
+		EU-155	86.50	30.90	9.29E+01	3.09E+00	3.88E+00
			105.30	20.70	8.15E-01		3.09E+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	-1.45E-02	7.96E-01	7.96E-01
			280.45	29.60	-2.30E-01		2.31E+00
			410.94	11.10	-2.15E+00		7.81E+00
			711.69	54.10	4.35E-01		1.91E+00
+		TM-171	66.72	0.14	-3.26E+03	8.91E+02	8.91E+02
+		HF-172	81.75	4.52	-5.97E+00	1.49E+01	3.32E+01
			125.81	11.30	-4.67E+00		1.49E+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	-2.39E+01	1.46E+01	3.47E+01
			272.11	21.20	1.12E+01		1.46E+01
+		HF-175	343.40	84.00	-1.01E+04	4.02E+04	4.02E+04
+		LU-176	88.34	13.30	1.38E+02	7.11E-01	5.88E+00
			201.83	86.00	-3.99E-01		7.11E-01
			306.78	94.00	2.28E-01		7.68E-01
+		TA-182	67.75	41.20	-2.79E+03	7.42E+02	7.42E+02
			1121.30	34.90	-5.86E+02		2.73E+03
			1189.05	16.23	6.28E+02		4.27E+03
			1221.41	26.98	4.26E+02		2.13E+03

Analysis Report for 1606064-01

GAS 1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TA-182	1231.02	11.44	1.09E+03	7.42E+02	4.57E+03
+	IR-192	308.46	29.68	1.69E+04	5.26E+04	6.09E+04
		468.07	48.10	3.42E+04		5.26E+04
+	HG-203	279.19	77.30	-3.68E+05	8.52E+06	8.52E+06
+	BI-207	569.67	97.72	6.53E-01	1.00E+00	1.00E+00
		1063.62	74.90	-6.05E-01		2.05E+00
+	TL-208	583.14	30.22	4.81E-01	9.63E-01	3.12E+00
		860.37	4.48	8.66E+00		2.96E+01
		2614.66	35.85	0.00E+00		9.63E-01
+	BI-210M	262.00	45.00	-5.58E-01	1.52E+00	1.52E+00
		300.00	23.00	6.35E-01		3.09E+00
+	PB-210	46.50	4.25	-6.23E+00	1.34E+01	1.34E+01
+	PB-211	404.84	2.90	3.22E-01	2.96E+01	2.96E+01
		831.96	2.90	1.02E+01		4.33E+01
+	BI-212	727.17	11.80	-3.54E-01	8.79E+00	8.79E+00
		1620.62	2.75	-1.65E+00		1.16E+01
+	PB-212	238.63	44.60	1.80E-01	1.53E+00	1.53E+00
		300.09	3.41	4.28E+00		2.08E+01
+	BI-214	609.31	46.30	-9.55E-02	2.02E+00	2.02E+00
		1120.29	15.10	-7.56E-01		9.16E+00
		1764.49	15.80	1.18E+00		2.72E+00
		2204.22	4.98	-3.06E+00		5.67E+00
+	PB-214	295.21	19.19	-3.93E-01	2.08E+00	3.67E+00
		351.92	37.19	4.65E-01		2.08E+00
+	RN-219	401.80	6.50	-4.69E-01	1.31E+01	1.31E+01
+	RA-223	323.87	3.88	-3.31E+00	1.89E+01	1.89E+01
+	RA-224	240.98	3.95	5.32E+00	1.73E+01	1.73E+01
+	@ RA-225	40.00	31.00	1.00E+26	1.00E+26	1.00E+26
+	RA-226	186.21	3.28	2.14E+00	1.79E+01	1.79E+01
+	TH-227	50.10	8.40	2.19E+01	5.90E+00	7.18E+00
		236.00	11.50	-6.42E-01		5.90E+00
		256.20	6.30	2.07E+00		1.09E+01
+	AC-228	338.32	11.40	-2.50E+00	5.48E+00	6.57E+00
		911.07	27.70	2.46E+00		5.48E+00
		969.11	16.60	-3.26E+00		9.00E+00
+	TH-230	48.44	16.90	1.02E+01	3.39E+00	3.39E+00
		62.85	4.60	-1.70E+01		2.24E+01
		67.67	0.37	-4.45E+02		1.18E+02
+	PA-231	283.67	1.60	-2.12E+00	3.08E+01	4.29E+01
		302.67	2.30	-8.25E+00		3.08E+01
+	TH-231	25.64	14.70	-2.44E+01	5.60E+00	5.60E+00
		84.21	6.40	3.50E+00		1.04E+01
+	PA-233	311.98	38.60	7.80E+11	2.15E+12	2.15E+12
+	PA-234	131.20	20.40	-3.67E+00	2.34E+00	2.34E+00
		733.99	8.80	-3.20E-01		1.19E+01
		946.00	12.00	-4.29E+00		1.37E+01
+	PA-234M	1001.03	0.92	2.80E+01	1.58E+02	1.58E+02

Analysis Report for 1606064-01

GAS 1302

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TH-234	63.29		3.80	-2.78E+01	2.37E+01	2.37E+01
+	U-235	143.76		10.50	5.69E-01	4.73E+00	4.73E+00
		163.35		4.70	3.90E-02		1.14E+01
		205.31		4.70	3.80E+00		1.33E+01
+	NP-237	86.50		12.60	1.51E+02	6.29E+00	6.29E+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	1.35E+02	3.12E+00	3.12E+00
+	AM-243	74.67		66.00	-1.97E-01	7.04E-01	7.04E-01
+	CM-243	209.75		3.29	7.62E+00	5.23E+00	2.10E+01
		228.14		10.60	-3.70E-01		6.87E+00
		277.60		14.00	-1.28E+00		5.23E+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	1.14E+07	1.14E+07	-8.42E+05	5.64E+06
	NA-22	1274.54	99.94	1.31E+00	1.31E+00	-6.45E-01	6.21E-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		0.00E+00	1.00E+20
	AL-26	1808.65	99.76	3.50E-01	3.50E-01	-4.06E-02	1.55E-01
	K-40	1460.81	10.67	3.34E+00	3.34E+00	9.45E-01	1.52E+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	4.79E-01	4.79E-01	-1.81E+00	2.38E-01
		78.34	96.00	5.14E-01		-1.59E-01	2.55E-01

Analysis Report for 1606064-01

GAS 1302

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SC-46	889.25		99.98	1.09E+04	1.05E+04	1.43E+03	5.36E+03
		1120.51		99.99	1.05E+04		-8.70E+02	5.17E+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	4.20E+12	4.20E+12	1.87E+12	2.08E+12
	MN-54	834.83		99.97	1.40E+01	1.40E+01	5.87E+00	6.90E+00
	CO-56	846.75		99.96	1.78E+04	4.12E+03	9.00E+03	8.75E+03
		1037.75		14.03	1.43E+05		-1.93E+04	7.03E+04
		1238.25		67.00	1.41E+04		-6.46E+03	6.74E+03
		1771.40		15.51	3.46E+04		9.95E+03	1.56E+04
		2598.48		16.90	4.12E+03		0.00E+00	0.00E+00
+	CO-57	122.06	*	85.51	1.43E+01	1.43E+01	6.34E+01	7.13E+00
		136.48	*	10.60	6.56E+01		4.97E+01	3.25E+01
	CO-58	810.76		99.40	4.63E+04	4.63E+04	-4.27E+03	2.28E+04
	FE-59	1099.22		56.50	5.35E+07	3.05E+07	7.22E+06	2.63E+07
		1291.56		43.20	3.05E+07		1.09E+07	1.46E+07
+	CO-60	1173.22	*	100.00	2.71E+00	1.63E+00	1.46E+02	1.34E+00
		1332.49	*	100.00	1.63E+00		1.44E+02	7.93E-01
	ZN-65	1115.52		50.75	6.20E+01	6.20E+01	2.05E+01	3.04E+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	1.76E+03	4.31E+02	1.10E+04	8.72E+02
		136.00		59.20	4.31E+02		-7.33E+01	2.14E+02
		264.65		59.80	5.99E+02		9.97E+01	2.97E+02
		279.53		25.20	1.41E+03		-6.12E+01	7.00E+02
		400.65		11.40	3.89E+03		-1.34E+02	1.92E+03
	RB-82	776.52		13.00	4.60E+13	4.60E+13	-2.93E+13	2.26E+13
	RB-83	520.41		46.00	1.18E+04	1.18E+04	-2.18E+03	5.84E+03
		529.64		30.30	1.79E+04		-9.93E+03	8.82E+03
		552.65		16.40	3.31E+04		-2.29E+03	1.63E+04
	KR-85	513.99		0.43	2.57E+02	2.57E+02	2.90E+01	1.27E+02
	SR-85	513.99		99.27	9.69E+04	9.69E+04	1.10E+04	4.78E+04
	Y-88	898.02		93.40	1.76E+03	4.49E+02	-1.38E+02	8.68E+02
		1836.01		99.38	4.49E+02		-6.76E+01	2.02E+02
	NB-93M	16.57		9.43	4.71E+00	4.71E+00	-2.48E+02	2.34E+00
	NB-94	702.63		100.00	1.01E+00	1.01E+00	7.59E-01	4.97E-01
		871.10		100.00	1.37E+00		4.42E-01	6.77E-01
	NB-95	765.79		99.81	2.11E+09	2.11E+09	4.13E+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	2.86E+04	1.40E+05
		756.72		55.30	2.33E+05		-1.80E+04	1.14E+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	1.91E+08	1.91E+08	-8.42E+07	9.42E+07
	RU-106	621.84		9.80	7.54E+01	7.54E+01	3.50E+00	3.71E+01
	AG-108M	433.93		89.90	1.05E+00	1.05E+00	-4.57E-02	5.19E-01
		614.37		90.40	1.06E+00		-1.47E-01	5.24E-01
		722.95		90.50	1.14E+00		-2.42E-01	5.63E-01
+	CD-109	88.03	*	3.72	1.06E+02	1.06E+02	2.63E+03	5.28E+01
	AG-110M	657.75		93.14	5.57E+01	3.22E+01	6.41E+02	2.77E+01
		677.61		10.53	1.84E+02		5.78E+01	9.06E+01

Analysis Report for 1606064-01

GAS 1302

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	AG-110M	706.67		16.46	1.22E+02	3.22E+01	-9.05E+01	6.00E+01
		763.93		21.98	9.88E+01		-3.99E+01	4.86E+01
		884.67		71.63	3.90E+01		-4.41E+00	1.92E+01
		1384.27		23.94	3.22E+01		3.36E+00	1.48E+01
	CD-113M	263.70		0.02	3.46E+03	3.46E+03	8.67E+02	1.71E+03
+	SN-113	255.12		1.93	2.38E+04	8.96E+02	-4.27E+01	1.18E+04
		391.69	*	64.90	8.96E+02		5.00E+02	4.43E+02
	TE123M	159.00		84.10	3.21E+02	3.21E+02	5.36E+00	1.59E+02
	SB-124	602.71		97.87	2.38E+05	1.52E+05	-5.84E+04	1.17E+05
		645.85		7.26	3.55E+06		8.65E+05	1.75E+06
		722.78		11.10	2.34E+06		8.08E+04	1.15E+06
		1691.02		49.00	1.52E+05		-4.10E+04	6.65E+04
	I-125	35.49		6.49	1.23E+06	1.23E+06	-1.74E+06	6.13E+05
	SB-125	176.33		6.89	1.66E+01	6.52E+00	-3.50E+00	8.23E+00
		427.89		29.33	6.52E+00		1.18E+00	3.22E+00
		463.38		10.35	2.04E+01		5.52E+00	1.01E+01
		600.56		17.80	1.08E+01		-3.57E+00	5.31E+00
		635.90		11.32	1.83E+01		6.43E-01	8.99E+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	2.12E+00	2.12E+00	5.25E+01	1.06E+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	7.03E-01	7.03E-01	-6.44E+00	3.50E-01
		33.60		13.20	2.28E+00		-1.25E+01	1.13E+00
		39.58		7.52	4.52E+00		-1.63E+01	2.25E+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	1.82E+00	1.55E+00	-2.11E-01	9.03E-01
		302.84		17.80	4.85E+00		-1.30E+00	2.40E+00
		356.01		60.00	1.55E+00		-1.69E-01	7.67E-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	2.93E+01	2.56E+00	-8.14E+00	1.44E+01
		569.32		15.43	1.62E+01		1.05E+01	7.97E+00
		604.70		97.60	2.56E+00		-3.57E-01	1.26E+00
		795.84		85.40	3.73E+00		1.08E+00	1.84E+00
		801.93		8.73	3.64E+01		1.32E+01	1.79E+01
	CS-135	268.24		16.00	4.29E+00	4.29E+00	-3.75E-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
@	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

Analysis Report for 1606064-01

GAS 1302

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	CS-136	340.57		48.50	1.00E+26	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	2.15E+00	2.15E+00	8.80E+01	1.07E+00
	LA-138	788.74		34.00	3.44E+00	5.17E-01	2.32E-01	1.69E+00
		1435.80		66.00	5.17E-01		-1.17E-01	2.34E-01
+	CE-139	165.85	*	80.35	1.56E+02	1.56E+02	9.37E+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		1.00E+26	1.00E+20
	CE-141	145.44		48.40	1.07E+10	1.07E+10	4.04E+09	5.31E+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	6.29E+01	6.29E+01	-2.40E+01	3.12E+01
	PM-144	476.78		42.00	1.84E+01	7.68E+00	8.30E+00	9.09E+00
		618.01		98.60	7.68E+00		2.24E+00	3.78E+00
		696.49		99.49	7.74E+00		-3.24E+00	3.81E+00
	PM-145	36.85		21.70	1.61E+00	8.85E-01	-3.74E+00	8.00E-01
		37.36		39.70	8.85E-01		-2.62E+00	4.40E-01
		42.30		15.10	2.92E+00		-5.97E+00	1.45E+00
		72.40		2.31	2.23E+01		1.06E+01	1.11E+01
	PM-146	453.90		39.94	3.58E+00	3.58E+00	1.49E+00	1.77E+00
		735.90		14.01	1.08E+01		-2.06E+00	5.33E+00
		747.13		13.10	1.15E+01		-6.72E+00	5.67E+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	3.20E+00	2.80E+00	2.11E+01	1.59E+00
		244.69		5.40	1.47E+01		-1.05E+00	7.29E+00
		344.27		19.13	4.61E+00		-1.01E+00	2.28E+00
		778.89		9.20	1.40E+01		-9.80E+00	6.86E+00
		964.01		10.40	1.74E+01		-2.50E+00	8.57E+00
		1085.78		7.22	2.39E+01		-1.28E+01	1.18E+01
		1112.02		9.60	1.82E+01		6.85E+00	8.94E+00
		1407.95		14.94	2.80E+00		-5.66E-01	1.27E+00
	GD-153	97.43		31.30	2.85E+01	2.85E+01	-2.76E+01	1.42E+01
		103.18		22.20	4.17E+01		-1.97E+00	2.07E+01
	EU-154	123.07		40.50	1.78E+00	1.78E+00	1.26E+01	8.82E-01
		723.30		19.70	6.54E+00		-1.38E+00	3.21E+00
		873.19		11.50	1.51E+01		2.04E+00	7.46E+00
		996.32		10.30	1.74E+01		-1.31E+01	8.58E+00
		1004.76		17.90	1.01E+01		-2.51E+00	4.99E+00
		1274.45		35.50	2.11E+00		-1.04E+00	1.00E+00
	EU-155	86.50		30.90	3.88E+00	3.09E+00	9.29E+01	1.93E+00
		105.30		20.70	3.09E+00		8.15E-01	1.54E+00

Analysis Report for 1606064-01

GAS 1302

	Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	EU-156	811.77	10.40	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1153.47	7.20	1.00E+26		1.00E+26	1.00E+20
@		1230.71	8.90	1.00E+26		1.00E+26	1.00E+20
	HO-166M	184.41	72.60	7.96E-01	7.96E-01	-1.45E-02	3.95E-01
		280.45	29.60	2.31E+00		-2.30E-01	1.14E+00
		410.94	11.10	7.81E+00		-2.15E+00	3.86E+00
		711.69	54.10	1.91E+00		4.35E-01	9.38E-01
	TM-171	66.72	0.14	8.91E+02	8.91E+02	-3.26E+03	4.43E+02
	HF-172	81.75	4.52	3.32E+01	1.49E+01	-5.97E+00	1.65E+01
		125.81	11.30	1.49E+01		-4.67E+00	7.38E+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	3.47E+01	1.46E+01	-2.39E+01	1.72E+01
		272.11	21.20	1.46E+01		1.12E+01	7.24E+00
	HF-175	343.40	84.00	4.02E+04	4.02E+04	-1.01E+04	1.99E+04
	LU-176	88.34	13.30	5.88E+00	7.11E-01	1.38E+02	2.93E+00
		201.83	86.00	7.11E-01		-3.99E-01	3.52E-01
		306.78	94.00	7.68E-01		2.28E-01	3.80E-01
	TA-182	67.75	41.20	7.42E+02	7.42E+02	-2.79E+03	3.69E+02
		1121.30	34.90	2.73E+03		-5.86E+02	1.34E+03
		1189.05	16.23	4.27E+03		6.28E+02	2.08E+03
		1221.41	26.98	2.13E+03		4.26E+02	1.03E+03
		1231.02	11.44	4.57E+03		1.09E+03	2.20E+03
	IR-192	308.46	29.68	6.09E+04	5.26E+04	1.69E+04	3.01E+04
		468.07	48.10	5.26E+04		3.42E+04	2.60E+04
	HG-203	279.19	77.30	8.52E+06	8.52E+06	-3.68E+05	4.22E+06
	BI-207	569.67	97.72	1.00E+00	1.00E+00	6.53E-01	4.95E-01
		1063.62	74.90	2.05E+00		-6.05E-01	1.01E+00
	TL-208	583.14	30.22	3.12E+00	9.63E-01	4.81E-01	1.54E+00
		860.37	4.48	2.96E+01		8.66E+00	1.46E+01
		2614.66	35.85	9.63E-01		0.00E+00	4.10E-01
	BI-210M	262.00	45.00	1.52E+00	1.52E+00	-5.58E-01	7.51E-01
		300.00	23.00	3.09E+00		6.35E-01	1.53E+00
	PB-210	46.50	4.25	1.34E+01	1.34E+01	-6.23E+00	6.66E+00
	PB-211	404.84	2.90	2.96E+01	2.96E+01	3.22E-01	1.47E+01
		831.96	2.90	4.33E+01		1.02E+01	2.13E+01
	BI-212	727.17	11.80	8.79E+00	8.79E+00	-3.54E-01	4.32E+00
		1620.62	2.75	1.16E+01		-1.65E+00	5.14E+00
	PB-212	238.63	44.60	1.53E+00	1.53E+00	1.80E-01	7.58E-01
		300.09	3.41	2.08E+01		4.28E+00	1.03E+01
	BI-214	609.31	46.30	2.02E+00	2.02E+00	-9.55E-02	9.93E-01
		1120.29	15.10	9.16E+00		-7.56E-01	4.49E+00
		1764.49	15.80	2.72E+00		1.18E+00	1.24E+00
		2204.22	4.98	5.67E+00		-3.06E+00	2.37E+00
	PB-214	295.21	19.19	3.67E+00	2.08E+00	-3.93E-01	1.82E+00
		351.92	37.19	2.08E+00		4.65E-01	1.03E+00
	RN-219	401.80	6.50	1.31E+01	1.31E+01	-4.69E-01	6.49E+00
	RA-223	323.87	3.88	1.89E+01	1.89E+01	-3.31E+00	9.37E+00
	RA-224	240.98	3.95	1.73E+01	1.73E+01	5.32E+00	8.60E+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	1.79E+01	1.79E+01	2.14E+00	8.86E+00

Analysis Report for 1606064-01

GAS 1302

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-227	50.10		8.40	7.18E+00	5.90E+00	2.19E+01	3.58E+00
		236.00		11.50	5.90E+00		-6.42E-01	2.93E+00
		256.20		6.30	1.09E+01		2.07E+00	5.38E+00
	AC-228	338.32		11.40	6.57E+00	5.48E+00	-2.50E+00	3.25E+00
		911.07		27.70	5.48E+00		2.46E+00	2.70E+00
		969.11		16.60	9.00E+00		-3.26E+00	4.43E+00
	TH-230	48.44		16.90	3.39E+00	3.39E+00	1.02E+01	1.69E+00
		62.85		4.60	2.24E+01		-1.70E+01	1.12E+01
		67.67		0.37	1.18E+02		-4.45E+02	5.88E+01
	PA-231	283.67		1.60	4.29E+01	3.08E+01	-2.12E+00	2.13E+01
		302.67		2.30	3.08E+01		-8.25E+00	1.53E+01
	TH-231	25.64		14.70	5.60E+00	5.60E+00	-2.44E+01	2.79E+00
		84.21		6.40	1.04E+01		3.50E+00	5.17E+00
	PA-233	311.98		38.60	2.15E+12	2.15E+12	7.80E+11	1.07E+12
	PA-234	131.20		20.40	2.34E+00	2.34E+00	-3.67E+00	1.16E+00
		733.99		8.80	1.19E+01		-3.20E-01	5.87E+00
		946.00		12.00	1.37E+01		-4.29E+00	6.75E+00
	PA-234M	1001.03		0.92	1.58E+02	1.58E+02	2.80E+01	7.77E+01
	TH-234	63.29		3.80	2.37E+01	2.37E+01	-2.78E+01	1.18E+01
	U-235	143.76		10.50	4.73E+00	4.73E+00	5.69E-01	2.35E+00
		163.35		4.70	1.14E+01		3.90E-02	5.63E+00
		205.31		4.70	1.33E+01		3.80E+00	6.61E+00
	NP-237	86.50		12.60	6.29E+00	6.29E+00	1.51E+02	3.13E+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	3.12E+00	3.12E+00	1.35E+02	1.56E+00
	AM-243	74.67		66.00	7.04E-01	7.04E-01	-1.97E-01	3.50E-01
	CM-243	209.75		3.29	2.10E+01	5.23E+00	7.62E+00	1.04E+01
		228.14		10.60	6.87E+00		-3.70E-01	3.41E+00
		277.60		14.00	5.23E+00		-1.28E+00	2.59E+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

No Action Level results available for reporting purposes.

Analysis Report for 1606064-01

GAS 1302

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

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: 1819

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	170	1210
17:	1437	1399	2369	8622	19909	19512	9561	7538
25:	6335	2628	931	649	670	891	1152	1201
33:	870	794	827	913	872	912	963	1072
41:	1233	1334	1548	1654	1772	1923	2351	2951
49:	3400	3502	3391	3440	3542	3592	3794	4116
57:	6382	16479	24449	14316	3226	1013	992	1011
65:	1175	1190	1220	1247	1286	1251	1295	1196
73:	1129	1218	1184	1215	1195	1242	1168	1226
81:	1241	1267	1366	1339	1469	3306	7276	7302
89:	2885	920	682	677	709	684	680	671
97:	614	690	645	641	676	669	645	683
105:	654	701	696	656	689	679	681	643
113:	710	716	702	635	669	670	753	1004
121:	1667	1836	1029	643	627	710	627	610
129:	641	618	620	657	606	621	646	713
137:	682	617	557	623	610	660	638	589
145:	567	590	589	575	607	592	588	560
153:	552	529	565	571	593	554	568	574
161:	549	528	592	556	655	571	567	530
169:	560	509	565	531	522	529	513	510
177:	545	553	515	556	518	554	526	520
185:	576	558	583	580	568	569	560	585
193:	582	560	517	536	567	528	548	527
201:	542	546	515	511	529	572	552	582
209:	567	529	518	564	578	543	553	569
217:	526	545	548	563	591	557	560	557
225:	548	542	507	551	536	490	518	507
233:	508	515	485	435	542	523	512	495
241:	497	494	490	475	485	476	453	453
249:	439	488	419	440	440	495	458	431
257:	434	399	434	461	432	431	422	390
265:	412	424	420	403	449	389	397	411
273:	403	391	410	365	368	360	416	345
281:	371	380	384	377	371	335	366	402
289:	370	368	371	370	354	364	379	377
297:	334	377	334	377	332	353	360	325
305:	350	356	349	374	346	390	376	326
313:	338	331	366	352	350	333	338	356
321:	327	335	322	310	325	347	333	336
329:	330	329	353	334	344	325	320	305
337:	344	339	296	297	313	324	293	311
345:	347	354	304	301	313	336	307	307
353:	322	311	321	299	266	284	302	322
361:	341	311	280	295	294	318	295	327

369:	281	278	309	301	331	276	343	294

Sample Title: GAS 1302

Channel								
377:	310	325	283	294	280	303	292	299
385:	342	314	297	312	288	325	346	360
393:	307	295	316	282	293	306	293	298
401:	314	292	317	286	278	298	303	296
409:	301	278	315	281	281	289	277	325
417:	318	322	293	300	294	293	303	283
425:	304	328	294	287	287	310	311	290
433:	314	284	297	319	329	298	327	299
441:	296	327	339	314	323	298	273	308
449:	316	322	332	310	313	305	311	308
457:	321	321	300	316	293	328	310	314
465:	317	306	350	312	309	278	312	318
473:	293	265	290	285	292	301	241	250
481:	236	267	239	254	235	228	242	249
489:	228	210	250	232	211	246	222	210
497:	240	235	212	223	209	233	233	241
505:	231	204	208	227	217	239	202	213
513:	217	222	224	190	196	235	182	210
521:	207	223	205	196	203	191	204	193
529:	171	201	194	191	214	193	201	230
537:	198	195	194	220	189	203	205	185
545:	189	198	185	169	196	196	202	192
553:	192	154	141	184	166	194	167	192
561:	162	174	176	152	171	168	195	165
569:	176	189	172	161	179	136	166	169
577:	178	185	175	168	183	206	205	180
585:	154	131	168	162	175	163	160	162
593:	175	174	167	148	165	145	140	167
601:	152	163	155	157	162	141	154	152
609:	165	161	170	135	165	175	130	163
617:	157	169	161	157	175	164	163	144
625:	156	151	174	163	160	148	168	154
633:	147	163	149	156	168	166	173	160
641:	177	149	159	166	181	156	170	146
649:	172	166	150	144	161	148	174	146
657:	177	219	707	2874	4840	3386	1014	234
665:	134	131	149	150	143	134	128	121
673:	137	124	137	159	145	138	125	117
681:	139	124	131	140	133	140	155	122
689:	129	136	152	130	127	145	120	113
697:	128	136	140	144	144	144	129	126
705:	121	161	124	137	122	140	144	153
713:	156	157	126	144	128	134	121	121
721:	139	132	136	151	128	136	131	133
729:	133	147	128	147	147	130	128	134
737:	128	143	136	140	148	133	127	130
745:	138	115	130	138	137	132	125	142
753:	141	140	110	117	145	140	134	114
761:	137	133	132	133	154	142	131	131
769:	145	141	143	129	136	123	156	124
777:	133	113	151	128	151	132	152	154
785:	164	136	153	125	136	164	144	154
793:	136	143	164	120	150	160	152	151

801:	135	138	144	139	139	141	136	129

Sample Title: GAS 1302

Channel								
809:	131	144	140	131	146	146	164	133
817:	121	168	159	169	150	191	136	155
825:	136	135	132	153	137	154	149	160
833:	147	172	143	162	166	160	154	161
841:	151	183	164	165	151	168	160	145
849:	157	157	154	139	150	159	148	164
857:	157	171	159	165	157	158	158	158
865:	164	142	165	168	151	165	190	178
873:	169	173	152	167	173	160	194	162
881:	145	171	166	171	177	159	174	178
889:	166	181	145	192	193	187	179	152
897:	166	188	180	203	179	166	157	170
905:	177	177	186	182	200	194	211	192
913:	159	196	178	178	191	178	189	162
921:	208	186	172	192	182	195	175	190
929:	170	209	201	186	177	205	192	213
937:	207	185	193	207	214	205	191	234
945:	208	191	210	193	211	204	231	212
953:	212	205	207	214	211	194	191	184
961:	194	187	174	184	160	171	170	170
969:	147	165	186	158	129	167	159	152
977:	140	145	168	137	121	134	125	133
985:	127	149	135	153	147	161	149	130
993:	131	159	151	115	148	156	149	108
1001:	155	150	153	141	130	133	132	151
1009:	151	131	132	143	148	149	155	142
1017:	165	142	122	142	144	146	117	154
1025:	144	147	126	137	140	158	146	123
1033:	147	166	138	123	112	134	131	132
1041:	162	130	135	154	129	124	124	122
1049:	147	120	113	135	143	124	125	141
1057:	113	134	128	121	127	128	130	125
1065:	122	113	138	134	130	133	150	129
1073:	145	146	130	132	128	153	149	138
1081:	131	124	133	132	153	110	128	131
1089:	128	117	123	135	153	158	137	131
1097:	130	144	139	142	126	129	135	117
1105:	113	128	146	124	127	143	128	113
1113:	125	118	140	110	119	104	109	111
1121:	111	74	103	96	82	98	87	89
1129:	88	83	88	83	79	72	102	69
1137:	86	91	74	78	78	105	66	81
1145:	94	71	79	78	89	54	90	81
1153:	72	73	76	79	62	60	83	69
1161:	93	69	63	62	62	71	68	78
1169:	105	307	1303	3025	3413	1737	396	84
1177:	34	63	56	57	53	45	45	53
1185:	48	47	49	44	50	53	44	46
1193:	44	44	44	44	40	38	48	41
1201:	34	44	34	38	41	26	29	46
1209:	45	47	36	42	29	41	38	27
1217:	38	44	31	24	26	29	31	28
1225:	24	26	27	20	31	23	31	21

1233:	29	21	19	17	17	27	26	18

Sample Title: GAS 1302

Channel								
1241:	21	22	23	21	22	20	22	17
1249:	18	26	27	14	13	17	17	13
1257:	14	13	24	20	24	20	22	20
1265:	11	13	16	17	21	15	11	15
1273:	16	18	11	12	17	13	15	17
1281:	18	24	26	17	19	14	21	17
1289:	21	15	15	21	20	13	19	13
1297:	16	15	9	13	16	15	24	19
1305:	24	20	20	15	16	16	11	13
1313:	17	10	18	21	18	15	17	19
1321:	20	11	21	13	22	20	19	34
1329:	162	822	2304	3055	1845	534	62	10
1337:	3	3	5	4	3	7	8	3
1345:	1	8	8	4	8	3	4	2
1353:	8	4	4	3	4	5	4	1
1361:	4	3	4	4	8	4	6	7
1369:	7	4	4	3	6	5	4	4
1377:	8	6	1	8	2	8	5	1
1385:	6	7	5	1	4	4	4	6
1393:	3	8	5	6	6	4	9	3
1401:	1	6	6	2	7	4	3	5
1409:	1	2	6	6	7	5	3	5
1417:	3	0	5	3	2	2	4	1
1425:	3	3	5	3	6	5	4	5
1433:	5	3	3	3	5	3	3	1
1441:	5	2	4	2	2	3	5	4
1449:	4	1	6	3	4	4	0	7
1457:	8	2	5	7	3	5	1	1
1465:	1	2	3	2	4	3	4	4
1473:	5	1	5	2	3	3	3	4
1481:	1	1	3	5	2	5	2	1
1489:	4	4	2	2	3	4	6	0
1497:	3	3	5	5	8	3	3	1
1505:	3	1	1	0	2	3	2	4
1513:	4	3	0	3	3	2	2	3
1521:	1	2	4	2	5	2	6	4
1529:	5	4	3	2	3	3	4	5
1537:	1	1	2	6	2	2	1	5
1545:	5	5	3	8	3	3	2	4
1553:	5	2	3	4	5	4	5	2
1561:	11	3	7	2	2	2	2	1
1569:	1	3	4	4	3	1	3	3
1577:	0	0	2	1	1	1	3	2
1585:	4	4	3	1	2	5	3	3
1593:	4	4	1	3	6	3	4	0
1601:	4	6	2	2	3	4	3	6
1609:	1	0	2	2	1	2	6	3
1617:	2	2	3	2	5	2	1	1
1625:	3	2	1	3	2	5	2	1
1633:	1	2	3	1	5	5	2	1
1641:	6	2	3	0	0	1	2	0
1649:	3	0	1	4	3	1	3	3
1657:	2	6	2	3	3	1	2	6

1665:	4	3	4	0	0	5	3	1

Sample Title: GAS 1302

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

2097:	2	3	1	1	3	3	1	1

Sample Title: GAS 1302

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

2529:	0	0	0	0	0	0	0	0

Sample Title: GAS 1302

Channel								
2537:	0	0	0	0	0	0	0	0
2545:	0	1	0	0	0	0	0	0
2553:	0	0	0	0	0	0	0	0
2561:	0	0	0	0	1	0	0	0
2569:	0	1	0	0	0	0	1	1
2577:	0	0	0	0	0	0	0	0
2585:	0	0	0	1	0	0	0	0
2593:	1	0	0	0	0	0	0	0
2601:	0	0	0	0	0	0	0	0
2609:	0	0	1	1	2	4	1	2
2617:	0	0	0	0	1	0	0	0
2625:	0	0	0	0	1	0	0	0
2633:	0	0	0	0	0	0	0	0
2641:	0	0	0	0	0	0	0	0
2649:	0	0	0	0	0	0	0	0
2657:	0	1	0	0	0	0	1	0
2665:	0	0	0	0	0	0	0	0
2673:	0	0	0	0	0	0	0	0
2681:	0	0	0	1	0	0	0	0
2689:	0	0	0	0	0	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	1	0	0	1	0	1	0	1
2713:	0	0	0	0	0	0	1	0
2721:	0	0	0	0	0	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	1	0	0	0	1	0	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	0	0	0	0	0
2769:	0	0	0	0	1	0	0	0
2777:	1	0	0	0	0	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	0	0	0
2833:	0	1	0	0	0	0	0	0
2841:	0	0	0	0	0	1	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	1	0	0	0	0	0	0
2889:	0	0	0	0	0	1	0	0
2897:	0	0	0	0	0	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	0	1	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	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	1
2953:	0	0	0	0	1	0	0	0

2961:	0	0	0	0	0	0	0	0

Sample Title: GAS 1302

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

3393:	0	0	0	0	0	0	0	0

Sample Title: GAS 1302

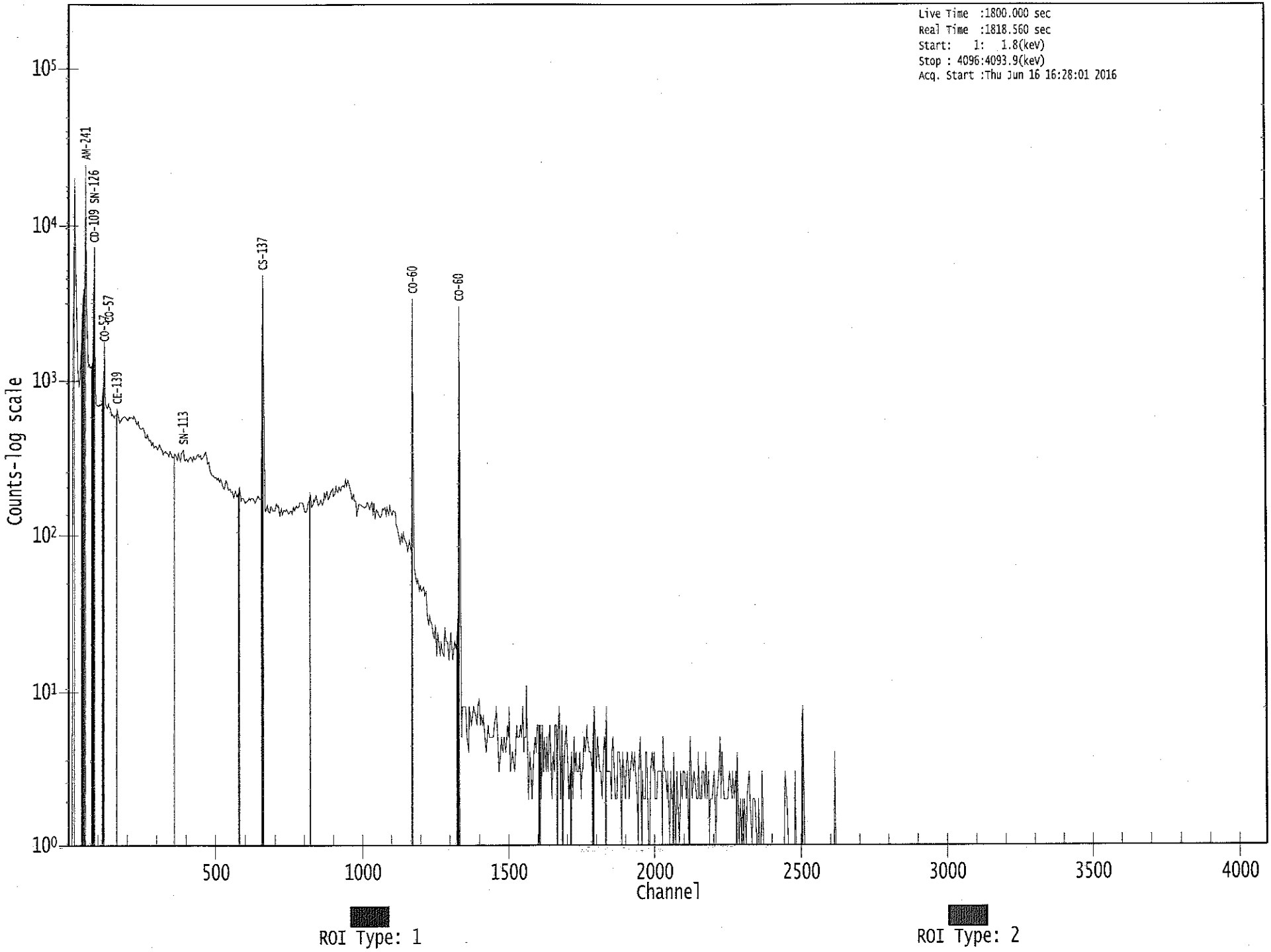
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	1
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	1	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	1	0	0	0	0	0
3449:	0	1	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	1
3481:	1	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0
3505:	0	1	0	0	0	0	0	0
3513:	0	0	0	1	0	0	0	0
3521:	0	0	0	0	0	0	0	0
3529:	0	0	0	0	0	0	0	0
3537:	0	0	0	0	0	1	0	0
3545:	0	0	1	0	1	0	0	0
3553:	0	0	0	0	1	0	0	0
3561:	0	0	0	1	0	0	0	0
3569:	0	0	0	0	0	0	0	0
3577:	0	0	0	0	0	0	0	0
3585:	1	0	0	0	0	0	0	0
3593:	0	0	0	0	0	0	0	0
3601:	1	0	0	0	0	0	0	0
3609:	0	0	0	0	0	0	1	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	0	0	0	0	0	0
3633:	0	0	0	0	0	0	0	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:	1	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	0	0	0	0	0	0
3697:	0	0	0	0	0	0	0	0
3705:	1	0	0	0	0	0	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	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	0	0	0
3777:	0	0	0	0	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	0	0	0	0	0	0	0	0
3801:	0	0	0	0	1	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: GAS 1302

Channel								
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	1	0
3849:	0	0	0	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	0	0	1
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	0	0	0	0
3929:	0	0	1	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	1	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:	0	0	0	0	0	0	0	0
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	0	1	0
4025:	0	0	1	0	0	0	0	1
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	1	0	0	0	0
4057:	0	0	0	0	0	1	0	0
4065:	0	0	0	1	0	0	0	0
4073:	0	0	0	0	0	0	1	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	1	0	0

0000039032.CNF



Apex-Gamma

Analysis Report for 1606064-02
BLANK

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1606064-02
Sample Description	: BLANK
Sample Type	: SOIL
Sample Size	: 7.834E+02 grams
Facility	: Countroom
Sample Taken On	: 6/16/2016 12:11:41PM
Acquisition Started	: 6/16/2016 3:27:10PM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1402
Live Time	: 3600.0 seconds
Real Time	: 3600.7 seconds
Dead Time	: 0.02 %
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	: 39025

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606064-02

BLANK

PEAK LOCATE REPORT

Peak Locate Performed on : 6/16/2016 4:27:12PM
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	94.34	93.62	0.0000	0.00
2	141.74	141.03	0.0000	0.00
3	460.81	460.25	0.0000	0.00
4	507.82	507.28	0.0000	0.00
5	729.00	728.57	0.0000	0.00
6	803.83	803.43	0.0000	0.00
7	811.28	810.88	0.0000	0.00
8	1087.15	1086.90	0.0000	0.00
9	1114.11	1113.88	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606064-02

BLANK

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/16/2016 4:27:12PM

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	94.34	89 -	100	93.62	8.56E+01	47.37	2.31E+02	1.55
	2	141.74	137 -	145	141.03	3.50E+01	30.51	1.22E+02	4.79
	3	460.81	457 -	464	460.25	1.69E+01	16.00	3.03E+01	1.78
M	4	507.82	505 -	517	507.28	2.26E+01	14.07	2.53E+01	2.84
	5	729.00	725 -	733	728.57	1.38E+01	11.86	1.24E+01	1.82
	6	803.83	798 -	807	803.43	1.24E+01	9.22	5.27E+00	3.92
	7	811.28	808 -	814	810.88	1.30E+01	8.50	3.93E+00	2.78
	8	1087.15	1083 -	1091	1086.90	7.17E+00	7.50	3.67E+00	6.94
	9	1114.11	1109 -	1117	1113.88	9.00E+00	8.02	4.00E+00	2.06

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 : 6/16/2016 4:27:12PM

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	94.34	89 -	100	8.56E+01	47.37	2.31E+02	3.58E+01
	2	141.74	137 -	145	3.50E+01	30.51	1.22E+02	2.31E+01
	3	460.81	457 -	464	1.69E+01	16.00	3.03E+01	1.13E+01
M	4	507.82	505 -	517	2.26E+01	14.07	2.53E+01	8.27E+00
	5	729.00	725 -	733	1.38E+01	11.86	1.24E+01	7.60E+00
	6	803.83	798 -	807	1.24E+01	9.22	5.27E+00	4.90E+00

Analysis Report for 1606064-02

BLANK

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
7	811.28	808 -	814	1.30E+01	8.50	3.93E+00	3.69E+00
8	1087.15	1083 -	1091	7.17E+00	7.50	3.67E+00	4.32E+00
9	1114.11	1109 -	1117	9.00E+00	8.02	4.00E+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

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/16/2016 4:27:12PM

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	94.34	89 -	100	93.62	8.56E+01	47.37	2.31E+02	.....
	2	141.74	137 -	145	141.03	3.50E+01	30.51	1.22E+02	.....
	3	460.81	457 -	464	460.25	1.69E+01	16.00	3.03E+01	.....
M	4	507.82	505 -	517	507.28	2.26E+01	14.07	2.53E+01	.....
	5	729.00	725 -	733	728.57	1.38E+01	11.86	1.24E+01	.....
	6	803.83	798 -	807	803.43	1.24E+01	9.22	5.27E+00	.....
	7	811.28	808 -	814	810.88	1.30E+01	8.50	3.93E+00	EU-156 CO-58
	8	1087.15	1083 -	1091	1086.90	7.17E+00	7.50	3.67E+00	.....
	9	1114.11	1109 -	1117	1113.88	9.00E+00	8.02	4.00E+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 1606064-02

BLANK

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/16/2016 4:27:12PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	94.34	8.56E+01	47.37	1.88E-02	1.61E-03
	2	141.74	3.50E+01	30.51	1.43E-02	1.39E-03
	3	460.81	1.69E+01	16.00	5.10E-03	6.35E-04
M	4	507.82	2.26E+01	14.07	4.64E-03	5.66E-04
	5	729.00	1.38E+01	11.86	3.25E-03	3.03E-04
	6	803.83	1.24E+01	9.22	2.95E-03	2.61E-04
	7	811.28	1.30E+01	8.50	2.92E-03	2.57E-04
	8	1087.15	7.17E+00	7.50	2.21E-03	1.84E-04
	9	1114.11	9.00E+00	8.02	2.15E-03	1.80E-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 : 6/16/2016 4:27:12PM

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	94.34	8.56E+01	47.37			8.56E+01	4.74E+01
	2	141.74	3.50E+01	30.51			3.50E+01	3.05E+01
	3	460.81	1.69E+01	16.00			1.69E+01	1.60E+01
M	4	507.82	2.26E+01	14.07			2.26E+01	1.41E+01
	5	729.00	1.38E+01	11.86			1.38E+01	1.19E+01
	6	803.83	1.24E+01	9.22			1.24E+01	9.22E+00
	7	811.28	1.30E+01	8.50			1.30E+01	8.50E+00
	8	1087.15	7.17E+00	7.50			7.17E+00	7.50E+00
	9	1114.11	9.00E+00	8.02			9.00E+00	8.02E+00

Analysis Report for 1606064-02

BLANK

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 : 6/16/2016 4:27:12PM

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	94.34	8.56E+01	47.37			8.56E+01	4.74E+01
	2	141.74	3.50E+01	30.51			3.50E+01	3.05E+01
	3	460.81	1.69E+01	16.00			1.69E+01	1.60E+01
M	4	507.82	2.26E+01	14.07			2.26E+01	1.41E+01
	5	729.00	1.38E+01	11.86			1.38E+01	1.19E+01
	6	803.83	1.24E+01	9.22			1.24E+01	9.22E+00
	7	811.28	1.30E+01	8.50			1.30E+01	8.50E+00
	8	1087.15	7.17E+00	7.50			7.17E+00	7.50E+00
	9	1114.11	9.00E+00	8.02			9.00E+00	8.02E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty

Analysis Report for 1606064-02
BLANK

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-58	0.958	810.76	*	99.40	4.31E-02	2.83E-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 : 6/16/2016 4:27:12PM
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	94.34	2.37770E-02	27.67		
	2	141.74	9.71209E-03	43.63		
	3	460.81	4.68750E-03	47.41		
M	4	507.82	6.26445E-03	31.20		
	5	729.00	3.83333E-03	42.98		
	6	803.83	3.43519E-03	37.28		
	8	1087.15	1.99074E-03	52.33		
	9	1114.11	2.50000E-03	44.53		

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 1606064-02

BLANK

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-58	0.95	810.76	*	99.40	4.31E-02	2.83E-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
CO-58	0.958	4.31E-02	2.83E-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 1606064-02

BLANK

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/16/2016 4:27:12PM
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	94.34	2.37770E-02	27.67		
	2	141.74	9.71209E-03	43.63		
	3	460.81	4.68750E-03	47.41		
M	4	507.82	6.26445E-03	31.20		
	5	729.00	3.83333E-03	42.98		
	6	803.83	3.43519E-03	37.28		
	8	1087.15	1.99074E-03	52.33		
	9	1114.11	2.50000E-03	44.53		

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	-9.27E-02	5.11E-01	5.11E-01
+	NA-22	1274.54	99.94	0.00E+00	5.43E-02	5.43E-02
+	NA-24	1368.53	99.99	2.59E-02	8.10E-02	9.59E-02
		2754.09	99.86	-5.14E-02		8.10E-02
+	AL-26	1808.65	99.76	-1.25E-02	8.21E-02	8.21E-02
+	K-40	1460.81	10.67	1.39E-01	6.99E-01	6.99E-01
+	AR-41	1293.64	99.16	8.52E-02	3.20E-01	3.20E-01
+	TI-44	67.88	94.40	-4.51E-03	2.78E-02	2.78E-02
		78.34	96.00	9.44E-03		2.83E-02

Analysis Report for 1606064-02

BLANK

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SC-46	889.25		99.98	4.08E-02	5.87E-02	8.25E-02
		1120.51		99.99	-1.24E-02		5.87E-02
+	V-48	983.52		99.98	9.73E-03	6.63E-02	6.63E-02
		1312.10		97.50	-1.54E-02		7.53E-02
+	CR-51	320.08		9.83	-1.84E-01	4.25E-01	4.25E-01
+	MN-54	834.83		99.97	-3.37E-03	6.79E-02	6.79E-02
+	CO-56	846.75		99.96	-4.00E-02	5.43E-02	5.43E-02
		1037.75		14.03	4.95E-03		4.71E-01
		1238.25		67.00	-1.59E-02		6.81E-02
		1771.40		15.51	-2.42E-01		5.20E-01
		2598.48		16.90	5.28E-02		3.88E-01
+	CO-57	122.06		85.51	-1.97E-03	3.38E-02	3.38E-02
		136.48		10.60	-2.98E-02		2.78E-01
+	CO-58	810.76	*	99.40	4.31E-02	3.33E-02	3.33E-02
+	FE-59	1099.22		56.50	2.65E-02	1.36E-01	1.36E-01
		1291.56		43.20	4.51E-03		1.78E-01
+	CO-60	1173.22		100.00	2.33E-02	7.40E-02	7.41E-02
		1332.49		100.00	1.57E-02		7.40E-02
+	ZN-65	1115.52		50.75	2.93E-03	1.65E-01	1.65E-01
+	GA-67	93.31		35.70	9.93E-02	9.28E-02	9.28E-02
		208.95		2.24	-2.42E-01		1.82E+00
		300.22		16.00	3.87E-02		2.71E-01
+	SE-75	121.11		16.70	-6.40E-03	4.92E-02	1.75E-01
		136.00		59.20	-3.91E-03		4.92E-02
		264.65		59.80	-1.54E-02		6.65E-02
		279.53		25.20	-1.25E-03		1.69E-01
		400.65		11.40	-1.50E-02		4.18E-01
+	RB-82	776.52		13.00	-5.07E-02	5.03E-01	5.03E-01
+	RB-83	520.41		46.00	2.07E-02	1.08E-01	1.08E-01
		529.64		30.30	-1.47E-03		1.71E-01
		552.65		16.40	1.03E-01		3.87E-01
+	KR-85	513.99		0.43	5.58E+00	1.82E+01	1.82E+01
+	SR-85	513.99		99.27	2.45E-02	7.98E-02	7.98E-02
+	Y-88	898.02		93.40	-3.10E-02	5.83E-02	5.83E-02
		1836.01		99.38	3.47E-02		9.11E-02
+	NB-93M	16.57		9.43	3.28E-01	2.23E-01	2.23E-01
+	NB-94	702.63		100.00	1.14E-02	5.86E-02	6.98E-02
		871.10		100.00	3.90E-03		5.86E-02
+	NB-95	765.79		99.81	7.59E-03	7.16E-02	7.16E-02
+	NB-95M	235.69		25.00	-3.42E-02	1.63E-01	1.63E-01
+	ZR-95	724.18		43.70	-8.96E-03	1.25E-01	1.51E-01
		756.72		55.30	3.02E-02		1.25E-01
+	MO-99	181.06		6.20	-6.10E-01	4.24E-01	5.75E-01
		739.58		12.80	9.57E-02		4.24E-01
		778.00		4.50	4.20E-02		1.51E+00
+	RU-103	497.08		89.00	-5.86E-02	5.70E-02	5.70E-02
+	RU-106	621.84		9.80	-1.87E-02	6.32E-01	6.32E-01

Analysis Report for 1606064-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	AG-108M	433.93	89.90	-1.23E-02	5.39E-02	5.39E-02
		614.37	90.40	-5.96E-03		7.16E-02
		722.95	90.50	-5.87E-03		6.51E-02
+	CD-109	88.03	3.72	-7.31E-02	7.00E-01	7.00E-01
+	AG-110M	657.75	93.14	-2.24E-02	6.88E-02	6.88E-02
		677.61	10.53	3.19E-02		5.41E-01
		706.67	16.46	-2.48E-01		3.91E-01
		763.93	21.98	1.28E-02		3.23E-01
		884.67	71.63	-5.68E-02		8.68E-02
		1384.27	23.94	5.29E-02		2.44E-01
+	CD-113M	263.70	0.02	-1.87E+01	1.77E+02	1.77E+02
+	SN-113	255.12	1.93	-2.26E-01	7.58E-02	1.88E+00
		391.69	64.90	2.68E-02		7.58E-02
+	TE123M	159.00	84.10	-6.08E-03	4.15E-02	4.15E-02
+	SB-124	602.71	97.87	-2.09E-02	6.02E-02	6.02E-02
		645.85	7.26	-8.28E-02		7.70E-01
		722.78	11.10	-4.40E-02		5.31E-01
		1691.02	49.00	-3.08E-02		9.70E-02
+	I-125	35.49	6.49	-2.74E-02	2.88E-01	2.88E-01
+	SB-125	176.33	6.89	-1.07E-01	1.85E-01	4.93E-01
		427.89	29.33	1.01E-01		1.85E-01
		463.38	10.35	2.32E-02		5.59E-01
		600.56	17.80	-9.59E-02		3.22E-01
		635.90	11.32	7.88E-02		5.24E-01
+	SB-126	414.70	83.30	1.28E-02	5.52E-02	5.52E-02
		666.33	99.60	1.25E-02		6.43E-02
		695.00	99.60	6.51E-03		6.56E-02
		720.50	53.80	0.00E+00		1.13E-01
+	SN-126	87.57	37.00	-7.33E-03	7.01E-02	7.01E-02
+	SB-127	473.00	25.00	-3.33E-02	1.71E-01	2.13E-01
		685.20	35.70	-4.00E-02		1.71E-01
		783.80	14.70	-4.95E-02		4.32E-01
+	I-129	29.78	57.00	-1.55E-02	3.49E-02	3.49E-02
		33.60	13.20	1.69E-02		1.46E-01
		39.58	7.52	-2.92E-01		2.42E-01
+	I-131	284.30	6.05	-6.15E-01	6.35E-02	6.48E-01
		364.48	81.20	6.72E-03		6.35E-02
		636.97	7.26	3.89E-01		8.67E-01
		722.89	1.80	-2.75E-01		3.32E+00
+	TE-132	49.72	13.10	4.81E-03	4.69E-02	1.68E-01
		228.16	88.00	1.22E-02		4.69E-02
+	BA-133	81.00	33.00	-1.28E-02	7.94E-02	7.94E-02
		302.84	17.80	-3.43E-02		2.40E-01
		356.01	60.00	1.16E-02		8.54E-02
+	I-133	529.87	86.30	-5.84E-04	6.80E-02	6.80E-02
+	XE-133	81.00	38.00	-1.13E-02	7.04E-02	7.04E-02
+	CS-134	563.23	8.38	-1.78E-01	6.17E-02	6.56E-01
		569.32	15.43	-2.21E-02		3.60E-01
		604.70	97.60	-3.40E-02		6.17E-02

Analysis Report for 1606064-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-134	795.84	85.40	3.27E-02	6.17E-02	8.25E-02
		801.93	8.73	8.25E-03		7.70E-01
+	CS-135	268.24	16.00	1.34E-01	2.86E-01	2.86E-01
+	I-135	1131.51	22.50	-1.64E-01	3.90E-01	3.90E-01
		1260.41	28.60	-1.94E-02		4.10E-01
		1678.03	9.54	-3.98E-01		9.25E-01
+	CS-136	153.22	7.46	5.74E-02	7.13E-02	4.69E-01
		163.89	4.61	-1.76E-01		7.48E-01
		176.55	13.56	-5.47E-02		2.53E-01
		273.65	12.66	-6.62E-02		3.55E-01
		340.57	48.50	5.08E-04		1.00E-01
		818.50	99.70	4.46E-04		7.13E-02
		1048.07	79.60	2.01E-02		8.86E-02
		1235.34	19.70	9.90E-02		3.76E-01
+	CS-137	661.65	85.12	5.09E-02	8.61E-02	8.61E-02
+	LA-138	788.74	34.00	-3.28E-02	7.89E-02	2.00E-01
		1435.80	66.00	1.70E-02		7.89E-02
+	CE-139	165.85	80.35	-9.83E-03	4.30E-02	4.30E-02
+	BA-140	162.64	6.70	5.20E-02	2.29E-01	5.17E-01
		304.84	4.50	-6.53E-01		9.13E-01
		423.70	3.20	-4.62E-01		1.47E+00
		437.55	2.00	-9.74E-01		2.58E+00
		537.32	25.00	3.82E-02		2.29E-01
+	LA-140	328.77	20.50	2.16E-02	8.51E-02	2.36E-01
		487.03	45.50	-2.75E-02		1.41E-01
		815.85	23.50	2.36E-02		3.25E-01
		1596.49	95.49	3.24E-02		8.51E-02
+	CE-141	145.44	48.40	-9.17E-03	6.85E-02	6.85E-02
+	CE-143	57.36	11.80	-2.11E-01	1.16E-01	2.00E-01
		293.26	42.00	1.10E-02		1.16E-01
		664.55	5.20	3.20E-01		1.46E+00
+	CE-144	133.54	10.80	-1.58E-03	2.67E-01	2.67E-01
+	PM-144	476.78	42.00	1.65E-03	6.05E-02	1.28E-01
		618.01	98.60	-1.88E-03		6.37E-02
		696.49	99.49	-1.70E-02		6.05E-02
+	PM-145	36.85	21.70	-2.78E-02	4.60E-02	8.48E-02
		37.36	39.70	-1.82E-02		4.60E-02
		42.30	15.10	1.02E-01		1.38E-01
		72.40	2.31	2.31E-01		1.16E+00
+	PM-146	453.90	39.94	9.54E-03	1.25E-01	1.25E-01
		735.90	14.01	-2.01E-02		3.54E-01
		747.13	13.10	-1.62E-01		3.66E-01
+	ND-147	91.11	28.90	-4.71E-03	1.09E-01	1.09E-01
		531.02	13.10	-1.35E-01		3.83E-01
+	PM-149	285.90	3.10	-1.01E+00	1.36E+00	1.36E+00
+	EU-152	121.78	20.50	-8.18E-03	1.41E-01	1.41E-01
		244.69	5.40	4.22E-01		7.80E-01
		344.27	19.13	-1.41E-01		2.44E-01
		778.89	9.20	1.98E-02		7.10E-01

Analysis Report for 1606064-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-152	964.01	10.40	-2.71E-02	1.41E-01	6.76E-01
		1085.78	7.22	1.67E-01		1.00E+00
		1112.02	9.60	3.70E-01		8.39E-01
		1407.95	14.94	5.74E-02		3.97E-01
+	GD-153	97.43	31.30	-3.37E-02	9.11E-02	9.11E-02
		103.18	22.20	3.49E-02		1.22E-01
+	EU-154	123.07	40.50	2.33E-02	7.38E-02	7.38E-02
		723.30	19.70	-2.70E-02		2.99E-01
		873.19	11.50	-7.27E-02		4.86E-01
		996.32	10.30	7.77E-02		7.81E-01
		1004.76	17.90	-7.51E-03		3.75E-01
		1274.45	35.50	0.00E+00		1.53E-01
+	EU-155	86.50	30.90	-3.43E-03	8.20E-02	8.20E-02
		105.30	20.70	3.46E-02		1.30E-01
+	EU-156	811.77	10.40	-2.95E-01	6.58E-01	6.58E-01
		1153.47	7.20	1.02E-01		1.07E+00
		1230.71	8.90	3.88E-02		9.20E-01
+	HO-166M	184.41	72.60	3.28E-02	5.34E-02	5.34E-02
		280.45	29.60	1.93E-02		1.41E-01
		410.94	11.10	-1.64E-01		4.07E-01
		711.69	54.10	-9.86E-03		1.25E-01
+	TM-171	66.72	0.14	9.39E+00	1.92E+01	1.92E+01
+	HF-172	81.75	4.52	-2.11E-01	2.60E-01	5.65E-01
		125.81	11.30	-5.78E-03		2.60E-01
+	LU-172	181.53	20.60	-1.15E-01	1.13E-01	1.68E-01
		810.06	16.63	-1.35E-01		4.26E-01
		912.12	15.25	0.00E+00		4.93E-01
		1093.66	62.50	-7.11E-03		1.13E-01
+	LU-173	100.72	5.24	-1.51E-02	2.17E-01	5.09E-01
		272.11	21.20	7.16E-02		2.17E-01
+	HF-175	343.40	84.00	-2.17E-02	5.49E-02	5.49E-02
+	LU-176	88.34	13.30	-3.94E-02	4.70E-02	2.16E-01
		201.83	86.00	-6.17E-03		4.90E-02
		306.78	94.00	4.29E-03		4.70E-02
+	TA-182	67.75	41.20	-1.03E-02	6.38E-02	6.38E-02
		1121.30	34.90	-1.92E-02		1.54E-01
		1189.05	16.23	-1.78E-01		3.14E-01
		1221.41	26.98	-3.59E-02		3.13E-01
		1231.02	11.44	3.00E-02		7.11E-01
+	IR-192	308.46	29.68	-9.85E-03	1.10E-01	1.50E-01
		468.07	48.10	4.32E-02		1.10E-01
+	HG-203	279.19	77.30	-4.08E-04	5.50E-02	5.50E-02
+	BI-207	569.67	97.72	-3.50E-03	5.69E-02	5.69E-02
		1063.62	74.90	-2.24E-02		8.02E-02
+	TL-208	583.14	30.22	1.05E-02	2.11E-01	2.11E-01
		860.37	4.48	1.87E-01		1.65E+00
		2614.66	35.85	7.65E-02		3.27E-01
+	BI-210M	262.00	45.00	-4.91E-02	8.33E-02	8.33E-02
		300.00	23.00	3.87E-03		1.82E-01

Analysis Report for 1606064-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PB-210	46.50	4.25	2.19E-01	4.95E-01	4.95E-01
+	PB-211	404.84	2.90	-5.24E-02	1.66E+00	1.66E+00
		831.96	2.90	-2.17E-02		2.47E+00
+	BI-212	727.17	11.80	1.66E-02	6.12E-01	6.12E-01
		1620.62	2.75	-1.81E+00		2.72E+00
+	PB-212	238.63	44.60	1.11E-03	9.37E-02	9.37E-02
		300.09	3.41	2.61E-02		1.23E+00
+	BI-214	609.31	46.30	7.41E-02	1.53E-01	1.53E-01
		1120.29	15.10	-8.22E-02		3.88E-01
		1764.49	15.80	1.13E-01		5.08E-01
		2204.22	4.98	-5.58E-01		1.48E+00
+	PB-214	295.21	19.19	3.10E-02	1.48E-01	2.35E-01
		351.92	37.19	8.81E-02		1.48E-01
+	RN-219	401.80	6.50	1.69E-01	7.55E-01	7.55E-01
+	RA-223	323.87	3.88	-3.65E-01	1.10E+00	1.10E+00
+	RA-224	240.98	3.95	6.15E-01	1.11E+00	1.11E+00
+	RA-225	40.00	31.00	-7.16E-02	5.92E-02	5.92E-02
+	RA-226	186.21	3.28	1.20E-01	1.19E+00	1.19E+00
+	TH-227	50.10	8.40	7.27E-03	2.55E-01	2.55E-01
		236.00	11.50	-7.22E-02		3.45E-01
		256.20	6.30	2.17E-01		6.07E-01
+	AC-228	338.32	11.40	-8.35E-02	2.49E-01	4.03E-01
		911.07	27.70	-4.27E-02		2.49E-01
		969.11	16.60	0.00E+00		4.42E-01
+	TH-230	48.44	16.90	5.47E-02	1.27E-01	1.27E-01
		62.85	4.60	2.06E-01		5.61E-01
		67.67	0.37	-1.15E+00		7.09E+00
+	PA-231	283.67	1.60	-7.77E-01	1.86E+00	2.57E+00
		302.67	2.30	-2.65E-01		1.86E+00
+	TH-231	25.64	14.70	-1.08E-02	1.50E-01	1.50E-01
		84.21	6.40	-6.78E-03		4.00E-01
+	PA-233	311.98	38.60	3.71E-02	1.23E-01	1.23E-01
+	PA-234	131.20	20.40	1.46E-02	1.44E-01	1.44E-01
		733.99	8.80	-6.47E-02		5.63E-01
		946.00	12.00	-6.34E-02		4.76E-01
+	PA-234M	1001.03	0.92	1.65E+00	8.22E+00	8.22E+00
+	TH-234	63.29	3.80	3.45E-01	6.83E-01	6.83E-01
+	U-235	143.76	10.50	-1.32E-02	3.15E-01	3.15E-01
		163.35	4.70	-1.70E-01		7.26E-01
		205.31	4.70	-4.08E-03		8.63E-01
+	NP-237	86.50	12.60	-8.42E-03	2.01E-01	2.01E-01
+	NP-239	106.10	22.70	3.32E-02	1.25E-01	1.25E-01
		228.18	10.70	-7.55E-03		3.80E-01
		277.60	14.10	6.13E-02		3.27E-01
+	AM-241	59.54	35.90	-3.46E-03	6.77E-02	6.77E-02
+	AM-243	74.67	66.00	2.27E-02	4.11E-02	4.11E-02
+	CM-243	209.75	3.29	3.76E-01	3.15E-01	1.23E+00

Analysis Report for 1606064-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
CM-243	228.14	10.60	9.83E-02	3.15E-01	3.77E-01
	277.60	14.00	5.89E-02		3.15E-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
? = 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	5.11E-01	5.11E-01	-9.27E-02	2.30E-01
NA-22	1274.54	99.94	5.43E-02	5.43E-02	0.00E+00	2.03E-02
NA-24	1368.53	99.99	9.59E-02	8.10E-02	2.59E-02	3.93E-02
	2754.09	99.86	8.10E-02		-5.14E-02	2.56E-02
AL-26	1808.65	99.76	8.21E-02	8.21E-02	-1.25E-02	3.18E-02
K-40	1460.81	10.67	6.99E-01	6.99E-01	1.39E-01	2.77E-01
AR-41	1293.64	99.16	3.20E-01	3.20E-01	8.52E-02	1.31E-01
TI-44	67.88	94.40	2.78E-02	2.78E-02	-4.51E-03	1.33E-02
	78.34	96.00	2.83E-02		9.44E-03	1.35E-02
SC-46	889.25	99.98	8.25E-02	5.87E-02	4.08E-02	3.64E-02
	1120.51	99.99	5.87E-02		-1.24E-02	2.33E-02
V-48	983.52	99.98	6.63E-02	6.63E-02	9.73E-03	2.78E-02
	1312.10	97.50	7.53E-02		-1.54E-02	3.04E-02
CR-51	320.08	9.83	4.25E-01	4.25E-01	-1.84E-01	1.94E-01
MN-54	834.83	99.97	6.79E-02	6.79E-02	-3.37E-03	2.94E-02
CO-56	846.75	99.96	5.43E-02	5.43E-02	-4.00E-02	2.25E-02
	1037.75	14.03	4.71E-01		4.95E-03	1.95E-01
	1238.25	67.00	6.81E-02		-1.59E-02	2.41E-02
	1771.40	15.51	5.20E-01		-2.42E-01	2.01E-01
	2598.48	16.90	3.88E-01		5.28E-02	1.23E-01
CO-57	122.06	85.51	3.38E-02	3.38E-02	-1.97E-03	1.59E-02
	136.48	10.60	2.78E-01		-2.98E-02	1.31E-01

Analysis Report for 1606064-02

BLANK

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	CO-58	810.76	*	99.40	3.33E-02	3.33E-02	4.31E-02	1.22E-02
	FE-59	1099.22		56.50	1.36E-01	1.36E-01	2.65E-02	5.73E-02
		1291.56		43.20	1.78E-01		4.51E-03	7.28E-02
	CO-60	1173.22		100.00	7.41E-02	7.40E-02	2.33E-02	3.07E-02
		1332.49		100.00	7.40E-02		1.57E-02	2.99E-02
	ZN-65	1115.52		50.75	1.65E-01	1.65E-01	2.93E-03	7.07E-02
	GA-67	93.31		35.70	9.28E-02	9.28E-02	9.93E-02	4.44E-02
		208.95		2.24	1.82E+00		-2.42E-01	8.56E-01
		300.22		16.00	2.71E-01		3.87E-02	1.25E-01
	SE-75	121.11		16.70	1.75E-01	4.92E-02	-6.40E-03	8.25E-02
		136.00		59.20	4.92E-02		-3.91E-03	2.31E-02
		264.65		59.80	6.65E-02		-1.54E-02	3.07E-02
		279.53		25.20	1.69E-01		-1.25E-03	7.81E-02
		400.65		11.40	4.18E-01		-1.50E-02	1.90E-01
	RB-82	776.52		13.00	5.03E-01	5.03E-01	-5.07E-02	2.19E-01
	RB-83	520.41		46.00	1.08E-01	1.08E-01	2.07E-02	4.79E-02
		529.64		30.30	1.71E-01		-1.47E-03	7.59E-02
		552.65		16.40	3.87E-01		1.03E-01	1.75E-01
	KR-85	513.99		0.43	1.82E+01	1.82E+01	5.58E+00	8.46E+00
	SR-85	513.99		99.27	7.98E-02	7.98E-02	2.45E-02	3.71E-02
	Y-88	898.02		93.40	5.83E-02	5.83E-02	-3.10E-02	2.39E-02
		1836.01		99.38	9.11E-02		3.47E-02	3.62E-02
	NB-93M	16.57		9.43	2.23E-01	2.23E-01	3.28E-01	1.07E-01
	NB-94	702.63		100.00	6.98E-02	5.86E-02	1.14E-02	3.11E-02
		871.10		100.00	5.86E-02		3.90E-03	2.45E-02
	NB-95	765.79		99.81	7.16E-02	7.16E-02	7.59E-03	3.16E-02
	NB-95M	235.69		25.00	1.63E-01	1.63E-01	-3.42E-02	7.60E-02
	ZR-95	724.18		43.70	1.51E-01	1.25E-01	-8.96E-03	6.63E-02
		756.72		55.30	1.25E-01		3.02E-02	5.47E-02
	MO-99	181.06		6.20	5.75E-01	4.24E-01	-6.10E-01	2.69E-01
		739.58		12.80	4.24E-01		9.57E-02	1.79E-01
		778.00		4.50	1.51E+00		4.20E-02	6.55E-01
	RU-103	497.08		89.00	5.70E-02	5.70E-02	-5.86E-02	2.54E-02
	RU-106	621.84		9.80	6.32E-01	6.32E-01	-1.87E-02	2.81E-01
	AG-108M	433.93		89.90	5.39E-02	5.39E-02	-1.23E-02	2.43E-02
		614.37		90.40	7.16E-02		-5.96E-03	3.21E-02
		722.95		90.50	6.51E-02		-5.87E-03	2.82E-02
	CD-109	88.03		3.72	7.00E-01	7.00E-01	-7.31E-02	3.32E-01
	AG-110M	657.75		93.14	6.88E-02	6.88E-02	-2.24E-02	3.05E-02
		677.61		10.53	5.41E-01		3.19E-02	2.35E-01
		706.67		16.46	3.91E-01		-2.48E-01	1.72E-01
		763.93		21.98	3.23E-01		1.28E-02	1.43E-01
		884.67		71.63	8.68E-02		-5.68E-02	3.67E-02
		1384.27		23.94	2.44E-01		5.29E-02	9.14E-02
	CD-113M	263.70		0.02	1.77E+02	1.77E+02	-1.87E+01	8.19E+01
	SN-113	255.12		1.93	1.88E+00	7.58E-02	-2.26E-01	8.64E-01
		391.69		64.90	7.58E-02		2.68E-02	3.46E-02
	TE123M	159.00		84.10	4.15E-02	4.15E-02	-6.08E-03	1.96E-02
	SB-124	602.71		97.87	6.02E-02	6.02E-02	-2.09E-02	2.67E-02
		645.85		7.26	7.70E-01		-8.28E-02	3.36E-01
		722.78		11.10	5.31E-01		-4.40E-02	2.30E-01
		1691.02		49.00	9.70E-02		-3.08E-02	3.07E-02
	I-125	35.49		6.49	2.88E-01	2.88E-01	-2.74E-02	1.37E-01

Analysis Report for 1606064-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
SB-125	176.33	6.89	4.93E-01	1.85E-01	-1.07E-01	2.31E-01
	427.89	29.33	1.85E-01		1.01E-01	8.44E-02
	463.38	10.35	5.59E-01		2.32E-02	2.55E-01
	600.56	17.80	3.22E-01		-9.59E-02	1.42E-01
	635.90	11.32	5.24E-01		7.88E-02	2.31E-01
SB-126	414.70	83.30	5.52E-02	5.52E-02	1.28E-02	2.48E-02
	666.33	99.60	6.43E-02		1.25E-02	2.85E-02
	695.00	99.60	6.56E-02		6.51E-03	2.89E-02
	720.50	53.80	1.13E-01		0.00E+00	4.93E-02
SN-126	87.57	37.00	7.01E-02	7.01E-02	-7.33E-03	3.33E-02
SB-127	473.00	25.00	2.13E-01	1.71E-01	-3.33E-02	9.59E-02
	685.20	35.70	1.71E-01		-4.00E-02	7.45E-02
	783.80	14.70	4.32E-01		-4.95E-02	1.86E-01
I-129	29.78	57.00	3.49E-02	3.49E-02	-1.55E-02	1.67E-02
	33.60	13.20	1.46E-01		1.69E-02	6.97E-02
	39.58	7.52	2.42E-01		-2.92E-01	1.15E-01
I-131	284.30	6.05	6.48E-01	6.35E-02	-6.15E-01	2.97E-01
	364.48	81.20	6.35E-02		6.72E-03	2.92E-02
	636.97	7.26	8.67E-01		3.89E-01	3.85E-01
	722.89	1.80	3.32E+00		-2.75E-01	1.43E+00
TE-132	49.72	13.10	1.68E-01	4.69E-02	4.81E-03	8.02E-02
	228.16	88.00	4.69E-02		1.22E-02	2.19E-02
BA-133	81.00	33.00	7.94E-02	7.94E-02	-1.28E-02	3.78E-02
	302.84	17.80	2.40E-01		-3.43E-02	1.10E-01
	356.01	60.00	8.54E-02		1.16E-02	3.94E-02
I-133	529.87	86.30	6.80E-02	6.80E-02	-5.84E-04	3.02E-02
XE-133	81.00	38.00	7.04E-02	7.04E-02	-1.13E-02	3.35E-02
CS-134	563.23	8.38	6.56E-01	6.17E-02	-1.78E-01	2.91E-01
	569.32	15.43	3.60E-01		-2.21E-02	1.60E-01
	604.70	97.60	6.17E-02		-3.40E-02	2.74E-02
	795.84	85.40	8.25E-02		3.27E-02	3.61E-02
	801.93	8.73	7.70E-01		8.25E-03	3.35E-01
CS-135	268.24	16.00	2.86E-01	2.86E-01	1.34E-01	1.33E-01
I-135	1131.51	22.50	3.90E-01	3.90E-01	-1.64E-01	1.55E-01
	1260.41	28.60	4.10E-01		-1.94E-02	1.70E-01
	1678.03	9.54	9.25E-01		-3.98E-01	3.28E-01
CS-136	153.22	7.46	4.69E-01	7.13E-02	5.74E-02	2.22E-01
	163.89	4.61	7.48E-01		-1.76E-01	3.52E-01
	176.55	13.56	2.53E-01		-5.47E-02	1.18E-01
	273.65	12.66	3.55E-01		-6.62E-02	1.65E-01
	340.57	48.50	1.00E-01		5.08E-04	4.61E-02
	818.50	99.70	7.13E-02		4.46E-04	3.11E-02
	1048.07	79.60	8.86E-02		2.01E-02	3.71E-02
	1235.34	19.70	3.76E-01		9.90E-02	1.54E-01
CS-137	661.65	85.12	8.61E-02	8.61E-02	5.09E-02	3.88E-02
LA-138	788.74	34.00	2.00E-01	7.89E-02	-3.28E-02	8.73E-02
	1435.80	66.00	7.89E-02		1.70E-02	2.79E-02
CE-139	165.85	80.35	4.30E-02	4.30E-02	-9.83E-03	2.02E-02
BA-140	162.64	6.70	5.17E-01	2.29E-01	5.20E-02	2.44E-01
	304.84	4.50	9.13E-01		-6.53E-01	4.18E-01
	423.70	3.20	1.47E+00		-4.62E-01	6.60E-01
	437.55	2.00	2.58E+00		-9.74E-01	1.17E+00
	537.32	25.00	2.29E-01		3.82E-02	1.02E-01

Analysis Report for 1606064-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
LA-140	328.77	20.50	2.36E-01	8.51E-02	2.16E-02	1.09E-01
	487.03	45.50	1.41E-01		-2.75E-02	6.47E-02
	815.85	23.50	3.25E-01		2.36E-02	1.43E-01
	1596.49	95.49	8.51E-02		3.24E-02	3.38E-02
CE-141	145.44	48.40	6.85E-02	6.85E-02	-9.17E-03	3.24E-02
CE-143	57.36	11.80	2.00E-01	1.16E-01	-2.11E-01	9.49E-02
	293.26	42.00	1.16E-01		1.10E-02	5.39E-02
	664.55	5.20	1.46E+00		3.20E-01	6.52E-01
CE-144	133.54	10.80	2.67E-01	2.67E-01	-1.58E-03	1.26E-01
PM-144	476.78	42.00	1.28E-01	6.05E-02	1.65E-03	5.80E-02
	618.01	98.60	6.37E-02		-1.88E-03	2.84E-02
	696.49	99.49	6.05E-02		-1.70E-02	2.64E-02
PM-145	36.85	21.70	8.48E-02	4.60E-02	-2.78E-02	4.03E-02
	37.36	39.70	4.60E-02		-1.82E-02	2.18E-02
	42.30	15.10	1.38E-01		1.02E-01	6.58E-02
	72.40	2.31	1.16E+00		2.31E-01	5.53E-01
PM-146	453.90	39.94	1.25E-01	1.25E-01	9.54E-03	5.60E-02
	735.90	14.01	3.54E-01		-2.01E-02	1.48E-01
	747.13	13.10	3.66E-01		-1.62E-01	1.52E-01
ND-147	91.11	28.90	1.09E-01	1.09E-01	-4.71E-03	5.22E-02
	531.02	13.10	3.83E-01		-1.35E-01	1.69E-01
PM-149	285.90	3.10	1.36E+00	1.36E+00	-1.01E+00	6.25E-01
EU-152	121.78	20.50	1.41E-01	1.41E-01	-8.18E-03	6.63E-02
	244.69	5.40	7.80E-01		4.22E-01	3.64E-01
	344.27	19.13	2.44E-01		-1.41E-01	1.12E-01
	778.89	9.20	7.10E-01		1.98E-02	3.09E-01
	964.01	10.40	6.76E-01		-2.71E-02	2.88E-01
	1085.78	7.22	1.00E+00		1.67E-01	4.20E-01
	1112.02	9.60	8.39E-01		3.70E-01	3.57E-01
	1407.95	14.94	3.97E-01		5.74E-02	1.49E-01
GD-153	97.43	31.30	9.11E-02	9.11E-02	-3.37E-02	4.33E-02
	103.18	22.20	1.22E-01		3.49E-02	5.75E-02
EU-154	123.07	40.50	7.38E-02	7.38E-02	2.33E-02	3.49E-02
	723.30	19.70	2.99E-01		-2.70E-02	1.29E-01
	873.19	11.50	4.86E-01		-7.27E-02	2.02E-01
	996.32	10.30	7.81E-01		7.77E-02	3.38E-01
	1004.76	17.90	3.75E-01		-7.51E-03	1.57E-01
	1274.45	35.50	1.53E-01		0.00E+00	5.72E-02
EU-155	86.50	30.90	8.20E-02	8.20E-02	-3.43E-03	3.89E-02
	105.30	20.70	1.30E-01		3.46E-02	6.15E-02
EU-156	811.77	10.40	6.58E-01	6.58E-01	-2.95E-01	2.86E-01
	1153.47	7.20	1.07E+00		1.02E-01	4.48E-01
	1230.71	8.90	9.20E-01		3.88E-02	3.85E-01
HO-166M	184.41	72.60	5.34E-02	5.34E-02	3.28E-02	2.52E-02
	280.45	29.60	1.41E-01		1.93E-02	6.53E-02
	410.94	11.10	4.07E-01		-1.64E-01	1.83E-01
	711.69	54.10	1.25E-01		-9.86E-03	5.54E-02
TM-171	66.72	0.14	1.92E+01	1.92E+01	9.39E+00	9.18E+00
HF-172	81.75	4.52	5.65E-01	2.60E-01	-2.11E-01	2.69E-01
	125.81	11.30	2.60E-01		-5.78E-03	1.22E-01
LU-172	181.53	20.60	1.68E-01	1.13E-01	-1.15E-01	7.88E-02
	810.06	16.63	4.26E-01		-1.35E-01	1.86E-01
	912.12	15.25	4.93E-01		0.00E+00	2.13E-01

Analysis Report for 1606064-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
LU-172	1093.66	62.50	1.13E-01	1.13E-01	-7.11E-03	4.68E-02
LU-173	100.72	5.24	5.09E-01	2.17E-01	-1.51E-02	2.41E-01
	272.11	21.20	2.17E-01		7.16E-02	1.01E-01
HF-175	343.40	84.00	5.49E-02	5.49E-02	-2.17E-02	2.52E-02
LU-176	88.34	13.30	2.16E-01	4.70E-02	-3.94E-02	1.03E-01
	201.83	86.00	4.90E-02		-6.17E-03	2.31E-02
	306.78	94.00	4.70E-02		4.29E-03	2.16E-02
TA-182	67.75	41.20	6.38E-02	6.38E-02	-1.03E-02	3.05E-02
	1121.30	34.90	1.54E-01		-1.92E-02	5.97E-02
	1189.05	16.23	3.14E-01		-1.78E-01	1.17E-01
	1221.41	26.98	3.13E-01		-3.59E-02	1.32E-01
	1231.02	11.44	7.11E-01		3.00E-02	2.98E-01
IR-192	308.46	29.68	1.50E-01	1.10E-01	-9.85E-03	6.90E-02
	468.07	48.10	1.10E-01		4.32E-02	4.98E-02
HG-203	279.19	77.30	5.50E-02	5.50E-02	-4.08E-04	2.55E-02
BI-207	569.67	97.72	5.69E-02	5.69E-02	-3.50E-03	2.52E-02
	1063.62	74.90	8.02E-02		-2.24E-02	3.24E-02
TL-208	583.14	30.22	2.11E-01	2.11E-01	1.05E-02	9.47E-02
	860.37	4.48	1.65E+00		1.87E-01	7.21E-01
	2614.66	35.85	3.27E-01		7.65E-02	1.30E-01
BI-210M	262.00	45.00	8.33E-02	8.33E-02	-4.91E-02	3.83E-02
	300.00	23.00	1.82E-01		3.87E-03	8.38E-02
PB-210	46.50	4.25	4.95E-01	4.95E-01	2.19E-01	2.36E-01
PB-211	404.84	2.90	1.66E+00	1.66E+00	-5.24E-02	7.52E-01
	831.96	2.90	2.47E+00		-2.17E-02	1.08E+00
BI-212	727.17	11.80	6.12E-01	6.12E-01	1.66E-02	2.72E-01
	1620.62	2.75	2.72E+00		-1.81E+00	1.05E+00
PB-212	238.63	44.60	9.37E-02	9.37E-02	1.11E-03	4.38E-02
	300.09	3.41	1.23E+00		2.61E-02	5.66E-01
BI-214	609.31	46.30	1.53E-01	1.53E-01	7.41E-02	6.92E-02
	1120.29	15.10	3.88E-01		-8.22E-02	1.54E-01
	1764.49	15.80	5.08E-01		1.13E-01	1.97E-01
	2204.22	4.98	1.48E+00		-5.58E-01	5.25E-01
PB-214	295.21	19.19	2.35E-01	1.48E-01	3.10E-02	1.09E-01
	351.92	37.19	1.48E-01		8.81E-02	6.85E-02
RN-219	401.80	6.50	7.55E-01	7.55E-01	1.69E-01	3.43E-01
RA-223	323.87	3.88	1.10E+00	1.10E+00	-3.65E-01	5.02E-01
RA-224	240.98	3.95	1.11E+00	1.11E+00	6.15E-01	5.20E-01
RA-225	40.00	31.00	5.92E-02	5.92E-02	-7.16E-02	2.81E-02
RA-226	186.21	3.28	1.19E+00	1.19E+00	1.20E-01	5.62E-01
TH-227	50.10	8.40	2.55E-01	2.55E-01	7.27E-03	1.21E-01
	236.00	11.50	3.45E-01		-7.22E-02	1.61E-01
	256.20	6.30	6.07E-01		2.17E-01	2.80E-01
AC-228	338.32	11.40	4.03E-01	2.49E-01	-8.35E-02	1.85E-01
	911.07	27.70	2.49E-01		-4.27E-02	1.07E-01
	969.11	16.60	4.42E-01		0.00E+00	1.89E-01
TH-230	48.44	16.90	1.27E-01	1.27E-01	5.47E-02	6.06E-02
	62.85	4.60	5.61E-01		2.06E-01	2.68E-01
	67.67	0.37	7.09E+00		-1.15E+00	3.39E+00
PA-231	283.67	1.60	2.57E+00	1.86E+00	-7.77E-01	1.18E+00
	302.67	2.30	1.86E+00		-2.65E-01	8.55E-01
TH-231	25.64	14.70	1.50E-01	1.50E-01	-1.08E-02	7.22E-02
	84.21	6.40	4.00E-01		-6.78E-03	1.90E-01

Analysis Report for 1606064-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PA-233	311.98	38.60	1.23E-01	1.23E-01	3.71E-02	5.71E-02
PA-234	131.20	20.40	1.44E-01	1.44E-01	1.46E-02	6.76E-02
	733.99	8.80	5.63E-01		-6.47E-02	2.36E-01
	946.00	12.00	4.76E-01		-6.34E-02	1.95E-01
PA-234M	1001.03	0.92	8.22E+00	8.22E+00	1.65E+00	3.52E+00
TH-234	63.29	3.80	6.83E-01	6.83E-01	3.45E-01	3.27E-01
U-235	143.76	10.50	3.15E-01	3.15E-01	-1.32E-02	1.49E-01
	163.35	4.70	7.26E-01		-1.70E-01	3.41E-01
	205.31	4.70	8.63E-01		-4.08E-03	4.06E-01
NP-237	86.50	12.60	2.01E-01	2.01E-01	-8.42E-03	9.54E-02
NP-239	106.10	22.70	1.25E-01	1.25E-01	3.32E-02	5.90E-02
	228.18	10.70	3.80E-01		-7.55E-03	1.77E-01
	277.60	14.10	3.27E-01		6.13E-02	1.52E-01
AM-241	59.54	35.90	6.77E-02	6.77E-02	-3.46E-03	3.23E-02
AM-243	74.67	66.00	4.11E-02	4.11E-02	2.27E-02	1.97E-02
CM-243	209.75	3.29	1.23E+00	3.15E-01	3.76E-01	5.80E-01
	228.14	10.60	3.77E-01		9.83E-02	1.76E-01
	277.60	14.00	3.15E-01		5.89E-02	1.46E-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

No Data Review Comments Entered.

Analysis Report for 1606064-02

BLANK

****
***** 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: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	4	42
17:	49	28	35	33	26	31	29	26
25:	18	16	23	16	20	20	17	16
33:	12	19	11	14	12	14	13	11
41:	13	12	14	16	20	33	17	4
49:	10	14	10	18	11	10	18	19
57:	16	12	10	19	12	26	23	29
65:	18	18	13	17	13	14	16	16
73:	18	23	19	20	16	14	17	12
81:	10	17	16	10	12	13	13	12
89:	12	9	21	43	23	20	13	13
97:	16	10	15	6	10	16	9	10
105:	14	14	9	8	11	5	10	13
113:	10	17	9	14	6	12	11	12
121:	10	8	10	15	11	12	8	6
129:	14	7	9	13	8	11	8	4
137:	9	7	13	11	13	16	14	9
145:	4	10	9	12	10	11	15	15
153:	11	11	8	10	8	8	12	11
161:	15	11	5	12	10	4	6	13
169:	10	13	12	8	13	3	9	16
177:	4	3	13	6	6	6	11	8
185:	15	21	14	5	6	6	10	6
193:	16	17	6	15	10	14	11	13
201:	8	13	6	7	12	6	17	7
209:	8	9	3	8	11	6	11	3
217:	7	11	7	8	4	8	8	12
225:	11	6	4	8	6	4	8	4
233:	10	4	8	7	4	7	10	13
241:	7	8	9	9	5	4	3	8
249:	6	2	3	5	4	6	8	6
257:	5	5	8	2	5	5	3	6
265:	6	7	11	5	8	9	4	10
273:	5	6	7	5	6	5	10	7
281:	6	2	4	5	4	6	3	4
289:	10	7	9	8	3	4	3	4
297:	6	7	9	3	5	4	3	3
305:	6	5	4	7	8	7	5	2
313:	5	9	6	4	7	3	4	1
321:	6	3	4	3	8	7	3	8
329:	6	5	3	6	9	4	4	5
337:	6	8	3	6	3	3	8	4
345:	3	5	6	4	3	10	10	4
353:	7	7	6	4	3	4	3	5
361:	3	5	2	7	12	3	4	4

369:	8	5	4	4	10	3	0	3

Sample Title: BLANK

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

801:	0	4	3	3	3	1	0	0

Sample Title: BLANK

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

1233:	2	0	0	1	1	0	0	0

Sample Title: BLANK

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

1665:	0	1	0	0	0	0	1	1

Sample Title: BLANK

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

2097:	1	0	0	1	0	0	0	0

Sample Title: BLANK

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

2529:	1	0	0	1	0	0	0	0

Sample Title: BLANK

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

2961:	0	0	0	1	0	2	0	0

Sample Title: BLANK

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

3393:	1	0	0	0	0	0	0	0

Sample Title: BLANK

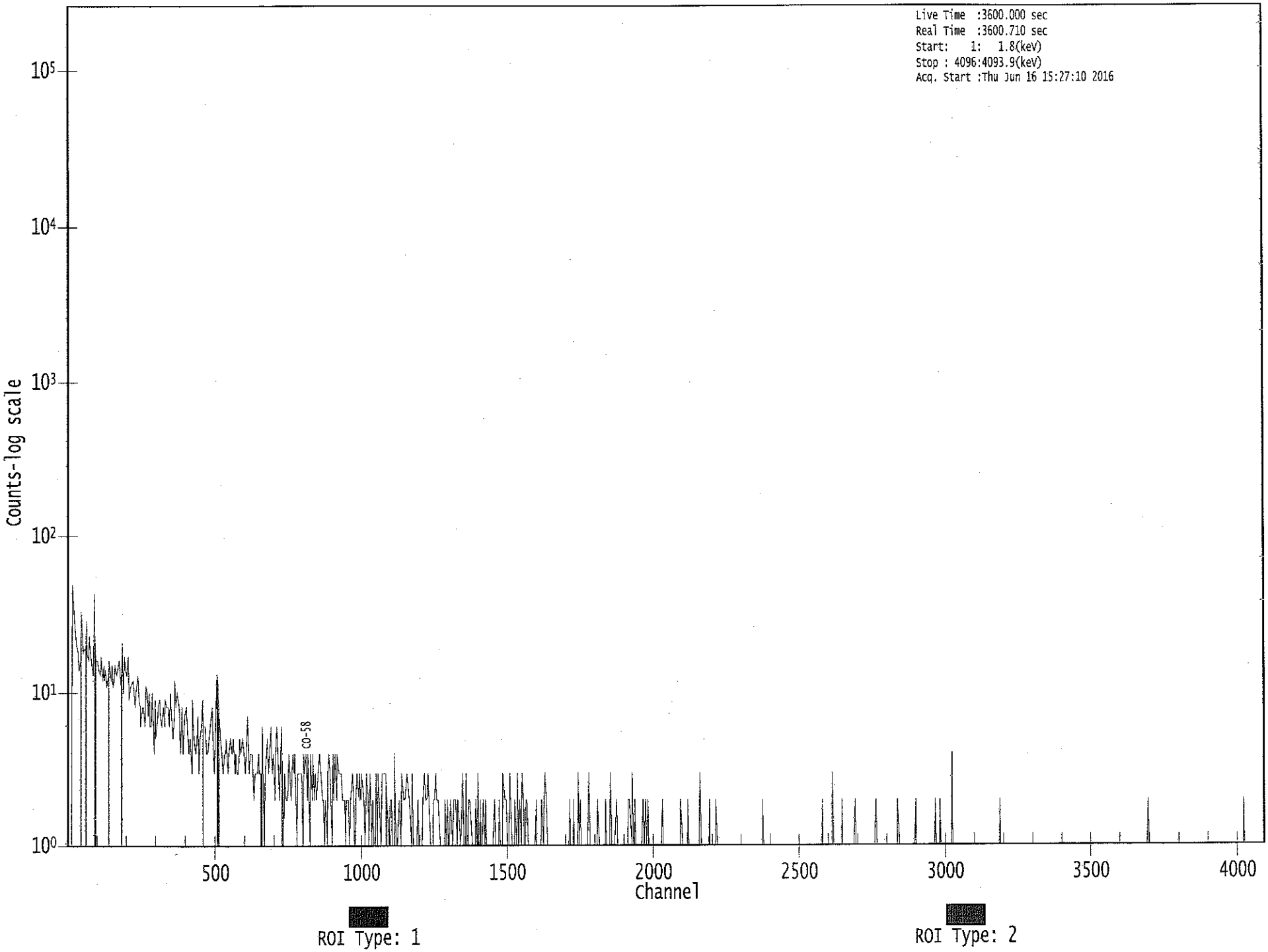
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	1	0	0	0	0	0	0	0
3425:	0	0	0	1	0	0	0	0
3433:	0	0	0	0	0	1	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	1	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	1	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	1	0	1	0	0	0	0	0
3497:	1	0	0	1	0	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	1	0	0	1	1	0	0
3521:	0	1	0	1	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	0	0	0	1	0	0	0
3561:	0	1	0	0	0	0	0	0
3569:	0	0	1	0	0	0	0	0
3577:	0	0	0	0	0	0	1	0
3585:	1	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	1	0	0	0	0	1
3617:	0	0	0	0	1	0	0	0
3625:	0	0	0	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	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	1	0	0
3689:	0	0	0	1	0	0	0	2
3697:	0	1	0	0	0	0	0	0
3705:	0	1	0	0	0	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	1	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	1	0	0	0	0	0	0	0
3745:	1	0	0	0	0	0	0	0
3753:	0	0	0	0	0	0	0	0
3761:	0	0	0	0	1	0	0	0
3769:	0	0	0	0	0	1	0	1
3777:	0	0	0	0	0	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	1	0	0	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	0	1	1	0	0	0

3825:	0	0	0	1	0	1	0	1

Sample Title: BLANK

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

0000039025.CNF



JCP 6/16/16

Apex-Gamma

Analysis Report for 1606064-03
CP-5027 00-02

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1606064-03
Sample Description	: CP-5027 00-02
Sample Type	: SOIL
Sample Size	: 6.952E+02 grams
Facility	: Countroom
Sample Taken On	: 6/2/2016 12:12:04PM
Acquisition Started	: 6/16/2016 3:07:42PM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1402
Live Time	: 3600.0 seconds
Real Time	: 3619.6 seconds
Dead Time	: 0.54 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 10 - 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	: 39022

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606064-03

CP-5027 00-02

PEAK LOCATE REPORT

Peak Locate Performed on : 6/16/2016 4:08:04PM
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	46.59	46.82	0.0000	0.00
2	63.92	64.14	0.0000	0.00
3	76.66	76.87	0.0000	0.00
4	87.93	88.14	0.0000	0.00
5	92.80	93.00	0.0000	0.00
6	129.34	129.53	0.0000	0.00
7	138.12	138.30	0.0000	0.00
8	186.27	186.42	0.0000	0.00
9	210.63	210.78	0.0000	0.00
10	223.50	223.64	0.0000	0.00
11	239.21	239.34	0.0000	0.00
12	242.56	242.69	0.0000	0.00
13	270.69	270.81	0.0000	0.00
14	295.75	295.85	0.0000	0.00
15	300.28	300.37	0.0000	0.00
16	338.71	338.78	0.0000	0.00
17	352.33	352.40	0.0000	0.00
18	410.84	410.88	0.0000	0.00
19	511.21	511.20	0.0000	0.00
20	579.84	579.80	0.0000	0.00
21	583.57	583.52	0.0000	0.00
22	591.05	591.00	0.0000	0.00
23	609.68	609.63	0.0000	0.00
24	662.98	662.89	0.0000	0.00
25	727.30	727.19	0.0000	0.00
26	757.32	757.19	0.0000	0.00
27	769.22	769.09	0.0000	0.00
28	795.17	795.03	0.0000	0.00
29	825.20	825.05	0.0000	0.00
30	831.51	831.35	0.0000	0.00
31	911.41	911.22	0.0000	0.00
32	915.41	915.22	0.0000	0.00
33	934.94	934.74	0.0000	0.00
34	969.53	969.31	0.0000	0.00
35	1120.46	1120.17	0.0000	0.00
36	1238.48	1238.15	0.0000	0.00
37	1460.92	1460.50	0.0000	0.00
38	1496.37	1495.94	0.0000	0.00
39	1582.64	1582.18	0.0000	0.00
40	1588.17	1587.70	0.0000	0.00
41	1593.07	1592.60	0.0000	0.00
42	1711.43	1710.92	0.0000	0.00

Analysis Report for 1606064-03

CP-5027 00-02

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1729.25	1728.73	0.0000	0.00
44	1764.72	1764.19	0.0000	0.00
45	1897.98	1897.41	0.0000	0.00
46	1995.81	1995.20	0.0000	0.00
47	2062.69	2062.06	0.0000	0.00
48	2100.42	2099.79	0.0000	0.00
49	2203.79	2203.12	0.0000	0.00
50	2217.07	2216.39	0.0000	0.00
51	2447.24	2446.50	0.0000	0.00
52	2614.45	2613.67	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606064-03

CP-5027 00-02

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/16/2016 4:08:04PM

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	46.59	44	49	46.82	1.15E+02	68.32	8.47E+02	1.29
	2	63.92	61	67	64.14	1.30E+02	98.83	1.68E+03	1.55
	3	76.66	71	83	76.87	1.03E+03	172.65	3.01E+03	2.71
m	4	87.93	83	97	88.14	2.30E+02	85.01	1.21E+03	2.04
m	5	92.80	83	97	93.00	3.35E+02	86.50	1.12E+03	2.05
	6	129.34	126	133	129.53	9.46E+01	84.50	1.12E+03	1.09
	7	138.12	136	140	138.30	4.51E+01	54.84	6.26E+02	1.83
	8	186.27	181	191	186.42	3.07E+02	103.61	1.26E+03	1.91
	9	210.63	207	214	210.78	7.68E+01	69.77	7.36E+02	2.60
	10	223.50	221	226	223.64	4.06E+01	49.82	4.67E+02	2.94
M	11	239.21	235	246	239.34	5.92E+02	68.23	4.59E+02	2.08
m	12	242.56	235	246	242.69	2.26E+02	64.12	4.39E+02	2.08
	13	270.69	267	274	270.81	6.11E+01	56.39	4.92E+02	2.35
M	14	295.75	290	304	295.85	3.50E+02	50.50	2.57E+02	1.57
m	15	300.28	290	304	300.37	6.81E+01	43.30	2.61E+02	2.15
	16	338.71	335	343	338.78	8.99E+01	55.60	4.24E+02	1.83
	17	352.33	347	357	352.40	5.64E+02	75.36	4.56E+02	1.95
	18	410.84	405	415	410.88	5.99E+01	59.30	4.28E+02	4.15
	19	511.21	506	517	511.20	1.46E+02	50.48	2.44E+02	2.48
M	20	579.84	579	597	579.80	1.72E+01	13.69	3.96E+01	2.18
m	21	583.57	579	597	583.52	1.60E+02	33.08	8.50E+01	2.15
m	22	591.05	579	597	591.00	2.30E+01	24.21	9.68E+01	1.99
	23	609.68	605	612	609.63	4.07E+02	50.68	1.59E+02	1.97
	24	662.98	659	667	662.89	5.14E+01	36.35	1.73E+02	5.35
	25	727.30	724	730	727.19	2.43E+01	26.76	1.13E+02	1.34
	26	757.32	752	763	757.19	4.29E+01	34.23	1.22E+02	3.70
	27	769.22	764	775	769.09	8.74E+01	31.11	7.53E+01	2.25
	28	795.17	790	799	795.03	3.64E+01	33.53	1.39E+02	1.81
	29	825.20	821	828	825.05	1.88E+01	23.41	7.64E+01	2.12
	30	831.51	829	835	831.35	1.95E+01	21.66	7.30E+01	2.19
M	31	911.41	906	920	911.22	1.13E+02	27.48	4.45E+01	2.39
m	32	915.41	906	920	915.22	1.64E+01	22.70	5.26E+01	2.39
	33	934.94	930	943	934.74	3.00E+01	37.15	1.40E+02	3.07
	34	969.53	967	974	969.31	4.88E+01	26.08	8.25E+01	2.11
	35	1120.46	1116	1125	1120.17	8.71E+01	30.41	7.59E+01	2.39
	36	1238.48	1234	1243	1238.15	4.46E+01	31.29	1.13E+02	2.19
	37	1460.92	1454	1466	1460.50	4.03E+02	45.32	5.19E+01	2.43
	38	1496.37	1493	1499	1495.94	9.64E+00	7.50	2.73E+00	3.33
M	39	1582.64	1579	1590	1582.18	1.15E+01	10.44	1.64E+01	4.80
m	40	1588.17	1579	1590	1587.70	1.13E+01	11.54	1.55E+01	2.88

Analysis Report for 1606064-03

CP-5027 00-02

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1593.07	1590 -	1597	1592.60	1.34E+01	11.31	1.31E+01	1.50
42	1711.43	1706 -	1715	1710.92	1.20E+01	6.93	0.00E+00	1.66
43	1729.25	1726 -	1731	1728.73	1.10E+01	6.63	0.00E+00	2.96
44	1764.72	1759 -	1769	1764.19	7.90E+01	21.93	2.20E+01	2.11
45	1897.98	1893 -	1900	1897.41	6.00E+00	6.93	4.00E+00	1.91
46	1995.81	1992 -	1998	1995.20	5.43E+00	6.34	3.14E+00	1.83
47	2062.69	2059 -	2065	2062.06	7.05E+00	8.99	7.91E+00	1.77
48	2100.42	2093 -	2104	2099.79	1.20E+01	12.00	1.20E+01	4.49
49	2203.79	2198 -	2207	2203.12	1.54E+01	11.40	9.30E+00	2.23
50	2217.07	2212 -	2219	2216.39	6.25E+00	6.93	3.50E+00	1.58
51	2447.24	2442 -	2450	2446.50	8.50E+00	9.62	9.00E+00	3.94
52	2614.45	2609 -	2618	2613.67	5.20E+01	14.42	0.00E+00	2.76

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 : 6/16/2016 4:08:04PM

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	46.59	44 -	49	1.15E+02	68.32	8.47E+02	5.33E+01
	2	63.92	61 -	67	1.30E+02	98.83	1.68E+03	7.90E+01
	3	76.66	71 -	83	1.03E+03	172.65	3.01E+03	1.32E+02
m	4	87.93	83 -	97	2.30E+02	85.01	1.21E+03	5.72E+01
m	5	92.80	83 -	97	3.35E+02	86.50	1.12E+03	5.51E+01
	6	129.34	126 -	133	9.46E+01	84.50	1.12E+03	6.76E+01
	7	138.12	136 -	140	4.51E+01	54.84	6.26E+02	4.37E+01
	8	186.27	181 -	191	3.07E+02	103.61	1.26E+03	8.02E+01
	9	210.63	207 -	214	7.68E+01	69.77	7.36E+02	5.55E+01
	10	223.50	221 -	226	4.06E+01	49.82	4.67E+02	3.96E+01
M	11	239.21	235 -	246	5.92E+02	68.23	4.59E+02	3.52E+01
m	12	242.56	235 -	246	2.26E+02	64.12	4.39E+02	3.44E+01
	13	270.69	267 -	274	6.11E+01	56.39	4.92E+02	4.45E+01
M	14	295.75	290 -	304	3.50E+02	50.50	2.57E+02	2.63E+01
m	15	300.28	290 -	304	6.81E+01	43.30	2.61E+02	2.66E+01
	16	338.71	335 -	343	8.99E+01	55.60	4.24E+02	4.30E+01

Analysis Report for 1606064-03

CP-5027 00-02

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	17	352.33	347 -	357	5.64E+02	75.36	4.56E+02	4.81E+01
	18	410.84	405 -	415	5.99E+01	59.30	4.28E+02	4.71E+01
	19	511.21	506 -	517	1.46E+02	50.48	2.44E+02	3.64E+01
M	20	579.84	579 -	597	1.72E+01	13.69	3.96E+01	1.03E+01
m	21	583.57	579 -	597	1.60E+02	33.08	8.50E+01	1.52E+01
m	22	591.05	579 -	597	2.30E+01	24.21	9.68E+01	1.62E+01
	23	609.68	605 -	612	4.07E+02	50.68	1.59E+02	2.52E+01
	24	662.98	659 -	667	5.14E+01	36.35	1.73E+02	2.75E+01
	25	727.30	724 -	730	2.43E+01	26.76	1.13E+02	2.04E+01
	26	757.32	752 -	763	4.29E+01	34.23	1.22E+02	2.60E+01
	27	769.22	764 -	775	8.74E+01	31.11	7.53E+01	2.04E+01
	28	795.17	790 -	799	3.64E+01	33.53	1.39E+02	2.57E+01
	29	825.20	821 -	828	1.88E+01	23.41	7.64E+01	1.79E+01
	30	831.51	829 -	835	1.95E+01	21.66	7.30E+01	1.63E+01
M	31	911.41	906 -	920	1.13E+02	27.48	4.45E+01	1.10E+01
m	32	915.41	906 -	920	1.64E+01	22.70	5.26E+01	1.19E+01
	33	934.94	930 -	943	3.00E+01	37.15	1.40E+02	2.92E+01
	34	969.53	967 -	974	4.88E+01	26.08	8.25E+01	1.81E+01
	35	1120.46	1116 -	1125	8.71E+01	30.41	7.59E+01	2.38E+01
	36	1238.48	1234 -	1243	4.46E+01	31.29	1.13E+02	2.33E+01
	37	1460.92	1454 -	1466	4.03E+02	45.32	5.19E+01	1.73E+01
	38	1496.37	1493 -	1499	9.64E+00	7.50	2.73E+00	3.46E+00
M	39	1582.64	1579 -	1590	1.15E+01	10.44	1.64E+01	6.67E+00
m	40	1588.17	1579 -	1590	1.13E+01	11.54	1.55E+01	6.47E+00
	41	1593.07	1590 -	1597	1.34E+01	11.31	1.31E+01	7.08E+00
	42	1711.43	1706 -	1715	1.20E+01	6.93	0.00E+00	0.00E+00
	43	1729.25	1726 -	1731	1.10E+01	6.63	0.00E+00	0.00E+00
	44	1764.72	1759 -	1769	7.90E+01	21.93	2.20E+01	1.06E+01
	45	1897.98	1893 -	1900	6.00E+00	6.93	4.00E+00	4.03E+00
	46	1995.81	1992 -	1998	5.43E+00	6.34	3.14E+00	3.54E+00
	47	2062.69	2059 -	2065	7.05E+00	8.99	7.91E+00	5.96E+00
	48	2100.42	2093 -	2104	1.20E+01	12.00	1.20E+01	8.05E+00
	49	2203.79	2198 -	2207	1.54E+01	11.40	9.30E+00	6.81E+00
	50	2217.07	2212 -	2219	6.25E+00	6.93	3.50E+00	3.94E+00
	51	2447.24	2442 -	2450	8.50E+00	9.62	9.00E+00	6.29E+00
	52	2614.45	2609 -	2618	5.20E+01	14.42	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 1606064-03

CP-5027 00-02

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/16/2016 4:08:04PM

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	46.59	44 -	49	46.82	1.15E+02	68.32	8.47E+02	PB-210
	2	63.92	61 -	67	64.14	1.30E+02	98.83	1.68E+03	TH-234
	3	76.66	71 -	83	76.87	1.03E+03	172.65	3.01E+03	.....
m	4	87.93	83 -	97	88.14	2.30E+02	85.01	1.21E+03	CD-109
									SN-126
									LU-176
m	5	92.80	83 -	97	93.00	3.35E+02	86.50	1.12E+03	GA-67
	6	129.34	126 -	133	129.53	9.46E+01	84.50	1.12E+03	.....
	7	138.12	136 -	140	138.30	4.51E+01	54.84	6.26E+02	.....
	8	186.27	181 -	191	186.42	3.07E+02	103.61	1.26E+03	RA-226
	9	210.63	207 -	214	210.78	7.68E+01	69.77	7.36E+02	CM-243
	10	223.50	221 -	226	223.64	4.06E+01	49.82	4.67E+02	.....
M	11	239.21	235 -	246	239.34	5.92E+02	68.23	4.59E+02	PB-212
m	12	242.56	235 -	246	242.69	2.26E+02	64.12	4.39E+02	.....
	13	270.69	267 -	274	270.81	6.11E+01	56.39	4.92E+02	.....
M	14	295.75	290 -	304	295.85	3.50E+02	50.50	2.57E+02	PB-214
m	15	300.28	290 -	304	300.37	6.81E+01	43.30	2.61E+02	GA-67
									PB-212
									BI-210M
	16	338.71	335 -	343	338.78	8.99E+01	55.60	4.24E+02	AC-228
	17	352.33	347 -	357	352.40	5.64E+02	75.36	4.56E+02	PB-214
	18	410.84	405 -	415	410.88	5.99E+01	59.30	4.28E+02	HO-166M
	19	511.21	506 -	517	511.20	1.46E+02	50.48	2.44E+02	.....
M	20	579.84	579 -	597	579.80	1.72E+01	13.69	3.96E+01	.....
m	21	583.57	579 -	597	583.52	1.60E+02	33.08	8.50E+01	TL-208
m	22	591.05	579 -	597	591.00	2.30E+01	24.21	9.68E+01	.....
	23	609.68	605 -	612	609.63	4.07E+02	50.68	1.59E+02	BI-214
	24	662.98	659 -	667	662.89	5.14E+01	36.35	1.73E+02	.....
	25	727.30	724 -	730	727.19	2.43E+01	26.76	1.13E+02	BI-212
	26	757.32	752 -	763	757.19	4.29E+01	34.23	1.22E+02	ZR-95
	27	769.22	764 -	775	769.09	8.74E+01	31.11	7.53E+01	.....
	28	795.17	790 -	799	795.03	3.64E+01	33.53	1.39E+02	CS-134
	29	825.20	821 -	828	825.05	1.88E+01	23.41	7.64E+01	.....
	30	831.51	829 -	835	831.35	1.95E+01	21.66	7.30E+01	PB-211
M	31	911.41	906 -	920	911.22	1.13E+02	27.48	4.45E+01	AC-228
									LU-172
m	32	915.41	906 -	920	915.22	1.64E+01	22.70	5.26E+01	.....
	33	934.94	930 -	943	934.74	3.00E+01	37.15	1.40E+02	.....
	34	969.53	967 -	974	969.31	4.88E+01	26.08	8.25E+01	AC-228
	35	1120.46	1116 -	1125	1120.17	8.71E+01	30.41	7.59E+01	SC-46
									BI-214

Analysis Report for 1606064-03

CP-5027 00-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									TA-182
	36	1238.48	1234 -	1243	1238.15	4.46E+01	31.29	1.13E+02	CO-56
	37	1460.92	1454 -	1466	1460.50	4.03E+02	45.32	5.19E+01	K-40
	38	1496.37	1493 -	1499	1495.94	9.64E+00	7.50	2.73E+00	.....
M	39	1582.64	1579 -	1590	1582.18	1.15E+01	10.44	1.64E+01	.....
m	40	1588.17	1579 -	1590	1587.70	1.13E+01	11.54	1.55E+01	.....
	41	1593.07	1590 -	1597	1592.60	1.34E+01	11.31	1.31E+01	.....
	42	1711.43	1706 -	1715	1710.92	1.20E+01	6.93	0.00E+00	.....
	43	1729.25	1726 -	1731	1728.73	1.10E+01	6.63	0.00E+00	.....
	44	1764.72	1759 -	1769	1764.19	7.90E+01	21.93	2.20E+01	BI-214
	45	1897.98	1893 -	1900	1897.41	6.00E+00	6.93	4.00E+00	.....
	46	1995.81	1992 -	1998	1995.20	5.43E+00	6.34	3.14E+00	.....
	47	2062.69	2059 -	2065	2062.06	7.05E+00	8.99	7.91E+00	.....
	48	2100.42	2093 -	2104	2099.79	1.20E+01	12.00	1.20E+01	.....
	49	2203.79	2198 -	2207	2203.12	1.54E+01	11.40	9.30E+00	BI-214
	50	2217.07	2212 -	2219	2216.39	6.25E+00	6.93	3.50E+00	.....
	51	2447.24	2442 -	2450	2446.50	8.50E+00	9.62	9.00E+00	.....
	52	2614.45	2609 -	2618	2613.67	5.20E+01	14.42	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 : 6/16/2016 4:08:04PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.59	1.15E+02	68.32	1.51E-02	1.58E-03
	2	63.92	1.30E+02	98.83	2.17E-02	1.73E-03
	3	76.66	1.03E+03	172.65	2.38E-02	2.15E-03
m	4	87.93	2.30E+02	85.01	2.44E-02	2.52E-03
m	5	92.80	3.35E+02	86.50	2.44E-02	2.41E-03
	6	129.34	9.46E+01	84.50	2.25E-02	1.70E-03
	7	138.12	4.51E+01	54.84	2.18E-02	1.65E-03
	8	186.27	3.07E+02	103.61	1.83E-02	1.42E-03
	9	210.63	7.68E+01	69.77	1.67E-02	1.31E-03
	10	223.50	4.06E+01	49.82	1.60E-02	1.25E-03
M	11	239.21	5.92E+02	68.23	1.52E-02	1.18E-03
m	12	242.56	2.26E+02	64.12	1.50E-02	1.16E-03

Analysis Report for 1606064-03

CP-5027 00-02

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	13	270.69	6.11E+01	56.39	1.38E-02	1.04E-03
M	14	295.75	3.50E+02	50.50	1.28E-02	9.73E-04
m	15	300.28	6.81E+01	43.30	1.26E-02	9.67E-04
	16	338.71	8.99E+01	55.60	1.14E-02	9.12E-04
	17	352.33	5.64E+02	75.36	1.10E-02	8.93E-04
	18	410.84	5.99E+01	59.30	9.68E-03	8.18E-04
	19	511.21	1.46E+02	50.48	8.01E-03	7.18E-04
M	20	579.84	1.72E+01	13.69	7.17E-03	6.49E-04
m	21	583.57	1.60E+02	33.08	7.13E-03	6.46E-04
m	22	591.05	2.30E+01	24.21	7.06E-03	6.38E-04
	23	609.68	4.07E+02	50.68	6.87E-03	6.20E-04
	24	662.98	5.14E+01	36.35	6.38E-03	5.67E-04
	25	727.30	2.43E+01	26.76	5.89E-03	5.14E-04
	26	757.32	4.29E+01	34.23	5.69E-03	4.90E-04
	27	769.22	8.74E+01	31.11	5.61E-03	4.80E-04
	28	795.17	3.64E+01	33.53	5.45E-03	4.59E-04
	29	825.20	1.88E+01	23.41	5.28E-03	4.34E-04
	30	831.51	1.95E+01	21.66	5.25E-03	4.29E-04
M	31	911.41	1.13E+02	27.48	4.85E-03	3.72E-04
m	32	915.41	1.64E+01	22.70	4.83E-03	3.71E-04
	33	934.94	3.00E+01	37.15	4.75E-03	3.68E-04
	34	969.53	4.88E+01	26.08	4.60E-03	3.61E-04
	35	1120.46	8.71E+01	30.41	4.08E-03	3.33E-04
	36	1238.48	4.46E+01	31.29	3.75E-03	3.09E-04
	37	1460.92	4.03E+02	45.32	3.29E-03	2.69E-04
	38	1496.37	9.64E+00	7.50	3.23E-03	2.64E-04
M	39	1582.64	1.15E+01	10.44	3.10E-03	2.51E-04
m	40	1588.17	1.13E+01	11.54	3.09E-03	2.50E-04
	41	1593.07	1.34E+01	11.31	3.08E-03	2.50E-04
	42	1711.43	1.20E+01	6.93	2.92E-03	2.32E-04
	43	1729.25	1.10E+01	6.63	2.90E-03	2.29E-04
	44	1764.72	7.90E+01	21.93	2.86E-03	2.24E-04
	45	1897.98	6.00E+00	6.93	2.71E-03	2.13E-04
	46	1995.81	5.43E+00	6.34	2.62E-03	2.13E-04
	47	2062.69	7.05E+00	8.99	2.57E-03	2.13E-04
	48	2100.42	1.20E+01	12.00	2.54E-03	2.13E-04
	49	2203.79	1.54E+01	11.40	2.46E-03	2.13E-04
	50	2217.07	6.25E+00	6.93	2.45E-03	2.13E-04
	51	2447.24	8.50E+00	9.62	2.32E-03	2.13E-04
	52	2614.45	5.20E+01	14.42	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 1606064-03

CP-5027 00-02

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/16/2016 4:08:04PM

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	46.59	1.15E+02	68.32	4.97E+01	7.81E+00	6.56E+01	6.88E+01
	2	63.92	1.30E+02	98.83	4.47E+01	1.66E+01	8.57E+01	1.00E+02
	3	76.66	1.03E+03	172.65	6.70E+00	3.28E+00	1.02E+03	1.73E+02
m	4	87.93	2.30E+02	85.01	1.07E+01	3.99E+00	2.19E+02	8.51E+01
m	5	92.80	3.35E+02	86.50	8.20E+01	2.30E+01	2.53E+02	8.95E+01
	6	129.34	9.46E+01	84.50			9.46E+01	8.45E+01
	7	138.12	4.51E+01	54.84			4.51E+01	5.48E+01
	8	186.27	3.07E+02	103.61	3.45E+01	5.92E+00	2.72E+02	1.04E+02
	9	210.63	7.68E+01	69.77			7.68E+01	6.98E+01
	10	223.50	4.06E+01	49.82			4.06E+01	4.98E+01
M	11	239.21	5.92E+02	68.23	1.33E+01	5.09E+00	5.79E+02	6.84E+01
m	12	242.56	2.26E+02	64.12			2.26E+02	6.41E+01
	13	270.69	6.11E+01	56.39			6.11E+01	5.64E+01
M	14	295.75	3.50E+02	50.50	1.94E+00	4.39E+00	3.48E+02	5.07E+01
m	15	300.28	6.81E+01	43.30			6.81E+01	4.33E+01
	16	338.71	8.99E+01	55.60			8.99E+01	5.56E+01
	17	352.33	5.64E+02	75.36	4.00E+00	3.58E+00	5.60E+02	7.54E+01
	18	410.84	5.99E+01	59.30			5.99E+01	5.93E+01
	19	511.21	1.46E+02	50.48	6.05E+01	4.93E+00	8.56E+01	5.07E+01
M	20	579.84	1.72E+01	13.69			1.72E+01	1.37E+01
m	21	583.57	1.60E+02	33.08	5.50E+00	3.61E+00	1.55E+02	3.33E+01
m	22	591.05	2.30E+01	24.21			2.30E+01	2.42E+01
	23	609.68	4.07E+02	50.68	5.07E+00	3.83E+00	4.02E+02	5.08E+01
	24	662.98	5.14E+01	36.35	8.97E+00	3.29E+00	4.24E+01	3.65E+01
	25	727.30	2.43E+01	26.76			2.43E+01	2.68E+01
	26	757.32	4.29E+01	34.23			4.29E+01	3.42E+01
	27	769.22	8.74E+01	31.11			8.74E+01	3.11E+01
	28	795.17	3.64E+01	33.53			3.64E+01	3.35E+01
	29	825.20	1.88E+01	23.41			1.88E+01	2.34E+01
	30	831.51	1.95E+01	21.66			1.95E+01	2.17E+01
M	31	911.41	1.13E+02	27.48			1.13E+02	2.75E+01
m	32	915.41	1.64E+01	22.70			1.64E+01	2.27E+01
	33	934.94	3.00E+01	37.15			3.00E+01	3.71E+01
	34	969.53	4.88E+01	26.08			4.88E+01	2.61E+01
	35	1120.46	8.71E+01	30.41	1.09E+00	2.08E+00	8.60E+01	3.05E+01
	36	1238.48	4.46E+01	31.29			4.46E+01	3.13E+01
	37	1460.92	4.03E+02	45.32	4.33E+00	2.02E+00	3.99E+02	4.54E+01
	38	1496.37	9.64E+00	7.50			9.64E+00	7.50E+00
M	39	1582.64	1.15E+01	10.44			1.15E+01	1.04E+01
m	40	1588.17	1.13E+01	11.54			1.13E+01	1.15E+01
	41	1593.07	1.34E+01	11.31			1.34E+01	1.13E+01
	42	1711.43	1.20E+01	6.93			1.20E+01	6.93E+00
	43	1729.25	1.10E+01	6.63			1.10E+01	6.63E+00
	44	1764.72	7.90E+01	21.93			7.90E+01	2.19E+01

Analysis Report for 1606064-03

CP-5027 00-02

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
45	1897.98	6.00E+00	6.93			6.00E+00	6.93E+00
46	1995.81	5.43E+00	6.34			5.43E+00	6.34E+00
47	2062.69	7.05E+00	8.99			7.05E+00	8.99E+00
48	2100.42	1.20E+01	12.00			1.20E+01	1.20E+01
49	2203.79	1.54E+01	11.40			1.54E+01	1.14E+01
50	2217.07	6.25E+00	6.93			6.25E+00	6.93E+00
51	2447.24	8.50E+00	9.62			8.50E+00	9.62E+00
52	2614.45	5.20E+01	14.42			5.20E+01	1.44E+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 : 6/16/2016 4:08:04PM

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	46.59	1.15E+02	68.32	4.97E+01	7.81E+00	6.56E+01	6.88E+01
	2	63.92	1.30E+02	98.83	4.47E+01	1.66E+01	8.57E+01	1.00E+02
	3	76.66	1.03E+03	172.65	6.70E+00	3.28E+00	1.02E+03	1.73E+02
m	4	87.93	2.30E+02	85.01	1.07E+01	3.99E+00	2.19E+02	8.51E+01
m	5	92.80	3.35E+02	86.50	8.20E+01	2.30E+01	2.53E+02	8.95E+01
	6	129.34	9.46E+01	84.50			9.46E+01	8.45E+01
	7	138.12	4.51E+01	54.84			4.51E+01	5.48E+01
	8	186.27	3.07E+02	103.61	3.45E+01	5.92E+00	2.72E+02	1.04E+02
	9	210.63	7.68E+01	69.77			7.68E+01	6.98E+01
	10	223.50	4.06E+01	49.82			4.06E+01	4.98E+01
M	11	239.21	5.92E+02	68.23	1.33E+01	5.09E+00	5.79E+02	6.84E+01
m	12	242.56	2.26E+02	64.12			2.26E+02	6.41E+01
	13	270.69	6.11E+01	56.39			6.11E+01	5.64E+01
M	14	295.75	3.50E+02	50.50	1.94E+00	4.39E+00	3.48E+02	5.07E+01
m	15	300.28	6.81E+01	43.30			6.81E+01	4.33E+01
	16	338.71	8.99E+01	55.60			8.99E+01	5.56E+01
	17	352.33	5.64E+02	75.36	4.00E+00	3.58E+00	5.60E+02	7.54E+01
	18	410.84	5.99E+01	59.30			5.99E+01	5.93E+01
	19	511.21	1.46E+02	50.48	6.05E+01	4.93E+00	8.56E+01	5.07E+01
M	20	579.84	1.72E+01	13.69			1.72E+01	1.37E+01

Analysis Report for 1606064-03

CP-5027 00-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	21	583.57	1.60E+02	33.08	5.50E+00	3.61E+00	1.55E+02	3.33E+01
m	22	591.05	2.30E+01	24.21			2.30E+01	2.42E+01
	23	609.68	4.07E+02	50.68	5.07E+00	3.83E+00	4.02E+02	5.08E+01
	24	662.98	5.14E+01	36.35	8.97E+00	3.29E+00	4.24E+01	3.65E+01
	25	727.30	2.43E+01	26.76			2.43E+01	2.68E+01
	26	757.32	4.29E+01	34.23			4.29E+01	3.42E+01
	27	769.22	8.74E+01	31.11			8.74E+01	3.11E+01
	28	795.17	3.64E+01	33.53			3.64E+01	3.35E+01
	29	825.20	1.88E+01	23.41			1.88E+01	2.34E+01
	30	831.51	1.95E+01	21.66			1.95E+01	2.17E+01
M	31	911.41	1.13E+02	27.48			1.13E+02	2.75E+01
m	32	915.41	1.64E+01	22.70			1.64E+01	2.27E+01
	33	934.94	3.00E+01	37.15			3.00E+01	3.71E+01
	34	969.53	4.88E+01	26.08			4.88E+01	2.61E+01
	35	1120.46	8.71E+01	30.41	1.09E+00	2.08E+00	8.60E+01	3.05E+01
	36	1238.48	4.46E+01	31.29			4.46E+01	3.13E+01
	37	1460.92	4.03E+02	45.32	4.33E+00	2.02E+00	3.99E+02	4.54E+01
	38	1496.37	9.64E+00	7.50			9.64E+00	7.50E+00
M	39	1582.64	1.15E+01	10.44			1.15E+01	1.04E+01
m	40	1588.17	1.13E+01	11.54			1.13E+01	1.15E+01
	41	1593.07	1.34E+01	11.31			1.34E+01	1.13E+01
	42	1711.43	1.20E+01	6.93			1.20E+01	6.93E+00
	43	1729.25	1.10E+01	6.63			1.10E+01	6.63E+00
	44	1764.72	7.90E+01	21.93			7.90E+01	2.19E+01
	45	1897.98	6.00E+00	6.93			6.00E+00	6.93E+00
	46	1995.81	5.43E+00	6.34			5.43E+00	6.34E+00
	47	2062.69	7.05E+00	8.99			7.05E+00	8.99E+00
	48	2100.42	1.20E+01	12.00			1.20E+01	1.20E+01
	49	2203.79	1.54E+01	11.40			1.54E+01	1.14E+01
	50	2217.07	6.25E+00	6.93			6.25E+00	6.93E+00
	51	2447.24	8.50E+00	9.62			8.50E+00	9.62E+00
	52	2614.45	5.20E+01	14.42			5.20E+01	1.44E+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 1606064-03

CP-5027 00-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.998	1460.81	*	10.67	1.23E+01	1.74E+00
GA-67	0.830	93.31	*	35.70	6.34E+00	1.39E+01
		208.95		2.24		
		300.22	*	16.00	7.34E+00	1.65E+01
CD-109	0.998	88.03	*	3.72	2.66E+00	1.08E+00
SN-126	0.980	87.57	*	37.00	2.62E-01	1.05E-01
TL-208	0.872	583.14	*	30.22	7.76E-01	1.81E-01
		860.37		4.48		
		2614.66	*	35.85	6.99E-01	2.05E-01
PB-210	0.999	46.50	*	4.25	1.11E+00	1.17E+00
BI-212	0.768	727.17	*	11.80	3.77E-01	4.17E-01
		1620.62		2.75		
PB-212	0.951	238.63	*	44.60	9.23E-01	1.30E-01
		300.09	*	3.41	1.71E+00	1.09E+00
BI-214	0.983	609.31	*	46.30	1.36E+00	2.12E-01
		1120.29	*	15.10	1.51E+00	5.49E-01
		1764.49	*	15.80	1.89E+00	5.45E-01
		2204.22	*	4.98	1.35E+00	1.01E+00
PB-214	0.967	295.21	*	19.19	1.53E+00	2.51E-01
		351.92	*	37.19	1.47E+00	2.31E-01
RA-226	1.000	186.21	*	3.28	4.91E+00	9.17E+00
AC-228	0.978	338.32	*	11.40	7.45E-01	4.65E-01
		911.07	*	27.70	9.10E-01	2.32E-01
		969.11	*	16.60	6.89E-01	3.73E-01
TH-234	0.938	63.29	*	3.80	1.12E+00	1.31E+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 : 6/16/2016 4:08:04PM
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	76.66	2.83279E-01	8.47		
6	129.34	2.62671E-02	44.68		
7	138.12	1.25155E-02	60.85		
9	210.63	2.13287E-02	45.43	Tol.	CM-243

Analysis Report for 1606064-03

CP-5027 00-02

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	10	223.50	1.12855E-02	61.31		
m	12	242.56	6.27738E-02	14.19		
	13	270.69	1.69843E-02	46.11		
	18	410.84	1.66332E-02	49.51	Tol.	HO-166M
	19	511.21	2.37834E-02	29.62		
M	20	579.84	4.78434E-03	39.75		
m	22	591.05	6.37987E-03	52.70	Sum	
	24	662.98	1.17830E-02	43.02		
	26	757.32	1.19231E-02	39.88	Tol.	ZR-95
	27	769.22	2.42689E-02	17.81	Sum	
	28	795.17	1.01179E-02	46.02	Sum	
	29	825.20	5.21930E-03	62.29		
	30	831.51	5.41667E-03	55.53	Tol.	PB-211
m	32	915.41	4.56244E-03	69.10		
	33	934.94	8.33333E-03	61.91	Sum	
	36	1238.48	1.23762E-02	35.11	Tol.	CO-56
	38	1496.37	2.67677E-03	38.92		
M	39	1582.64	3.18688E-03	45.50		
m	40	1588.17	3.13531E-03	51.14		
	41	1593.07	3.73611E-03	42.06	D-Esc	
	42	1711.43	3.33333E-03	28.87		
	43	1729.25	3.05556E-03	30.15	Sum	
	45	1897.98	1.66667E-03	57.74		
	46	1995.81	1.50794E-03	58.43		
	47	2062.69	1.95707E-03	63.77		
	48	2100.42	3.33333E-03	50.00		
	50	2217.07	1.73611E-03	55.43		
	51	2447.24	2.36111E-03	56.57		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty

Analysis Report for 1606064-03

CP-5027 00-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	1.23E+01	1.74E+00
GA-67	0.83	93.31	*	35.70	6.34E+00	1.39E+01
		208.95		2.24		
		300.22	*	16.00	7.34E+00	1.65E+01
CD-109	0.99	88.03	*	3.72	2.66E+00	1.08E+00
SN-126	0.98	87.57	*	37.00	2.62E-01	1.05E-01
TL-208	0.87	583.14	*	30.22	7.76E-01	1.81E-01
		860.37		4.48		
		2614.66	*	35.85	6.99E-01	2.05E-01
PB-210	0.99	46.50	*	4.25	1.11E+00	1.17E+00
BI-212	0.76	727.17	*	11.80	3.77E-01	4.17E-01
		1620.62		2.75		
PB-212	0.95	238.63	*	44.60	9.23E-01	1.30E-01
		300.09	*	3.41	1.71E+00	1.09E+00
BI-214	0.98	609.31	*	46.30	1.36E+00	2.12E-01
		1120.29	*	15.10	1.51E+00	5.49E-01
		1764.49	*	15.80	1.89E+00	5.45E-01
		2204.22	*	4.98	1.35E+00	1.01E+00
PB-214	0.96	295.21	*	19.19	1.53E+00	2.51E-01
		351.92	*	37.19	1.47E+00	2.31E-01
RA-226	1.00	186.21	*	3.28	4.91E+00	9.17E+00
AC-228	0.97	338.32	*	11.40	7.45E-01	4.65E-01
		911.07	*	27.70	9.10E-01	2.32E-01
		969.11	*	16.60	6.89E-01	3.73E-01
TH-234	0.93	63.29	*	3.80	1.12E+00	1.31E+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	0.998	1.23E+01	1.74E+00	
GA-67	0.830	5.76E+00	1.08E+01	

Analysis Report for 1606064-03

CP-5027 00-02

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
?	CD-109	0.998	2.66E+00	1.08E+00	
?	SN-126	0.980	2.62E-01	1.05E-01	
	TL-208	0.872	7.42E-01	1.36E-01	
	PB-210	0.999	1.11E+00	1.17E+00	
	BI-212	0.768	3.77E-01	4.17E-01	
	PB-212	0.951	9.15E-01	1.30E-01	
	BI-214	0.983	1.44E+00	1.83E-01	
	PB-214	0.967	1.50E+00	1.70E-01	
	RA-226	1.000	4.91E+00	9.17E+00	
	AC-228	0.978	8.33E-01	1.81E-01	
	TH-234	0.938	1.12E+00	1.31E+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 1606064-03

CP-5027 00-02

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/16/2016 4:08:04PM
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	76.66	2.83279E-01	8.47		
	6	129.34	2.62671E-02	44.68		
	7	138.12	1.25155E-02	60.85		
	9	210.63	2.13287E-02	45.43	Tol.	CM-243
	10	223.50	1.12855E-02	61.31		
m	12	242.56	6.27738E-02	14.19		
	13	270.69	1.69843E-02	46.11		
	18	410.84	1.66332E-02	49.51	Tol.	HO-166M
	19	511.21	2.37834E-02	29.62		
M	20	579.84	4.78434E-03	39.75		
m	22	591.05	6.37987E-03	52.70	Sum	
	24	662.98	1.17830E-02	43.02		
	26	757.32	1.19231E-02	39.88	Tol.	ZR-95
	27	769.22	2.42689E-02	17.81	Sum	
	28	795.17	1.01179E-02	46.02	Sum	
	29	825.20	5.21930E-03	62.29		
	30	831.51	5.41667E-03	55.53	Tol.	PB-211
m	32	915.41	4.56244E-03	69.10		
	33	934.94	8.33333E-03	61.91	Sum	
	36	1238.48	1.23762E-02	35.11	Tol.	CO-56
	38	1496.37	2.67677E-03	38.92		
M	39	1582.64	3.18688E-03	45.50		
m	40	1588.17	3.13531E-03	51.14		
	41	1593.07	3.73611E-03	42.06	D-Esc	
	42	1711.43	3.33333E-03	28.87		
	43	1729.25	3.05556E-03	30.15	Sum	
	45	1897.98	1.66667E-03	57.74		
	46	1995.81	1.50794E-03	58.43		
	47	2062.69	1.95707E-03	63.77		
	48	2100.42	3.33333E-03	50.00		
	50	2217.07	1.73611E-03	55.43		
	51	2447.24	2.36111E-03	56.57		

Analysis Report for 1606064-03

CP-5027 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 : \\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	-1.38E-01	7.38E-01	7.38E-01
+	NA-22	1274.54		99.94	-1.59E-02	9.23E-02	9.23E-02
+	NA-24	1368.53		99.99	3.54E+05	4.21E+05	5.95E+05
		2754.09		99.86	1.24E+05		4.21E+05
+	AL-26	1808.65		99.76	3.20E-02	8.22E-02	8.22E-02
+	K-40	1460.81	*	10.67	1.23E+01	1.17E+00	1.17E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-8.36E-03	5.87E-02	5.87E-02
		78.34		96.00	1.79E-01		7.62E-02
+	SC-46	889.25		99.98	-1.58E-02	8.14E-02	8.14E-02
		1120.51		99.99	2.84E-01		1.59E-01
+	V-48	983.52		99.98	-4.39E-02	1.41E-01	1.41E-01
		1312.10		97.50	3.51E-02		1.63E-01
+	CR-51	320.08		9.83	3.05E-01	8.64E-01	8.64E-01
+	MN-54	834.83		99.97	1.03E-02	8.06E-02	8.06E-02
+	CO-56	846.75		99.96	-2.19E-02	7.78E-02	7.78E-02
		1037.75		14.03	-3.17E-01		6.22E-01
		1238.25		67.00	1.97E-01		2.20E-01
		1771.40		15.51	-9.53E-02		4.39E-01
		2598.48		16.90	-1.22E-01		3.47E-01
+	CO-57	122.06		85.51	2.44E-02	5.46E-02	5.46E-02
		136.48		10.60	2.15E-01		4.42E-01
+	CO-58	810.76		99.40	-8.00E-03	8.13E-02	8.13E-02
+	FE-59	1099.22		56.50	-5.36E-02	1.72E-01	1.72E-01
		1291.56		43.20	5.26E-02		2.59E-01
+	CO-60	1173.22		100.00	-9.92E-03	8.90E-02	9.57E-02
		1332.49		100.00	-1.23E-02		8.90E-02
+	ZN-65	1115.52		50.75	2.17E-02	1.91E-01	1.91E-01
+	GA-67	93.31	*	35.70	6.34E+00	6.59E+00	6.59E+00
		208.95		2.24	4.28E+01		5.68E+01
		300.22	*	16.00	7.34E+00		1.41E+01
+	SE-75	121.11		16.70	-6.73E-02	8.08E-02	2.81E-01

Analysis Report for 1606064-03

CP-5027 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-6.38E-03	8.08E-02	8.08E-02
		264.65		59.80	1.28E-02		9.71E-02
		279.53		25.20	1.16E-01		2.67E-01
		400.65		11.40	2.02E-01		6.41E-01
+	RB-82	776.52		13.00	-1.65E-01	6.45E-01	6.45E-01
+	RB-83	520.41		46.00	1.16E-03	1.38E-01	1.38E-01
		529.64		30.30	-1.09E-01		2.29E-01
		552.65		16.40	2.07E-01		4.55E-01
+	KR-85	513.99		0.43	2.75E+01	2.02E+01	2.02E+01
+	SR-85	513.99		99.27	1.39E-01	1.02E-01	1.02E-01
+	Y-88	898.02		93.40	-1.24E-02	6.44E-02	8.66E-02
		1836.01		99.38	1.12E-02		6.44E-02
+	NB-93M	16.57		9.43	4.08E+01	7.14E+01	7.14E+01
+	NB-94	702.63		100.00	-3.53E-03	6.72E-02	7.10E-02
		871.10		100.00	-2.48E-02		6.72E-02
+	NB-95	765.79		99.81	6.74E-02	1.15E-01	1.15E-01
+	NB-95M	235.69		25.00	-3.48E-01	5.01E+00	5.01E+00
+	ZR-95	724.18		43.70	7.31E-03	1.66E-01	2.11E-01
		756.72		55.30	7.21E-02		1.66E-01
+	MO-99	181.06		6.20	-1.38E+00	1.86E+01	2.75E+01
		739.58		12.80	-1.66E+00		1.86E+01
		778.00		4.50	-2.56E+01		4.42E+01
+	RU-103	497.08		89.00	1.80E-02	8.79E-02	8.79E-02
+	RU-106	621.84		9.80	-2.65E-01	7.16E-01	7.16E-01
+	AG-108M	433.93		89.90	-1.33E-02	6.67E-02	6.67E-02
		614.37		90.40	-5.57E-02		9.51E-02
		722.95		90.50	2.30E-03		7.93E-02
+	CD-109	88.03	*	3.72	2.66E+00	3.16E+00	3.16E+00
+	AG-110M	657.75		93.14	2.89E-02	8.17E-02	8.17E-02
		677.61		10.53	-3.16E-01		6.80E-01
		706.67		16.46	1.01E-02		4.58E-01
		763.93		21.98	-4.04E-01		3.42E-01
		884.67		71.63	-3.12E-02		1.02E-01
		1384.27		23.94	-1.47E-01		3.73E-01
+	CD-113M	263.70		0.02	-2.26E+01	2.31E+02	2.31E+02
+	SN-113	255.12		1.93	4.22E-02	1.01E-01	3.24E+00
		391.69		64.90	8.62E-03		1.01E-01
+	TE123M	159.00		84.10	-1.15E-02	5.87E-02	5.87E-02
+	SB-124	602.71		97.87	-2.28E-02	8.05E-02	8.05E-02
		645.85		7.26	-3.00E-01		9.37E-01
		722.78		11.10	2.21E-02		7.61E-01
		1691.02		49.00	-1.37E-02		1.24E-01
+	I-125	35.49		6.49	-8.10E-01	2.02E+00	2.02E+00
+	SB-125	176.33		6.89	-1.56E-01	2.16E-01	6.77E-01
		427.89		29.33	-1.09E-01		2.16E-01
		463.38		10.35	1.61E-01		6.56E-01
		600.56		17.80	-5.18E-02		3.71E-01
		635.90		11.32	1.37E-01		5.59E-01

Analysis Report for 1606064-03

CP-5027 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70		83.30	-3.39E-02	1.56E-01	1.72E-01
		666.33		99.60	-3.10E-02		1.83E-01
		695.00		99.60	3.12E-02		1.56E-01
		720.50		53.80	-9.98E-03		2.93E-01
+	SN-126	87.57	*	37.00	2.62E-01	3.11E-01	3.11E-01
+	SB-127	473.00		25.00	-1.88E-01	2.68E+00	3.20E+00
		685.20		35.70	1.64E+00		2.68E+00
		783.80		14.70	4.09E+00		6.73E+00
+	I-129	29.78		57.00	-2.93E-01	3.47E-01	3.47E-01
		33.60		13.20	-4.73E-01		9.90E-01
		39.58		7.52	-5.23E-02		1.17E+00
+	I-131	284.30		6.05	8.78E-01	2.40E-01	3.33E+00
		364.48		81.20	8.12E-02		2.40E-01
		636.97		7.26	2.56E-01		2.81E+00
		722.89		1.80	3.92E-01		1.35E+01
+	TE-132	49.72		13.10	1.12E+00	1.34E+00	9.57E+00
		228.16		88.00	-3.28E-01		1.34E+00
+	BA-133	81.00		33.00	-3.54E-01	1.63E-01	1.63E-01
		302.84		17.80	-5.15E-02		3.49E-01
		356.01		60.00	9.77E-03		1.64E-01
+	I-133	529.87		86.30	-2.79E+03	5.87E+03	5.87E+03
+	XE-133	81.00		38.00	-1.99E+00	9.14E-01	9.14E-01
+	CS-134	563.23		8.38	-4.44E-02	8.05E-02	8.09E-01
		569.32		15.43	-2.17E-01		4.18E-01
		604.70		97.60	9.02E-03		8.05E-02
		795.84		85.40	2.51E-02		1.05E-01
		801.93		8.73	3.08E-01		9.77E-01
+	CS-135	268.24		16.00	4.36E-03	3.78E-01	3.78E-01
+	I-135	1131.51		22.50	-3.57E+14	8.62E+14	9.89E+14
		1260.41		28.60	9.85E+13		8.62E+14
		1678.03		9.54	8.22E+14		2.06E+15
+	CS-136	153.22		7.46	1.17E-01	1.38E-01	1.38E+00
		163.89		4.61	-2.54E-02		2.07E+00
		176.55		13.56	-1.66E-01		7.15E-01
		273.65		12.66	2.96E-01		1.07E+00
		340.57		48.50	3.63E-01		3.22E-01
		818.50		99.70	-6.69E-03		1.38E-01
		1048.07		79.60	-2.62E-03		2.08E-01
		1235.34		19.70	4.09E-02		1.29E+00
+	CS-137	661.65		85.12	4.11E-02	1.02E-01	1.02E-01
+	LA-138	788.74		34.00	1.23E-02	1.13E-01	2.19E-01
		1435.80		66.00	4.90E-03		1.13E-01
+	CE-139	165.85		80.35	-5.59E-03	6.12E-02	6.12E-02
+	BA-140	162.64		6.70	-3.44E-01	5.31E-01	1.45E+00
		304.84		4.50	-2.72E-01		2.67E+00
		423.70		3.20	-5.32E-01		4.37E+00
		437.55		2.00	-1.00E+00		6.33E+00
		537.32		25.00	-1.71E-03		5.31E-01
+	LA-140	328.77		20.50	4.95E-01	1.90E-01	6.63E-01

Analysis Report for 1606064-03

CP-5027 00-02

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-140	487.03	45.50	-5.51E-02	1.90E-01	2.86E-01
		815.85	23.50	-1.28E-01		5.96E-01
		1596.49	95.49	-9.23E-03		1.90E-01
+	CE-141	145.44	48.40	6.38E-03	1.36E-01	1.36E-01
+	CE-143	57.36	11.80	-4.22E+01	2.66E+02	6.15E+02
		293.26	42.00	6.60E+02		2.66E+02
		664.55	5.20	2.40E+03		2.24E+03
+	CE-144	133.54	10.80	-3.31E-02	4.20E-01	4.20E-01
+	PM-144	476.78	42.00	-1.06E-02	7.44E-02	1.56E-01
		618.01	98.60	-6.16E-03		7.48E-02
		696.49	99.49	2.18E-02		7.44E-02
+	PM-145	36.85	21.70	-3.15E-01	2.52E-01	4.60E-01
		37.36	39.70	2.89E-02		2.52E-01
		42.30	15.10	2.18E-02		5.04E-01
		72.40	2.31	-4.76E+00		2.73E+00
+	PM-146	453.90	39.94	2.92E-02	1.62E-01	1.62E-01
		735.90	14.01	8.63E-02		5.03E-01
		747.13	13.10	7.92E-02		5.17E-01
+	ND-147	91.11	28.90	-1.73E-01	5.04E-01	5.04E-01
		531.02	13.10	-1.28E-01		1.18E+00
+	PM-149	285.90	3.10	2.96E+01	1.59E+02	1.59E+02
+	EU-152	121.78	20.50	9.84E-02	2.20E-01	2.20E-01
		244.69	5.40	2.67E-01		1.36E+00
		344.27	19.13	2.84E-02		3.18E-01
		778.89	9.20	-9.84E-02		6.65E-01
		964.01	10.40	8.22E-02		8.23E-01
		1085.78	7.22	5.10E-01		1.20E+00
		1112.02	9.60	8.15E-02		9.32E-01
		1407.95	14.94	-1.50E-01		5.93E-01
+	GD-153	97.43	31.30	4.17E-02	1.53E-01	1.53E-01
		103.18	22.20	-1.58E-01		1.97E-01
+	EU-154	123.07	40.50	-1.07E-02	1.09E-01	1.09E-01
		723.30	19.70	1.06E-02		3.65E-01
		873.19	11.50	-1.57E-01		6.22E-01
		996.32	10.30	-1.10E-01		7.51E-01
		1004.76	17.90	5.08E-02		4.45E-01
		1274.45	35.50	-4.45E-02		2.58E-01
+	EU-155	86.50	30.90	1.91E-01	1.91E-01	1.91E-01
		105.30	20.70	8.08E-02		2.11E-01
+	EU-156	811.77	10.40	2.78E-01	1.25E+00	1.25E+00
		1153.47	7.20	-3.40E-01		2.23E+00
		1230.71	8.90	4.29E-01		2.01E+00
+	HO-166M	184.41	72.60	2.01E-01	9.23E-02	9.23E-02
		280.45	29.60	-1.73E-02		2.02E-01
		410.94	11.10	6.60E-01		6.78E-01
		711.69	54.10	2.05E-02		1.35E-01
+	TM-171	66.72	0.14	7.00E+00	4.20E+01	4.20E+01
+	HF-172	81.75	4.52	-5.14E+00	4.10E-01	1.15E+00
		125.81	11.30	1.09E-02		4.10E-01

Analysis Report for 1606064-03

CP-5027 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53		20.60	-1.74E+00	5.21E-01	1.06E+00
		810.06		16.63	-1.08E+00		1.77E+00
		912.12		15.25	7.09E+00		3.80E+00
		1093.66		62.50	-5.38E-02		5.21E-01
+	LU-173	100.72		5.24	1.13E-01	3.11E-01	8.56E-01
		272.11		21.20	1.58E-01		3.11E-01
+	HF-175	343.40		84.00	7.40E-03	8.88E-02	8.88E-02
+	LU-176	88.34		13.30	-1.35E-01	5.94E-02	4.44E-01
		201.83		86.00	-1.62E-02		6.77E-02
		306.78		94.00	9.42E-03		5.94E-02
+	TA-182	67.75		41.20	-2.09E-02	1.47E-01	1.47E-01
		1121.30		34.90	6.78E-01		4.28E-01
		1189.05		16.23	-2.64E-02		6.46E-01
		1221.41		26.98	1.29E-01		4.05E-01
		1231.02		11.44	3.12E-01		9.15E-01
+	IR-192	308.46		29.68	-5.07E-02	1.42E-01	2.19E-01
		468.07		48.10	-7.48E-02		1.42E-01
+	HG-203	279.19		77.30	5.98E-03	9.72E-02	9.72E-02
+	BI-207	569.67		97.72	1.74E-02	6.77E-02	6.77E-02
		1063.62		74.90	1.17E-02		1.09E-01
+	TL-208	583.14	*	30.22	7.76E-01	3.64E-02	4.58E-01
		860.37		4.48	4.18E-01		1.83E+00
		2614.66	*	35.85	6.99E-01		3.64E-02
+	BI-210M	262.00		45.00	-5.59E-03	1.22E-01	1.22E-01
		300.00		23.00	-1.07E+00		2.97E-01
+	PB-210	46.50	*	4.25	1.11E+00	1.90E+00	1.90E+00
+	PB-211	404.84		2.90	5.15E-01	2.43E+00	2.43E+00
		831.96		2.90	8.52E-01		2.66E+00
+	BI-212	727.17	*	11.80	3.77E-01	6.78E-01	6.78E-01
		1620.62		2.75	-5.58E-01		3.04E+00
+	PB-212	238.63	*	44.60	9.23E-01	2.15E-01	2.15E-01
		300.09	*	3.41	1.71E+00		3.28E+00
+	BI-214	609.31	*	46.30	1.36E+00	1.84E-01	1.84E-01
		1120.29	*	15.10	1.51E+00		8.86E-01
		1764.49	*	15.80	1.89E+00		5.70E-01
		2204.22	*	4.98	1.35E+00		1.44E+00
+	PB-214	295.21	*	19.19	1.53E+00	2.61E-01	5.77E-01
		351.92	*	37.19	1.47E+00		2.61E-01
+	RN-219	401.80		6.50	8.00E-02	1.03E+00	1.03E+00
+	RA-223	323.87		3.88	-5.56E-01	1.55E+00	1.55E+00
+	RA-224	240.98		3.95	1.43E+01	2.76E+00	2.76E+00
+	RA-225	40.00		31.00	-2.40E-02	5.36E-01	5.36E-01
+	RA-226	186.21	*	3.28	4.91E+00	2.97E+00	2.97E+00
+	TH-227	50.10		8.40	8.54E-02	7.21E-01	7.28E-01
		236.00		11.50	-5.01E-02		7.21E-01
		256.20		6.30	3.18E-01		9.21E-01
+	AC-228	338.32	*	11.40	7.45E-01	4.00E-01	7.35E-01
		911.07	*	27.70	9.10E-01		4.00E-01

Analysis Report for 1606064-03

CP-5027 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	*	16.60	6.89E-01	4.00E-01	5.50E-01
+	TH-230	48.44		16.90	1.18E-01	4.18E-01	4.18E-01
		62.85		4.60	1.51E+00		1.41E+00
		67.67		0.37	-2.14E+00		1.50E+01
+	PA-231	283.67		1.60	9.80E-01	2.69E+00	3.71E+00
		302.67		2.30	-3.98E-01		2.69E+00
+	TH-231	25.64		14.70	-1.54E+00	8.22E-01	2.63E+00
		84.21		6.40	-9.71E-01		8.22E-01
+	PA-233	311.98		38.60	2.23E-02	2.23E-01	2.23E-01
+	PA-234	131.20		20.40	1.42E-01	2.31E-01	2.31E-01
		733.99		8.80	-1.29E-01		8.07E-01
		946.00		12.00	5.18E-02		6.29E-01
+	PA-234M	1001.03		0.92	1.16E+00	8.89E+00	8.89E+00
+	TH-234	63.29	*	3.80	1.12E+00	2.15E+00	2.15E+00
+	U-235	143.76		10.50	1.31E-01	4.54E-01	4.54E-01
		163.35		4.70	-1.18E-02		9.60E-01
		205.31		4.70	3.11E-01		1.30E+00
+	NP-237	86.50		12.60	4.67E-01	4.67E-01	4.67E-01
+	NP-239	106.10		22.70	2.60E+00	1.22E+01	1.22E+01
		228.18		10.70	-8.55E+00		3.50E+01
		277.60		14.10	3.97E-01		2.76E+01
+	AM-241	59.54		35.90	2.71E-02	1.66E-01	1.66E-01
+	AM-243	74.67		66.00	-6.09E-02	1.10E-01	1.10E-01
+	CM-243	209.75		3.29	1.49E+00	4.33E-01	1.87E+00
		228.14		10.60	-1.34E-01		5.50E-01
		277.60		14.00	6.24E-03		4.33E-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 1606064-03

CP-5027 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	7.38E-01	7.38E-01	-1.38E-01	3.49E-01
	NA-22	1274.54		99.94	9.23E-02	9.23E-02	-1.59E-02	4.21E-02
	NA-24	1368.53		99.99	5.95E+05	4.21E+05	3.54E+05	2.70E+05
		2754.09		99.86	4.21E+05		1.24E+05	1.67E+05
	AL-26	1808.65		99.76	8.22E-02	8.22E-02	3.20E-02	3.59E-02
+	K-40	1460.81	*	10.67	1.17E+00	1.17E+00	1.23E+01	5.44E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	5.87E-02	5.87E-02	-8.36E-03	2.87E-02
		78.34		96.00	7.62E-02		1.79E-01	3.75E-02
	SC-46	889.25		99.98	8.14E-02	8.14E-02	-1.58E-02	3.74E-02
		1120.51		99.99	1.59E-01		2.84E-01	7.53E-02
	V-48	983.52		99.98	1.41E-01	1.41E-01	-4.39E-02	6.46E-02
		1312.10		97.50	1.63E-01		3.51E-02	7.40E-02
	CR-51	320.08		9.83	8.64E-01	8.64E-01	3.05E-01	4.14E-01
	MN-54	834.83		99.97	8.06E-02	8.06E-02	1.03E-02	3.74E-02
	CO-56	846.75		99.96	7.78E-02	7.78E-02	-2.19E-02	3.57E-02
		1037.75		14.03	6.22E-01		-3.17E-01	2.84E-01
		1238.25		67.00	2.20E-01		1.97E-01	1.04E-01
		1771.40		15.51	4.39E-01		-9.53E-02	1.82E-01
		2598.48		16.90	3.47E-01		-1.22E-01	1.30E-01
	CO-57	122.06		85.51	5.46E-02	5.46E-02	2.44E-02	2.65E-02
		136.48		10.60	4.42E-01		2.15E-01	2.14E-01
	CO-58	810.76		99.40	8.13E-02	8.13E-02	-8.00E-03	3.75E-02
	FE-59	1099.22		56.50	1.72E-01	1.72E-01	-5.36E-02	7.80E-02
		1291.56		43.20	2.59E-01		5.26E-02	1.18E-01
	CO-60	1173.22		100.00	9.57E-02	8.90E-02	-9.92E-03	4.41E-02
		1332.49		100.00	8.90E-02		-1.23E-02	4.04E-02
	ZN-65	1115.52		50.75	1.91E-01	1.91E-01	2.17E-02	8.82E-02
+	GA-67	93.31	*	35.70	6.59E+00	6.59E+00	6.34E+00	3.26E+00
		208.95		2.24	5.68E+01		4.28E+01	2.76E+01
		300.22	*	16.00	1.41E+01		7.34E+00	6.93E+00
	SE-75	121.11		16.70	2.81E-01	8.08E-02	-6.73E-02	1.36E-01
		136.00		59.20	8.08E-02		-6.38E-03	3.92E-02
		264.65		59.80	9.71E-02		1.28E-02	4.67E-02
		279.53		25.20	2.67E-01		1.16E-01	1.29E-01
		400.65		11.40	6.41E-01		2.02E-01	3.07E-01
	RB-82	776.52		13.00	6.45E-01	6.45E-01	-1.65E-01	2.93E-01
	RB-83	520.41		46.00	1.38E-01	1.38E-01	1.16E-03	6.45E-02
		529.64		30.30	2.29E-01		-1.09E-01	1.08E-01
		552.65		16.40	4.55E-01		2.07E-01	2.14E-01
	KR-85	513.99		0.43	2.02E+01	2.02E+01	2.75E+01	9.66E+00
	SR-85	513.99		99.27	1.02E-01	1.02E-01	1.39E-01	4.90E-02
	Y-88	898.02		93.40	8.66E-02	6.44E-02	-1.24E-02	3.98E-02
		1836.01		99.38	6.44E-02		1.12E-02	2.64E-02
	NB-93M	16.57		9.43	7.14E+01	7.14E+01	4.08E+01	3.48E+01
	NB-94	702.63		100.00	7.10E-02	6.72E-02	-3.53E-03	3.31E-02
		871.10		100.00	6.72E-02		-2.48E-02	3.07E-02
	NB-95	765.79		99.81	1.15E-01	1.15E-01	6.74E-02	5.42E-02
	NB-95M	235.69		25.00	5.01E+00	5.01E+00	-3.48E-01	2.45E+00
	ZR-95	724.18		43.70	2.11E-01	1.66E-01	7.31E-03	9.88E-02
		756.72		55.30	1.66E-01		7.21E-02	7.78E-02

Analysis Report for 1606064-03

CP-5027 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	2.75E+01	1.86E+01	-1.38E+00	1.33E+01
		739.58		12.80	1.86E+01		-1.66E+00	8.60E+00
		778.00		4.50	4.42E+01		-2.56E+01	2.01E+01
	RU-103	497.08		89.00	8.79E-02	8.79E-02	1.80E-02	4.14E-02
	RU-106	621.84		9.80	7.16E-01	7.16E-01	-2.65E-01	3.36E-01
	AG-108M	433.93		89.90	6.67E-02	6.67E-02	-1.33E-02	3.16E-02
		614.37		90.40	9.51E-02		-5.57E-02	4.52E-02
		722.95		90.50	7.93E-02		2.30E-03	3.69E-02
+	CD-109	88.03	*	3.72	3.16E+00	3.16E+00	2.66E+00	1.56E+00
	AG-110M	657.75		93.14	8.17E-02	8.17E-02	2.89E-02	3.83E-02
		677.61		10.53	6.80E-01		-3.16E-01	3.17E-01
		706.67		16.46	4.58E-01		1.01E-02	2.14E-01
		763.93		21.98	3.42E-01		-4.04E-01	1.59E-01
		884.67		71.63	1.02E-01		-3.12E-02	4.69E-02
		1384.27		23.94	3.73E-01		-1.47E-01	1.68E-01
	CD-113M	263.70		0.02	2.31E+02	2.31E+02	-2.26E+01	1.11E+02
	SN-113	255.12		1.93	3.24E+00	1.01E-01	4.22E-02	1.56E+00
		391.69		64.90	1.01E-01		8.62E-03	4.82E-02
	TE123M	159.00		84.10	5.87E-02	5.87E-02	-1.15E-02	2.84E-02
	SB-124	602.71		97.87	8.05E-02	8.05E-02	-2.28E-02	3.77E-02
		645.85		7.26	9.37E-01		-3.00E-01	4.32E-01
		722.78		11.10	7.61E-01		2.21E-02	3.54E-01
		1691.02		49.00	1.24E-01		-1.37E-02	5.02E-02
	I-125	35.49		6.49	2.02E+00	2.02E+00	-8.10E-01	9.78E-01
	SB-125	176.33		6.89	6.77E-01	2.16E-01	-1.56E-01	3.27E-01
		427.89		29.33	2.16E-01		-1.09E-01	1.03E-01
		463.38		10.35	6.56E-01		1.61E-01	3.12E-01
		600.56		17.80	3.71E-01		-5.18E-02	1.74E-01
		635.90		11.32	5.59E-01		1.37E-01	2.60E-01
	SB-126	414.70		83.30	1.72E-01	1.56E-01	-3.39E-02	8.19E-02
		666.33		99.60	1.83E-01		-3.10E-02	8.66E-02
		695.00		99.60	1.56E-01		3.12E-02	7.26E-02
		720.50		53.80	2.93E-01		-9.98E-03	1.37E-01
+	SN-126	87.57	*	37.00	3.11E-01	3.11E-01	2.62E-01	1.54E-01
	SB-127	473.00		25.00	3.20E+00	2.68E+00	-1.88E-01	1.51E+00
		685.20		35.70	2.68E+00		1.64E+00	1.25E+00
		783.80		14.70	6.73E+00		4.09E+00	3.13E+00
	I-129	29.78		57.00	3.47E-01	3.47E-01	-2.93E-01	1.68E-01
		33.60		13.20	9.90E-01		-4.73E-01	4.80E-01
		39.58		7.52	1.17E+00		-5.23E-02	5.66E-01
	I-131	284.30		6.05	3.33E+00	2.40E-01	8.78E-01	1.60E+00
		364.48		81.20	2.40E-01		8.12E-02	1.14E-01
		636.97		7.26	2.81E+00		2.56E-01	1.30E+00
		722.89		1.80	1.35E+01		3.92E-01	6.28E+00
	TE-132	49.72		13.10	9.57E+00	1.34E+00	1.12E+00	4.65E+00
		228.16		88.00	1.34E+00		-3.28E-01	6.49E-01
	BA-133	81.00		33.00	1.63E-01	1.63E-01	-3.54E-01	7.95E-02
		302.84		17.80	3.49E-01		-5.15E-02	1.68E-01
		356.01		60.00	1.64E-01		9.77E-03	7.98E-02
	I-133	529.87		86.30	5.87E+03	5.87E+03	-2.79E+03	2.76E+03
	XE-133	81.00		38.00	9.14E-01	9.14E-01	-1.99E+00	4.46E-01
	CS-134	563.23		8.38	8.09E-01	8.05E-02	-4.44E-02	3.81E-01
		569.32		15.43	4.18E-01		-2.17E-01	1.96E-01

Analysis Report for 1606064-03

CP-5027 00-02

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	8.05E-02	8.05E-02	9.02E-03	3.81E-02
	795.84	85.40	1.05E-01		2.51E-02	4.95E-02
	801.93	8.73	9.77E-01		3.08E-01	4.57E-01
CS-135	268.24	16.00	3.78E-01	3.78E-01	4.36E-03	1.83E-01
I-135	1131.51	22.50	9.89E+14	8.62E+14	-3.57E+14	4.48E+14
	1260.41	28.60	8.62E+14		9.85E+13	3.91E+14
	1678.03	9.54	2.06E+15		8.22E+14	8.84E+14
CS-136	153.22	7.46	1.38E+00	1.38E-01	1.17E-01	6.71E-01
	163.89	4.61	2.07E+00		-2.54E-02	1.00E+00
	176.55	13.56	7.15E-01		-1.66E-01	3.45E-01
	273.65	12.66	1.07E+00		2.96E-01	5.18E-01
	340.57	48.50	3.22E-01		3.63E-01	1.55E-01
	818.50	99.70	1.38E-01		-6.69E-03	6.31E-02
	1048.07	79.60	2.08E-01		-2.62E-03	9.51E-02
	1235.34	19.70	1.29E+00		4.09E-02	6.02E-01
CS-137	661.65	85.12	1.02E-01	1.02E-01	4.11E-02	4.82E-02
LA-138	788.74	34.00	2.19E-01	1.13E-01	1.23E-02	1.02E-01
	1435.80	66.00	1.13E-01		4.90E-03	4.97E-02
CE-139	165.85	80.35	6.12E-02	6.12E-02	-5.59E-03	2.96E-02
BA-140	162.64	6.70	1.45E+00	5.31E-01	-3.44E-01	7.00E-01
	304.84	4.50	2.67E+00		-2.72E-01	1.28E+00
	423.70	3.20	4.37E+00		-5.32E-01	2.08E+00
	437.55	2.00	6.33E+00		-1.00E+00	2.99E+00
	537.32	25.00	5.31E-01		-1.71E-03	2.49E-01
LA-140	328.77	20.50	6.63E-01	1.90E-01	4.95E-01	3.18E-01
	487.03	45.50	2.86E-01		-5.51E-02	1.35E-01
	815.85	23.50	5.96E-01		-1.28E-01	2.73E-01
	1596.49	95.49	1.90E-01		-9.23E-03	8.44E-02
CE-141	145.44	48.40	1.36E-01	1.36E-01	6.38E-03	6.59E-02
CE-143	57.36	11.80	6.15E+02	2.66E+02	-4.22E+01	3.00E+02
	293.26	42.00	2.66E+02		6.60E+02	1.30E+02
	664.55	5.20	2.24E+03		2.40E+03	1.07E+03
CE-144	133.54	10.80	4.20E-01	4.20E-01	-3.31E-02	2.04E-01
PM-144	476.78	42.00	1.56E-01	7.44E-02	-1.06E-02	7.40E-02
	618.01	98.60	7.48E-02		-6.16E-03	3.51E-02
	696.49	99.49	7.44E-02		2.18E-02	3.47E-02
PM-145	36.85	21.70	4.60E-01	2.52E-01	-3.15E-01	2.22E-01
	37.36	39.70	2.52E-01		2.89E-02	1.22E-01
	42.30	15.10	5.04E-01		2.18E-02	2.44E-01
	72.40	2.31	2.73E+00		-4.76E+00	1.34E+00
PM-146	453.90	39.94	1.62E-01	1.62E-01	2.92E-02	7.66E-02
	735.90	14.01	5.03E-01		8.63E-02	2.33E-01
	747.13	13.10	5.17E-01		7.92E-02	2.39E-01
ND-147	91.11	28.90	5.04E-01	5.04E-01	-1.73E-01	2.47E-01
	531.02	13.10	1.18E+00		-1.28E-01	5.54E-01
PM-149	285.90	3.10	1.59E+02	1.59E+02	2.96E+01	7.65E+01
EU-152	121.78	20.50	2.20E-01	2.20E-01	9.84E-02	1.07E-01
	244.69	5.40	1.36E+00		2.67E-01	6.61E-01
	344.27	19.13	3.18E-01		2.84E-02	1.52E-01
	778.89	9.20	6.65E-01		-9.84E-02	3.04E-01
	964.01	10.40	8.23E-01		8.22E-02	3.81E-01
	1085.78	7.22	1.20E+00		5.10E-01	5.53E-01
	1112.02	9.60	9.32E-01		8.15E-02	4.29E-01

Analysis Report for 1606064-03

CP-5027 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	5.93E-01	2.20E-01	-1.50E-01	2.68E-01
	GD-153	97.43		31.30	1.53E-01	1.53E-01	4.17E-02	7.46E-02
		103.18		22.20	1.97E-01		-1.58E-01	9.57E-02
	EU-154	123.07		40.50	1.09E-01	1.09E-01	-1.07E-02	5.31E-02
		723.30		19.70	3.65E-01		1.06E-02	1.70E-01
		873.19		11.50	6.22E-01		-1.57E-01	2.86E-01
		996.32		10.30	7.51E-01		-1.10E-01	3.44E-01
		1004.76		17.90	4.45E-01		5.08E-02	2.04E-01
		1274.45		35.50	2.58E-01		-4.45E-02	1.18E-01
	EU-155	86.50		30.90	1.91E-01	1.91E-01	1.91E-01	9.37E-02
		105.30		20.70	2.11E-01		8.08E-02	1.03E-01
	EU-156	811.77		10.40	1.25E+00	1.25E+00	2.78E-01	5.77E-01
		1153.47		7.20	2.23E+00		-3.40E-01	1.02E+00
		1230.71		8.90	2.01E+00		4.29E-01	9.24E-01
	HO-166M	184.41		72.60	9.23E-02	9.23E-02	2.01E-01	4.50E-02
		280.45		29.60	2.02E-01		-1.73E-02	9.73E-02
		410.94		11.10	6.78E-01		6.60E-01	3.26E-01
		711.69		54.10	1.35E-01		2.05E-02	6.29E-02
	TM-171	66.72		0.14	4.20E+01	4.20E+01	7.00E+00	2.05E+01
	HF-172	81.75		4.52	1.15E+00	4.10E-01	-5.14E+00	5.60E-01
		125.81		11.30	4.10E-01		1.09E-02	1.99E-01
	LU-172	181.53		20.60	1.06E+00	5.21E-01	-1.74E+00	5.12E-01
		810.06		16.63	1.77E+00		-1.08E+00	8.16E-01
		912.12		15.25	3.80E+00		7.09E+00	1.82E+00
		1093.66		62.50	5.21E-01		-5.38E-02	2.36E-01
	LU-173	100.72		5.24	8.56E-01	3.11E-01	1.13E-01	4.16E-01
		272.11		21.20	3.11E-01		1.58E-01	1.50E-01
	HF-175	343.40		84.00	8.88E-02	8.88E-02	7.40E-03	4.27E-02
	LU-176	88.34		13.30	4.44E-01	5.94E-02	-1.35E-01	2.17E-01
		201.83		86.00	6.77E-02		-1.62E-02	3.29E-02
		306.78		94.00	5.94E-02		9.42E-03	2.85E-02
	TA-182	67.75		41.20	1.47E-01	1.47E-01	-2.09E-02	7.16E-02
		1121.30		34.90	4.28E-01		6.78E-01	2.03E-01
		1189.05		16.23	6.46E-01		-2.64E-02	2.98E-01
		1221.41		26.98	4.05E-01		1.29E-01	1.87E-01
		1231.02		11.44	9.15E-01		3.12E-01	4.21E-01
	IR-192	308.46		29.68	2.19E-01	1.42E-01	-5.07E-02	1.05E-01
		468.07		48.10	1.42E-01		-7.48E-02	6.69E-02
	HG-203	279.19		77.30	9.72E-02	9.72E-02	5.98E-03	4.69E-02
	BI-207	569.67		97.72	6.77E-02	6.77E-02	1.74E-02	3.18E-02
		1063.62		74.90	1.09E-01		1.17E-02	4.99E-02
+	TL-208	583.14	*	30.22	4.58E-01	3.64E-02	7.76E-01	2.22E-01
		860.37		4.48	1.83E+00		4.18E-01	8.52E-01
		2614.66	*	35.85	3.64E-02		6.99E-01	0.00E+00
	BI-210M	262.00		45.00	1.22E-01	1.22E-01	-5.59E-03	5.86E-02
		300.00		23.00	2.97E-01		-1.07E+00	1.44E-01
+	PB-210	46.50	*	4.25	1.90E+00	1.90E+00	1.11E+00	9.28E-01
	PB-211	404.84		2.90	2.43E+00	2.43E+00	5.15E-01	1.17E+00
		831.96		2.90	2.66E+00		8.52E-01	1.24E+00
+	BI-212	727.17	*	11.80	6.78E-01	6.78E-01	3.77E-01	3.18E-01
		1620.62		2.75	3.04E+00		-5.58E-01	1.34E+00
+	PB-212	238.63	*	44.60	2.15E-01	2.15E-01	9.23E-01	1.05E-01
		300.09	*	3.41	3.28E+00		1.71E+00	1.61E+00

Analysis Report for 1606064-03

CP-5027 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	1.84E-01	1.84E-01	1.36E+00	8.73E-02
		1120.29	*	15.10	8.86E-01		1.51E+00	4.19E-01
		1764.49	*	15.80	5.70E-01		1.89E+00	2.53E-01
		2204.22	*	4.98	1.44E+00		1.35E+00	6.00E-01
+	PB-214	295.21	*	19.19	5.77E-01	2.61E-01	1.53E+00	2.83E-01
		351.92	*	37.19	2.61E-01		1.47E+00	1.27E-01
	RN-219	401.80		6.50	1.03E+00	1.03E+00	8.00E-02	4.94E-01
	RA-223	323.87		3.88	1.55E+00	1.55E+00	-5.56E-01	7.42E-01
	RA-224	240.98		3.95	2.76E+00	2.76E+00	1.43E+01	1.35E+00
	RA-225	40.00		31.00	5.36E-01	5.36E-01	-2.40E-02	2.60E-01
+	RA-226	186.21	*	3.28	2.97E+00	2.97E+00	4.91E+00	1.46E+00
	TH-227	50.10		8.40	7.28E-01	7.21E-01	8.54E-02	3.54E-01
		236.00		11.50	7.21E-01		-5.01E-02	3.52E-01
		256.20		6.30	9.21E-01		3.18E-01	4.44E-01
+	AC-228	338.32	*	11.40	7.35E-01	4.00E-01	7.45E-01	3.56E-01
		911.07	*	27.70	4.00E-01		9.10E-01	1.89E-01
		969.11	*	16.60	5.50E-01		6.89E-01	2.56E-01
	TH-230	48.44		16.90	4.18E-01	4.18E-01	1.18E-01	2.03E-01
		62.85		4.60	1.41E+00		1.51E+00	6.93E-01
		67.67		0.37	1.50E+01		-2.14E+00	7.32E+00
	PA-231	283.67		1.60	3.71E+00	2.69E+00	9.80E-01	1.79E+00
		302.67		2.30	2.69E+00		-3.98E-01	1.30E+00
	TH-231	25.64		14.70	2.63E+00	8.22E-01	-1.54E+00	1.27E+00
		84.21		6.40	8.22E-01		-9.71E-01	4.01E-01
	PA-233	311.98		38.60	2.23E-01	2.23E-01	2.23E-02	1.07E-01
	PA-234	131.20		20.40	2.31E-01	2.31E-01	1.42E-01	1.12E-01
		733.99		8.80	8.07E-01		-1.29E-01	3.75E-01
		946.00		12.00	6.29E-01		5.18E-02	2.89E-01
	PA-234M	1001.03		0.92	8.89E+00	8.89E+00	1.16E+00	4.09E+00
+	TH-234	63.29	*	3.80	2.15E+00	2.15E+00	1.12E+00	1.06E+00
	U-235	143.76		10.50	4.54E-01	4.54E-01	1.31E-01	2.21E-01
		163.35		4.70	9.60E-01		-1.18E-02	4.65E-01
		205.31		4.70	1.30E+00		3.11E-01	6.29E-01
	NP-237	86.50		12.60	4.67E-01	4.67E-01	4.67E-01	2.29E-01
	NP-239	106.10		22.70	1.22E+01	1.22E+01	2.60E+00	5.95E+00
		228.18		10.70	3.50E+01		-8.55E+00	1.69E+01
		277.60		14.10	2.76E+01		3.97E-01	1.33E+01
	AM-241	59.54		35.90	1.66E-01	1.66E-01	2.71E-02	8.09E-02
	AM-243	74.67		66.00	1.10E-01	1.10E-01	-6.09E-02	5.41E-02
	CM-243	209.75		3.29	1.87E+00	4.33E-01	1.49E+00	9.10E-01
		228.14		10.60	5.50E-01		-1.34E-01	2.66E-01
		277.60		14.00	4.33E-01		6.24E-03	2.09E-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 1606064-03

CP-5027 00-02

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

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-5027 00-02

Elapsed Live time: 3600
Elapsed Real Time: 3620

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	176	206	133	119	108	98	100
17:	121	89	85	73	91	84	91	66
25:	70	88	64	69	76	54	67	56
33:	88	64	53	55	74	70	57	80
41:	74	61	66	59	82	82	152	97
49:	67	87	78	68	77	99	76	85
57:	78	98	114	125	122	104	141	213
65:	161	117	111	123	125	115	134	135
73:	145	153	251	321	257	502	176	122
81:	119	120	95	122	167	114	125	223
89:	152	146	144	112	253	225	111	96
97:	100	76	104	96	75	73	78	73
105:	86	92	81	72	78	77	83	71
113:	94	87	95	88	78	73	71	81
121:	63	71	87	101	62	82	79	80
129:	72	114	75	85	70	68	64	66
137:	68	84	85	55	67	75	75	77
145:	94	68	72	88	87	76	70	73
153:	77	75	87	63	77	62	63	61
161:	51	59	63	71	55	51	79	46
169:	65	60	61	68	59	51	61	60
177:	51	61	48	69	57	68	59	73
185:	87	154	200	79	56	49	55	50
193:	57	51	46	57	50	55	52	53
201:	47	71	42	56	56	66	55	57
209:	66	67	69	41	44	46	26	55
217:	46	52	40	35	37	43	57	48
225:	54	35	47	40	43	47	47	50
233:	54	34	45	51	52	76	301	267
241:	77	127	133	52	32	20	52	32
249:	34	33	39	32	36	41	31	38
257:	46	29	36	36	26	28	38	28
265:	28	30	26	28	32	54	62	47
273:	29	29	37	33	49	35	33	31
281:	28	37	41	30	28	31	32	21
289:	35	24	30	27	39	30	121	231
297:	62	28	29	51	50	26	31	20
305:	20	24	21	35	23	32	22	24
313:	36	32	28	27	26	20	26	25
321:	26	21	42	22	17	31	26	30
329:	36	27	28	22	23	22	18	28
337:	23	44	71	46	21	27	24	29
345:	26	23	20	27	36	27	40	252
353:	283	52	15	20	20	20	23	19
361:	17	28	19	18	13	21	19	19

369:	14	18	20	25	23	21	24	19

Sample Title: CP-5027 00-02

Channel								
377:	18	16	17	14	25	16	14	21
385:	19	12	17	22	25	23	13	16
393:	18	18	20	16	19	24	17	23
401:	18	25	27	27	22	23	22	28
409:	29	37	26	25	26	23	13	18
417:	21	14	20	26	24	16	21	28
425:	16	14	16	20	17	25	15	19
433:	19	16	17	14	9	11	18	18
441:	16	14	15	23	13	16	12	14
449:	9	15	18	15	10	14	16	21
457:	22	16	20	20	12	22	16	26
465:	11	16	15	13	12	10	17	16
473:	12	16	16	15	16	18	13	11
481:	16	17	19	5	16	9	21	18
489:	12	9	13	9	14	15	12	11
497:	13	10	12	15	10	12	20	9
505:	8	14	14	10	19	35	59	45
513:	23	18	12	9	10	9	7	10
521:	12	9	12	9	11	11	16	12
529:	9	11	12	10	11	19	15	9
537:	13	5	10	7	13	10	9	13
545:	10	14	11	9	11	13	10	15
553:	13	13	11	12	9	9	16	14
561:	15	13	6	16	14	7	13	12
569:	8	11	14	10	13	13	6	11
577:	7	10	3	15	12	20	72	67
585:	20	13	12	11	10	8	19	16
593:	15	11	10	10	8	9	14	2
601:	10	10	14	13	10	16	10	29
609:	154	206	54	7	9	18	11	8
617:	16	15	6	13	14	17	6	13
625:	5	13	9	9	9	10	10	13
633:	9	8	6	6	13	7	10	4
641:	3	6	6	7	7	10	4	5
649:	9	11	12	8	11	6	8	13
657:	12	9	7	4	24	29	19	11
665:	15	22	7	15	9	21	12	6
673:	15	7	7	5	11	9	14	8
681:	10	11	14	9	13	5	12	11
689:	7	4	12	9	9	8	5	10
697:	13	10	12	4	7	12	9	11
705:	15	6	6	10	8	10	8	9
713:	10	10	11	11	7	7	13	8
721:	8	11	8	6	9	12	22	11
729:	14	7	11	8	10	6	8	8
737:	8	9	8	5	6	8	5	12
745:	10	8	5	7	5	4	10	3
753:	10	8	15	13	10	10	7	7
761:	9	7	5	3	9	14	10	20
769:	23	8	9	11	9	5	4	1
777:	6	4	4	6	7	10	11	5
785:	9	15	6	5	7	8	8	8
793:	8	15	22	12	11	8	6	7

801:	16	12	12	10	9	16	4	10

Sample Title: CP-5027 00-02

Channel								
809:	5	6	7	7	6	7	7	4
817:	4	8	4	7	6	5	7	9
825:	13	9	5	3	4	11	11	8
833:	6	9	7	6	10	11	8	6
841:	7	6	8	9	10	3	6	4
849:	6	4	6	9	11	6	14	6
857:	8	3	8	12	13	9	7	6
865:	4	7	5	1	10	1	8	9
873:	4	5	11	5	6	12	10	9
881:	9	4	2	5	8	6	7	4
889:	7	5	9	5	4	11	1	7
897:	8	8	8	5	7	10	3	8
905:	2	3	4	7	10	18	53	41
913:	15	5	11	7	5	5	7	4
921:	4	6	5	6	7	2	4	11
929:	8	2	7	2	13	15	14	9
937:	5	7	7	4	6	4	5	5
945:	3	4	7	8	10	10	4	5
953:	7	4	8	2	6	9	8	6
961:	8	3	7	16	10	5	4	12
969:	29	26	7	4	4	4	7	7
977:	6	6	7	6	7	8	7	6
985:	4	2	5	10	2	3	6	4
993:	3	7	4	10	5	6	5	6
1001:	9	8	6	5	7	2	6	8
1009:	4	4	5	3	10	4	4	2
1017:	5	5	5	5	2	6	5	3
1025:	7	4	8	3	3	8	4	9
1033:	6	2	7	2	7	6	6	6
1041:	3	13	7	5	1	6	9	4
1049:	5	5	8	7	3	6	2	8
1057:	9	5	6	5	6	3	7	8
1065:	7	4	5	5	3	7	7	4
1073:	2	1	6	6	5	9	7	7
1081:	4	7	8	9	5	7	5	4
1089:	6	5	2	3	9	4	5	4
1097:	4	6	5	7	3	5	9	6
1105:	2	5	4	7	2	5	8	6
1113:	10	7	7	4	9	6	21	34
1121:	38	8	2	2	1	5	6	2
1129:	7	6	3	4	7	3	5	8
1137:	3	3	5	3	9	4	9	4
1145:	9	9	4	4	4	2	5	6
1153:	3	3	14	4	11	5	4	8
1161:	7	5	5	5	9	5	2	4
1169:	11	2	10	8	6	5	11	5
1177:	5	9	8	3	10	7	3	9
1185:	3	11	5	6	9	3	6	7
1193:	9	6	3	7	5	1	6	6
1201:	10	6	4	7	9	8	7	3
1209:	8	3	11	6	8	8	11	5
1217:	7	8	11	9	3	3	6	9
1225:	5	5	3	7	8	4	8	4

1233:	8	5	5	11	14	24	18	7

Sample Title: CP-5027 00-02

Channel								
1241:	5	6	6	4	4	6	11	3
1249:	4	3	7	7	5	7	4	6
1257:	1	5	5	6	6	4	6	1
1265:	6	9	8	4	10	3	3	9
1273:	5	4	2	2	4	5	1	5
1281:	7	5	5	4	4	3	6	4
1289:	2	6	5	2	1	3	6	5
1297:	1	2	3	4	3	3	4	4
1305:	2	2	3	0	5	5	4	1
1313:	5	4	3	4	4	2	1	2
1321:	2	1	3	8	0	4	4	2
1329:	5	3	6	3	4	3	3	3
1337:	4	4	2	1	5	2	3	2
1345:	2	3	1	3	6	1	2	3
1353:	3	1	1	2	1	2	4	1
1361:	2	1	3	6	3	4	2	2
1369:	3	5	2	6	1	2	3	8
1377:	13	7	4	2	5	5	1	3
1385:	5	3	3	1	3	4	5	1
1393:	2	1	2	2	1	4	2	5
1401:	4	3	5	2	3	0	5	8
1409:	5	4	2	0	4	4	3	2
1417:	2	2	3	1	1	5	1	1
1425:	2	3	3	2	1	3	2	2
1433:	3	1	4	1	3	1	2	3
1441:	1	2	3	5	1	1	1	4
1449:	5	1	3	3	3	2	2	2
1457:	7	12	52	137	145	54	9	3
1465:	3	1	2	2	4	4	4	2
1473:	2	1	1	1	2	1	0	0
1481:	4	1	0	2	1	6	5	0
1489:	5	1	3	0	1	1	3	2
1497:	3	1	0	0	1	0	3	1
1505:	1	3	2	2	2	2	1	1
1513:	5	3	1	4	1	1	1	2
1521:	1	4	1	1	3	3	1	4
1529:	1	1	1	1	1	2	0	1
1537:	2	1	1	1	2	3	5	1
1545:	0	1	1	1	1	1	1	2
1553:	1	0	2	1	0	0	2	3
1561:	3	3	1	4	0	1	2	1
1569:	1	2	5	1	1	2	2	1
1577:	4	2	1	3	3	1	6	2
1585:	2	2	7	4	1	0	2	8
1593:	4	3	2	1	0	2	1	0
1601:	1	2	2	0	2	0	2	2
1609:	0	1	1	1	3	3	3	3
1617:	1	3	1	5	3	0	4	0
1625:	4	1	4	1	2	0	2	2
1633:	1	1	1	2	1	3	0	0
1641:	2	1	1	3	2	2	0	3
1649:	2	0	1	0	0	0	2	2
1657:	0	1	1	1	1	3	2	0

1665:	1	1	2	0	1	1	1	0

Sample Title: CP-5027 00-02

Channel								
1673:	1	2	0	1	2	1	2	0
1681:	1	3	1	0	2	1	0	1
1689:	0	1	0	1	2	1	0	0
1697:	0	2	1	2	1	0	1	0
1705:	0	0	1	1	0	2	4	1
1713:	2	1	0	0	2	0	1	2
1721:	2	1	0	3	0	0	1	4
1729:	3	3	0	0	1	1	1	1
1737:	0	0	2	0	1	2	0	0
1745:	1	1	2	1	0	0	0	3
1753:	0	0	1	5	1	0	2	1
1761:	0	7	11	33	25	6	2	1
1769:	2	0	1	0	0	1	1	0
1777:	0	1	3	1	0	0	2	0
1785:	0	0	2	2	1	3	1	0
1793:	1	1	0	3	0	0	1	0
1801:	0	2	0	3	1	2	0	2
1809:	2	3	2	1	1	2	0	0
1817:	1	0	0	0	1	0	2	0
1825:	0	2	4	0	0	2	0	1
1833:	1	0	2	0	3	0	0	1
1841:	0	0	1	2	0	1	2	1
1849:	0	3	2	0	1	1	0	1
1857:	0	2	2	1	1	0	3	0
1865:	1	1	1	2	1	1	2	2
1873:	1	2	2	2	0	0	2	3
1881:	2	0	0	1	1	1	1	2
1889:	1	1	1	0	1	1	0	0
1897:	1	3	2	0	0	0	2	1
1905:	1	0	0	0	2	0	0	3
1913:	1	0	2	0	1	0	1	0
1921:	1	2	1	1	0	1	0	1
1929:	1	0	0	1	2	0	3	3
1937:	0	0	0	0	2	0	1	1
1945:	0	0	0	2	1	1	0	1
1953:	0	3	0	0	0	2	0	1
1961:	0	1	0	0	3	0	0	0
1969:	1	0	2	1	0	1	0	0
1977:	1	1	0	0	0	1	1	1
1985:	0	0	3	0	1	0	1	0
1993:	0	2	3	1	1	0	0	2
2001:	0	2	1	2	1	1	5	3
2009:	2	2	2	1	0	2	0	1
2017:	1	3	1	1	0	0	0	1
2025:	1	0	1	2	0	1	1	4
2033:	0	0	2	2	1	1	0	1
2041:	0	1	0	0	1	1	1	2
2049:	0	1	1	1	4	0	0	3
2057:	1	1	2	0	2	4	2	1
2065:	0	0	2	1	1	2	0	1
2073:	0	0	1	2	0	0	0	2
2081:	0	0	2	0	1	3	0	1
2089:	2	0	0	1	0	1	2	1

2097:	0	0	3	4	2	2	3	0

Sample Title: CP-5027 00-02

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

2529:	0	0	1	0	1	0	1	0

Sample Title: CP-5027 00-02

Channel								
2537:	0	2	0	0	0	0	1	1
2545:	0	1	0	0	0	1	1	0
2553:	0	0	1	0	1	1	1	1
2561:	0	0	2	0	0	0	0	1
2569:	0	0	0	0	0	0	0	0
2577:	0	0	0	0	1	0	1	0
2585:	1	1	0	0	1	0	1	1
2593:	1	0	1	0	0	0	0	0
2601:	0	2	0	0	1	0	0	0
2609:	0	0	2	8	15	15	6	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	0	0	0
2641:	1	0	0	0	0	1	0	0
2649:	0	1	1	0	0	0	0	0
2657:	0	0	0	0	0	0	0	0
2665:	0	0	0	0	1	0	0	0
2673:	0	0	0	1	0	1	0	0
2681:	1	0	0	1	0	0	0	0
2689:	1	0	1	0	0	1	0	0
2697:	0	0	0	0	0	0	0	0
2705:	0	0	0	0	1	0	0	0
2713:	0	0	0	0	1	0	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	0	0	0	0	2	0	0
2737:	0	0	0	0	1	0	0	0
2745:	1	0	0	1	1	1	0	0
2753:	1	1	0	1	0	0	0	0
2761:	1	2	1	0	0	0	0	0
2769:	1	1	0	0	0	1	1	0
2777:	0	1	0	1	1	0	0	0
2785:	0	0	1	0	1	1	0	0
2793:	0	0	0	0	1	0	0	0
2801:	0	2	0	1	0	0	0	1
2809:	0	1	1	0	0	0	0	0
2817:	0	0	0	0	0	1	0	0
2825:	0	1	0	0	1	0	1	0
2833:	0	0	0	0	0	1	0	0
2841:	0	1	0	0	0	2	0	0
2849:	0	0	1	0	0	0	0	0
2857:	0	0	1	0	0	1	0	0
2865:	0	0	0	0	0	0	1	0
2873:	0	0	0	0	0	0	0	1
2881:	0	0	1	0	0	0	0	0
2889:	0	0	0	1	0	0	1	1
2897:	0	0	0	0	0	0	0	0
2905:	1	0	0	0	0	0	0	0
2913:	0	0	0	0	1	0	0	0
2921:	1	0	0	0	0	0	1	0
2929:	1	0	0	0	0	0	0	0
2937:	1	0	1	1	0	0	0	0
2945:	0	2	0	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	0	0	0	0	0

Sample Title: CP-5027 00-02

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

3393:	0	0	0	0	1	0	0	0

Sample Title: CP-5027 00-02

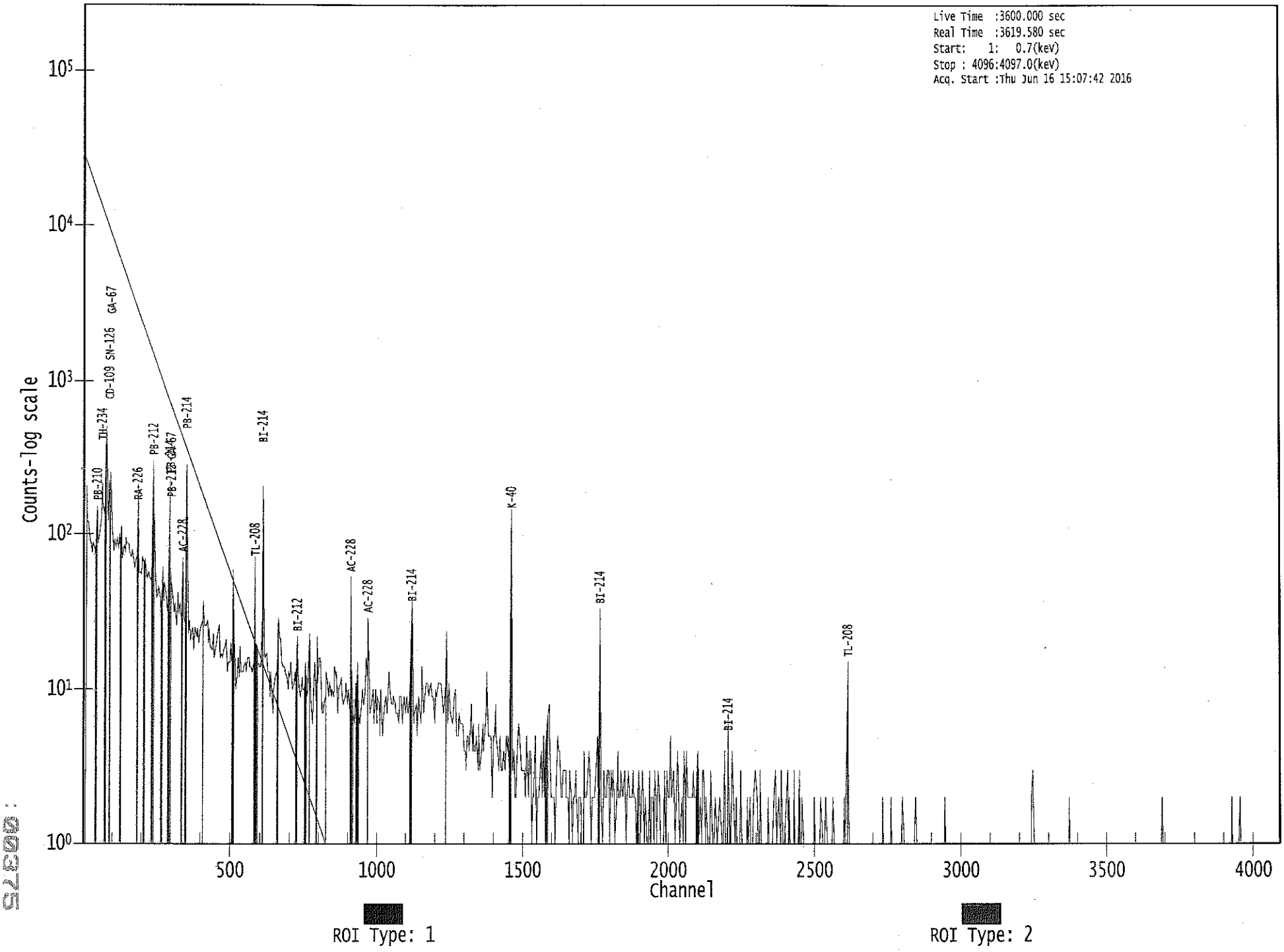
Channel								
3401:	0	0	0	0	0	0	0	1
3409:	0	0	0	0	1	0	0	0
3417:	0	0	0	0	0	0	0	1
3425:	0	0	0	1	0	0	0	1
3433:	0	0	0	0	1	0	0	0
3441:	0	0	0	0	0	0	0	1
3449:	0	0	1	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	1	0	0
3497:	0	0	0	0	0	0	0	0
3505:	0	1	0	0	0	0	0	0
3513:	1	0	0	0	0	0	0	0
3521:	0	0	0	0	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	1	0	0	0
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	0	0	0	1	0
3569:	0	0	0	0	0	0	0	0
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	1	0
3601:	1	0	0	0	0	0	0	0
3609:	0	1	0	0	0	0	0	0
3617:	0	0	1	0	0	0	0	0
3625:	1	0	0	1	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	1
3657:	1	1	0	0	0	0	0	1
3665:	0	1	0	0	0	0	0	0
3673:	0	1	0	0	0	0	1	0
3681:	0	0	1	1	1	0	1	0
3689:	0	2	0	0	0	0	0	0
3697:	1	1	0	0	0	0	0	0
3705:	0	0	0	0	0	1	0	0
3713:	0	0	0	0	0	1	0	0
3721:	1	1	0	0	1	0	0	1
3729:	0	0	0	0	0	0	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	1	0	0	1
3761:	0	0	0	0	0	0	0	0
3769:	0	0	0	0	0	0	0	0
3777:	0	0	0	0	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	0	0	0	0	0	1	0	0
3801:	0	0	0	0	0	0	0	0
3809:	0	1	0	0	0	0	0	0
3817:	0	0	1	0	0	1	1	0

3825:	0	0	0	1	0	0	0	0

Sample Title: CP-5027 00-02

Channel								
3833:	0	0	1	0	0	0	0	0
3841:	0	0	0	0	1	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	0	0	1	1	0	0
3873:	0	0	1	0	0	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	1	0	0	0	0	0	0
3897:	1	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	0	0	0	2
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	1	0
3953:	0	0	0	2	0	0	0	0
3961:	0	0	1	0	0	0	0	0
3969:	0	1	0	0	0	0	0	1
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	1	0	0	0	0
3993:	0	1	0	0	0	1	0	0
4001:	0	0	1	0	1	0	0	0
4009:	0	0	0	0	0	0	1	0
4017:	0	0	0	0	0	0	0	0
4025:	0	0	0	0	0	0	0	0
4033:	0	0	1	0	0	1	0	0
4041:	0	1	0	0	0	0	0	1
4049:	1	0	0	1	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

0000039022.CNF



KB 6/16/16

Apex-Gamma

Analysis Report for 1606064-04
CP-5027 00-02

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1606064-04
Sample Description	: CP-5027 00-02
Sample Type	: SOIL
Sample Size	: 6.952E+02 grams
Facility	: Countroom
Sample Taken On	: 6/2/2016 12:14:58PM
Acquisition Started	: 6/16/2016 4:08:30PM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1402
Live Time	: 3600.0 seconds
Real Time	: 3620.9 seconds
Dead Time	: 0.58 %
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	: 39029

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606064-04

CP-5027 00-02

PEAK LOCATE REPORT

Peak Locate Performed on : 6/16/2016 5:09:04PM
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	46.96	47.19	0.0000	0.00
2	63.92	64.14	0.0000	0.00
3	76.83	77.04	0.0000	0.00
4	87.94	88.15	0.0000	0.00
5	90.95	91.15	0.0000	0.00
6	129.94	130.13	0.0000	0.00
7	156.87	157.05	0.0000	0.00
8	186.56	186.72	0.0000	0.00
9	209.89	210.03	0.0000	0.00
10	239.21	239.34	0.0000	0.00
11	242.82	242.95	0.0000	0.00
12	295.73	295.83	0.0000	0.00
13	338.74	338.82	0.0000	0.00
14	352.61	352.68	0.0000	0.00
15	499.17	499.17	0.0000	0.00
16	511.13	511.12	0.0000	0.00
17	583.62	583.58	0.0000	0.00
18	609.82	609.77	0.0000	0.00
19	662.90	662.82	0.0000	0.00
20	727.15	727.04	0.0000	0.00
21	733.22	733.11	0.0000	0.00
22	769.23	769.10	0.0000	0.00
23	825.66	825.50	0.0000	0.00
24	860.51	860.33	0.0000	0.00
25	911.38	911.19	0.0000	0.00
26	916.40	916.21	0.0000	0.00
27	969.10	968.88	0.0000	0.00
28	1050.53	1050.27	0.0000	0.00
29	1104.97	1104.70	0.0000	0.00
30	1120.48	1120.19	0.0000	0.00
31	1238.22	1237.88	0.0000	0.00
32	1314.21	1313.84	0.0000	0.00
33	1378.28	1377.89	0.0000	0.00
34	1434.98	1434.57	0.0000	0.00
35	1460.90	1460.48	0.0000	0.00
36	1581.73	1581.27	0.0000	0.00
37	1629.78	1629.30	0.0000	0.00
38	1633.98	1633.49	0.0000	0.00
39	1660.56	1660.07	0.0000	0.00
40	1715.93	1715.41	0.0000	0.00
41	1727.36	1726.84	0.0000	0.00
42	1764.79	1764.26	0.0000	0.00

Analysis Report for 1606064-04

CP-5027 00-02

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1807.11	1806.56	0.0000	0.00
44	1847.16	1846.60	0.0000	0.00
45	1955.61	1955.02	0.0000	0.00
46	2076.93	2076.30	0.0000	0.00
47	2119.58	2118.94	0.0000	0.00
48	2203.42	2202.75	0.0000	0.00
49	2239.88	2239.20	0.0000	0.00
50	2447.57	2446.83	0.0000	0.00
51	2614.30	2613.52	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606064-04

CP-5027 00-02

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/16/2016 5:09:04PM

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	46.96	44	49	47.19	1.26E+02	69.30	8.62E+02	1.64
	2	63.92	61	66	64.14	1.78E+02	87.05	1.38E+03	1.88
	3	76.83	72	83	77.04	1.06E+03	163.43	2.80E+03	2.82
m	4	87.94	83	98	88.15	2.27E+02	74.30	1.04E+03	1.68
m	5	90.95	83	98	91.15	1.32E+02	74.89	9.71E+02	1.69
	6	129.94	127	133	130.13	6.82E+01	76.82	1.02E+03	2.29
	7	156.87	153	160	157.05	7.00E+01	80.25	1.01E+03	4.57
	8	186.56	183	191	186.72	2.54E+02	90.12	1.09E+03	1.93
	9	209.89	207	213	210.03	5.86E+01	65.15	7.31E+02	1.72
M	10	239.21	235	246	239.34	5.38E+02	62.31	4.01E+02	1.80
m	11	242.82	235	246	242.95	2.36E+02	64.16	4.31E+02	2.08
	12	295.73	291	299	295.83	3.38E+02	68.62	5.14E+02	1.43
	13	338.74	335	342	338.82	1.27E+02	51.85	3.63E+02	1.30
	14	352.61	348	357	352.68	5.50E+02	72.07	4.21E+02	1.88
	15	499.17	495	502	499.17	2.66E+01	32.92	1.61E+02	3.46
	16	511.13	508	516	511.12	1.26E+02	43.40	2.15E+02	2.24
	17	583.62	579	587	583.58	1.15E+02	42.18	2.03E+02	1.89
	18	609.82	606	613	609.77	4.31E+02	51.30	1.51E+02	1.77
	19	662.90	658	668	662.82	6.07E+01	37.35	1.53E+02	1.93
M	20	727.15	722	736	727.04	3.44E+01	28.87	1.08E+02	3.03
m	21	733.22	722	736	733.11	2.08E+01	22.67	7.36E+01	3.04
	22	769.23	766	773	769.10	2.91E+01	30.85	1.38E+02	1.53
	23	825.66	823	829	825.50	2.10E+01	21.75	7.19E+01	2.42
	24	860.51	857	863	860.33	1.72E+01	20.90	6.77E+01	2.09
M	25	911.38	904	919	911.19	1.10E+02	27.29	6.65E+01	2.39
m	26	916.40	904	919	916.21	2.12E+01	20.80	5.24E+01	2.39
	27	969.10	966	973	968.88	3.47E+01	30.72	1.23E+02	1.40
	28	1050.53	1048	1053	1050.27	1.86E+01	17.55	4.49E+01	3.41
	29	1104.97	1101	1108	1104.70	2.20E+01	18.11	4.00E+01	3.56
	30	1120.48	1114	1125	1120.19	9.80E+01	37.42	1.26E+02	1.87
	31	1238.22	1232	1245	1237.88	6.70E+01	33.85	9.60E+01	2.78
	32	1314.21	1310	1317	1313.84	1.34E+01	17.09	3.93E+01	1.15
	33	1378.28	1375	1381	1377.89	2.75E+01	15.68	2.50E+01	3.42
	34	1434.98	1432	1437	1434.57	1.00E+01	8.37	6.00E+00	3.00
	35	1460.90	1454	1464	1460.48	3.91E+02	44.05	5.21E+01	2.27
	36	1581.73	1576	1584	1581.27	1.85E+01	10.21	5.05E+00	3.78
M	37	1629.78	1627	1636	1629.30	1.09E+01	8.03	2.86E+00	2.95
m	38	1633.98	1627	1636	1633.49	7.69E+00	9.62	1.11E+01	4.40
	39	1660.56	1655	1665	1660.07	1.21E+01	13.07	1.59E+01	3.44
	40	1715.93	1713	1717	1715.41	5.71E+00	5.85	2.57E+00	1.41

Analysis Report for 1606064-04

CP-5027 00-02

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1727.36	1721 -	1732	1726.84	1.90E+01	8.72	0.00E+00	7.47
42	1764.79	1759 -	1768	1764.26	6.39E+01	19.90	2.02E+01	2.45
43	1807.11	1803 -	1809	1806.56	5.67E+00	7.78	6.67E+00	4.48
44	1847.16	1842 -	1850	1846.60	1.23E+01	11.69	1.33E+01	2.45
45	1955.61	1952 -	1958	1955.02	5.50E+00	6.34	3.00E+00	2.48
46	2076.93	2072 -	2079	2076.30	5.21E+00	6.63	3.57E+00	2.93
47	2119.58	2115 -	2121	2118.94	6.00E+00	7.78	6.00E+00	2.49
48	2203.42	2198 -	2206	2202.75	1.89E+01	10.21	4.19E+00	3.31
49	2239.88	2235 -	2242	2239.20	8.00E+00	7.48	4.00E+00	5.51
50	2447.57	2442 -	2451	2446.83	1.20E+01	6.93	0.00E+00	2.12
51	2614.30	2609 -	2618	2613.52	4.00E+01	12.65	0.00E+00	1.76

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 : 6/16/2016 5:09:04PM

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	46.96	44 -	49	1.26E+02	69.30	8.62E+02	5.39E+01
	2	63.92	61 -	66	1.78E+02	87.05	1.38E+03	6.81E+01
	3	76.83	72 -	83	1.06E+03	163.43	2.80E+03	1.23E+02
m	4	87.94	83 -	98	2.27E+02	74.30	1.04E+03	5.31E+01
m	5	90.95	83 -	98	1.32E+02	74.89	9.71E+02	5.12E+01
	6	129.94	127 -	133	6.82E+01	76.82	1.02E+03	6.17E+01
	7	156.87	153 -	160	7.00E+01	80.25	1.01E+03	6.45E+01
	8	186.56	183 -	191	2.54E+02	90.12	1.09E+03	6.93E+01
	9	209.89	207 -	213	5.86E+01	65.15	7.31E+02	5.21E+01
M	10	239.21	235 -	246	5.38E+02	62.31	4.01E+02	3.29E+01
m	11	242.82	235 -	246	2.36E+02	64.16	4.31E+02	3.41E+01
	12	295.73	291 -	299	3.38E+02	68.62	5.14E+02	5.42E+01
	13	338.74	335 -	342	1.27E+02	51.85	3.63E+02	3.84E+01
	14	352.61	348 -	357	5.50E+02	72.07	4.21E+02	4.50E+01
	15	499.17	495 -	502	2.66E+01	32.92	1.61E+02	2.57E+01
	16	511.13	508 -	516	1.26E+02	43.40	2.15E+02	3.05E+01
	17	583.62	579 -	587	1.15E+02	42.18	2.03E+02	2.98E+01

Analysis Report for 1606064-04

CP-5027 00-02

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	18	609.82	606 -	613	4.31E+02	51.30	1.51E+02	2.48E+01
	19	662.90	658 -	668	6.07E+01	37.35	1.53E+02	2.79E+01
M	20	727.15	722 -	736	3.44E+01	28.87	1.08E+02	1.71E+01
m	21	733.22	722 -	736	2.08E+01	22.67	7.36E+01	1.41E+01
	22	769.23	766 -	773	2.91E+01	30.85	1.38E+02	2.38E+01
	23	825.66	823 -	829	2.10E+01	21.75	7.19E+01	1.62E+01
	24	860.51	857 -	863	1.72E+01	20.90	6.77E+01	1.58E+01
M	25	911.38	904 -	919	1.10E+02	27.29	6.65E+01	1.34E+01
m	26	916.40	904 -	919	2.12E+01	20.80	5.24E+01	1.19E+01
	27	969.10	966 -	973	3.47E+01	30.72	1.23E+02	2.33E+01
	28	1050.53	1048 -	1053	1.86E+01	17.55	4.49E+01	1.26E+01
	29	1104.97	1101 -	1108	2.20E+01	18.11	4.00E+01	1.27E+01
	30	1120.48	1114 -	1125	9.80E+01	37.42	1.26E+02	2.61E+01
	31	1238.22	1232 -	1245	6.70E+01	33.85	9.60E+01	2.44E+01
	32	1314.21	1310 -	1317	1.34E+01	17.09	3.93E+01	1.27E+01
	33	1378.28	1375 -	1381	2.75E+01	15.68	2.50E+01	9.58E+00
	34	1434.98	1432 -	1437	1.00E+01	8.37	6.00E+00	4.50E+00
	35	1460.90	1454 -	1464	3.91E+02	44.05	5.21E+01	1.59E+01
	36	1581.73	1576 -	1584	1.85E+01	10.21	5.05E+00	4.53E+00
M	37	1629.78	1627 -	1636	1.09E+01	8.03	2.86E+00	2.78E+00
m	38	1633.98	1627 -	1636	7.69E+00	9.62	1.11E+01	5.49E+00
	39	1660.56	1655 -	1665	1.21E+01	13.07	1.59E+01	9.10E+00
	40	1715.93	1713 -	1717	5.71E+00	5.85	2.57E+00	2.77E+00
	41	1727.36	1721 -	1732	1.90E+01	8.72	0.00E+00	0.00E+00
	42	1764.79	1759 -	1768	6.39E+01	19.90	2.02E+01	9.74E+00
	43	1807.11	1803 -	1809	5.67E+00	7.78	6.67E+00	5.06E+00
	44	1847.16	1842 -	1850	1.23E+01	11.69	1.33E+01	7.68E+00
	45	1955.61	1952 -	1958	5.50E+00	6.34	3.00E+00	3.51E+00
	46	2076.93	2072 -	2079	5.21E+00	6.63	3.57E+00	3.95E+00
	47	2119.58	2115 -	2121	6.00E+00	7.78	6.00E+00	4.97E+00
	48	2203.42	2198 -	2206	1.89E+01	10.21	4.19E+00	4.40E+00
	49	2239.88	2235 -	2242	8.00E+00	7.48	4.00E+00	4.03E+00
	50	2447.57	2442 -	2451	1.20E+01	6.93	0.00E+00	0.00E+00
	51	2614.30	2609 -	2618	4.00E+01	12.65	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 1606064-04

CP-5027 00-02

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/16/2016 5:09:04PM

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	46.96	44 -	49	47.19	1.26E+02	69.30	8.62E+02	PB-210
	2	63.92	61 -	66	64.14	1.78E+02	87.05	1.38E+03	TH-234
	3	76.83	72 -	83	77.04	1.06E+03	163.43	2.80E+03	.....
m	4	87.94	83 -	98	88.15	2.27E+02	74.30	1.04E+03	CD-109
									SN-126
									LU-176
m	5	90.95	83 -	98	91.15	1.32E+02	74.89	9.71E+02	ND-147
	6	129.94	127 -	133	130.13	6.82E+01	76.82	1.02E+03	.....
	7	156.87	153 -	160	157.05	7.00E+01	80.25	1.01E+03	.....
	8	186.56	183 -	191	186.72	2.54E+02	90.12	1.09E+03	RA-226
	9	209.89	207 -	213	210.03	5.86E+01	65.15	7.31E+02	CM-243
									GA-67
M	10	239.21	235 -	246	239.34	5.38E+02	62.31	4.01E+02	PB-212
m	11	242.82	235 -	246	242.95	2.36E+02	64.16	4.31E+02	.....
	12	295.73	291 -	299	295.83	3.38E+02	68.62	5.14E+02	PB-214
	13	338.74	335 -	342	338.82	1.27E+02	51.85	3.63E+02	AC-228
	14	352.61	348 -	357	352.68	5.50E+02	72.07	4.21E+02	PB-214
	15	499.17	495 -	502	499.17	2.66E+01	32.92	1.61E+02	.....
	16	511.13	508 -	516	511.12	1.26E+02	43.40	2.15E+02	.....
	17	583.62	579 -	587	583.58	1.15E+02	42.18	2.03E+02	TL-208
	18	609.82	606 -	613	609.77	4.31E+02	51.30	1.51E+02	BI-214
	19	662.90	658 -	668	662.82	6.07E+01	37.35	1.53E+02	.....
M	20	727.15	722 -	736	727.04	3.44E+01	28.87	1.08E+02	BI-212
m	21	733.22	722 -	736	733.11	2.08E+01	22.67	7.36E+01	PA-234
	22	769.23	766 -	773	769.10	2.91E+01	30.85	1.38E+02	.....
	23	825.66	823 -	829	825.50	2.10E+01	21.75	7.19E+01	.....
	24	860.51	857 -	863	860.33	1.72E+01	20.90	6.77E+01	TL-208
M	25	911.38	904 -	919	911.19	1.10E+02	27.29	6.65E+01	AC-228
									LU-172
m	26	916.40	904 -	919	916.21	2.12E+01	20.80	5.24E+01	.....
	27	969.10	966 -	973	968.88	3.47E+01	30.72	1.23E+02	AC-228
	28	1050.53	1048 -	1053	1050.27	1.86E+01	17.55	4.49E+01	.....
	29	1104.97	1101 -	1108	1104.70	2.20E+01	18.11	4.00E+01	.....
	30	1120.48	1114 -	1125	1120.19	9.80E+01	37.42	1.26E+02	SC-46
									BI-214
									TA-182
	31	1238.22	1232 -	1245	1237.88	6.70E+01	33.85	9.60E+01	CO-56
	32	1314.21	1310 -	1317	1313.84	1.34E+01	17.09	3.93E+01	.....
	33	1378.28	1375 -	1381	1377.89	2.75E+01	15.68	2.50E+01	.....
	34	1434.98	1432 -	1437	1434.57	1.00E+01	8.37	6.00E+00	LA-138
	35	1460.90	1454 -	1464	1460.48	3.91E+02	44.05	5.21E+01	K-40

Analysis Report for 1606064-04

CP-5027 00-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	36	1581.73	1576 -	1584	1581.27	1.85E+01	10.21	5.05E+00	.....
M	37	1629.78	1627 -	1636	1629.30	1.09E+01	8.03	2.86E+00	.....
m	38	1633.98	1627 -	1636	1633.49	7.69E+00	9.62	1.11E+01	.....
	39	1660.56	1655 -	1665	1660.07	1.21E+01	13.07	1.59E+01	.....
	40	1715.93	1713 -	1717	1715.41	5.71E+00	5.85	2.57E+00	.....
	41	1727.36	1721 -	1732	1726.84	1.90E+01	8.72	0.00E+00	.....
	42	1764.79	1759 -	1768	1764.26	6.39E+01	19.90	2.02E+01	BI-214
	43	1807.11	1803 -	1809	1806.56	5.67E+00	7.78	6.67E+00	.....
	44	1847.16	1842 -	1850	1846.60	1.23E+01	11.69	1.33E+01	.....
	45	1955.61	1952 -	1958	1955.02	5.50E+00	6.34	3.00E+00	.....
	46	2076.93	2072 -	2079	2076.30	5.21E+00	6.63	3.57E+00	.....
	47	2119.58	2115 -	2121	2118.94	6.00E+00	7.78	6.00E+00	.....
	48	2203.42	2198 -	2206	2202.75	1.89E+01	10.21	4.19E+00	BI-214
	49	2239.88	2235 -	2242	2239.20	8.00E+00	7.48	4.00E+00	.....
	50	2447.57	2442 -	2451	2446.83	1.20E+01	6.93	0.00E+00	.....
	51	2614.30	2609 -	2618	2613.52	4.00E+01	12.65	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 : 6/16/2016 5:09:04PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.96	1.26E+02	69.30	1.53E-02	1.58E-03
	2	63.92	1.78E+02	87.05	2.17E-02	1.73E-03
	3	76.83	1.06E+03	163.43	2.38E-02	2.15E-03
m	4	87.94	2.27E+02	74.30	2.44E-02	2.52E-03
m	5	90.95	1.32E+02	74.89	2.44E-02	2.46E-03
	6	129.94	6.82E+01	76.82	2.25E-02	1.69E-03
	7	156.87	7.00E+01	80.25	2.04E-02	1.56E-03
	8	186.56	2.54E+02	90.12	1.82E-02	1.42E-03
	9	209.89	5.86E+01	65.15	1.68E-02	1.31E-03
M	10	239.21	5.38E+02	62.31	1.52E-02	1.18E-03
m	11	242.82	2.36E+02	64.16	1.50E-02	1.16E-03
	12	295.73	3.38E+02	68.62	1.28E-02	9.73E-04
	13	338.74	1.27E+02	51.85	1.14E-02	9.12E-04
	14	352.61	5.50E+02	72.07	1.10E-02	8.93E-04

Analysis Report for 1606064-04

CP-5027 00-02

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	15	499.17	2.66E+01	32.92	8.18E-03	7.30E-04
	16	511.13	1.26E+02	43.40	8.01E-03	7.18E-04
	17	583.62	1.15E+02	42.18	7.13E-03	6.46E-04
	18	609.82	4.31E+02	51.30	6.87E-03	6.20E-04
	19	662.90	6.07E+01	37.35	6.38E-03	5.67E-04
M	20	727.15	3.44E+01	28.87	5.89E-03	5.14E-04
m	21	733.22	2.08E+01	22.67	5.85E-03	5.09E-04
	22	769.23	2.91E+01	30.85	5.61E-03	4.80E-04
	23	825.66	2.10E+01	21.75	5.28E-03	4.34E-04
	24	860.51	1.72E+01	20.90	5.10E-03	4.05E-04
M	25	911.38	1.10E+02	27.29	4.85E-03	3.72E-04
m	26	916.40	2.12E+01	20.80	4.83E-03	3.71E-04
	27	969.10	3.47E+01	30.72	4.60E-03	3.61E-04
	28	1050.53	1.86E+01	17.55	4.30E-03	3.46E-04
	29	1104.97	2.20E+01	18.11	4.12E-03	3.36E-04
	30	1120.48	9.80E+01	37.42	4.08E-03	3.33E-04
	31	1238.22	6.70E+01	33.85	3.76E-03	3.09E-04
	32	1314.21	1.34E+01	17.09	3.58E-03	2.93E-04
	33	1378.28	2.75E+01	15.68	3.45E-03	2.82E-04
	34	1434.98	1.00E+01	8.37	3.34E-03	2.73E-04
	35	1460.90	3.91E+02	44.05	3.29E-03	2.69E-04
	36	1581.73	1.85E+01	10.21	3.10E-03	2.51E-04
M	37	1629.78	1.09E+01	8.03	3.03E-03	2.44E-04
m	38	1633.98	7.69E+00	9.62	3.02E-03	2.43E-04
	39	1660.56	1.21E+01	13.07	2.99E-03	2.39E-04
	40	1715.93	5.71E+00	5.85	2.92E-03	2.31E-04
	41	1727.36	1.90E+01	8.72	2.90E-03	2.29E-04
	42	1764.79	6.39E+01	19.90	2.86E-03	2.24E-04
	43	1807.11	5.67E+00	7.78	2.81E-03	2.17E-04
	44	1847.16	1.23E+01	11.69	2.77E-03	2.13E-04
	45	1955.61	5.50E+00	6.34	2.66E-03	2.13E-04
	46	2076.93	5.21E+00	6.63	2.56E-03	2.13E-04
	47	2119.58	6.00E+00	7.78	2.52E-03	2.13E-04
	48	2203.42	1.89E+01	10.21	2.46E-03	2.13E-04
	49	2239.88	8.00E+00	7.48	2.44E-03	2.13E-04
	50	2447.57	1.20E+01	6.93	2.32E-03	2.13E-04
	51	2614.30	4.00E+01	12.65	2.24E-03	2.13E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/16/2016 5:09:04PM

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

Analysis Report for 1606064-04

CP-5027 00-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.96	1.26E+02	69.30	4.97E+01	7.81E+00	7.63E+01	6.97E+01
	2	63.92	1.78E+02	87.05	4.47E+01	1.66E+01	1.33E+02	8.86E+01
	3	76.83	1.06E+03	163.43	6.70E+00	3.28E+00	1.06E+03	1.63E+02
m	4	87.94	2.27E+02	74.30	1.07E+01	3.99E+00	2.16E+02	7.44E+01
m	5	90.95	1.32E+02	74.89			1.32E+02	7.49E+01
	6	129.94	6.82E+01	76.82			6.82E+01	7.68E+01
	7	156.87	7.00E+01	80.25			7.00E+01	8.02E+01
	8	186.56	2.54E+02	90.12	3.45E+01	5.92E+00	2.19E+02	9.03E+01
	9	209.89	5.86E+01	65.15			5.86E+01	6.51E+01
M	10	239.21	5.38E+02	62.31	1.33E+01	5.09E+00	5.24E+02	6.25E+01
m	11	242.82	2.36E+02	64.16			2.36E+02	6.42E+01
	12	295.73	3.38E+02	68.62	1.94E+00	4.39E+00	3.36E+02	6.88E+01
	13	338.74	1.27E+02	51.85			1.27E+02	5.18E+01
	14	352.61	5.50E+02	72.07	4.00E+00	3.58E+00	5.46E+02	7.22E+01
	15	499.17	2.66E+01	32.92			2.66E+01	3.29E+01
	16	511.13	1.26E+02	43.40	6.05E+01	4.93E+00	6.52E+01	4.37E+01
	17	583.62	1.15E+02	42.18	5.50E+00	3.61E+00	1.10E+02	4.23E+01
	18	609.82	4.31E+02	51.30	5.07E+00	3.83E+00	4.26E+02	5.14E+01
	19	662.90	6.07E+01	37.35	8.97E+00	3.29E+00	5.17E+01	3.75E+01
M	20	727.15	3.44E+01	28.87			3.44E+01	2.89E+01
m	21	733.22	2.08E+01	22.67			2.08E+01	2.27E+01
	22	769.23	2.91E+01	30.85			2.91E+01	3.09E+01
	23	825.66	2.10E+01	21.75			2.10E+01	2.17E+01
	24	860.51	1.72E+01	20.90			1.72E+01	2.09E+01
M	25	911.38	1.10E+02	27.29			1.10E+02	2.73E+01
m	26	916.40	2.12E+01	20.80			2.12E+01	2.08E+01
	27	969.10	3.47E+01	30.72			3.47E+01	3.07E+01
	28	1050.53	1.86E+01	17.55			1.86E+01	1.75E+01
	29	1104.97	2.20E+01	18.11			2.20E+01	1.81E+01
	30	1120.48	9.80E+01	37.42	1.09E+00	2.08E+00	9.69E+01	3.75E+01
	31	1238.22	6.70E+01	33.85			6.70E+01	3.39E+01
	32	1314.21	1.34E+01	17.09			1.34E+01	1.71E+01
	33	1378.28	2.75E+01	15.68			2.75E+01	1.57E+01
	34	1434.98	1.00E+01	8.37			1.00E+01	8.37E+00
	35	1460.90	3.91E+02	44.05	4.33E+00	2.02E+00	3.87E+02	4.41E+01
	36	1581.73	1.85E+01	10.21			1.85E+01	1.02E+01
M	37	1629.78	1.09E+01	8.03			1.09E+01	8.03E+00
m	38	1633.98	7.69E+00	9.62			7.69E+00	9.62E+00
	39	1660.56	1.21E+01	13.07			1.21E+01	1.31E+01
	40	1715.93	5.71E+00	5.85			5.71E+00	5.85E+00
	41	1727.36	1.90E+01	8.72			1.90E+01	8.72E+00
	42	1764.79	6.39E+01	19.90			6.39E+01	1.99E+01
	43	1807.11	5.67E+00	7.78			5.67E+00	7.78E+00
	44	1847.16	1.23E+01	11.69			1.23E+01	1.17E+01
	45	1955.61	5.50E+00	6.34			5.50E+00	6.34E+00
	46	2076.93	5.21E+00	6.63			5.21E+00	6.63E+00
	47	2119.58	6.00E+00	7.78			6.00E+00	7.78E+00
	48	2203.42	1.89E+01	10.21			1.89E+01	1.02E+01
	49	2239.88	8.00E+00	7.48			8.00E+00	7.48E+00
	50	2447.57	1.20E+01	6.93			1.20E+01	6.93E+00
	51	2614.30	4.00E+01	12.65			4.00E+01	1.26E+01

Analysis Report for 1606064-04

CP-5027 00-02

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 : 6/16/2016 5:09:04PM

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	46.96	1.26E+02	69.30	4.97E+01	7.81E+00	7.63E+01	6.97E+01
	2	63.92	1.78E+02	87.05	4.47E+01	1.66E+01	1.33E+02	8.86E+01
	3	76.83	1.06E+03	163.43	6.70E+00	3.28E+00	1.06E+03	1.63E+02
m	4	87.94	2.27E+02	74.30	1.07E+01	3.99E+00	2.16E+02	7.44E+01
m	5	90.95	1.32E+02	74.89			1.32E+02	7.49E+01
	6	129.94	6.82E+01	76.82			6.82E+01	7.68E+01
	7	156.87	7.00E+01	80.25			7.00E+01	8.02E+01
	8	186.56	2.54E+02	90.12	3.45E+01	5.92E+00	2.19E+02	9.03E+01
	9	209.89	5.86E+01	65.15			5.86E+01	6.51E+01
M	10	239.21	5.38E+02	62.31	1.33E+01	5.09E+00	5.24E+02	6.25E+01
m	11	242.82	2.36E+02	64.16			2.36E+02	6.42E+01
	12	295.73	3.38E+02	68.62	1.94E+00	4.39E+00	3.36E+02	6.88E+01
	13	338.74	1.27E+02	51.85			1.27E+02	5.18E+01
	14	352.61	5.50E+02	72.07	4.00E+00	3.58E+00	5.46E+02	7.22E+01
	15	499.17	2.66E+01	32.92			2.66E+01	3.29E+01
	16	511.13	1.26E+02	43.40	6.05E+01	4.93E+00	6.52E+01	4.37E+01
	17	583.62	1.15E+02	42.18	5.50E+00	3.61E+00	1.10E+02	4.23E+01
	18	609.82	4.31E+02	51.30	5.07E+00	3.83E+00	4.26E+02	5.14E+01
	19	662.90	6.07E+01	37.35	8.97E+00	3.29E+00	5.17E+01	3.75E+01
M	20	727.15	3.44E+01	28.87			3.44E+01	2.89E+01
m	21	733.22	2.08E+01	22.67			2.08E+01	2.27E+01
	22	769.23	2.91E+01	30.85			2.91E+01	3.09E+01
	23	825.66	2.10E+01	21.75			2.10E+01	2.17E+01
	24	860.51	1.72E+01	20.90			1.72E+01	2.09E+01
M	25	911.38	1.10E+02	27.29			1.10E+02	2.73E+01
m	26	916.40	2.12E+01	20.80			2.12E+01	2.08E+01
	27	969.10	3.47E+01	30.72			3.47E+01	3.07E+01
	28	1050.53	1.86E+01	17.55			1.86E+01	1.75E+01
	29	1104.97	2.20E+01	18.11			2.20E+01	1.81E+01
	30	1120.48	9.80E+01	37.42	1.09E+00	2.08E+00	9.69E+01	3.75E+01
	31	1238.22	6.70E+01	33.85			6.70E+01	3.39E+01
	32	1314.21	1.34E+01	17.09			1.34E+01	1.71E+01

Analysis Report for 1606064-04

CP-5027 00-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	33	1378.28	2.75E+01	15.68			2.75E+01	1.57E+01
	34	1434.98	1.00E+01	8.37			1.00E+01	8.37E+00
	35	1460.90	3.91E+02	44.05	4.33E+00	2.02E+00	3.87E+02	4.41E+01
	36	1581.73	1.85E+01	10.21			1.85E+01	1.02E+01
M	37	1629.78	1.09E+01	8.03			1.09E+01	8.03E+00
m	38	1633.98	7.69E+00	9.62			7.69E+00	9.62E+00
	39	1660.56	1.21E+01	13.07			1.21E+01	1.31E+01
	40	1715.93	5.71E+00	5.85			5.71E+00	5.85E+00
	41	1727.36	1.90E+01	8.72			1.90E+01	8.72E+00
	42	1764.79	6.39E+01	19.90			6.39E+01	1.99E+01
	43	1807.11	5.67E+00	7.78			5.67E+00	7.78E+00
	44	1847.16	1.23E+01	11.69			1.23E+01	1.17E+01
	45	1955.61	5.50E+00	6.34			5.50E+00	6.34E+00
	46	2076.93	5.21E+00	6.63			5.21E+00	6.63E+00
	47	2119.58	6.00E+00	7.78			6.00E+00	7.78E+00
	48	2203.42	1.89E+01	10.21			1.89E+01	1.02E+01
	49	2239.88	8.00E+00	7.48			8.00E+00	7.48E+00
	50	2447.57	1.20E+01	6.93			1.20E+01	6.93E+00
	51	2614.30	4.00E+01	12.65			4.00E+01	1.26E+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	0.999	1460.81	*	10.67	1.19E+01	1.69E+00
CD-109	0.999	88.03	*	3.72	2.63E+00	9.57E-01
SN-126	0.978	87.57	*	37.00	2.59E-01	9.29E-02
ND-147	0.666	91.11	*	28.90	4.94E-01	2.85E-01
		531.02		13.10		
TL-208	0.974	583.14	*	30.22	5.50E-01	2.18E-01
		860.37	*	4.48	8.12E-01	9.91E-01
		2614.66	*	35.85	5.38E-01	1.78E-01
PB-210	0.966	46.50	*	4.25	1.27E+00	1.17E+00
BI-212	0.770	727.17	*	11.80	5.34E-01	4.51E-01
		1620.62		2.75		
PB-212	0.847	238.63	*	44.60	8.36E-01	1.19E-01

Analysis Report for 1606064-04

CP-5027 00-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-212	0.847	300.09		3.41		
BI-214	0.967	609.31	*	46.30	1.45E+00	2.18E-01
		1120.29	*	15.10	1.70E+00	6.72E-01
		1764.49	*	15.80	1.53E+00	4.91E-01
		2204.22	*	4.98	1.66E+00	9.10E-01
PB-214	0.938	295.21	*	19.19	1.48E+00	3.22E-01
		351.92	*	37.19	1.44E+00	2.23E-01
RA-226	0.980	186.21	*	3.28	3.95E+00	7.42E+00
AC-228	0.987	338.32	*	11.40	1.05E+00	4.38E-01
		911.07	*	27.70	8.85E-01	2.30E-01
		969.11	*	16.60	4.90E-01	4.36E-01
TH-234	0.939	63.29	*	3.80	1.74E+00	1.17E+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 : 6/16/2016 5:09:04PM
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	76.83	2.93887E-01	7.72		
	6	129.94	1.89523E-02	56.30		
	7	156.87	1.94319E-02	57.36		
	9	209.89	1.62716E-02	55.61	Tol.	CM-243
m	11	242.82	6.56838E-02	13.57		
	15	499.17	7.38058E-03	61.96		
	16	511.13	1.81188E-02	33.48		
	19	662.90	1.43558E-02	36.27		
m	21	733.22	5.78557E-03	54.41	Tol.	PA-234
	22	769.23	8.08390E-03	53.01	Sum	
	23	825.66	5.84308E-03	51.70		
m	26	916.40	5.90064E-03	48.97		
	28	1050.53	5.15583E-03	47.28		
	29	1104.97	6.11111E-03	41.16		
	31	1238.22	1.86159E-02	25.26		
	32	1314.21	3.71212E-03	63.93		

Analysis Report for 1606064-04

CP-5027 00-02

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	33	1378.28	7.64236E-03	28.49		
	34	1434.98	2.77778E-03	41.83	Tol.	LA-138
	36	1581.73	5.13228E-03	27.63		
M	37	1629.78	3.03029E-03	36.81		
m	38	1633.98	2.13720E-03	62.50		
	39	1660.56	3.35417E-03	54.11		
	40	1715.93	1.58730E-03	51.21		
	41	1727.36	5.27778E-03	22.94		
	43	1807.11	1.57407E-03	68.63		
	44	1847.16	3.42836E-03	47.37	Sum	
	45	1955.61	1.52778E-03	57.68		
	46	2076.93	1.44841E-03	63.61		
	47	2119.58	1.66667E-03	64.82		
	49	2239.88	2.22222E-03	46.77		
	50	2447.57	3.33333E-03	28.87		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	1.19E+01	1.69E+00
CD-109	0.99	88.03	*	3.72	2.63E+00	9.57E-01
SN-126	0.97	87.57	*	37.00	2.59E-01	9.29E-02
ND-147	0.66	91.11	*	28.90	4.94E-01	2.85E-01
		531.02		13.10		
TL-208	0.97	583.14	*	30.22	5.50E-01	2.18E-01
		860.37	*	4.48	8.12E-01	9.91E-01
		2614.66	*	35.85	5.38E-01	1.78E-01
PB-210	0.96	46.50	*	4.25	1.27E+00	1.17E+00
BI-212	0.77	727.17	*	11.80	5.34E-01	4.51E-01
		1620.62		2.75		
PB-212	0.84	238.63	*	44.60	8.36E-01	1.19E-01
		300.09		3.41		

Analysis Report for 1606064-04

CP-5027 00-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.96	609.31	*	46.30	1.45E+00	2.18E-01
		1120.29	*	15.10	1.70E+00	6.72E-01
		1764.49	*	15.80	1.53E+00	4.91E-01
		2204.22	*	4.98	1.66E+00	9.10E-01
PB-214	0.93	295.21	*	19.19	1.48E+00	3.22E-01
		351.92	*	37.19	1.44E+00	2.23E-01
RA-226	0.98	186.21	*	3.28	3.95E+00	7.42E+00
AC-228	0.98	338.32	*	11.40	1.05E+00	4.38E-01
		911.07	*	27.70	8.85E-01	2.30E-01
		969.11	*	16.60	4.90E-01	4.36E-01
TH-234	0.93	63.29	*	3.80	1.74E+00	1.17E+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	0.999	1.19E+01	1.69E+00	
?	CD-109	0.999	2.63E+00	9.57E-01	
?	SN-126	0.978	2.59E-01	9.29E-02	
	ND-147	0.666	4.94E-01	2.85E-01	
	TL-208	0.974	5.48E-01	1.36E-01	
	PB-210	0.966	1.27E+00	1.17E+00	
	BI-212	0.770	5.34E-01	4.51E-01	
	PB-212	0.847	8.36E-01	1.19E-01	
	BI-214	0.967	1.49E+00	1.87E-01	
	PB-214	0.938	1.45E+00	1.83E-01	
	RA-226	0.980	3.95E+00	7.42E+00	
	AC-228	0.987	8.43E-01	1.84E-01	
	TH-234	0.939	1.74E+00	1.17E+00	

Analysis Report for 1606064-04

CP-5027 00-02

? = 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 1606064-04

CP-5027 00-02

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/16/2016 5:09:04PM
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	76.83	2.93887E-01	7.72		
	6	129.94	1.89523E-02	56.30		
	7	156.87	1.94319E-02	57.36		
	9	209.89	1.62716E-02	55.61	Tol.	CM-243
m	11	242.82	6.56838E-02	13.57		
	15	499.17	7.38058E-03	61.96		
	16	511.13	1.81188E-02	33.48		
	19	662.90	1.43558E-02	36.27		
m	21	733.22	5.78557E-03	54.41	Tol.	PA-234
	22	769.23	8.08390E-03	53.01	Sum	
	23	825.66	5.84308E-03	51.70		
m	26	916.40	5.90064E-03	48.97		
	28	1050.53	5.15583E-03	47.28		
	29	1104.97	6.11111E-03	41.16		
	31	1238.22	1.86159E-02	25.26		
	32	1314.21	3.71212E-03	63.93		
	33	1378.28	7.64236E-03	28.49		
	34	1434.98	2.77778E-03	41.83	Tol.	LA-138
	36	1581.73	5.13228E-03	27.63		
M	37	1629.78	3.03029E-03	36.81		
m	38	1633.98	2.13720E-03	62.50		
	39	1660.56	3.35417E-03	54.11		
	40	1715.93	1.58730E-03	51.21		
	41	1727.36	5.27778E-03	22.94		
	43	1807.11	1.57407E-03	68.63		
	44	1847.16	3.42836E-03	47.37	Sum	
	45	1955.61	1.52778E-03	57.68		
	46	2076.93	1.44841E-03	63.61		
	47	2119.58	1.66667E-03	64.82		
	49	2239.88	2.22222E-03	46.77		
	50	2447.57	3.33333E-03	28.87		

Analysis Report for 1606064-04

CP-5027 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 : \\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	3.78E-01	7.55E-01	7.55E-01
+	NA-22	1274.54		99.94	-2.56E-02	9.56E-02	9.56E-02
+	NA-24	1368.53		99.99	4.11E+04	3.12E+05	5.68E+05
		2754.09		99.86	-3.36E+04		3.12E+05
+	AL-26	1808.65		99.76	-8.57E-03	7.26E-02	7.26E-02
+	K-40	1460.81	*	10.67	1.19E+01	1.09E+00	1.09E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	5.04E-02	6.01E-02	6.01E-02
		78.34		96.00	2.09E-01		7.89E-02
+	SC-46	889.25		99.98	2.05E-02	8.48E-02	8.48E-02
		1120.51		99.99	2.21E-01		1.64E-01
+	V-48	983.52		99.98	1.23E-01	1.52E-01	1.52E-01
		1312.10		97.50	1.31E-02		1.75E-01
+	CR-51	320.08		9.83	1.12E-02	8.21E-01	8.21E-01
+	MN-54	834.83		99.97	-5.39E-03	8.06E-02	8.06E-02
+	CO-56	846.75		99.96	3.44E-02	8.51E-02	8.51E-02
		1037.75		14.03	5.60E-01		7.28E-01
		1238.25		67.00	1.65E-01		2.08E-01
		1771.40		15.51	-7.07E-02		4.16E-01
		2598.48		16.90	-6.45E-02		2.37E-01
+	CO-57	122.06		85.51	-9.41E-03	5.17E-02	5.17E-02
		136.48		10.60	-5.97E-03		4.38E-01
+	CO-58	810.76		99.40	-1.16E-02	7.81E-02	7.81E-02
+	FE-59	1099.22		56.50	-3.36E-02	1.44E-01	1.44E-01
		1291.56		43.20	-3.60E-02		2.76E-01
+	CO-60	1173.22		100.00	1.08E-02	8.77E-02	8.99E-02
		1332.49		100.00	-2.78E-02		8.77E-02
+	ZN-65	1115.52		50.75	2.49E-02	1.95E-01	1.95E-01
+	GA-67	93.31		35.70	6.83E+00	3.35E+00	3.35E+00
		208.95		2.24	1.52E+01		5.73E+01
		300.22		16.00	4.72E+00		8.43E+00
+	SE-75	121.11		16.70	7.22E-02	8.16E-02	2.82E-01

Analysis Report for 1606064-04

CP-5027 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-1.13E-02	8.16E-02	8.16E-02
		264.65		59.80	-8.54E-02		1.02E-01
		279.53		25.20	2.54E-02		2.56E-01
		400.65		11.40	7.73E-02		5.84E-01
+	RB-82	776.52		13.00	-3.86E-01	7.95E-01	7.95E-01
+	RB-83	520.41		46.00	3.50E-02	1.45E-01	1.45E-01
		529.64		30.30	6.43E-02		2.37E-01
		552.65		16.40	9.32E-02		4.40E-01
+	KR-85	513.99		0.43	2.58E+01	2.06E+01	2.06E+01
+	SR-85	513.99		99.27	1.31E-01	1.05E-01	1.05E-01
+	Y-88	898.02		93.40	-1.03E-02	7.47E-02	8.57E-02
		1836.01		99.38	4.29E-03		7.47E-02
+	NB-93M	16.57		9.43	-1.59E+01	6.72E+01	6.72E+01
+	NB-94	702.63		100.00	5.39E-02	7.65E-02	7.65E-02
		871.10		100.00	2.08E-02		8.17E-02
+	NB-95	765.79		99.81	2.27E-03	1.17E-01	1.17E-01
+	NB-95M	235.69		25.00	8.16E-01	4.98E+00	4.98E+00
+	ZR-95	724.18		43.70	-7.80E-02	1.48E-01	1.93E-01
		756.72		55.30	2.13E-02		1.48E-01
+	MO-99	181.06		6.20	1.41E+00	1.91E+01	2.78E+01
		739.58		12.80	-2.11E-01		1.91E+01
		778.00		4.50	6.16E+00		5.97E+01
+	RU-103	497.08		89.00	6.89E-02	9.48E-02	9.48E-02
+	RU-106	621.84		9.80	1.10E-01	6.69E-01	6.69E-01
+	AG-108M	433.93		89.90	-1.87E-02	6.76E-02	6.76E-02
		614.37		90.40	-2.09E-03		9.59E-02
		722.95		90.50	6.05E-03		7.56E-02
+	CD-109	88.03	*	3.72	2.63E+00	3.36E+00	3.36E+00
+	AG-110M	657.75		93.14	-6.49E-04	7.60E-02	7.60E-02
		677.61		10.53	8.13E-02		6.80E-01
		706.67		16.46	1.36E-01		4.89E-01
		763.93		21.98	-1.55E-01		3.53E-01
		884.67		71.63	-3.58E-02		1.08E-01
		1384.27		23.94	-1.31E-02		3.85E-01
+	CD-113M	263.70		0.02	-4.33E+01	2.49E+02	2.49E+02
+	SN-113	255.12		1.93	-2.74E-01	1.04E-01	3.26E+00
		391.69		64.90	1.75E-02		1.04E-01
+	TE123M	159.00		84.10	-1.21E-02	6.04E-02	6.04E-02
+	SB-124	602.71		97.87	2.29E-02	8.64E-02	8.64E-02
		645.85		7.26	-9.27E-01		1.02E+00
		722.78		11.10	5.80E-02		7.26E-01
		1691.02		49.00	-3.29E-02		1.47E-01
+	I-125	35.49		6.49	-9.17E-01	2.02E+00	2.02E+00
+	SB-125	176.33		6.89	-2.41E-02	2.19E-01	6.81E-01
		427.89		29.33	3.02E-02		2.19E-01
		463.38		10.35	-3.80E-02		6.76E-01
		600.56		17.80	-4.54E-02		4.04E-01
		635.90		11.32	-1.31E-01		5.81E-01

Analysis Report for 1606064-04

CP-5027 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70		83.30	6.04E-02	1.58E-01	1.65E-01
		666.33		99.60	-4.86E-02		1.58E-01
		695.00		99.60	8.52E-02		1.73E-01
		720.50		53.80	-4.57E-02		2.53E-01
+	SN-126	87.57	*	37.00	2.59E-01	3.31E-01	3.31E-01
+	SB-127	473.00		25.00	1.01E+00	2.54E+00	3.50E+00
		685.20		35.70	6.22E-02		2.54E+00
		783.80		14.70	-5.08E-01		7.12E+00
+	I-129	29.78		57.00	-2.85E-01	3.35E-01	3.35E-01
		33.60		13.20	2.46E-01		1.01E+00
		39.58		7.52	-3.17E-01		1.14E+00
+	I-131	284.30		6.05	-1.76E+00	2.37E-01	3.18E+00
		364.48		81.20	6.80E-02		2.37E-01
		636.97		7.26	-2.79E+00		2.84E+00
		722.89		1.80	1.03E+00		1.29E+01
+	TE-132	49.72		13.10	8.92E-01	1.34E+00	1.01E+01
		228.16		88.00	-6.31E-01		1.34E+00
+	BA-133	81.00		33.00	-3.44E-01	1.69E-01	1.70E-01
		302.84		17.80	3.21E-02		3.43E-01
		356.01		60.00	-4.99E-04		1.69E-01
+	I-133	529.87		86.30	1.70E+03	6.27E+03	6.27E+03
+	XE-133	81.00		38.00	-1.95E+00	9.59E-01	9.59E-01
+	CS-134	563.23		8.38	-1.13E-01	7.43E-02	7.39E-01
		569.32		15.43	-5.26E-02		4.02E-01
		604.70		97.60	-3.10E-02		7.43E-02
		795.84		85.40	1.80E-02		9.04E-02
		801.93		8.73	-1.94E-01		7.61E-01
+	CS-135	268.24		16.00	-9.11E-02	3.73E-01	3.73E-01
+	I-135	1131.51		22.50	1.64E+14	9.80E+14	1.27E+15
		1260.41		28.60	-1.34E+14		9.80E+14
		1678.03		9.54	-1.15E+15		1.71E+15
+	CS-136	153.22		7.46	3.46E-01	1.57E-01	1.40E+00
		163.89		4.61	1.49E+00		2.24E+00
		176.55		13.56	-1.29E-01		7.24E-01
		273.65		12.66	-2.56E-01		1.05E+00
		340.57		48.50	2.93E-03		3.32E-01
		818.50		99.70	1.07E-01		1.57E-01
		1048.07		79.60	2.52E-02		2.51E-01
		1235.34		19.70	9.63E-01		1.29E+00
+	CS-137	661.65		85.12	7.50E-02	9.78E-02	9.78E-02
+	LA-138	788.74		34.00	9.71E-02	9.86E-02	2.38E-01
		1435.80		66.00	-1.58E-02		9.86E-02
+	CE-139	165.85		80.35	2.86E-02	6.53E-02	6.53E-02
+	BA-140	162.64		6.70	-3.79E-01	5.57E-01	1.52E+00
		304.84		4.50	-1.57E+00		2.82E+00
		423.70		3.20	1.96E+00		4.32E+00
		437.55		2.00	2.20E+00		6.49E+00
		537.32		25.00	9.14E-02		5.57E-01
+	LA-140	328.77		20.50	-4.17E-02	2.02E-01	6.23E-01

Analysis Report for 1606064-04

CP-5027 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-140	487.03		45.50	8.64E-02	2.02E-01	2.94E-01
		815.85		23.50	-1.64E-01		6.24E-01
		1596.49		95.49	-4.79E-02		2.02E-01
+	CE-141	145.44		48.40	1.57E-03	1.34E-01	1.34E-01
+	CE-143	57.36		11.80	-1.43E+02	2.72E+02	6.17E+02
		293.26		42.00	6.03E+02		2.72E+02
		664.55		5.20	2.37E+03		2.09E+03
+	CE-144	133.54		10.80	-1.17E-02	4.22E-01	4.22E-01
+	PM-144	476.78		42.00	2.61E-02	6.95E-02	1.61E-01
		618.01		98.60	2.25E-02		6.95E-02
		696.49		99.49	6.02E-03		7.64E-02
+	PM-145	36.85		21.70	-1.76E-01	2.52E-01	4.71E-01
		37.36		39.70	1.07E-01		2.52E-01
		42.30		15.10	-1.31E-01		4.99E-01
		72.40		2.31	-7.77E+00		2.61E+00
+	PM-146	453.90		39.94	-1.63E-02	1.62E-01	1.62E-01
		735.90		14.01	5.26E-02		5.11E-01
		747.13		13.10	-2.01E-01		5.13E-01
+	ND-147	91.11	*	28.90	4.94E-01	1.03E+00	1.03E+00
		531.02		13.10	7.63E-01		1.22E+00
+	PM-149	285.90		3.10	4.62E+00	1.57E+02	1.57E+02
+	EU-152	121.78		20.50	-3.79E-02	2.08E-01	2.08E-01
		244.69		5.40	-3.72E-02		1.38E+00
		344.27		19.13	3.45E-02		3.26E-01
		778.89		9.20	-1.54E-01		8.02E-01
		964.01		10.40	1.08E-01		9.55E-01
		1085.78		7.22	1.34E-01		1.15E+00
		1112.02		9.60	2.20E-01		8.62E-01
		1407.95		14.94	8.88E-02		5.93E-01
+	GD-153	97.43		31.30	5.72E-02	1.48E-01	1.48E-01
		103.18		22.20	-1.12E-01		1.98E-01
+	EU-154	123.07		40.50	-2.92E-02	1.06E-01	1.06E-01
		723.30		19.70	2.79E-02		3.49E-01
		873.19		11.50	-1.78E-01		6.67E-01
		996.32		10.30	-4.28E-01		7.34E-01
		1004.76		17.90	-3.02E-01		4.10E-01
		1274.45		35.50	-7.14E-02		2.67E-01
+	EU-155	86.50		30.90	1.61E-01	1.92E-01	1.92E-01
		105.30		20.70	4.02E-02		2.08E-01
+	EU-156	811.77		10.40	-1.06E-01	1.20E+00	1.20E+00
		1153.47		7.20	5.48E-02		2.47E+00
		1230.71		8.90	-3.76E-01		1.90E+00
+	HO-166M	184.41		72.60	1.54E-01	8.91E-02	8.91E-02
		280.45		29.60	5.12E-02		2.03E-01
		410.94		11.10	1.14E-01		5.86E-01
		711.69		54.10	9.73E-02		1.38E-01
+	TM-171	66.72		0.14	1.93E+01	4.33E+01	4.33E+01
+	HF-172	81.75		4.52	-4.84E+00	3.92E-01	1.18E+00
		125.81		11.30	-6.15E-03		3.92E-01

Analysis Report for 1606064-04

CP-5027 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53		20.60	3.98E-02	6.17E-01	1.00E+00
		810.06		16.63	4.75E-01		1.83E+00
		912.12		15.25	5.52E+00		3.58E+00
		1093.66		62.50	1.08E-01		6.17E-01
+	LU-173	100.72		5.24	4.16E-01	3.07E-01	8.58E-01
		272.11		21.20	1.76E-01		3.07E-01
+	HF-175	343.40		84.00	-4.51E-03	8.69E-02	8.69E-02
+	LU-176	88.34		13.30	3.33E-03	6.25E-02	4.47E-01
		201.83		86.00	-2.52E-03		6.86E-02
		306.78		94.00	4.55E-03		6.25E-02
+	TA-182	67.75		41.20	1.26E-01	1.50E-01	1.50E-01
		1121.30		34.90	6.60E-01		4.55E-01
		1189.05		16.23	-1.46E-01		6.07E-01
		1221.41		26.98	-3.99E-02		3.86E-01
		1231.02		11.44	1.57E-01		9.34E-01
+	IR-192	308.46		29.68	7.96E-02	1.62E-01	2.29E-01
		468.07		48.10	-1.07E-02		1.62E-01
+	HG-203	279.19		77.30	6.19E-02	9.88E-02	9.88E-02
+	BI-207	569.67		97.72	3.69E-03	6.45E-02	6.45E-02
		1063.62		74.90	-9.51E-03		1.10E-01
+	TL-208	583.14	*	30.22	5.50E-01	3.64E-02	3.17E-01
		860.37	*	4.48	8.12E-01		1.62E+00
		2614.66	*	35.85	5.38E-01		3.64E-02
+	BI-210M	262.00		45.00	-1.26E-02	1.29E-01	1.29E-01
		300.00		23.00	1.61E-01		2.87E-01
+	PB-210	46.50	*	4.25	1.27E+00	1.90E+00	1.90E+00
+	PB-211	404.84		2.90	-1.08E+00	2.11E+00	2.11E+00
		831.96		2.90	1.89E-02		2.62E+00
+	BI-212	727.17	*	11.80	5.34E-01	1.04E+00	1.04E+00
		1620.62		2.75	1.22E-01		2.83E+00
+	PB-212	238.63	*	44.60	8.36E-01	2.16E-01	2.16E-01
		300.09		3.41	1.09E+00		1.94E+00
+	BI-214	609.31	*	46.30	1.45E+00	1.81E-01	1.81E-01
		1120.29	*	15.10	1.70E+00		9.68E-01
		1764.49	*	15.80	1.53E+00		5.31E-01
		2204.22	*	4.98	1.66E+00		1.01E+00
+	PB-214	295.21	*	19.19	1.48E+00	2.45E-01	4.90E-01
		351.92	*	37.19	1.44E+00		2.45E-01
+	RN-219	401.80		6.50	-2.18E-01	9.07E-01	9.07E-01
+	RA-223	323.87		3.88	-8.31E-01	1.42E+00	1.42E+00
+	RA-224	240.98		3.95	1.30E+01	2.71E+00	2.71E+00
+	RA-225	40.00		31.00	-1.46E-01	5.22E-01	5.22E-01
+	RA-226	186.21	*	3.28	3.95E+00	2.58E+00	2.58E+00
+	TH-227	50.10		8.40	6.73E-02	7.12E-01	7.62E-01
		236.00		11.50	1.17E-01		7.12E-01
		256.20		6.30	-2.10E-01		9.22E-01
+	AC-228	338.32	*	11.40	1.05E+00	5.07E-01	6.60E-01
		911.07	*	27.70	8.85E-01		5.07E-01

Analysis Report for 1606064-04

CP-5027 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	*	16.60	4.90E-01	5.07E-01	6.98E-01
+	TH-230	48.44		16.90	7.08E-02	4.28E-01	4.28E-01
		62.85		4.60	2.64E+00		1.44E+00
		67.67		0.37	1.29E+01		1.53E+01
+	PA-231	283.67		1.60	-1.96E+00	2.65E+00	3.53E+00
		302.67		2.30	2.48E-01		2.65E+00
+	TH-231	25.64		14.70	-2.93E-01	8.35E-01	2.59E+00
		84.21		6.40	-1.16E+00		8.35E-01
+	PA-233	311.98		38.60	-1.16E-01	2.15E-01	2.15E-01
+	PA-234	131.20		20.40	1.60E-01	2.35E-01	2.35E-01
		733.99		8.80	-1.21E-01		7.94E-01
		946.00		12.00	1.24E-01		6.29E-01
+	PA-234M	1001.03		0.92	9.17E-01	8.89E+00	8.89E+00
+	TH-234	63.29	*	3.80	1.74E+00	1.88E+00	1.88E+00
+	U-235	143.76		10.50	2.82E-01	4.64E-01	4.64E-01
		163.35		4.70	6.90E-01		1.04E+00
		205.31		4.70	-1.12E-01		1.23E+00
+	NP-237	86.50		12.60	3.92E-01	4.68E-01	4.68E-01
+	NP-239	106.10		22.70	-3.68E+00	1.22E+01	1.22E+01
		228.18		10.70	-1.65E+01		3.50E+01
		277.60		14.10	2.11E+01		2.88E+01
+	AM-241	59.54		35.90	4.69E-02	1.63E-01	1.63E-01
+	AM-243	74.67		66.00	-1.15E-02	1.11E-01	1.11E-01
+	CM-243	209.75		3.29	8.41E-01	4.47E-01	1.93E+00
		228.14		10.60	-2.56E-01		5.44E-01
		277.60		14.00	3.27E-01		4.47E-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 1606064-04

CP-5027 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	7.55E-01	7.55E-01	3.78E-01	3.58E-01
	NA-22	1274.54		99.94	9.56E-02	9.56E-02	-2.56E-02	4.38E-02
	NA-24	1368.53		99.99	5.68E+05	3.12E+05	4.11E+04	2.55E+05
		2754.09		99.86	3.12E+05		-3.36E+04	1.10E+05
	AL-26	1808.65		99.76	7.26E-02	7.26E-02	-8.57E-03	3.11E-02
+	K-40	1460.81	*	10.67	1.09E+00	1.09E+00	1.19E+01	5.04E-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	6.01E-02	6.01E-02	5.04E-02	2.93E-02
		78.34		96.00	7.89E-02		2.09E-01	3.88E-02
	SC-46	889.25		99.98	8.48E-02	8.48E-02	2.05E-02	3.91E-02
		1120.51		99.99	1.64E-01		2.21E-01	7.81E-02
	V-48	983.52		99.98	1.52E-01	1.52E-01	1.23E-01	7.01E-02
		1312.10		97.50	1.75E-01		1.31E-02	7.99E-02
	CR-51	320.08		9.83	8.21E-01	8.21E-01	1.12E-02	3.93E-01
	MN-54	834.83		99.97	8.06E-02	8.06E-02	-5.39E-03	3.74E-02
	CO-56	846.75		99.96	8.51E-02	8.51E-02	3.44E-02	3.94E-02
		1037.75		14.03	7.28E-01		5.60E-01	3.37E-01
		1238.25		67.00	2.08E-01		1.65E-01	9.73E-02
		1771.40		15.51	4.16E-01		-7.07E-02	1.70E-01
		2598.48		16.90	2.37E-01		-6.45E-02	7.50E-02
	CO-57	122.06		85.51	5.17E-02	5.17E-02	-9.41E-03	2.51E-02
		136.48		10.60	4.38E-01		-5.97E-03	2.12E-01
	CO-58	810.76		99.40	7.81E-02	7.81E-02	-1.16E-02	3.59E-02
	FE-59	1099.22		56.50	1.44E-01	1.44E-01	-3.36E-02	6.42E-02
		1291.56		43.20	2.76E-01		-3.60E-02	1.26E-01
	CO-60	1173.22		100.00	8.99E-02	8.77E-02	1.08E-02	4.12E-02
		1332.49		100.00	8.77E-02		-2.78E-02	3.97E-02
	ZN-65	1115.52		50.75	1.95E-01	1.95E-01	2.49E-02	9.00E-02
	GA-67	93.31		35.70	3.35E+00	3.35E+00	6.83E+00	1.64E+00
		208.95		2.24	5.73E+01		1.52E+01	2.79E+01
		300.22		16.00	8.43E+00		4.72E+00	4.07E+00
	SE-75	121.11		16.70	2.82E-01	8.16E-02	7.22E-02	1.37E-01
		136.00		59.20	8.16E-02		-1.13E-02	3.96E-02
		264.65		59.80	1.02E-01		-8.54E-02	4.92E-02
		279.53		25.20	2.56E-01		2.54E-02	1.23E-01
		400.65		11.40	5.84E-01		7.73E-02	2.78E-01
	RB-82	776.52		13.00	7.95E-01	7.95E-01	-3.86E-01	3.68E-01
	RB-83	520.41		46.00	1.45E-01	1.45E-01	3.50E-02	6.81E-02
		529.64		30.30	2.37E-01		6.43E-02	1.12E-01
		552.65		16.40	4.40E-01		9.32E-02	2.07E-01
	KR-85	513.99		0.43	2.06E+01	2.06E+01	2.58E+01	9.88E+00
	SR-85	513.99		99.27	1.05E-01	1.05E-01	1.31E-01	5.01E-02
	Y-88	898.02		93.40	8.57E-02	7.47E-02	-1.03E-02	3.94E-02
		1836.01		99.38	7.47E-02		4.29E-03	3.16E-02
	NB-93M	16.57		9.43	6.72E+01	6.72E+01	-1.59E+01	3.27E+01
	NB-94	702.63		100.00	7.65E-02	7.65E-02	5.39E-02	3.58E-02
		871.10		100.00	8.17E-02		2.08E-02	3.79E-02
	NB-95	765.79		99.81	1.17E-01	1.17E-01	2.27E-03	5.48E-02
	NB-95M	235.69		25.00	4.98E+00	4.98E+00	8.16E-01	2.43E+00
	ZR-95	724.18		43.70	1.93E-01	1.48E-01	-7.80E-02	9.00E-02
		756.72		55.30	1.48E-01		2.13E-02	6.84E-02

Analysis Report for 1606064-04

CP-5027 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	2.78E+01	1.91E+01	1.41E+00	1.35E+01
		739.58		12.80	1.91E+01		-2.11E-01	8.86E+00
		778.00		4.50	5.97E+01		6.16E+00	2.77E+01
	RU-103	497.08		89.00	9.48E-02	9.48E-02	6.89E-02	4.48E-02
	RU-106	621.84		9.80	6.69E-01	6.69E-01	1.10E-01	3.12E-01
	AG-108M	433.93		89.90	6.76E-02	6.76E-02	-1.87E-02	3.20E-02
		614.37		90.40	9.59E-02		-2.09E-03	4.56E-02
		722.95		90.50	7.56E-02		6.05E-03	3.51E-02
+	CD-109	88.03	*	3.72	3.36E+00	3.36E+00	2.63E+00	1.66E+00
	AG-110M	657.75		93.14	7.60E-02	7.60E-02	-6.49E-04	3.55E-02
		677.61		10.53	6.80E-01		8.13E-02	3.17E-01
		706.67		16.46	4.89E-01		1.36E-01	2.29E-01
		763.93		21.98	3.53E-01		-1.55E-01	1.64E-01
		884.67		71.63	1.08E-01		-3.58E-02	4.97E-02
		1384.27		23.94	3.85E-01		-1.31E-02	1.74E-01
	CD-113M	263.70		0.02	2.49E+02	2.49E+02	-4.33E+01	1.20E+02
	SN-113	255.12		1.93	3.26E+00	1.04E-01	-2.74E-01	1.57E+00
		391.69		64.90	1.04E-01		1.75E-02	4.96E-02
	TE123M	159.00		84.10	6.04E-02	6.04E-02	-1.21E-02	2.93E-02
	SB-124	602.71		97.87	8.64E-02	8.64E-02	2.29E-02	4.06E-02
		645.85		7.26	1.02E+00		-9.27E-01	4.75E-01
		722.78		11.10	7.26E-01		5.80E-02	3.37E-01
		1691.02		49.00	1.47E-01		-3.29E-02	6.15E-02
	I-125	35.49		6.49	2.02E+00	2.02E+00	-9.17E-01	9.76E-01
	SB-125	176.33		6.89	6.81E-01	2.19E-01	-2.41E-02	3.29E-01
		427.89		29.33	2.19E-01		3.02E-02	1.04E-01
		463.38		10.35	6.76E-01		-3.80E-02	3.22E-01
		600.56		17.80	4.04E-01		-4.54E-02	1.90E-01
		635.90		11.32	5.81E-01		-1.31E-01	2.71E-01
	SB-126	414.70		83.30	1.65E-01	1.58E-01	6.04E-02	7.85E-02
		666.33		99.60	1.58E-01		-4.86E-02	7.39E-02
		695.00		99.60	1.73E-01		8.52E-02	8.14E-02
		720.50		53.80	2.53E-01		-4.57E-02	1.17E-01
+	SN-126	87.57	*	37.00	3.31E-01	3.31E-01	2.59E-01	1.64E-01
	SB-127	473.00		25.00	3.50E+00	2.54E+00	1.01E+00	1.66E+00
		685.20		35.70	2.54E+00		6.22E-02	1.18E+00
		783.80		14.70	7.12E+00		-5.08E-01	3.33E+00
	I-129	29.78		57.00	3.35E-01	3.35E-01	-2.85E-01	1.62E-01
		33.60		13.20	1.01E+00		2.46E-01	4.91E-01
		39.58		7.52	1.14E+00		-3.17E-01	5.50E-01
	I-131	284.30		6.05	3.18E+00	2.37E-01	-1.76E+00	1.53E+00
		364.48		81.20	2.37E-01		6.80E-02	1.13E-01
		636.97		7.26	2.84E+00		-2.79E+00	1.32E+00
		722.89		1.80	1.29E+01		1.03E+00	5.99E+00
	TE-132	49.72		13.10	1.01E+01	1.34E+00	8.92E-01	4.91E+00
		228.16		88.00	1.34E+00		-6.31E-01	6.48E-01
	BA-133	81.00		33.00	1.70E-01	1.69E-01	-3.44E-01	8.30E-02
		302.84		17.80	3.43E-01		3.21E-02	1.65E-01
		356.01		60.00	1.69E-01		-4.99E-04	8.20E-02
	I-133	529.87		86.30	6.27E+03	6.27E+03	1.70E+03	2.95E+03
	XE-133	81.00		38.00	9.59E-01	9.59E-01	-1.95E+00	4.69E-01
	CS-134	563.23		8.38	7.39E-01	7.43E-02	-1.13E-01	3.45E-01
		569.32		15.43	4.02E-01		-5.26E-02	1.88E-01

Analysis Report for 1606064-04

CP-5027 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-134	604.70		97.60	7.43E-02	7.43E-02	-3.10E-02	3.50E-02
		795.84		85.40	9.04E-02		1.80E-02	4.20E-02
		801.93		8.73	7.61E-01		-1.94E-01	3.49E-01
	CS-135	268.24		16.00	3.73E-01	3.73E-01	-9.11E-02	1.80E-01
	I-135	1131.51		22.50	1.27E+15	9.80E+14	1.64E+14	5.82E+14
		1260.41		28.60	9.80E+14		-1.34E+14	4.46E+14
		1678.03		9.54	1.71E+15		-1.15E+15	6.91E+14
	CS-136	153.22		7.46	1.40E+00	1.57E-01	3.46E-01	6.80E-01
		163.89		4.61	2.24E+00		1.49E+00	1.09E+00
		176.55		13.56	7.24E-01		-1.29E-01	3.50E-01
		273.65		12.66	1.05E+00		-2.56E-01	5.06E-01
		340.57		48.50	3.32E-01		2.93E-03	1.60E-01
		818.50		99.70	1.57E-01		1.07E-01	7.28E-02
		1048.07		79.60	2.51E-01		2.52E-02	1.17E-01
		1235.34		19.70	1.29E+00		9.63E-01	6.03E-01
	CS-137	661.65		85.12	9.78E-02	9.78E-02	7.50E-02	4.62E-02
	LA-138	788.74		34.00	2.38E-01	9.86E-02	9.71E-02	1.11E-01
		1435.80		66.00	9.86E-02		-1.58E-02	4.27E-02
	CE-139	165.85		80.35	6.53E-02	6.53E-02	2.86E-02	3.16E-02
	BA-140	162.64		6.70	1.52E+00	5.57E-01	-3.79E-01	7.34E-01
		304.84		4.50	2.82E+00		-1.57E+00	1.35E+00
		423.70		3.20	4.32E+00		1.96E+00	2.06E+00
		437.55		2.00	6.49E+00		2.20E+00	3.07E+00
		537.32		25.00	5.57E-01		9.14E-02	2.62E-01
	LA-140	328.77		20.50	6.23E-01	2.02E-01	-4.17E-02	2.98E-01
		487.03		45.50	2.94E-01		8.64E-02	1.39E-01
		815.85		23.50	6.24E-01		-1.64E-01	2.87E-01
		1596.49		95.49	2.02E-01		-4.79E-02	9.04E-02
	CE-141	145.44		48.40	1.34E-01	1.34E-01	1.57E-03	6.52E-02
	CE-143	57.36		11.80	6.17E+02	2.72E+02	-1.43E+02	3.00E+02
		293.26		42.00	2.72E+02		6.03E+02	1.33E+02
		664.55		5.20	2.09E+03		2.37E+03	9.90E+02
	CE-144	133.54		10.80	4.22E-01	4.22E-01	-1.17E-02	2.05E-01
	PM-144	476.78		42.00	1.61E-01	6.95E-02	2.61E-02	7.64E-02
		618.01		98.60	6.95E-02		2.25E-02	3.25E-02
		696.49		99.49	7.64E-02		6.02E-03	3.57E-02
	PM-145	36.85		21.70	4.71E-01	2.52E-01	-1.76E-01	2.28E-01
		37.36		39.70	2.52E-01		1.07E-01	1.22E-01
		42.30		15.10	4.99E-01		-1.31E-01	2.42E-01
		72.40		2.31	2.61E+00		-7.77E+00	1.28E+00
	PM-146	453.90		39.94	1.62E-01	1.62E-01	-1.63E-02	7.67E-02
		735.90		14.01	5.11E-01		5.26E-02	2.37E-01
		747.13		13.10	5.13E-01		-2.01E-01	2.37E-01
+	ND-147	91.11	*	28.90	1.03E+00	1.03E+00	4.94E-01	5.11E-01
		531.02		13.10	1.22E+00		7.63E-01	5.75E-01
	PM-149	285.90		3.10	1.57E+02	1.57E+02	4.62E+00	7.55E+01
	EU-152	121.78		20.50	2.08E-01	2.08E-01	-3.79E-02	1.01E-01
		244.69		5.40	1.38E+00		-3.72E-02	6.73E-01
		344.27		19.13	3.26E-01		3.45E-02	1.56E-01
		778.89		9.20	8.02E-01		-1.54E-01	3.72E-01
		964.01		10.40	9.55E-01		1.08E-01	4.47E-01
		1085.78		7.22	1.15E+00		1.34E-01	5.27E-01
		1112.02		9.60	8.62E-01		2.20E-01	3.94E-01

Analysis Report for 1606064-04

CP-5027 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	5.93E-01	2.08E-01	8.88E-02	2.68E-01
	GD-153	97.43		31.30	1.48E-01	1.48E-01	5.72E-02	7.19E-02
		103.18		22.20	1.98E-01		-1.12E-01	9.60E-02
	EU-154	123.07		40.50	1.06E-01	1.06E-01	-2.92E-02	5.16E-02
		723.30		19.70	3.49E-01		2.79E-02	1.62E-01
		873.19		11.50	6.67E-01		-1.78E-01	3.08E-01
		996.32		10.30	7.34E-01		-4.28E-01	3.35E-01
		1004.76		17.90	4.10E-01		-3.02E-01	1.87E-01
		1274.45		35.50	2.67E-01		-7.14E-02	1.22E-01
	EU-155	86.50		30.90	1.92E-01	1.92E-01	1.61E-01	9.40E-02
		105.30		20.70	2.08E-01		4.02E-02	1.01E-01
	EU-156	811.77		10.40	1.20E+00	1.20E+00	-1.06E-01	5.52E-01
		1153.47		7.20	2.47E+00		5.48E-02	1.14E+00
		1230.71		8.90	1.90E+00		-3.76E-01	8.69E-01
	HO-166M	184.41		72.60	8.91E-02	8.91E-02	1.54E-01	4.34E-02
		280.45		29.60	2.03E-01		5.12E-02	9.77E-02
		410.94		11.10	5.86E-01		1.14E-01	2.80E-01
		711.69		54.10	1.38E-01		9.73E-02	6.47E-02
	TM-171	66.72		0.14	4.33E+01	4.33E+01	1.93E+01	2.12E+01
	HF-172	81.75		4.52	1.18E+00	3.92E-01	-4.84E+00	5.78E-01
		125.81		11.30	3.92E-01		-6.15E-03	1.90E-01
	LU-172	181.53		20.60	1.00E+00	6.17E-01	3.98E-02	4.84E-01
		810.06		16.63	1.83E+00		4.75E-01	8.46E-01
		912.12		15.25	3.58E+00		5.52E+00	1.71E+00
		1093.66		62.50	6.17E-01		1.08E-01	2.84E-01
	LU-173	100.72		5.24	8.58E-01	3.07E-01	4.16E-01	4.17E-01
		272.11		21.20	3.07E-01		1.76E-01	1.48E-01
	HF-175	343.40		84.00	8.69E-02	8.69E-02	-4.51E-03	4.17E-02
	LU-176	88.34		13.30	4.47E-01	6.25E-02	3.33E-03	2.19E-01
		201.83		86.00	6.86E-02		-2.52E-03	3.33E-02
		306.78		94.00	6.25E-02		4.55E-03	3.00E-02
	TA-182	67.75		41.20	1.50E-01	1.50E-01	1.26E-01	7.33E-02
		1121.30		34.90	4.55E-01		6.60E-01	2.16E-01
		1189.05		16.23	6.07E-01		-1.46E-01	2.78E-01
		1221.41		26.98	3.86E-01		-3.99E-02	1.77E-01
		1231.02		11.44	9.34E-01		1.57E-01	4.30E-01
	IR-192	308.46		29.68	2.29E-01	1.62E-01	7.96E-02	1.10E-01
		468.07		48.10	1.62E-01		-1.07E-02	7.68E-02
	HG-203	279.19		77.30	9.88E-02	9.88E-02	6.19E-02	4.76E-02
	BI-207	569.67		97.72	6.45E-02	6.45E-02	3.69E-03	3.02E-02
		1063.62		74.90	1.10E-01		-9.51E-03	5.05E-02
+	TL-208	583.14	*	30.22	3.17E-01	3.64E-02	5.50E-01	1.52E-01
		860.37	*	4.48	1.62E+00		8.12E-01	7.47E-01
		2614.66	*	35.85	3.64E-02		5.38E-01	0.00E+00
	BI-210M	262.00		45.00	1.29E-01	1.29E-01	-1.26E-02	6.21E-02
		300.00		23.00	2.87E-01		1.61E-01	1.39E-01
+	PB-210	46.50	*	4.25	1.90E+00	1.90E+00	1.27E+00	9.26E-01
	PB-211	404.84		2.90	2.11E+00	2.11E+00	-1.08E+00	1.00E+00
		831.96		2.90	2.62E+00		1.89E-02	1.21E+00
+	BI-212	727.17	*	11.80	1.04E+00	1.04E+00	5.34E-01	4.96E-01
		1620.62		2.75	2.83E+00		1.22E-01	1.24E+00
+	PB-212	238.63	*	44.60	2.16E-01	2.16E-01	8.36E-01	1.06E-01
		300.09		3.41	1.94E+00		1.09E+00	9.36E-01

Analysis Report for 1606064-04

CP-5027 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	1.81E-01	1.81E-01	1.45E+00	8.59E-02
		1120.29	*	15.10	9.68E-01		1.70E+00	4.60E-01
		1764.49	*	15.80	5.31E-01		1.53E+00	2.33E-01
		2204.22	*	4.98	1.01E+00		1.66E+00	3.87E-01
+	PB-214	295.21	*	19.19	4.90E-01	2.45E-01	1.48E+00	2.39E-01
		351.92	*	37.19	2.45E-01		1.44E+00	1.19E-01
	RN-219	401.80		6.50	9.07E-01	9.07E-01	-2.18E-01	4.31E-01
	RA-223	323.87		3.88	1.42E+00	1.42E+00	-8.31E-01	6.77E-01
	RA-224	240.98		3.95	2.71E+00	2.71E+00	1.30E+01	1.33E+00
	RA-225	40.00		31.00	5.22E-01	5.22E-01	-1.46E-01	2.53E-01
+	RA-226	186.21	*	3.28	2.58E+00	2.58E+00	3.95E+00	1.27E+00
	TH-227	50.10		8.40	7.62E-01	7.12E-01	6.73E-02	3.71E-01
		236.00		11.50	7.12E-01		1.17E-01	3.48E-01
		256.20		6.30	9.22E-01		-2.10E-01	4.45E-01
+	AC-228	338.32	*	11.40	6.60E-01	5.07E-01	1.05E+00	3.19E-01
		911.07	*	27.70	5.07E-01		8.85E-01	2.43E-01
		969.11	*	16.60	6.98E-01		4.90E-01	3.30E-01
	TH-230	48.44		16.90	4.28E-01	4.28E-01	7.08E-02	2.09E-01
		62.85		4.60	1.44E+00		2.64E+00	7.05E-01
		67.67		0.37	1.53E+01		1.29E+01	7.50E+00
	PA-231	283.67		1.60	3.53E+00	2.65E+00	-1.96E+00	1.70E+00
		302.67		2.30	2.65E+00		2.48E-01	1.27E+00
	TH-231	25.64		14.70	2.59E+00	8.35E-01	-2.93E-01	1.26E+00
		84.21		6.40	8.35E-01		-1.16E+00	4.08E-01
	PA-233	311.98		38.60	2.15E-01	2.15E-01	-1.16E-01	1.03E-01
	PA-234	131.20		20.40	2.35E-01	2.35E-01	1.60E-01	1.14E-01
		733.99		8.80	7.94E-01		-1.21E-01	3.69E-01
		946.00		12.00	6.29E-01		1.24E-01	2.89E-01
	PA-234M	1001.03		0.92	8.89E+00	8.89E+00	9.17E-01	4.09E+00
+	TH-234	63.29	*	3.80	1.88E+00	1.88E+00	1.74E+00	9.20E-01
	U-235	143.76		10.50	4.64E-01	4.64E-01	2.82E-01	2.26E-01
		163.35		4.70	1.04E+00		6.90E-01	5.04E-01
		205.31		4.70	1.23E+00		-1.12E-01	5.99E-01
	NP-237	86.50		12.60	4.68E-01	4.68E-01	3.92E-01	2.29E-01
	NP-239	106.10		22.70	1.22E+01	1.22E+01	-3.68E+00	5.92E+00
		228.18		10.70	3.50E+01		-1.65E+01	1.69E+01
		277.60		14.10	2.88E+01		2.11E+01	1.39E+01
	AM-241	59.54		35.90	1.63E-01	1.63E-01	4.69E-02	7.95E-02
	AM-243	74.67		66.00	1.11E-01	1.11E-01	-1.15E-02	5.47E-02
	CM-243	209.75		3.29	1.93E+00	4.47E-01	8.41E-01	9.38E-01
		228.14		10.60	5.44E-01		-2.56E-01	2.63E-01
		277.60		14.00	4.47E-01		3.27E-01	2.16E-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 1606064-04
CP-5027 00-02

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

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-5027 00-02

Elapsed Live time: 3600
Elapsed Real Time: 3621

Channel								
1:	0	0	0	0	0	0	0	0
9:	1	184	167	136	91	110	87	101
17:	79	81	87	80	67	76	86	62
25:	66	72	75	72	61	52	50	63
33:	73	58	71	66	70	49	69	80
41:	51	74	69	68	73	82	151	117
49:	66	83	89	81	89	105	90	82
57:	74	112	102	112	110	108	149	220
65:	180	99	136	140	123	122	109	130
73:	143	136	233	326	314	493	196	139
81:	120	126	109	120	164	119	136	230
89:	136	134	164	111	232	234	112	93
97:	79	73	92	101	78	77	80	73
105:	79	90	75	74	75	100	82	79
113:	79	80	79	83	67	64	85	75
121:	73	75	68	68	79	72	80	69
129:	88	105	93	80	63	78	64	71
137:	76	68	81	70	77	72	80	87
145:	93	75	62	72	86	71	86	80
153:	72	66	87	70	91	55	80	53
161:	54	70	61	67	76	78	67	57
169:	70	47	76	49	64	64	47	47
177:	70	59	64	54	61	62	60	52
185:	68	157	196	92	62	55	58	63
193:	57	56	38	59	67	60	65	61
201:	52	51	39	61	59	51	50	54
209:	62	85	69	50	54	53	55	50
217:	49	53	51	51	43	47	54	43
225:	38	54	49	41	44	38	42	45
233:	55	48	40	43	41	64	306	247
241:	69	100	151	61	50	27	41	34
249:	41	37	38	29	35	28	39	41
257:	39	45	31	44	44	38	27	32
265:	31	34	31	36	33	46	41	56
273:	37	33	37	42	26	48	38	35
281:	36	29	21	30	25	34	30	33
289:	34	26	27	22	21	23	123	261
297:	65	30	23	39	41	36	24	21
305:	25	28	25	38	30	27	23	26
313:	33	19	23	31	30	27	23	21
321:	17	23	26	20	23	25	20	36
329:	26	24	25	19	31	26	21	31
337:	28	42	98	38	27	23	21	29
345:	22	27	30	22	26	25	44	224
353:	302	64	15	20	19	15	23	19
361:	19	18	20	23	17	16	21	18

369:	14	16	24	21	12	16	16	23

Sample Title: CP-5027 00-02

Channel								
377:	16	20	22	25	27	21	23	21
385:	14	16	27	14	22	17	28	19
393:	17	15	23	20	15	25	15	20
401:	19	17	16	20	14	22	15	25
409:	23	27	18	13	22	15	22	16
417:	16	24	9	10	21	24	14	19
425:	18	13	22	12	26	20	16	18
433:	17	13	17	17	14	18	11	16
441:	15	14	9	11	17	17	16	10
449:	19	9	15	14	19	16	16	19
457:	17	22	18	20	11	19	19	27
465:	18	17	17	20	11	20	21	13
473:	16	19	18	15	16	14	14	16
481:	17	13	3	7	13	15	17	18
489:	15	10	19	10	8	16	8	13
497:	12	18	17	19	14	6	11	15
505:	14	9	14	8	28	32	60	50
513:	16	20	13	6	19	7	11	12
521:	7	8	13	10	9	6	13	15
529:	6	14	16	10	13	16	10	6
537:	16	16	11	11	13	9	15	13
545:	8	12	20	11	15	12	8	15
553:	9	14	7	16	9	7	16	9
561:	12	12	11	7	12	7	9	12
569:	10	16	7	8	11	12	9	9
577:	16	12	8	10	11	19	55	75
585:	22	7	10	15	10	14	6	11
593:	12	11	11	16	17	8	12	19
601:	19	7	8	13	12	9	14	23
609:	140	236	61	15	8	9	12	12
617:	8	9	11	12	7	10	6	7
625:	11	8	8	7	9	6	13	15
633:	16	10	11	6	5	9	7	7
641:	10	13	6	11	10	5	12	5
649:	9	17	12	15	8	11	10	10
657:	6	9	8	7	16	31	21	7
665:	10	7	13	8	5	7	5	8
673:	10	11	12	7	11	7	9	7
681:	11	4	10	12	14	13	9	4
689:	9	10	4	16	15	18	9	4
697:	10	8	7	11	8	11	12	9
705:	13	11	7	4	12	20	8	6
713:	9	6	9	9	3	6	7	12
721:	4	9	4	6	10	11	19	20
729:	7	6	8	11	5	15	8	5
737:	5	8	13	9	7	7	8	11
745:	7	9	8	6	6	3	10	10
753:	7	7	6	6	8	4	13	10
761:	8	3	8	10	10	9	13	15
769:	21	10	13	10	7	9	6	3
777:	11	4	12	18	6	3	13	8
785:	11	17	12	6	5	10	8	10
793:	5	7	13	11	5	10	8	4

801:	8	8	4	5	5	9	5	11

Sample Title: CP-5027 00-02

Channel								
809:	5	7	6	7	7	1	8	6
817:	4	12	6	11	6	5	3	11
825:	12	9	7	8	7	5	9	12
833:	6	7	8	13	3	8	13	6
841:	7	6	5	11	5	6	7	7
849:	7	8	4	6	4	8	6	3
857:	3	4	6	13	14	7	4	9
865:	12	4	11	12	9	9	5	7
873:	4	12	7	6	7	7	12	5
881:	9	9	8	2	5	5	8	9
889:	7	6	4	8	5	9	7	4
897:	8	5	9	3	7	6	7	5
905:	9	6	3	2	11	14	53	32
913:	11	5	8	13	5	3	5	2
921:	5	5	4	6	8	4	9	5
929:	6	7	5	1	9	13	12	6
937:	4	5	6	4	4	4	5	5
945:	5	6	9	5	7	6	6	9
953:	7	8	3	5	6	4	3	5
961:	7	9	9	10	13	12	13	15
969:	27	12	6	6	5	5	2	3
977:	6	4	2	2	10	7	8	8
985:	6	6	3	2	4	6	7	3
993:	8	4	4	8	5	6	3	7
1001:	13	6	5	5	8	3	2	6
1009:	6	8	5	6	6	6	3	13
1017:	3	9	2	4	4	5	10	6
1025:	6	5	4	4	5	8	3	2
1033:	7	3	7	14	7	5	7	6
1041:	6	2	3	6	11	8	6	4
1049:	12	7	9	7	2	4	5	6
1057:	4	4	8	7	5	3	5	4
1065:	5	12	6	7	13	4	5	6
1073:	8	3	7	7	4	2	7	6
1081:	4	5	2	2	5	8	7	7
1089:	9	6	6	8	5	8	9	4
1097:	3	5	3	3	2	3	7	8
1105:	9	7	2	4	1	5	7	9
1113:	6	4	6	8	9	9	17	44
1121:	27	13	8	8	8	3	5	5
1129:	6	6	7	8	6	6	7	7
1137:	5	5	9	8	6	8	7	13
1145:	4	5	4	11	3	5	6	7
1153:	6	6	9	7	7	5	5	6
1161:	8	13	6	5	3	5	8	9
1169:	6	6	6	2	7	7	8	5
1177:	4	3	5	13	5	6	9	9
1185:	6	6	1	7	6	9	6	6
1193:	4	9	8	4	6	3	12	6
1201:	3	12	11	4	11	4	10	7
1209:	9	5	5	8	3	6	11	6
1217:	4	9	7	4	6	5	6	7
1225:	12	4	1	9	11	3	2	6

1233:	5	10	6	9	17	18	11	8

Sample Title: CP-5027 00-02

Channel								
1241:	5	5	4	7	4	2	2	4
1249:	2	7	5	7	8	3	7	7
1257:	4	5	7	4	6	2	7	3
1265:	6	2	2	3	3	1	4	2
1273:	3	3	4	12	6	5	8	9
1281:	5	5	6	6	3	4	5	2
1289:	8	2	7	4	4	3	5	4
1297:	8	4	7	1	3	4	2	5
1305:	4	4	5	5	2	1	3	0
1313:	9	5	6	5	4	3	9	3
1321:	3	5	5	5	4	3	3	2
1329:	2	5	2	2	5	3	5	5
1337:	7	5	1	5	1	0	6	3
1345:	1	5	4	0	1	1	4	5
1353:	2	2	3	1	0	4	2	4
1361:	2	3	4	3	1	4	2	2
1369:	4	1	2	8	2	2	1	5
1377:	9	10	9	4	2	2	3	4
1385:	6	3	4	2	6	2	1	3
1393:	3	0	3	4	3	3	3	1
1401:	4	2	3	2	2	2	4	7
1409:	1	6	2	3	4	2	4	2
1417:	0	1	3	1	2	2	2	3
1425:	4	2	3	2	0	5	0	1
1433:	2	3	4	3	0	1	0	2
1441:	1	1	2	3	3	0	4	2
1449:	2	1	1	4	3	3	3	2
1457:	2	5	48	157	148	44	4	1
1465:	2	1	3	1	3	1	1	2
1473:	2	4	3	1	4	2	3	1
1481:	2	2	1	2	6	4	3	1
1489:	1	0	1	1	0	3	1	5
1497:	0	1	3	3	1	3	0	4
1505:	1	2	4	1	4	2	3	3
1513:	2	3	2	0	2	1	4	1
1521:	1	1	0	1	2	3	2	1
1529:	0	1	3	0	1	0	3	2
1537:	3	1	3	1	1	3	1	3
1545:	1	1	0	1	0	2	1	2
1553:	1	0	2	1	0	3	0	2
1561:	1	3	1	0	2	0	0	1
1569:	2	1	1	4	1	0	1	0
1577:	1	1	3	4	0	6	6	0
1585:	0	2	4	7	2	1	5	5
1593:	3	3	3	3	4	2	0	1
1601:	3	4	3	0	3	1	1	1
1609:	1	0	1	2	0	4	1	1
1617:	0	1	2	5	1	4	1	2
1625:	2	0	0	2	2	7	2	1
1633:	4	1	2	0	2	2	1	4
1641:	3	1	1	1	0	0	0	0
1649:	1	1	2	2	0	1	1	3
1657:	0	0	3	5	2	4	1	1

1665:	0	1	2	1	2	0	3	3

Sample Title: CP-5027 00-02

Channel								
1673:	1	1	0	1	0	1	0	3
1681:	0	0	2	1	2	2	3	1
1689:	2	1	0	0	2	0	0	2
1697:	0	2	0	2	0	1	1	0
1705:	1	0	0	0	3	0	1	0
1713:	0	1	2	4	0	1	2	0
1721:	0	1	3	1	1	1	2	4
1729:	3	2	1	0	0	1	4	1
1737:	0	2	1	3	0	0	0	3
1745:	1	1	1	0	0	1	1	1
1753:	0	0	4	0	0	3	0	1
1761:	2	3	13	26	22	6	1	0
1769:	1	2	0	2	0	0	1	1
1777:	0	1	1	0	0	1	1	1
1785:	1	0	2	1	1	0	0	0
1793:	1	0	1	2	1	1	0	1
1801:	1	0	0	2	0	1	2	4
1809:	0	2	0	1	2	2	1	1
1817:	0	0	2	1	1	0	0	0
1825:	0	0	1	2	0	1	1	2
1833:	0	0	2	1	3	1	0	1
1841:	2	0	2	1	3	3	4	5
1849:	1	0	1	0	1	1	2	1
1857:	1	0	0	2	1	1	0	0
1865:	0	1	0	1	0	2	0	1
1873:	1	1	2	2	0	0	0	3
1881:	1	1	0	1	0	0	1	2
1889:	1	0	2	3	0	3	1	1
1897:	0	0	2	0	1	0	1	2
1905:	3	1	1	2	0	0	0	1
1913:	1	2	1	0	2	0	1	1
1921:	2	1	3	0	1	0	3	0
1929:	0	0	0	1	1	2	1	0
1937:	2	0	0	0	1	0	1	1
1945:	0	2	1	1	1	2	1	0
1953:	0	4	0	2	1	0	0	1
1961:	0	1	0	0	2	0	0	2
1969:	0	1	2	1	1	0	0	3
1977:	1	0	0	2	0	1	0	0
1985:	0	1	1	1	0	1	2	0
1993:	0	0	0	0	0	0	0	1
2001:	1	1	0	0	0	1	0	1
2009:	1	1	1	0	1	3	1	1
2017:	1	0	1	2	0	1	0	1
2025:	0	0	0	0	0	2	0	1
2033:	0	1	0	3	1	0	3	2
2041:	0	2	1	0	0	1	0	2
2049:	1	0	1	0	1	0	1	0
2057:	1	2	1	0	1	0	0	0
2065:	4	0	1	1	1	0	0	0
2073:	0	0	2	1	3	1	0	1
2081:	1	1	0	0	1	1	1	0
2089:	1	0	1	0	0	1	0	1

2097:	2	1	1	1	0	3	1	2

Sample Title: CP-5027 00-02

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

2529:	1	0	0	0	1	1	0	0

Sample Title: CP-5027 00-02

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

2961:	0	0	0	0	0	0	0	0

Sample Title: CP-5027 00-02

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

3393:	1	0	0	0	0	0	0	0

Sample Title: CP-5027 00-02

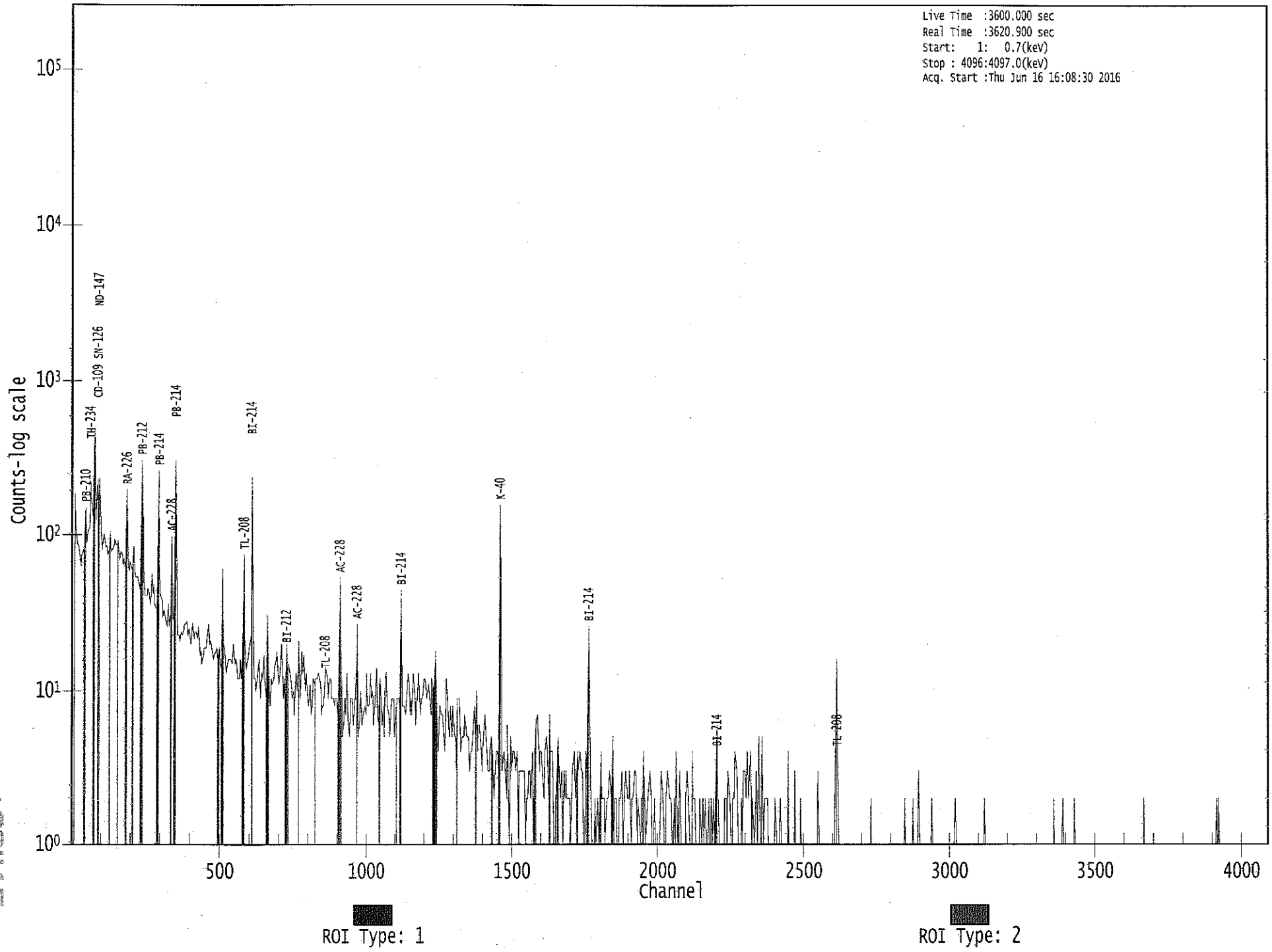
Channel								
3401:	0	0	1	0	0	0	0	0
3409:	0	0	0	0	0	0	0	1
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	2	0	1	0
3433:	0	0	0	0	1	0	0	0
3441:	0	1	0	0	0	0	0	0
3449:	0	0	1	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	1	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0
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:	0	0	0	0	0	1	0	0
3537:	0	0	0	0	0	0	0	0
3545:	0	0	0	0	0	0	0	0
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	0	0	0	0	0	0
3577:	0	0	0	0	1	1	1	0
3585:	0	0	0	0	0	0	0	0
3593:	0	0	0	0	0	0	0	0
3601:	0	0	0	0	0	0	0	0
3609:	0	0	0	0	1	0	0	1
3617:	0	0	0	0	0	0	0	0
3625:	0	0	0	0	0	0	0	0
3633:	1	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	0
3665:	0	0	2	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	0	0	0	0	0	0
3697:	0	0	0	0	0	0	0	0
3705:	0	0	0	0	0	0	0	0
3713:	1	0	0	1	0	1	0	0
3721:	0	0	0	1	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	1	0	0	1	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	1	0
3769:	0	0	0	0	0	1	1	1
3777:	0	0	0	0	0	0	0	1
3785:	0	0	1	0	0	0	0	0
3793:	0	0	0	0	0	0	0	0
3801:	0	1	0	0	0	0	1	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	0	0	0	1	0	0

3825:	0	0	0	0	0	0	0	0

Sample Title: CP-5027 00-02

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

0000039029.CNF



Apex-Gamma

Analysis Report for 1606064-05
CP-5014 00-02

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1606064-05
Sample Description	: CP-5014 00-02
Sample Type	: SOIL
Sample Size	: 5.234E+02 grams
Facility	: Countroom
Sample Taken On	: 6/7/2016 12:15:30PM
Acquisition Started	: 6/16/2016 3:54:52PM
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	: 39027

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606064-05

CP-5014 00-02

PEAK LOCATE REPORT

Peak Locate Performed on : 6/16/2016 4:54:57PM
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	46.78	47.13	0.0000	0.00
2	64.08	64.42	0.0000	0.00
3	76.73	77.07	0.0000	0.00
4	87.94	88.28	0.0000	0.00
5	90.67	91.00	0.0000	0.00
6	93.56	93.89	0.0000	0.00
7	186.76	187.07	0.0000	0.00
8	209.88	210.18	0.0000	0.00
9	239.96	240.25	0.0000	0.00
10	270.95	271.23	0.0000	0.00
11	295.92	296.19	0.0000	0.00
12	301.31	301.58	0.0000	0.00
13	338.85	339.10	0.0000	0.00
14	352.42	352.67	0.0000	0.00
15	511.36	511.56	0.0000	0.00
16	583.94	584.11	0.0000	0.00
17	610.02	610.18	0.0000	0.00
18	728.31	728.43	0.0000	0.00
19	764.08	764.19	0.0000	0.00
20	769.08	769.19	0.0000	0.00
21	795.43	795.53	0.0000	0.00
22	861.05	861.12	0.0000	0.00
23	911.81	911.86	0.0000	0.00
24	969.03	969.07	0.0000	0.00
25	1120.58	1120.56	0.0000	0.00
26	1239.14	1239.08	0.0000	0.00
27	1281.18	1281.11	0.0000	0.00
28	1288.53	1288.45	0.0000	0.00
29	1294.63	1294.55	0.0000	0.00
30	1377.97	1377.86	0.0000	0.00
31	1434.84	1434.71	0.0000	0.00
32	1443.67	1443.53	0.0000	0.00
33	1461.48	1461.34	0.0000	0.00
34	1467.15	1467.00	0.0000	0.00
35	1490.30	1490.15	0.0000	0.00
36	1521.19	1521.02	0.0000	0.00
37	1542.73	1542.56	0.0000	0.00
38	1589.34	1589.15	0.0000	0.00
39	1599.62	1599.42	0.0000	0.00
40	1729.68	1729.44	0.0000	0.00
41	1765.13	1764.88	0.0000	0.00
42	1889.69	1889.38	0.0000	0.00

Analysis Report for 1606064-05

CP-5014 00-02

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1898.31	1898.00	0.0000	0.00
44	1905.80	1905.49	0.0000	0.00
45	1931.93	1931.62	0.0000	0.00
46	1998.87	1998.52	0.0000	0.00
47	2047.14	2046.78	0.0000	0.00
48	2103.77	2103.38	0.0000	0.00
49	2109.64	2109.25	0.0000	0.00
50	2118.72	2118.33	0.0000	0.00
51	2204.34	2203.92	0.0000	0.00
52	2448.13	2447.61	0.0000	0.00
53	2615.11	2614.53	0.0000	0.00
54	2877.09	2876.40	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606064-05

CP-5014 00-02

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/16/2016 4:54:57PM

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	46.78	44	49	47.13	1.82E+02	68.63	7.94E+02	1.78
	2	64.08	61	67	64.42	2.26E+02	102.57	1.75E+03	1.81
	3	76.73	72	81	77.07	1.14E+03	149.02	2.52E+03	3.24
m	4	87.94	83	98	88.28	2.65E+02	86.50	1.29E+03	1.93
m	5	90.67	83	98	91.00	1.52E+02	64.19	7.95E+02	1.47
m	6	93.56	83	98	93.89	4.47E+02	89.72	1.09E+03	1.90
	7	186.76	183	190	187.07	2.70E+02	83.07	9.66E+02	1.35
	8	209.88	209	213	210.18	6.17E+01	47.54	4.51E+02	1.12
	9	239.96	235	244	240.25	9.38E+02	104.68	1.03E+03	1.67
	10	270.95	268	274	271.23	1.20E+02	53.39	4.33E+02	1.99
	11	295.92	292	299	296.19	3.24E+02	67.47	5.41E+02	1.46
	12	301.31	300	305	301.58	5.72E+01	44.08	3.40E+02	1.56
	13	338.85	336	341	339.10	1.53E+02	42.21	2.35E+02	1.94
	14	352.42	347	359	352.67	7.25E+02	86.26	5.37E+02	1.48
	15	511.36	506	517	511.56	1.34E+02	60.07	3.83E+02	1.80
	16	583.94	580	588	584.11	2.78E+02	47.73	1.77E+02	1.64
	17	610.02	605	614	610.18	4.77E+02	59.03	2.25E+02	1.53
	18	728.31	725	731	728.43	4.38E+01	28.93	1.16E+02	2.14
M	19	764.08	763	777	764.19	1.44E+01	11.40	4.00E+01	2.07
m	20	769.08	763	777	769.19	5.19E+01	26.42	9.28E+01	2.08
	21	795.43	792	799	795.53	2.93E+01	29.33	1.23E+02	2.65
	22	861.05	856	865	861.12	5.16E+01	31.80	1.15E+02	1.55
	23	911.81	906	917	911.86	2.12E+02	43.63	1.32E+02	1.95
	24	969.03	962	976	969.07	1.32E+02	45.80	1.65E+02	6.07
	25	1120.58	1116	1124	1120.56	1.01E+02	29.53	7.19E+01	1.83
	26	1239.14	1234	1243	1239.08	3.24E+01	35.85	1.65E+02	1.62
M	27	1281.18	1276	1304	1281.11	2.32E+01	19.39	4.00E+01	2.57
m	28	1288.53	1276	1304	1288.45	1.44E+01	17.66	4.00E+01	2.57
m	29	1294.63	1276	1304	1294.55	1.66E+01	17.32	4.00E+01	2.58
	30	1377.97	1372	1383	1377.86	3.57E+01	24.00	5.45E+01	3.55
M	31	1434.84	1427	1447	1434.71	1.01E+01	13.46	2.73E+01	2.91
m	32	1443.67	1427	1447	1443.53	1.89E+01	15.01	1.42E+01	2.91
M	33	1461.48	1458	1471	1461.34	6.88E+02	53.53	2.09E+01	2.33
m	34	1467.15	1458	1471	1467.00	1.63E+01	14.34	1.42E+01	2.20
	35	1490.30	1485	1493	1490.15	1.52E+01	12.20	1.35E+01	1.59
	36	1521.19	1519	1523	1521.02	6.60E+00	7.66	6.80E+00	2.90
	37	1542.73	1531	1554	1542.56	4.03E+01	28.77	4.55E+01	13.68
	38	1589.34	1585	1594	1589.15	2.72E+01	14.66	1.56E+01	3.36
	39	1599.62	1596	1602	1599.42	8.29E+00	10.25	1.14E+01	2.71
	40	1729.68	1726	1733	1729.44	1.86E+01	11.14	8.78E+00	3.46

Analysis Report for 1606064-05

CP-5014 00-02

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1765.13	1758 -	1771	1764.88	7.94E+01	23.83	2.73E+01	2.90
42	1889.69	1885 -	1892	1889.38	1.30E+01	7.21	0.00E+00	1.24
43	1898.31	1896 -	1900	1898.00	6.00E+00	4.90	0.00E+00	1.33
44	1905.80	1902 -	1909	1905.49	8.82E+00	7.75	4.36E+00	4.64
45	1931.93	1928 -	1936	1931.62	1.53E+01	9.39	3.47E+00	6.58
46	1998.87	1996 -	2001	1998.52	5.79E+00	6.08	2.43E+00	2.84
47	2047.14	2044 -	2049	2046.78	9.00E+00	6.00	0.00E+00	3.59
48	2103.77	2101 -	2106	2103.38	8.63E+00	8.66	6.75E+00	2.75
49	2109.64	2107 -	2112	2109.25	8.00E+00	5.66	0.00E+00	3.25
50	2118.72	2116 -	2121	2118.33	1.20E+01	6.93	0.00E+00	2.29
51	2204.34	2200 -	2208	2203.92	2.80E+01	14.17	1.41E+01	2.54
52	2448.13	2443 -	2450	2447.61	8.00E+00	8.94	8.00E+00	2.78
53	2615.11	2611 -	2618	2614.53	9.48E+01	21.17	1.04E+01	2.46
54	2877.09	2873 -	2879	2876.40	5.00E+00	4.47	0.00E+00	1.00

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 : 6/16/2016 4:54:57PM

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	46.78	44 -	49	1.82E+02	68.63	7.94E+02	5.19E+01
	2	64.08	61 -	67	2.26E+02	102.57	1.75E+03	8.06E+01
	3	76.73	72 -	81	1.14E+03	149.02	2.52E+03	1.09E+02
m	4	87.94	83 -	98	2.65E+02	86.50	1.29E+03	5.90E+01
m	5	90.67	83 -	98	1.52E+02	64.19	7.95E+02	4.64E+01
m	6	93.56	83 -	98	4.47E+02	89.72	1.09E+03	5.42E+01
	7	186.76	183 -	190	2.70E+02	83.07	9.66E+02	6.27E+01
	8	209.88	209 -	213	6.17E+01	47.54	4.51E+02	3.69E+01
	9	239.96	235 -	244	9.38E+02	104.68	1.03E+03	6.98E+01
	10	270.95	268 -	274	1.20E+02	53.39	4.33E+02	4.00E+01
	11	295.92	292 -	299	3.24E+02	67.47	5.41E+02	4.69E+01
	12	301.31	300 -	305	5.72E+01	44.08	3.40E+02	3.40E+01
	13	338.85	336 -	341	1.53E+02	42.21	2.35E+02	2.81E+01
	14	352.42	347 -	359	7.25E+02	86.26	5.37E+02	2.35E+01

Analysis Report for 1606064-05

CP-5014 00-02

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	15	511.36	506 -	517	1.34E+02	60.07	3.83E+02	4.55E+01
	16	583.94	580 -	588	2.78E+02	47.73	1.77E+02	2.80E+01
	17	610.02	605 -	614	4.77E+02	59.03	2.25E+02	3.26E+01
	18	728.31	725 -	731	4.38E+01	28.93	1.16E+02	2.11E+01
M	19	764.08	763 -	777	1.44E+01	11.40	4.00E+01	1.04E+01
m	20	769.08	763 -	777	5.19E+01	26.42	9.28E+01	1.58E+01
	21	795.43	792 -	799	2.93E+01	29.33	1.23E+02	2.24E+01
	22	861.05	856 -	865	5.16E+01	31.80	1.15E+02	2.33E+01
	23	911.81	906 -	917	2.12E+02	43.63	1.32E+02	2.67E+01
	24	969.03	962 -	976	1.32E+02	45.80	1.65E+02	3.26E+01
	25	1120.58	1116 -	1124	1.01E+02	29.53	7.19E+01	1.78E+01
	26	1239.14	1234 -	1243	3.24E+01	35.85	1.65E+02	2.79E+01
M	27	1281.18	1276 -	1304	2.32E+01	19.39	4.00E+01	1.04E+01
m	28	1288.53	1276 -	1304	1.44E+01	17.66	4.00E+01	1.04E+01
m	29	1294.63	1276 -	1304	1.66E+01	17.32	4.00E+01	1.04E+01
	30	1377.97	1372 -	1383	3.57E+01	24.00	5.45E+01	1.71E+01
M	31	1434.84	1427 -	1447	1.01E+01	13.46	2.73E+01	8.59E+00
m	32	1443.67	1427 -	1447	1.89E+01	15.01	1.42E+01	6.20E+00
M	33	1461.48	1458 -	1471	6.88E+02	53.53	2.09E+01	7.51E+00
m	34	1467.15	1458 -	1471	1.63E+01	14.34	1.42E+01	6.20E+00
	35	1490.30	1485 -	1493	1.52E+01	12.20	1.35E+01	7.70E+00
	36	1521.19	1519 -	1523	6.60E+00	7.66	6.80E+00	4.68E+00
	37	1542.73	1531 -	1554	4.03E+01	28.77	4.55E+01	2.12E+01
	38	1589.34	1585 -	1594	2.72E+01	14.66	1.56E+01	8.47E+00
	39	1599.62	1596 -	1602	8.29E+00	10.25	1.14E+01	6.97E+00
	40	1729.68	1726 -	1733	1.86E+01	11.14	8.78E+00	5.79E+00
	41	1765.13	1758 -	1771	7.94E+01	23.83	2.73E+01	1.30E+01
	42	1889.69	1885 -	1892	1.30E+01	7.21	0.00E+00	0.00E+00
	43	1898.31	1896 -	1900	6.00E+00	4.90	0.00E+00	0.00E+00
	44	1905.80	1902 -	1909	8.82E+00	7.75	4.36E+00	4.09E+00
	45	1931.93	1928 -	1936	1.53E+01	9.39	3.47E+00	4.29E+00
	46	1998.87	1996 -	2001	5.79E+00	6.08	2.43E+00	3.06E+00
	47	2047.14	2044 -	2049	9.00E+00	6.00	0.00E+00	0.00E+00
	48	2103.77	2101 -	2106	8.63E+00	8.66	6.75E+00	5.23E+00
	49	2109.64	2107 -	2112	8.00E+00	5.66	0.00E+00	0.00E+00
	50	2118.72	2116 -	2121	1.20E+01	6.93	0.00E+00	0.00E+00
	51	2204.34	2200 -	2208	2.80E+01	14.17	1.41E+01	7.75E+00
	52	2448.13	2443 -	2450	8.00E+00	8.94	8.00E+00	5.70E+00
	53	2615.11	2611 -	2618	9.48E+01	21.17	1.04E+01	6.82E+00
	54	2877.09	2873 -	2879	5.00E+00	4.47	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 1606064-05

CP-5014 00-02

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/16/2016 4:54:57PM

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	46.78	44 -	49	47.13	1.82E+02	68.63	7.94E+02	PB-210
	2	64.08	61 -	67	64.42	2.26E+02	102.57	1.75E+03	TH-234
	3	76.73	72 -	81	77.07	1.14E+03	149.02	2.52E+03	.....
m	4	87.94	83 -	98	88.28	2.65E+02	86.50	1.29E+03	CD-109
									SN-126
									LU-176
m	5	90.67	83 -	98	91.00	1.52E+02	64.19	7.95E+02	ND-147
m	6	93.56	83 -	98	93.89	4.47E+02	89.72	1.09E+03	GA-67
	7	186.76	183 -	190	187.07	2.70E+02	83.07	9.66E+02	RA-226
	8	209.88	209 -	213	210.18	6.17E+01	47.54	4.51E+02	CM-243
									GA-67
	9	239.96	235 -	244	240.25	9.38E+02	104.68	1.03E+03	.....
	10	270.95	268 -	274	271.23	1.20E+02	53.39	4.33E+02	.....
	11	295.92	292 -	299	296.19	3.24E+02	67.47	5.41E+02	PB-214
	12	301.31	300 -	305	301.58	5.72E+01	44.08	3.40E+02	.....
	13	338.85	336 -	341	339.10	1.53E+02	42.21	2.35E+02	AC-228
	14	352.42	347 -	359	352.67	7.25E+02	86.26	5.37E+02	PB-214
	15	511.36	506 -	517	511.56	1.34E+02	60.07	3.83E+02	.....
	16	583.94	580 -	588	584.11	2.78E+02	47.73	1.77E+02	TL-208
	17	610.02	605 -	614	610.18	4.77E+02	59.03	2.25E+02	BI-214
	18	728.31	725 -	731	728.43	4.38E+01	28.93	1.16E+02	.....
M	19	764.08	763 -	777	764.19	1.44E+01	11.40	4.00E+01	AG-110M
m	20	769.08	763 -	777	769.19	5.19E+01	26.42	9.28E+01	.....
	21	795.43	792 -	799	795.53	2.93E+01	29.33	1.23E+02	CS-134
	22	861.05	856 -	865	861.12	5.16E+01	31.80	1.15E+02	TL-208
	23	911.81	906 -	917	911.86	2.12E+02	43.63	1.32E+02	LU-172
									AC-228
	24	969.03	962 -	976	969.07	1.32E+02	45.80	1.65E+02	AC-228
	25	1120.58	1116 -	1124	1120.56	1.01E+02	29.53	7.19E+01	SC-46
									BI-214
									TA-182
	26	1239.14	1234 -	1243	1239.08	3.24E+01	35.85	1.65E+02	CO-56
M	27	1281.18	1276 -	1304	1281.11	2.32E+01	19.39	4.00E+01	.....
m	28	1288.53	1276 -	1304	1288.45	1.44E+01	17.66	4.00E+01	.....
m	29	1294.63	1276 -	1304	1294.55	1.66E+01	17.32	4.00E+01	AR-41
	30	1377.97	1372 -	1383	1377.86	3.57E+01	24.00	5.45E+01	.....
M	31	1434.84	1427 -	1447	1434.71	1.01E+01	13.46	2.73E+01	LA-138
m	32	1443.67	1427 -	1447	1443.53	1.89E+01	15.01	1.42E+01	.....
M	33	1461.48	1458 -	1471	1461.34	6.88E+02	53.53	2.09E+01	K-40
m	34	1467.15	1458 -	1471	1467.00	1.63E+01	14.34	1.42E+01	.....
	35	1490.30	1485 -	1493	1490.15	1.52E+01	12.20	1.35E+01	.....

Analysis Report for 1606064-05

CP-5014 00-02

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
36	1521.19	1519 -	1523	1521.02	6.60E+00	7.66	6.80E+00	.....
37	1542.73	1531 -	1554	1542.56	4.03E+01	28.77	4.55E+01	.....
38	1589.34	1585 -	1594	1589.15	2.72E+01	14.66	1.56E+01	.....
39	1599.62	1596 -	1602	1599.42	8.29E+00	10.25	1.14E+01	.....
40	1729.68	1726 -	1733	1729.44	1.86E+01	11.14	8.78E+00	.....
41	1765.13	1758 -	1771	1764.88	7.94E+01	23.83	2.73E+01	BI-214
42	1889.69	1885 -	1892	1889.38	1.30E+01	7.21	0.00E+00	.....
43	1898.31	1896 -	1900	1898.00	6.00E+00	4.90	0.00E+00	.....
44	1905.80	1902 -	1909	1905.49	8.82E+00	7.75	4.36E+00	.....
45	1931.93	1928 -	1936	1931.62	1.53E+01	9.39	3.47E+00	.....
46	1998.87	1996 -	2001	1998.52	5.79E+00	6.08	2.43E+00	.....
47	2047.14	2044 -	2049	2046.78	9.00E+00	6.00	0.00E+00	.....
48	2103.77	2101 -	2106	2103.38	8.63E+00	8.66	6.75E+00	.....
49	2109.64	2107 -	2112	2109.25	8.00E+00	5.66	0.00E+00	.....
50	2118.72	2116 -	2121	2118.33	1.20E+01	6.93	0.00E+00	.....
51	2204.34	2200 -	2208	2203.92	2.80E+01	14.17	1.41E+01	BI-214
52	2448.13	2443 -	2450	2447.61	8.00E+00	8.94	8.00E+00	.....
53	2615.11	2611 -	2618	2614.53	9.48E+01	21.17	1.04E+01	TL-208
54	2877.09	2873 -	2879	2876.40	5.00E+00	4.47	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 EFFICIENCY REPORT

Peak Analysis Performed on : 6/16/2016 4:54:57PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.78	1.82E+02	68.63	1.70E-02	1.78E-03
	2	64.08	2.26E+02	102.57	2.52E-02	1.94E-03
	3	76.73	1.14E+03	149.02	2.77E-02	2.36E-03
m	4	87.94	2.65E+02	86.50	2.85E-02	2.74E-03
m	5	90.67	1.52E+02	64.19	2.86E-02	2.69E-03
m	6	93.56	4.47E+02	89.72	2.86E-02	2.63E-03
	7	186.76	2.70E+02	83.07	2.23E-02	2.02E-03
	8	209.88	6.17E+01	47.54	2.08E-02	1.85E-03
	9	239.96	9.38E+02	104.68	1.92E-02	1.63E-03
	10	270.95	1.20E+02	53.39	1.77E-02	1.40E-03
	11	295.92	3.24E+02	67.47	1.67E-02	1.31E-03

Analysis Report for 1606064-05

CP-5014 00-02

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	12	301.31	5.72E+01	44.08	1.65E-02	1.29E-03
	13	338.85	1.53E+02	42.21	1.52E-02	1.22E-03
	14	352.42	7.25E+02	86.26	1.48E-02	1.19E-03
	15	511.36	1.34E+02	60.07	1.12E-02	9.90E-04
	16	583.94	2.78E+02	47.73	1.02E-02	9.15E-04
	17	610.02	4.77E+02	59.03	9.82E-03	8.88E-04
	18	728.31	4.38E+01	28.93	8.55E-03	7.74E-04
M	19	764.08	1.44E+01	11.40	8.23E-03	7.42E-04
m	20	769.08	5.19E+01	26.42	8.18E-03	7.38E-04
	21	795.43	2.93E+01	29.33	7.97E-03	7.14E-04
	22	861.05	5.16E+01	31.80	7.48E-03	6.55E-04
	23	911.81	2.12E+02	43.63	7.14E-03	6.15E-04
	24	969.03	1.32E+02	45.80	6.80E-03	5.85E-04
	25	1120.58	1.01E+02	29.53	6.07E-03	5.07E-04
	26	1239.14	3.24E+01	35.85	5.61E-03	4.68E-04
M	27	1281.18	2.32E+01	19.39	5.47E-03	4.60E-04
m	28	1288.53	1.44E+01	17.66	5.45E-03	4.59E-04
m	29	1294.63	1.66E+01	17.32	5.43E-03	4.58E-04
	30	1377.97	3.57E+01	24.00	5.18E-03	4.40E-04
M	31	1434.84	1.01E+01	13.46	5.03E-03	4.26E-04
m	32	1443.67	1.89E+01	15.01	5.01E-03	4.23E-04
M	33	1461.48	6.88E+02	53.53	4.97E-03	4.19E-04
m	34	1467.15	1.63E+01	14.34	4.96E-03	4.18E-04
	35	1490.30	1.52E+01	12.20	4.90E-03	4.12E-04
	36	1521.19	6.60E+00	7.66	4.83E-03	4.04E-04
	37	1542.73	4.03E+01	28.77	4.79E-03	3.99E-04
	38	1589.34	2.72E+01	14.66	4.69E-03	3.87E-04
	39	1599.62	8.29E+00	10.25	4.67E-03	3.85E-04
	40	1729.68	1.86E+01	11.14	4.45E-03	3.52E-04
	41	1765.13	7.94E+01	23.83	4.39E-03	3.43E-04
	42	1889.69	1.30E+01	7.21	4.23E-03	3.26E-04
	43	1898.31	6.00E+00	4.90	4.22E-03	3.26E-04
	44	1905.80	8.82E+00	7.75	4.21E-03	3.26E-04
	45	1931.93	1.53E+01	9.39	4.18E-03	3.26E-04
	46	1998.87	5.79E+00	6.08	4.11E-03	3.26E-04
	47	2047.14	9.00E+00	6.00	4.07E-03	3.26E-04
	48	2103.77	8.63E+00	8.66	4.02E-03	3.26E-04
	49	2109.64	8.00E+00	5.66	4.02E-03	3.26E-04
	50	2118.72	1.20E+01	6.93	4.01E-03	3.26E-04
	51	2204.34	2.80E+01	14.17	3.95E-03	3.26E-04
	52	2448.13	8.00E+00	8.94	3.83E-03	3.26E-04
	53	2615.11	9.48E+01	21.17	3.79E-03	3.26E-04
	54	2877.09	5.00E+00	4.47	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

Analysis Report for 1606064-05

CP-5014 00-02

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/16/2016 4:54:57PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.78	1.82E+02	68.63	4.33E+01	8.35E+00	1.39E+02	6.91E+01
	2	64.08	2.26E+02	102.57	1.14E+02	2.81E+01	1.12E+02	1.06E+02
	3	76.73	1.14E+03	149.02			1.14E+03	1.49E+02
m	4	87.94	2.65E+02	86.50			2.65E+02	8.65E+01
m	5	90.67	1.52E+02	64.19			1.52E+02	6.42E+01
m	6	93.56	4.47E+02	89.72	1.29E+02	7.14E+00	3.18E+02	9.00E+01
	7	186.76	2.70E+02	83.07	5.81E+01	8.50E+00	2.12E+02	8.35E+01
	8	209.88	6.17E+01	47.54			6.17E+01	4.75E+01
	9	239.96	9.38E+02	104.68	1.81E+01	5.76E+00	9.20E+02	1.05E+02
	10	270.95	1.20E+02	53.39			1.20E+02	5.34E+01
	11	295.92	3.24E+02	67.47	1.02E+00	5.38E+00	3.23E+02	6.77E+01
	12	301.31	5.72E+01	44.08			5.72E+01	4.41E+01
	13	338.85	1.53E+02	42.21	3.86E+00	4.98E+00	1.49E+02	4.25E+01
	14	352.42	7.25E+02	86.26	7.25E+00	4.86E+00	7.18E+02	8.64E+01
	15	511.36	1.34E+02	60.07	7.58E+01	5.38E+00	5.87E+01	6.03E+01
	16	583.94	2.78E+02	47.73	6.11E+00	3.78E+00	2.72E+02	4.79E+01
	17	610.02	4.77E+02	59.03	6.74E+00	3.64E+00	4.71E+02	5.91E+01
	18	728.31	4.38E+01	28.93			4.38E+01	2.89E+01
M	19	764.08	1.44E+01	11.40			1.44E+01	1.14E+01
m	20	769.08	5.19E+01	26.42			5.19E+01	2.64E+01
	21	795.43	2.93E+01	29.33			2.93E+01	2.93E+01
	22	861.05	5.16E+01	31.80			5.16E+01	3.18E+01
	23	911.81	2.12E+02	43.63	4.21E+00	2.98E+00	2.08E+02	4.37E+01
	24	969.03	1.32E+02	45.80			1.32E+02	4.58E+01
	25	1120.58	1.01E+02	29.53			1.01E+02	2.95E+01
	26	1239.14	3.24E+01	35.85			3.24E+01	3.58E+01
M	27	1281.18	2.32E+01	19.39			2.32E+01	1.94E+01
m	28	1288.53	1.44E+01	17.66			1.44E+01	1.77E+01
m	29	1294.63	1.66E+01	17.32			1.66E+01	1.73E+01
	30	1377.97	3.57E+01	24.00			3.57E+01	2.40E+01
M	31	1434.84	1.01E+01	13.46			1.01E+01	1.35E+01
m	32	1443.67	1.89E+01	15.01			1.89E+01	1.50E+01
M	33	1461.48	6.88E+02	53.53	6.83E+00	2.10E+00	6.81E+02	5.36E+01
m	34	1467.15	1.63E+01	14.34			1.63E+01	1.43E+01
	35	1490.30	1.52E+01	12.20			1.52E+01	1.22E+01
	36	1521.19	6.60E+00	7.66			6.60E+00	7.66E+00
	37	1542.73	4.03E+01	28.77			4.03E+01	2.88E+01
	38	1589.34	2.72E+01	14.66			2.72E+01	1.47E+01
	39	1599.62	8.29E+00	10.25			8.29E+00	1.02E+01
	40	1729.68	1.86E+01	11.14			1.86E+01	1.11E+01
	41	1765.13	7.94E+01	23.83	1.66E+00	1.65E+00	7.77E+01	2.39E+01
	42	1889.69	1.30E+01	7.21			1.30E+01	7.21E+00
	43	1898.31	6.00E+00	4.90			6.00E+00	4.90E+00
	44	1905.80	8.82E+00	7.75			8.82E+00	7.75E+00

Analysis Report for 1606064-05

CP-5014 00-02

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
45	1931.93	1.53E+01	9.39			1.53E+01	9.39E+00
46	1998.87	5.79E+00	6.08			5.79E+00	6.08E+00
47	2047.14	9.00E+00	6.00			9.00E+00	6.00E+00
48	2103.77	8.63E+00	8.66			8.63E+00	8.66E+00
49	2109.64	8.00E+00	5.66			8.00E+00	5.66E+00
50	2118.72	1.20E+01	6.93			1.20E+01	6.93E+00
51	2204.34	2.80E+01	14.17			2.80E+01	1.42E+01
52	2448.13	8.00E+00	8.94			8.00E+00	8.94E+00
53	2615.11	9.48E+01	21.17	4.95E+00	1.35E+00	8.98E+01	2.12E+01
54	2877.09	5.00E+00	4.47			5.00E+00	4.47E+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 : 6/16/2016 4:54:57PM

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	46.78	1.82E+02	68.63	4.33E+01	8.35E+00	1.39E+02	6.91E+01
	2	64.08	2.26E+02	102.57	1.14E+02	2.81E+01	1.12E+02	1.06E+02
	3	76.73	1.14E+03	149.02			1.14E+03	1.49E+02
m	4	87.94	2.65E+02	86.50			2.65E+02	8.65E+01
m	5	90.67	1.52E+02	64.19			1.52E+02	6.42E+01
m	6	93.56	4.47E+02	89.72	1.29E+02	7.14E+00	3.18E+02	9.00E+01
	7	186.76	2.70E+02	83.07	5.81E+01	8.50E+00	2.12E+02	8.35E+01
	8	209.88	6.17E+01	47.54			6.17E+01	4.75E+01
	9	239.96	9.38E+02	104.68	1.81E+01	5.76E+00	9.20E+02	1.05E+02
	10	270.95	1.20E+02	53.39			1.20E+02	5.34E+01
	11	295.92	3.24E+02	67.47	1.02E+00	5.38E+00	3.23E+02	6.77E+01
	12	301.31	5.72E+01	44.08			5.72E+01	4.41E+01
	13	338.85	1.53E+02	42.21	3.86E+00	4.98E+00	1.49E+02	4.25E+01
	14	352.42	7.25E+02	86.26	7.25E+00	4.86E+00	7.18E+02	8.64E+01
	15	511.36	1.34E+02	60.07	7.58E+01	5.38E+00	5.87E+01	6.03E+01
	16	583.94	2.78E+02	47.73	6.11E+00	3.78E+00	2.72E+02	4.79E+01
	17	610.02	4.77E+02	59.03	6.74E+00	3.64E+00	4.71E+02	5.91E+01
	18	728.31	4.38E+01	28.93			4.38E+01	2.89E+01

Analysis Report for 1606064-05

CP-5014 00-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	19	764.08	1.44E+01	11.40			1.44E+01	1.14E+01
m	20	769.08	5.19E+01	26.42			5.19E+01	2.64E+01
	21	795.43	2.93E+01	29.33			2.93E+01	2.93E+01
	22	861.05	5.16E+01	31.80			5.16E+01	3.18E+01
	23	911.81	2.12E+02	43.63	4.21E+00	2.98E+00	2.08E+02	4.37E+01
	24	969.03	1.32E+02	45.80			1.32E+02	4.58E+01
	25	1120.58	1.01E+02	29.53			1.01E+02	2.95E+01
	26	1239.14	3.24E+01	35.85			3.24E+01	3.58E+01
M	27	1281.18	2.32E+01	19.39			2.32E+01	1.94E+01
m	28	1288.53	1.44E+01	17.66			1.44E+01	1.77E+01
m	29	1294.63	1.66E+01	17.32			1.66E+01	1.73E+01
	30	1377.97	3.57E+01	24.00			3.57E+01	2.40E+01
M	31	1434.84	1.01E+01	13.46			1.01E+01	1.35E+01
m	32	1443.67	1.89E+01	15.01			1.89E+01	1.50E+01
M	33	1461.48	6.88E+02	53.53	6.83E+00	2.10E+00	6.81E+02	5.36E+01
m	34	1467.15	1.63E+01	14.34			1.63E+01	1.43E+01
	35	1490.30	1.52E+01	12.20			1.52E+01	1.22E+01
	36	1521.19	6.60E+00	7.66			6.60E+00	7.66E+00
	37	1542.73	4.03E+01	28.77			4.03E+01	2.88E+01
	38	1589.34	2.72E+01	14.66			2.72E+01	1.47E+01
	39	1599.62	8.29E+00	10.25			8.29E+00	1.02E+01
	40	1729.68	1.86E+01	11.14			1.86E+01	1.11E+01
	41	1765.13	7.94E+01	23.83	1.66E+00	1.65E+00	7.77E+01	2.39E+01
	42	1889.69	1.30E+01	7.21			1.30E+01	7.21E+00
	43	1898.31	6.00E+00	4.90			6.00E+00	4.90E+00
	44	1905.80	8.82E+00	7.75			8.82E+00	7.75E+00
	45	1931.93	1.53E+01	9.39			1.53E+01	9.39E+00
	46	1998.87	5.79E+00	6.08			5.79E+00	6.08E+00
	47	2047.14	9.00E+00	6.00			9.00E+00	6.00E+00
	48	2103.77	8.63E+00	8.66			8.63E+00	8.66E+00
	49	2109.64	8.00E+00	5.66			8.00E+00	5.66E+00
	50	2118.72	1.20E+01	6.93			1.20E+01	6.93E+00
	51	2204.34	2.80E+01	14.17			2.80E+01	1.42E+01
	52	2448.13	8.00E+00	8.94			8.00E+00	8.94E+00
	53	2615.11	9.48E+01	21.17	4.95E+00	1.35E+00	8.98E+01	2.12E+01
	54	2877.09	5.00E+00	4.47			5.00E+00	4.47E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1606064-05

CP-5014 00-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.931	1460.81	*	10.67	1.84E+01	2.16E+00
GA-67	0.574	93.31	*	35.70	3.14E+00	5.23E+00
		208.95	*	2.24	1.33E+01	1.90E+01
		300.22		16.00		
CD-109	0.999	88.03	*	3.72	3.63E+00	1.26E+00
SN-126	0.978	87.57	*	37.00	3.60E-01	1.23E-01
ND-147	0.626	91.11	*	28.90	4.71E-01	2.04E-01
		531.02		13.10		
TL-208	0.937	583.14	*	30.22	1.27E+00	2.51E-01
		860.37	*	4.48	2.21E+00	1.38E+00
		2614.66	*	35.85	9.47E-01	2.38E-01
PB-210	0.988	46.50	*	4.25	2.76E+00	1.41E+00
BI-214	0.942	609.31	*	46.30	1.49E+00	2.30E-01
		1120.29	*	15.10	1.58E+00	4.81E-01
		1764.49	*	15.80	1.60E+00	5.09E-01
		2204.22	*	4.98	2.04E+00	1.05E+00
PB-214	0.948	295.21	*	19.19	1.45E+00	3.24E-01
		351.92	*	37.19	1.88E+00	2.72E-01
RA-226	0.953	186.21	*	3.28	4.15E+00	7.78E+00
AC-228	0.949	338.32	*	11.40	1.23E+00	3.66E-01
		911.07	*	27.70	1.50E+00	3.42E-01
		969.11	*	16.60	1.68E+00	5.99E-01
TH-234	0.905	63.29	*	3.80	1.68E+00	1.60E+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 : 6/16/2016 4:54:57PM
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	76.73	3.17891E-01	6.51		
9	239.96	2.55422E-01	5.70		
10	270.95	3.32399E-02	22.31		

Analysis Report for 1606064-05

CP-5014 00-02

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	12	301.31	1.58927E-02	38.52	Sum	
	15	511.36	1.62923E-02	51.41		
	18	728.31	1.21691E-02	33.01		
M	19	764.08	3.99479E-03	39.64	Tol.	AG-110M
m	20	769.08	1.44171E-02	25.45		
	21	795.43	8.13187E-03	50.09		
	26	1239.14	8.99638E-03	55.34	Tol.	CO-56
M	27	1281.18	6.43567E-03	41.85		
m	28	1288.53	3.98937E-03	61.50		
m	29	1294.63	4.60932E-03	52.19		
	30	1377.97	9.92725E-03	33.58		
M	31	1434.84	2.79902E-03	66.80	Tol.	LA-138
m	32	1443.67	5.25495E-03	39.67		
m	34	1467.15	4.52072E-03	44.04		
	35	1490.30	4.22980E-03	40.05		
	36	1521.19	1.83333E-03	58.07	Sum	
	37	1542.73	1.11861E-02	35.73		
	38	1589.34	7.55952E-03	26.94		
	39	1599.62	2.30159E-03	61.84		
	40	1729.68	5.16908E-03	29.92	Sum	
	42	1889.69	3.61111E-03	27.74		
	43	1898.31	1.66667E-03	40.82		
	44	1905.80	2.44950E-03	43.92		
	45	1931.93	4.24020E-03	30.77		
	46	1998.87	1.60714E-03	52.57		
	47	2047.14	2.50000E-03	33.33		
	48	2103.77	2.39583E-03	50.20	S-Esc	
	49	2109.64	2.22222E-03	35.36		
	50	2118.72	3.33333E-03	28.87		
	52	2448.13	2.22222E-03	55.90		
	54	2877.09	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

Analysis Report for 1606064-05

CP-5014 00-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.93	1460.81	*	10.67	1.84E+01	2.16E+00
GA-67	0.57	93.31	*	35.70	3.14E+00	5.23E+00
		208.95	*	2.24	1.33E+01	1.90E+01
		300.22		16.00		
CD-109	0.99	88.03	*	3.72	3.63E+00	1.26E+00
SN-126	0.97	87.57	*	37.00	3.60E-01	1.23E-01
ND-147	0.62	91.11	*	28.90	4.71E-01	2.04E-01
		531.02		13.10		
TL-208	0.93	583.14	*	30.22	1.27E+00	2.51E-01
		860.37	*	4.48	2.21E+00	1.38E+00
		2614.66	*	35.85	9.47E-01	2.38E-01
PB-210	0.98	46.50	*	4.25	2.76E+00	1.41E+00
BI-214	0.94	609.31	*	46.30	1.49E+00	2.30E-01
		1120.29	*	15.10	1.58E+00	4.81E-01
		1764.49	*	15.80	1.60E+00	5.09E-01
		2204.22	*	4.98	2.04E+00	1.05E+00
PB-214	0.94	295.21	*	19.19	1.45E+00	3.24E-01
		351.92	*	37.19	1.88E+00	2.72E-01
RA-226	0.95	186.21	*	3.28	4.15E+00	7.78E+00
AC-228	0.94	338.32	*	11.40	1.23E+00	3.66E-01
		911.07	*	27.70	1.50E+00	3.42E-01
		969.11	*	16.60	1.68E+00	5.99E-01
TH-234	0.90	63.29	*	3.80	1.68E+00	1.60E+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	0.931	1.84E+01	2.16E+00	
	GA-67	0.574	4.27E+00	6.14E+00	
?	CD-109	0.999	3.63E+00	1.26E+00	
?	SN-126	0.978	3.60E-01	1.23E-01	

Analysis Report for 1606064-05

CP-5014 00-02

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
ND-147	0.626	4.71E-01	2.04E-01	
TL-208	0.937	1.12E+00	1.72E-01	
PB-210	0.988	2.76E+00	1.41E+00	
BI-214	0.942	1.53E+00	1.89E-01	
PB-214	0.948	1.70E+00	2.08E-01	
RA-226	0.953	4.15E+00	7.78E+00	
AC-228	0.949	1.42E+00	2.31E-01	
TH-234	0.905	1.68E+00	1.60E+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 1606064-05

CP-5014 00-02

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/16/2016 4:54:57PM
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	76.73	3.17891E-01	6.51		
	9	239.96	2.55422E-01	5.70		
	10	270.95	3.32399E-02	22.31		
	12	301.31	1.58927E-02	38.52	Sum	
	15	511.36	1.62923E-02	51.41		
	18	728.31	1.21691E-02	33.01		
M	19	764.08	3.99479E-03	39.64	Tol.	AG-110M
m	20	769.08	1.44171E-02	25.45		
	21	795.43	8.13187E-03	50.09		
	26	1239.14	8.99638E-03	55.34	Tol.	CO-56
M	27	1281.18	6.43567E-03	41.85		
m	28	1288.53	3.98937E-03	61.50		
m	29	1294.63	4.60932E-03	52.19		
	30	1377.97	9.92725E-03	33.58		
M	31	1434.84	2.79902E-03	66.80	Tol.	LA-138
m	32	1443.67	5.25495E-03	39.67		
m	34	1467.15	4.52072E-03	44.04		
	35	1490.30	4.22980E-03	40.05		
	36	1521.19	1.83333E-03	58.07	Sum	
	37	1542.73	1.11861E-02	35.73		
	38	1589.34	7.55952E-03	26.94		
	39	1599.62	2.30159E-03	61.84		
	40	1729.68	5.16908E-03	29.92	Sum	
	42	1889.69	3.61111E-03	27.74		
	43	1898.31	1.66667E-03	40.82		
	44	1905.80	2.44950E-03	43.92		
	45	1931.93	4.24020E-03	30.77		
	46	1998.87	1.60714E-03	52.57		
	47	2047.14	2.50000E-03	33.33		
	48	2103.77	2.39583E-03	50.20	S-Esc	
	49	2109.64	2.22222E-03	35.36		
	50	2118.72	3.33333E-03	28.87		
	52	2448.13	2.22222E-03	55.90		
	54	2877.09	1.38889E-03	44.72		

Analysis Report for 1606064-05

CP-5014 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 : \\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	-4.53E-01	6.33E-01	6.33E-01
+	NA-22	1274.54		99.94	9.21E-03	7.30E-02	7.30E-02
+	NA-24	1368.53		99.99	4.51E+00	1.19E+03	1.54E+03
		2754.09		99.86	3.98E+02		1.19E+03
+	AL-26	1808.65		99.76	-1.19E-02	4.35E-02	4.35E-02
+	K-40	1460.81	*	10.67	1.84E+01	9.26E-01	9.26E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-4.15E-03	6.98E-02	6.98E-02
		78.34		96.00	5.39E-02		9.07E-02
+	SC-46	889.25		99.98	-3.35E-02	7.35E-02	7.35E-02
		1120.51		99.99	2.58E-01		1.42E-01
+	V-48	983.52		99.98	-2.42E-02	1.04E-01	1.08E-01
		1312.10		97.50	1.27E-02		1.04E-01
+	CR-51	320.08		9.83	1.95E-02	6.70E-01	6.70E-01
+	MN-54	834.83		99.97	-1.06E-02	8.06E-02	8.06E-02
+	CO-56	846.75		99.96	1.64E-02	8.60E-02	8.60E-02
		1037.75		14.03	2.45E-01		6.56E-01
		1238.25		67.00	1.02E-01		1.92E-01
		1771.40		15.51	-4.57E-02		3.22E-01
		2598.48		16.90	7.27E-02		2.91E-01
+	CO-57	122.06		85.51	1.69E-02	5.83E-02	5.83E-02
		136.48		10.60	6.32E-02		4.79E-01
+	CO-58	810.76		99.40	-3.24E-02	7.61E-02	7.61E-02
+	FE-59	1099.22		56.50	-1.80E-03	1.68E-01	1.68E-01
		1291.56		43.20	-4.91E-02		2.10E-01
+	CO-60	1173.22		100.00	8.56E-03	6.65E-02	9.00E-02
		1332.49		100.00	-2.34E-02		6.65E-02
+	ZN-65	1115.52		50.75	-2.38E-03	1.50E-01	1.50E-01
+	GA-67	93.31	*	35.70	3.14E+00	2.52E+00	2.77E+00
		208.95	*	2.24	1.33E+01		1.65E+01
		300.22		16.00	-1.22E+01		2.52E+00
+	SE-75	121.11		16.70	-5.33E-02	8.84E-02	3.09E-01

Analysis Report for 1606064-05

CP-5014 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-2.40E-02	8.84E-02	8.84E-02
		264.65		59.80	-1.38E-03		8.92E-02
		279.53		25.20	1.07E-01		2.37E-01
		400.65		11.40	-3.53E-02		4.97E-01
+	RB-82	776.52		13.00	3.05E-02	6.32E-01	6.32E-01
+	RB-83	520.41		46.00	4.62E-02	1.50E-01	1.50E-01
		529.64		30.30	2.04E-02		2.12E-01
		552.65		16.40	-1.18E-01		4.05E-01
+	KR-85	513.99		0.43	2.56E+01	2.13E+01	2.13E+01
+	SR-85	513.99		99.27	1.23E-01	1.02E-01	1.02E-01
+	Y-88	898.02		93.40	-5.52E-02	7.17E-02	7.95E-02
		1836.01		99.38	2.70E-02		7.17E-02
+	NB-93M	16.57		9.43	-9.00E+01	6.23E+01	6.23E+01
+	NB-94	702.63		100.00	9.33E-03	7.02E-02	8.03E-02
		871.10		100.00	3.20E-02		7.02E-02
+	NB-95	765.79		99.81	2.86E-02	1.06E-01	1.06E-01
+	NB-95M	235.69		25.00	-1.67E+01	1.32E+00	1.32E+00
+	ZR-95	724.18		43.70	2.48E-02	1.38E-01	1.90E-01
		756.72		55.30	3.78E-03		1.38E-01
+	MO-99	181.06		6.20	2.81E+00	5.35E+00	9.09E+00
		739.58		12.80	2.13E-01		5.35E+00
		778.00		4.50	-3.38E+00		1.41E+01
+	RU-103	497.08		89.00	6.75E-05	8.50E-02	8.50E-02
+	RU-106	621.84		9.80	-5.95E-02	6.58E-01	6.58E-01
+	AG-108M	433.93		89.90	7.45E-04	6.42E-02	6.42E-02
		614.37		90.40	-8.78E-03		8.34E-02
		722.95		90.50	0.00E+00		8.03E-02
+	CD-109	88.03	*	3.72	3.63E+00	3.83E+00	3.83E+00
+	AG-110M	657.75		93.14	-1.44E-02	7.47E-02	7.47E-02
		677.61		10.53	9.87E-02		7.35E-01
		706.67		16.46	3.51E-01		5.10E-01
		763.93		21.98	-4.60E-02		3.41E-01
		884.67		71.63	1.09E-02		1.07E-01
		1384.27		23.94	9.20E-02		3.03E-01
+	CD-113M	263.70		0.02	8.50E+01	2.25E+02	2.25E+02
+	SN-113	255.12		1.93	7.25E-01	8.53E-02	2.84E+00
		391.69		64.90	-2.55E-02		8.53E-02
+	TE123M	159.00		84.10	-1.71E-03	6.49E-02	6.49E-02
+	SB-124	602.71		97.87	-1.05E-02	7.41E-02	7.41E-02
		645.85		7.26	-2.63E-01		1.02E+00
		722.78		11.10	0.00E+00		7.27E-01
		1691.02		49.00	3.90E-02		1.26E-01
+	I-125	35.49		6.49	7.14E-01	2.45E+00	2.45E+00
+	SB-125	176.33		6.89	2.02E-01	2.13E-01	7.78E-01
		427.89		29.33	4.38E-02		2.13E-01
		463.38		10.35	1.62E-01		6.26E-01
		600.56		17.80	-1.35E-01		3.49E-01
		635.90		11.32	-1.40E-01		6.12E-01

Analysis Report for 1606064-05

CP-5014 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70		83.30	-6.85E-02	1.17E-01	1.25E-01
		666.33		99.60	-2.10E-02		1.19E-01
		695.00		99.60	-4.81E-02		1.17E-01
		720.50		53.80	5.23E-02		2.25E-01
+	SN-126	87.57	*	37.00	3.60E-01	3.80E-01	3.80E-01
+	SB-127	473.00		25.00	-2.03E-01	9.47E-01	1.18E+00
		685.20		35.70	-2.35E-01		9.47E-01
		783.80		14.70	2.54E-01		2.73E+00
+	I-129	29.78		57.00	-1.71E-02	4.90E-01	4.90E-01
		33.60		13.20	-9.10E-02		1.30E+00
		39.58		7.52	-3.80E-03		1.36E+00
+	I-131	284.30		6.05	1.20E-01	1.35E-01	1.89E+00
		364.48		81.20	3.44E-03		1.35E-01
		636.97		7.26	2.52E-01		2.10E+00
		722.89		1.80	0.00E+00		8.90E+00
+	TE-132	49.72		13.10	1.85E+00	4.41E-01	4.17E+00
		228.16		88.00	2.52E-01		4.41E-01
+	BA-133	81.00		33.00	-8.34E-01	1.10E-01	2.00E-01
		302.84		17.80	2.92E-01		3.27E-01
		356.01		60.00	-5.33E-01		1.10E-01
+	I-133	529.87		86.30	1.02E+01	1.06E+02	1.06E+02
+	XE-133	81.00		38.00	-2.43E+00	5.83E-01	5.83E-01
+	CS-134	563.23		8.38	1.34E-01	6.91E-02	8.44E-01
		569.32		15.43	7.35E-02		4.54E-01
		604.70		97.60	-1.36E-02		6.91E-02
		795.84		85.40	3.80E-02		9.43E-02
		801.93		8.73	3.20E-02		8.30E-01
+	CS-135	268.24		16.00	2.68E-03	3.67E-01	3.67E-01
+	I-135	1131.51		22.50	4.50E+08	3.05E+09	4.11E+09
		1260.41		28.60	7.91E+08		3.05E+09
		1678.03		9.54	6.52E+08		6.14E+09
+	CS-136	153.22		7.46	8.41E-01	1.17E-01	1.16E+00
		163.89		4.61	6.84E-01		1.82E+00
		176.55		13.56	1.66E-01		6.37E-01
		273.65		12.66	-1.48E-01		7.27E-01
		340.57		48.50	-3.85E-02		2.41E-01
		818.50		99.70	7.60E-02		1.17E-01
		1048.07		79.60	-5.48E-02		1.53E-01
		1235.34		19.70	6.30E-03		8.38E-01
+	CS-137	661.65		85.12	-1.50E-02	7.87E-02	7.87E-02
+	LA-138	788.74		34.00	5.70E-02	1.08E-01	2.29E-01
		1435.80		66.00	4.38E-02		1.08E-01
+	CE-139	165.85		80.35	-2.82E-02	6.65E-02	6.65E-02
+	BA-140	162.64		6.70	-4.84E-01	3.93E-01	1.27E+00
		304.84		4.50	-4.98E-01		1.86E+00
		423.70		3.20	6.31E-01		3.32E+00
		437.55		2.00	-8.73E-01		4.90E+00
		537.32		25.00	2.80E-02		3.93E-01
+	LA-140	328.77		20.50	3.27E-02	1.06E-01	4.48E-01

Analysis Report for 1606064-05

CP-5014 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-140	487.03		45.50	-5.92E-02	1.06E-01	2.25E-01
		815.85		23.50	5.78E-02		4.86E-01
		1596.49		95.49	-2.94E-02		1.06E-01
+	CE-141	145.44		48.40	1.00E-02	1.34E-01	1.34E-01
+	CE-143	57.36		11.80	-8.77E-01	2.02E+01	6.03E+01
		293.26		42.00	2.77E+01		2.02E+01
		664.55		5.20	-2.39E+01		1.36E+02
+	CE-144	133.54		10.80	-2.26E-01	4.75E-01	4.75E-01
+	PM-144	476.78		42.00	-4.97E-02	6.75E-02	1.44E-01
		618.01		98.60	-2.18E-02		6.75E-02
		696.49		99.49	4.45E-02		7.68E-02
+	PM-145	36.85		21.70	-7.03E-02	3.04E-01	5.79E-01
		37.36		39.70	-5.75E-02		3.04E-01
		42.30		15.10	-2.57E-01		6.08E-01
		72.40		2.31	-1.82E+01		3.05E+00
+	PM-146	453.90		39.94	-1.96E-02	1.52E-01	1.52E-01
		735.90		14.01	-1.18E-01		4.51E-01
		747.13		13.10	2.74E-01		5.39E-01
+	ND-147	91.11	*	28.90	4.71E-01	8.38E-01	8.52E-01
		531.02		13.10	2.93E-01		8.38E-01
+	PM-149	285.90		3.10	-7.12E+00	2.96E+01	2.96E+01
+	EU-152	121.78		20.50	6.87E-02	2.38E-01	2.38E-01
		244.69		5.40	-7.82E-01		1.29E+00
		344.27		19.13	6.09E-02		2.79E-01
		778.89		9.20	1.48E-02		6.99E-01
		964.01		10.40	-4.65E-01		8.36E-01
		1085.78		7.22	-2.16E-01		9.80E-01
		1112.02		9.60	2.49E-01		8.14E-01
		1407.95		14.94	1.25E-01		5.70E-01
+	GD-153	97.43		31.30	8.17E-02	1.64E-01	1.64E-01
		103.18		22.20	5.26E-02		2.27E-01
+	EU-154	123.07		40.50	-6.40E-02	1.17E-01	1.17E-01
		723.30		19.70	0.00E+00		3.70E-01
		873.19		11.50	-2.73E-01		5.85E-01
		996.32		10.30	-1.87E-01		6.26E-01
		1004.76		17.90	1.41E-02		4.44E-01
		1274.45		35.50	2.58E-02		2.05E-01
+	EU-155	86.50		30.90	4.16E-01	2.26E-01	2.26E-01
		105.30		20.70	1.91E-02		2.38E-01
+	EU-156	811.77		10.40	-5.77E-01	1.00E+00	1.00E+00
		1153.47		7.20	7.00E-01		1.92E+00
		1230.71		8.90	3.13E-01		1.59E+00
+	HO-166M	184.41		72.60	1.11E-01	9.65E-02	9.65E-02
		280.45		29.60	-1.82E-02		1.83E-01
		410.94		11.10	2.27E-01		6.22E-01
		711.69		54.10	-2.54E-02		1.28E-01
+	TM-171	66.72		0.14	1.14E+01	5.18E+01	5.18E+01
+	HF-172	81.75		4.52	-4.68E+00	4.36E-01	1.32E+00
		125.81		11.30	8.07E-02		4.36E-01

Analysis Report for 1606064-05

CP-5014 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53		20.60	3.17E-02	3.48E-01	6.84E-01
		810.06		16.63	4.78E-01		1.17E+00
		912.12		15.25	5.98E+00		2.53E+00
		1093.66		62.50	5.90E-03		3.48E-01
+	LU-173	100.72		5.24	2.23E-02	3.07E-01	9.41E-01
		272.11		21.20	3.74E-01		3.07E-01
+	HF-175	343.40		84.00	-4.09E-02	7.02E-02	7.02E-02
+	LU-176	88.34		13.30	9.70E-01	5.40E-02	5.29E-01
		201.83		86.00	-1.97E-02		6.12E-02
		306.78		94.00	-6.87E-03		5.40E-02
+	TA-182	67.75		41.20	-1.01E-02	1.69E-01	1.69E-01
		1121.30		34.90	6.46E-01		3.97E-01
		1189.05		16.23	1.19E-01		5.95E-01
		1221.41		26.98	6.93E-02		3.72E-01
		1231.02		11.44	1.69E-01		8.60E-01
+	IR-192	308.46		29.68	2.43E-02	1.35E-01	1.89E-01
		468.07		48.10	-7.03E-02		1.35E-01
+	HG-203	279.19		77.30	4.37E-02	8.45E-02	8.45E-02
+	BI-207	569.67		97.72	8.53E-03	6.92E-02	6.92E-02
		1063.62		74.90	-9.76E-03		1.06E-01
+	TL-208	583.14	*	30.22	1.27E+00	1.94E-01	2.79E-01
		860.37	*	4.48	2.21E+00		2.11E+00
		2614.66	*	35.85	9.47E-01		1.94E-01
+	BI-210M	262.00		45.00	-5.35E-03	1.13E-01	1.13E-01
		300.00		23.00	-1.20E+00		2.49E-01
+	PB-210	46.50	*	4.25	2.76E+00	2.18E+00	2.18E+00
+	PB-211	404.84		2.90	2.59E-01	2.03E+00	2.03E+00
		831.96		2.90	5.73E-01		2.64E+00
+	BI-212	727.17		11.80	8.43E-01	7.50E-01	7.50E-01
		1620.62		2.75	1.61E-01		2.33E+00
+	PB-212	238.63		44.60	8.38E-01	2.50E-01	2.50E-01
		300.09		3.41	-8.12E+00		1.68E+00
+	BI-214	609.31	*	46.30	1.49E+00	2.17E-01	2.17E-01
		1120.29	*	15.10	1.58E+00		6.00E-01
		1764.49	*	15.80	1.60E+00		6.04E-01
		2204.22	*	4.98	2.04E+00		1.33E+00
+	PB-214	295.21	*	19.19	1.45E+00	2.99E-01	4.36E-01
		351.92	*	37.19	1.88E+00		2.99E-01
+	RN-219	401.80		6.50	-6.03E-02	8.39E-01	8.39E-01
+	RA-223	323.87		3.88	-8.32E-02	1.33E+00	1.33E+00
+	RA-224	240.98		3.95	1.70E+01	3.09E+00	3.09E+00
+	RA-225	40.00		31.00	-1.38E-03	4.95E-01	4.95E-01
+	RA-226	186.21	*	3.28	4.15E+00	2.57E+00	2.57E+00
+	TH-227	50.10		8.40	4.05E-01	4.94E-01	9.14E-01
		236.00		11.50	-6.23E+00		4.94E-01
		256.20		6.30	-6.90E-03		8.04E-01
+	AC-228	338.32	*	11.40	1.23E+00	4.12E-01	4.98E-01
		911.07	*	27.70	1.50E+00		4.12E-01

Analysis Report for 1606064-05

CP-5014 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	*	16.60	1.68E+00	4.12E-01	8.62E-01
+	TH-230	48.44		16.90	1.04E-01	5.17E-01	5.17E-01
		62.85		4.60	2.52E+00		1.74E+00
		67.67		0.37	-1.06E+00		1.78E+01
+	PA-231	283.67		1.60	1.42E-01	2.52E+00	3.29E+00
		302.67		2.30	2.25E+00		2.52E+00
+	TH-231	25.64		14.70	-1.53E+01	9.50E-01	5.46E+00
		84.21		6.40	-2.63E+00		9.50E-01
+	PA-233	311.98		38.60	-3.64E-02	1.68E-01	1.68E-01
+	PA-234	131.20		20.40	2.10E-01	2.63E-01	2.63E-01
		733.99		8.80	-6.61E-02		6.83E-01
		946.00		12.00	6.75E-02		6.08E-01
+	PA-234M	1001.03		0.92	2.12E+00	8.06E+00	8.06E+00
+	TH-234	63.29	*	3.80	1.68E+00	2.61E+00	2.61E+00
+	U-235	143.76		10.50	-1.95E-02	4.95E-01	4.95E-01
		163.35		4.70	4.13E-01		1.10E+00
		205.31		4.70	8.13E-01		1.19E+00
+	NP-237	86.50		12.60	1.02E+00	5.51E-01	5.51E-01
+	NP-239	106.10		22.70	2.58E-01	3.22E+00	3.22E+00
		228.18		10.70	4.37E+00		7.66E+00
		277.60		14.10	2.50E+00		5.90E+00
+	AM-241	59.54		35.90	5.22E-03	1.92E-01	1.92E-01
+	AM-243	74.67		66.00	-4.37E-01	1.31E-01	1.31E-01
+	CM-243	209.75		3.29	5.82E-01	4.00E-01	1.70E+00
		228.14		10.60	2.97E-01		5.20E-01
		277.60		14.00	1.70E-01		4.00E-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 1606064-05

CP-5014 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	6.33E-01	6.33E-01	-4.53E-01	2.99E-01
	NA-22	1274.54		99.94	7.30E-02	7.30E-02	9.21E-03	3.30E-02
	NA-24	1368.53		99.99	1.54E+03	1.19E+03	4.51E+00	6.71E+02
		2754.09		99.86	1.19E+03		3.98E+02	4.63E+02
	AL-26	1808.65		99.76	4.35E-02	4.35E-02	-1.19E-02	1.73E-02
+	K-40	1460.81	*	10.67	9.26E-01	9.26E-01	1.84E+01	4.27E-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	6.98E-02	6.98E-02	-4.15E-03	3.41E-02
		78.34		96.00	9.07E-02		5.39E-02	4.46E-02
	SC-46	889.25		99.98	7.35E-02	7.35E-02	-3.35E-02	3.39E-02
		1120.51		99.99	1.42E-01		2.58E-01	6.74E-02
	V-48	983.52		99.98	1.08E-01	1.04E-01	-2.42E-02	4.96E-02
		1312.10		97.50	1.04E-01		1.27E-02	4.65E-02
	CR-51	320.08		9.83	6.70E-01	6.70E-01	1.95E-02	3.19E-01
	MN-54	834.83		99.97	8.06E-02	8.06E-02	-1.06E-02	3.77E-02
	CO-56	846.75		99.96	8.60E-02	8.60E-02	1.64E-02	4.02E-02
		1037.75		14.03	6.56E-01		2.45E-01	3.05E-01
		1238.25		67.00	1.92E-01		1.02E-01	9.02E-02
		1771.40		15.51	3.22E-01		-4.57E-02	1.30E-01
		2598.48		16.90	2.91E-01		7.27E-02	1.13E-01
	CO-57	122.06		85.51	5.83E-02	5.83E-02	1.69E-02	2.83E-02
		136.48		10.60	4.79E-01		6.32E-02	2.32E-01
	CO-58	810.76		99.40	7.61E-02	7.61E-02	-3.24E-02	3.53E-02
	FE-59	1099.22		56.50	1.68E-01	1.68E-01	-1.80E-03	7.74E-02
		1291.56		43.20	2.10E-01		-4.91E-02	9.55E-02
	CO-60	1173.22		100.00	9.00E-02	6.65E-02	8.56E-03	4.17E-02
		1332.49		100.00	6.65E-02		-2.34E-02	2.96E-02
	ZN-65	1115.52		50.75	1.50E-01	1.50E-01	-2.38E-03	6.83E-02
+	GA-67	93.31	*	35.70	2.77E+00	2.52E+00	3.14E+00	1.37E+00
		208.95	*	2.24	1.65E+01		1.33E+01	7.97E+00
		300.22		16.00	2.52E+00		-1.22E+01	1.21E+00
	SE-75	121.11		16.70	3.09E-01	8.84E-02	-5.33E-02	1.50E-01
		136.00		59.20	8.84E-02		-2.40E-02	4.29E-02
		264.65		59.80	8.92E-02		-1.38E-03	4.27E-02
		279.53		25.20	2.37E-01		1.07E-01	1.14E-01
		400.65		11.40	4.97E-01		-3.53E-02	2.35E-01
	RB-82	776.52		13.00	6.32E-01	6.32E-01	3.05E-02	2.92E-01
	RB-83	520.41		46.00	1.50E-01	1.50E-01	4.62E-02	7.08E-02
		529.64		30.30	2.12E-01		2.04E-02	9.99E-02
		552.65		16.40	4.05E-01		-1.18E-01	1.91E-01
	KR-85	513.99		0.43	2.13E+01	2.13E+01	2.56E+01	1.02E+01
	SR-85	513.99		99.27	1.02E-01	1.02E-01	1.23E-01	4.93E-02
	Y-88	898.02		93.40	7.95E-02	7.17E-02	-5.52E-02	3.67E-02
		1836.01		99.38	7.17E-02		2.70E-02	3.10E-02
	NB-93M	16.57		9.43	6.23E+01	6.23E+01	-9.00E+01	2.86E+01
	NB-94	702.63		100.00	8.03E-02	7.02E-02	9.33E-03	3.80E-02
		871.10		100.00	7.02E-02		3.20E-02	3.25E-02
	NB-95	765.79		99.81	1.06E-01	1.06E-01	2.86E-02	5.03E-02
	NB-95M	235.69		25.00	1.32E+00	1.32E+00	-1.67E+01	6.38E-01
	ZR-95	724.18		43.70	1.90E-01	1.38E-01	2.48E-02	8.95E-02
		756.72		55.30	1.38E-01		3.78E-03	6.43E-02

Analysis Report for 1606064-05

CP-5014 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	9.09E+00	5.35E+00	2.81E+00	4.40E+00
		739.58		12.80	5.35E+00		2.13E-01	2.49E+00
		778.00		4.50	1.41E+01		-3.38E+00	6.52E+00
	RU-103	497.08		89.00	8.50E-02	8.50E-02	6.75E-05	4.03E-02
	RU-106	621.84		9.80	6.58E-01	6.58E-01	-5.95E-02	3.08E-01
	AG-108M	433.93		89.90	6.42E-02	6.42E-02	7.45E-04	3.04E-02
		614.37		90.40	8.34E-02		-8.78E-03	3.95E-02
		722.95		90.50	8.03E-02		0.00E+00	3.77E-02
+	CD-109	88.03	*	3.72	3.83E+00	3.83E+00	3.63E+00	1.90E+00
	AG-110M	657.75		93.14	7.47E-02	7.47E-02	-1.44E-02	3.51E-02
		677.61		10.53	7.35E-01		9.87E-02	3.47E-01
		706.67		16.46	5.10E-01		3.51E-01	2.41E-01
		763.93		21.98	3.41E-01		-4.60E-02	1.59E-01
		884.67		71.63	1.07E-01		1.09E-02	4.97E-02
		1384.27		23.94	3.03E-01		9.20E-02	1.36E-01
	CD-113M	263.70		0.02	2.25E+02	2.25E+02	8.50E+01	1.08E+02
	SN-113	255.12		1.93	2.84E+00	8.53E-02	7.25E-01	1.36E+00
		391.69		64.90	8.53E-02		-2.55E-02	4.03E-02
	TE123M	159.00		84.10	6.49E-02	6.49E-02	-1.71E-03	3.15E-02
	SB-124	602.71		97.87	7.41E-02	7.41E-02	-1.05E-02	3.48E-02
		645.85		7.26	1.02E+00		-2.63E-01	4.77E-01
		722.78		11.10	7.27E-01		0.00E+00	3.41E-01
		1691.02		49.00	1.26E-01		3.90E-02	5.31E-02
	I-125	35.49		6.49	2.45E+00	2.45E+00	7.14E-01	1.18E+00
	SB-125	176.33		6.89	7.78E-01	2.13E-01	2.02E-01	3.77E-01
		427.89		29.33	2.13E-01		4.38E-02	1.01E-01
		463.38		10.35	6.26E-01		1.62E-01	2.98E-01
		600.56		17.80	3.49E-01		-1.35E-01	1.63E-01
		635.90		11.32	6.12E-01		-1.40E-01	2.88E-01
	SB-126	414.70		83.30	1.25E-01	1.17E-01	-6.85E-02	5.97E-02
		666.33		99.60	1.19E-01		-2.10E-02	5.60E-02
		695.00		99.60	1.17E-01		-4.81E-02	5.50E-02
		720.50		53.80	2.25E-01		5.23E-02	1.05E-01
+	SN-126	87.57	*	37.00	3.80E-01	3.80E-01	3.60E-01	1.88E-01
	SB-127	473.00		25.00	1.18E+00	9.47E-01	-2.03E-01	5.54E-01
		685.20		35.70	9.47E-01		-2.35E-01	4.42E-01
		783.80		14.70	2.73E+00		2.54E-01	1.28E+00
	I-129	29.78		57.00	4.90E-01	4.90E-01	-1.71E-02	2.37E-01
		33.60		13.20	1.30E+00		-9.10E-02	6.30E-01
		39.58		7.52	1.36E+00		-3.80E-03	6.60E-01
	I-131	284.30		6.05	1.89E+00	1.35E-01	1.20E-01	9.02E-01
		364.48		81.20	1.35E-01		3.44E-03	6.39E-02
		636.97		7.26	2.10E+00		2.52E-01	9.90E-01
		722.89		1.80	8.90E+00		0.00E+00	4.17E+00
	TE-132	49.72		13.10	4.17E+00	4.41E-01	1.85E+00	2.03E+00
		228.16		88.00	4.41E-01		2.52E-01	2.12E-01
	BA-133	81.00		33.00	2.00E-01	1.10E-01	-8.34E-01	9.79E-02
		302.84		17.80	3.27E-01		2.92E-01	1.57E-01
		356.01		60.00	1.10E-01		-5.33E-01	5.27E-02
	I-133	529.87		86.30	1.06E+02	1.06E+02	1.02E+01	5.00E+01
	XE-133	81.00		38.00	5.83E-01	5.83E-01	-2.43E+00	2.85E-01
	CS-134	563.23		8.38	8.44E-01	6.91E-02	1.34E-01	4.00E-01
		569.32		15.43	4.54E-01		7.35E-02	2.15E-01

Analysis Report for 1606064-05

CP-5014 00-02

	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	6.91E-02	6.91E-02	-1.36E-02	3.25E-02
		795.84		85.40	9.43E-02		3.80E-02	4.43E-02
		801.93		8.73	8.30E-01		3.20E-02	3.87E-01
	CS-135	268.24		16.00	3.67E-01	3.67E-01	2.68E-03	1.77E-01
	I-135	1131.51		22.50	4.11E+09	3.05E+09	4.50E+08	1.90E+09
		1260.41		28.60	3.05E+09		7.91E+08	1.40E+09
		1678.03		9.54	6.14E+09		6.52E+08	2.59E+09
	CS-136	153.22		7.46	1.16E+00	1.17E-01	8.41E-01	5.64E-01
		163.89		4.61	1.82E+00		6.84E-01	8.82E-01
		176.55		13.56	6.37E-01		1.66E-01	3.09E-01
		273.65		12.66	7.27E-01		-1.48E-01	3.49E-01
		340.57		48.50	2.41E-01		-3.85E-02	1.16E-01
		818.50		99.70	1.17E-01		7.60E-02	5.44E-02
		1048.07		79.60	1.53E-01		-5.48E-02	7.05E-02
		1235.34		19.70	8.38E-01		6.30E-03	3.91E-01
	CS-137	661.65		85.12	7.87E-02	7.87E-02	-1.50E-02	3.69E-02
	LA-138	788.74		34.00	2.29E-01	1.08E-01	5.70E-02	1.07E-01
		1435.80		66.00	1.08E-01		4.38E-02	4.82E-02
	CE-139	165.85		80.35	6.65E-02	6.65E-02	-2.82E-02	3.22E-02
	BA-140	162.64		6.70	1.27E+00	3.93E-01	-4.84E-01	6.14E-01
		304.84		4.50	1.86E+00		-4.98E-01	8.87E-01
		423.70		3.20	3.32E+00		6.31E-01	1.58E+00
		437.55		2.00	4.90E+00		-8.73E-01	2.32E+00
		537.32		25.00	3.93E-01		2.80E-02	1.85E-01
	LA-140	328.77		20.50	4.48E-01	1.06E-01	3.27E-02	2.14E-01
		487.03		45.50	2.25E-01		-5.92E-02	1.07E-01
		815.85		23.50	4.86E-01		5.78E-02	2.26E-01
		1596.49		95.49	1.06E-01		-2.94E-02	4.59E-02
	CE-141	145.44		48.40	1.34E-01	1.34E-01	1.00E-02	6.50E-02
	CE-143	57.36		11.80	6.03E+01	2.02E+01	-8.77E-01	2.94E+01
		293.26		42.00	2.02E+01		2.77E+01	9.84E+00
		664.55		5.20	1.36E+02		-2.39E+01	6.41E+01
	CE-144	133.54		10.80	4.75E-01	4.75E-01	-2.26E-01	2.30E-01
	PM-144	476.78		42.00	1.44E-01	6.75E-02	-4.97E-02	6.79E-02
		618.01		98.60	6.75E-02		-2.18E-02	3.17E-02
		696.49		99.49	7.68E-02		4.45E-02	3.62E-02
	PM-145	36.85		21.70	5.79E-01	3.04E-01	-7.03E-02	2.80E-01
		37.36		39.70	3.04E-01		-5.75E-02	1.47E-01
		42.30		15.10	6.08E-01		-2.57E-01	2.95E-01
		72.40		2.31	3.05E+00		-1.82E+01	1.49E+00
	PM-146	453.90		39.94	1.52E-01	1.52E-01	-1.96E-02	7.22E-02
		735.90		14.01	4.51E-01		-1.18E-01	2.09E-01
		747.13		13.10	5.39E-01		2.74E-01	2.52E-01
+	ND-147	91.11	*	28.90	8.52E-01	8.38E-01	4.71E-01	4.22E-01
		531.02		13.10	8.38E-01		2.93E-01	3.95E-01
	PM-149	285.90		3.10	2.96E+01	2.96E+01	-7.12E+00	1.42E+01
	EU-152	121.78		20.50	2.38E-01	2.38E-01	6.87E-02	1.15E-01
		244.69		5.40	1.29E+00		-7.82E-01	6.26E-01
		344.27		19.13	2.79E-01		6.09E-02	1.33E-01
		778.89		9.20	6.99E-01		1.48E-02	3.23E-01
		964.01		10.40	8.36E-01		-4.65E-01	3.91E-01
		1085.78		7.22	9.80E-01		-2.16E-01	4.47E-01
		1112.02		9.60	8.14E-01		2.49E-01	3.74E-01

Analysis Report for 1606064-05

CP-5014 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	5.70E-01	2.38E-01	1.25E-01	2.59E-01
	GD-153	97.43		31.30	1.64E-01	1.64E-01	8.17E-02	8.00E-02
		103.18		22.20	2.27E-01		5.26E-02	1.11E-01
	EU-154	123.07		40.50	1.17E-01	1.17E-01	-6.40E-02	5.68E-02
		723.30		19.70	3.70E-01		0.00E+00	1.73E-01
		873.19		11.50	5.85E-01		-2.73E-01	2.70E-01
		996.32		10.30	6.26E-01		-1.87E-01	2.84E-01
		1004.76		17.90	4.44E-01		1.41E-02	2.06E-01
		1274.45		35.50	2.05E-01		2.58E-02	9.23E-02
	EU-155	86.50		30.90	2.26E-01	2.26E-01	4.16E-01	1.11E-01
		105.30		20.70	2.38E-01		1.91E-02	1.16E-01
	EU-156	811.77		10.40	1.00E+00	1.00E+00	-5.77E-01	4.66E-01
		1153.47		7.20	1.92E+00		7.00E-01	8.89E-01
		1230.71		8.90	1.59E+00		3.13E-01	7.36E-01
	HO-166M	184.41		72.60	9.65E-02	9.65E-02	1.11E-01	4.71E-02
		280.45		29.60	1.83E-01		-1.82E-02	8.75E-02
		410.94		11.10	6.22E-01		2.27E-01	2.98E-01
		711.69		54.10	1.28E-01		-2.54E-02	5.97E-02
	TM-171	66.72		0.14	5.18E+01	5.18E+01	1.14E+01	2.54E+01
	HF-172	81.75		4.52	1.32E+00	4.36E-01	-4.68E+00	6.44E-01
		125.81		11.30	4.36E-01		8.07E-02	2.11E-01
	LU-172	181.53		20.60	6.84E-01	3.48E-01	3.17E-02	3.31E-01
		810.06		16.63	1.17E+00		4.78E-01	5.44E-01
		912.12		15.25	2.53E+00		5.98E+00	1.22E+00
		1093.66		62.50	3.48E-01		5.90E-03	1.61E-01
	LU-173	100.72		5.24	9.41E-01	3.07E-01	2.23E-02	4.57E-01
		272.11		21.20	3.07E-01		3.74E-01	1.48E-01
	HF-175	343.40		84.00	7.02E-02	7.02E-02	-4.09E-02	3.34E-02
	LU-176	88.34		13.30	5.29E-01	5.40E-02	9.70E-01	2.59E-01
		201.83		86.00	6.12E-02		-1.97E-02	2.95E-02
		306.78		94.00	5.40E-02		-6.87E-03	2.58E-02
	TA-182	67.75		41.20	1.69E-01	1.69E-01	-1.01E-02	8.28E-02
		1121.30		34.90	3.97E-01		6.46E-01	1.89E-01
		1189.05		16.23	5.95E-01		1.19E-01	2.76E-01
		1221.41		26.98	3.72E-01		6.93E-02	1.72E-01
		1231.02		11.44	8.60E-01		1.69E-01	3.98E-01
	IR-192	308.46		29.68	1.89E-01	1.35E-01	2.43E-02	8.99E-02
		468.07		48.10	1.35E-01		-7.03E-02	6.36E-02
	HG-203	279.19		77.30	8.45E-02	8.45E-02	4.37E-02	4.06E-02
	BI-207	569.67		97.72	6.92E-02	6.92E-02	8.53E-03	3.27E-02
		1063.62		74.90	1.06E-01		-9.76E-03	4.89E-02
+	TL-208	583.14	*	30.22	2.79E-01	1.94E-01	1.27E+00	1.33E-01
		860.37	*	4.48	2.11E+00		2.21E+00	9.99E-01
		2614.66	*	35.85	1.94E-01		9.47E-01	8.25E-02
	BI-210M	262.00		45.00	1.13E-01	1.13E-01	-5.35E-03	5.39E-02
		300.00		23.00	2.49E-01		-1.20E+00	1.20E-01
+	PB-210	46.50	*	4.25	2.18E+00	2.18E+00	2.76E+00	1.06E+00
	PB-211	404.84		2.90	2.03E+00	2.03E+00	2.59E-01	9.63E-01
		831.96		2.90	2.64E+00		5.73E-01	1.23E+00
	BI-212	727.17		11.80	7.50E-01	7.50E-01	8.43E-01	3.56E-01
		1620.62		2.75	2.33E+00		1.61E-01	1.01E+00
	PB-212	238.63		44.60	2.50E-01	2.50E-01	8.38E-01	1.23E-01
		300.09		3.41	1.68E+00		-8.12E+00	8.07E-01

Analysis Report for 1606064-05

CP-5014 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	2.17E-01	2.17E-01	1.49E+00	1.04E-01
		1120.29	*	15.10	6.00E-01		1.58E+00	2.79E-01
		1764.49	*	15.80	6.04E-01		1.60E+00	2.74E-01
		2204.22	*	4.98	1.33E+00		2.04E+00	5.66E-01
+	PB-214	295.21	*	19.19	4.36E-01	2.99E-01	1.45E+00	2.12E-01
		351.92	*	37.19	2.99E-01		1.88E+00	1.46E-01
	RN-219	401.80		6.50	8.39E-01	8.39E-01	-6.03E-02	3.97E-01
	RA-223	323.87		3.88	1.33E+00	1.33E+00	-8.32E-02	6.31E-01
	RA-224	240.98		3.95	3.09E+00	3.09E+00	1.70E+01	1.52E+00
	RA-225	40.00		31.00	4.95E-01	4.95E-01	-1.38E-03	2.40E-01
+	RA-226	186.21	*	3.28	2.57E+00	2.57E+00	4.15E+00	1.26E+00
	TH-227	50.10		8.40	9.14E-01	4.94E-01	4.05E-01	4.45E-01
		236.00		11.50	4.94E-01		-6.23E+00	2.38E-01
		256.20		6.30	8.04E-01		-6.90E-03	3.85E-01
+	AC-228	338.32	*	11.40	4.98E-01	4.12E-01	1.23E+00	2.38E-01
		911.07	*	27.70	4.12E-01		1.50E+00	1.96E-01
		969.11	*	16.60	8.62E-01		1.68E+00	4.14E-01
	TH-230	48.44		16.90	5.17E-01	5.17E-01	1.04E-01	2.52E-01
		62.85		4.60	1.74E+00		2.52E+00	8.54E-01
		67.67		0.37	1.78E+01		-1.06E+00	8.72E+00
	PA-231	283.67		1.60	3.29E+00	2.52E+00	1.42E-01	1.57E+00
		302.67		2.30	2.52E+00		2.25E+00	1.21E+00
	TH-231	25.64		14.70	5.46E+00	9.50E-01	-1.53E+01	2.67E+00
		84.21		6.40	9.50E-01		-2.63E+00	4.64E-01
	PA-233	311.98		38.60	1.68E-01	1.68E-01	-3.64E-02	8.00E-02
	PA-234	131.20		20.40	2.63E-01	2.63E-01	2.10E-01	1.28E-01
		733.99		8.80	6.83E-01		-6.61E-02	3.16E-01
		946.00		12.00	6.08E-01		6.75E-02	2.81E-01
	PA-234M	1001.03		0.92	8.06E+00	8.06E+00	2.12E+00	3.71E+00
+	TH-234	63.29	*	3.80	2.61E+00	2.61E+00	1.68E+00	1.29E+00
	U-235	143.76		10.50	4.95E-01	4.95E-01	-1.95E-02	2.40E-01
		163.35		4.70	1.10E+00		4.13E-01	5.33E-01
		205.31		4.70	1.19E+00		8.13E-01	5.73E-01
	NP-237	86.50		12.60	5.51E-01	5.51E-01	1.02E+00	2.70E-01
	NP-239	106.10		22.70	3.22E+00	3.22E+00	2.58E-01	1.56E+00
		228.18		10.70	7.66E+00		4.37E+00	3.69E+00
		277.60		14.10	5.90E+00		2.50E+00	2.83E+00
	AM-241	59.54		35.90	1.92E-01	1.92E-01	5.22E-03	9.36E-02
	AM-243	74.67		66.00	1.31E-01	1.31E-01	-4.37E-01	6.42E-02
	CM-243	209.75		3.29	1.70E+00	4.00E-01	5.82E-01	8.20E-01
		228.14		10.60	5.20E-01		2.97E-01	2.51E-01
		277.60		14.00	4.00E-01		1.70E-01	1.92E-01

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

Analysis Report for 1606064-05

CP-5014 00-02

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

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-5014 00-02

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	43	91	85	108	674	355
25:	84	78	66	67	66	71	65	61
33:	67	62	65	64	65	62	53	65
41:	65	62	59	79	75	70	160	139
49:	56	72	103	85	80	87	98	106
57:	100	102	104	126	115	119	130	260
65:	227	134	117	141	126	120	138	123
73:	137	154	230	477	216	565	256	134
81:	110	133	106	111	167	136	117	237
89:	186	123	206	113	200	319	157	113
97:	72	67	96	86	66	88	70	89
105:	74	91	86	67	86	90	75	79
113:	65	91	68	90	69	78	84	82
121:	58	85	68	79	59	78	85	65
129:	71	101	97	75	87	71	70	67
137:	74	75	69	67	73	58	77	77
145:	96	65	77	74	76	66	61	82
153:	78	59	83	70	61	66	61	81
161:	67	66	70	65	58	66	53	69
169:	69	63	53	65	62	46	62	75
177:	50	59	72	68	68	68	64	55
185:	53	117	242	97	61	64	47	61
193:	63	56	61	66	52	51	59	40
201:	58	53	55	58	57	74	59	43
209:	42	104	58	37	46	47	57	39
217:	61	46	51	45	53	52	49	43
225:	45	57	44	54	47	46	37	41
233:	45	44	50	40	59	60	309	485
241:	81	134	168	66	46	39	47	34
249:	36	43	40	29	40	34	39	33
257:	42	30	38	35	31	38	40	29
265:	29	43	29	30	38	45	86	67
273:	44	26	38	31	35	52	38	40
281:	37	32	33	35	32	35	26	32
289:	27	46	38	37	32	41	60	245
297:	126	32	21	40	55	37	35	29
305:	31	23	23	30	32	28	28	32
313:	21	29	24	35	26	27	32	23
321:	33	24	28	23	36	21	27	26
329:	49	29	22	32	29	37	19	14
337:	23	42	97	73	21	24	33	31
345:	28	17	21	29	27	42	39	199
353:	425	87	22	24	36	23	20	24
361:	22	32	19	21	17	22	24	12

369:	19	24	34	22	24	19	21	17

Sample Title: CP-5014 00-02

Channel								
377:	14	18	16	15	21	29	24	20
385:	21	25	24	32	20	21	19	25
393:	16	22	21	23	22	15	23	20
401:	13	24	25	26	22	28	24	27
409:	27	30	30	19	15	23	16	20
417:	14	30	15	23	25	25	18	15
425:	13	28	18	23	14	19	14	19
433:	15	16	16	10	18	15	14	18
441:	23	23	16	12	20	18	11	14
449:	14	17	15	9	23	17	26	14
457:	8	20	16	14	13	11	17	35
465:	21	13	13	18	14	14	9	13
473:	14	18	9	13	16	9	16	18
481:	15	23	19	7	9	15	21	16
489:	19	19	7	19	13	15	14	16
497:	23	18	10	14	17	14	10	13
505:	22	11	16	18	21	39	45	75
513:	39	14	16	15	17	14	16	18
521:	10	11	19	13	12	7	10	10
529:	16	12	17	14	6	15	11	13
537:	16	12	13	8	10	12	12	19
545:	7	11	17	16	11	13	11	11
553:	8	11	16	15	16	13	15	12
561:	18	14	13	18	14	19	20	9
569:	10	9	17	20	13	11	10	17
577:	19	10	9	14	13	13	70	150
585:	59	18	20	10	7	8	9	8
593:	11	14	17	9	14	13	6	11
601:	13	11	10	10	14	14	12	16
609:	80	274	121	28	16	15	6	16
617:	10	18	10	15	5	11	13	10
625:	10	9	9	10	9	8	14	10
633:	13	7	10	14	16	13	12	14
641:	16	7	10	5	16	14	11	9
649:	12	14	13	10	18	9	13	9
657:	10	12	15	7	12	10	13	6
665:	12	10	15	15	13	18	12	10
673:	17	19	19	14	14	13	13	9
681:	11	12	6	13	9	7	5	14
689:	11	12	11	8	10	13	8	10
697:	17	10	12	18	7	10	14	25
705:	9	17	16	15	7	14	11	6
713:	9	13	11	9	7	7	15	6
721:	9	12	10	18	6	16	12	24
729:	27	13	4	7	5	6	5	14
737:	9	11	5	11	14	8	6	8
745:	9	10	9	10	12	10	6	7
753:	9	6	4	10	11	6	16	11
761:	7	13	8	17	8	10	8	22
769:	33	17	17	12	14	7	10	8
777:	3	6	10	8	5	12	11	9
785:	8	20	11	12	11	7	5	11
793:	8	6	20	16	16	8	6	9

801:	10	8	8	10	12	5	17	8

Sample Title: CP-5014 00-02

Channel								
809:	3	14	5	10	11	6	7	13
817:	7	6	7	7	8	13	4	4
825:	9	11	6	4	5	12	13	13
833:	8	8	9	15	7	12	10	10
841:	11	8	10	16	10	9	8	10
849:	12	6	10	8	9	6	7	5
857:	6	9	10	12	28	15	11	5
865:	8	3	5	6	11	7	1	6
873:	8	13	5	7	11	8	5	10
881:	6	7	11	4	8	8	6	14
889:	6	9	0	4	14	7	6	8
897:	8	7	11	3	6	11	10	10
905:	4	5	7	9	11	12	59	93
913:	35	16	12	12	7	6	10	9
921:	7	6	8	9	6	8	6	6
929:	3	6	9	8	8	12	16	11
937:	5	5	10	0	9	5	7	6
945:	5	10	7	7	7	2	10	8
953:	4	6	3	5	8	5	7	8
961:	7	3	9	2	26	17	5	8
969:	30	44	25	9	10	10	10	7
977:	5	4	9	8	3	3	6	9
985:	12	2	10	7	6	7	8	3
993:	10	3	4	4	5	4	4	7
1001:	6	12	8	5	8	4	7	9
1009:	7	9	6	5	6	6	7	4
1017:	5	6	8	5	12	7	9	10
1025:	5	5	10	15	10	7	3	7
1033:	6	6	5	6	6	10	12	7
1041:	12	5	8	8	2	6	8	8
1049:	5	5	10	7	9	4	5	7
1057:	7	7	5	8	6	6	5	5
1065:	12	10	4	8	8	7	4	10
1073:	8	6	5	6	9	13	10	9
1081:	4	5	5	3	6	7	3	3
1089:	9	8	7	7	11	7	6	5
1097:	9	7	6	8	4	10	6	9
1105:	6	6	5	5	6	8	5	9
1113:	5	8	2	4	5	11	3	31
1121:	53	20	6	4	6	6	8	8
1129:	8	9	6	6	8	8	6	8
1137:	9	9	4	6	8	6	6	6
1145:	6	9	9	5	6	9	10	3
1153:	4	12	4	14	4	9	4	7
1161:	9	7	8	9	1	6	5	11
1169:	8	3	7	5	10	10	4	14
1177:	7	2	9	5	6	8	6	6
1185:	9	8	5	7	11	7	9	7
1193:	5	7	7	9	9	9	5	6
1201:	7	10	5	9	5	9	8	2
1209:	11	6	3	7	6	9	4	9
1217:	5	9	10	6	6	4	12	9
1225:	9	5	5	8	9	6	8	6

1233:	9	7	8	7	11	16	25	13

Sample Title: CP-5014 00-02

Channel								
1241:	8	9	11	6	13	9	3	8
1249:	7	6	7	5	4	5	4	8
1257:	6	3	6	6	5	4	9	5
1265:	1	9	4	6	4	4	3	5
1273:	7	3	4	1	6	7	3	7
1281:	13	8	5	5	7	6	2	9
1289:	6	2	4	2	5	6	10	4
1297:	1	3	2	3	4	3	4	1
1305:	4	2	2	5	2	4	2	3
1313:	5	4	4	4	1	4	5	5
1321:	3	3	8	0	2	3	7	3
1329:	4	4	3	2	5	2	2	3
1337:	5	3	3	3	3	1	3	2
1345:	3	5	4	3	2	4	3	6
1353:	5	4	4	6	3	3	5	4
1361:	3	5	0	4	2	2	2	2
1369:	3	4	1	2	3	4	3	5
1377:	7	11	11	8	6	2	1	5
1385:	3	2	5	2	2	6	3	0
1393:	1	3	2	7	1	2	2	3
1401:	4	4	5	2	4	4	5	5
1409:	8	5	4	5	4	1	3	1
1417:	1	0	3	2	1	2	2	6
1425:	4	2	2	5	4	0	0	2
1433:	1	6	5	1	3	2	5	3
1441:	2	3	5	9	1	3	0	1
1449:	2	2	4	0	3	5	1	2
1457:	3	1	21	107	269	228	61	11
1465:	2	2	8	4	1	5	0	2
1473:	0	2	6	1	3	4	3	3
1481:	0	2	1	1	1	1	2	3
1489:	2	3	7	3	0	1	1	2
1497:	2	3	2	2	3	2	2	2
1505:	4	2	4	1	6	9	2	1
1513:	4	2	3	4	0	1	1	4
1521:	1	4	0	1	1	1	0	4
1529:	0	2	1	2	3	1	3	3
1537:	3	3	8	2	3	2	4	5
1545:	5	2	1	2	1	2	2	4
1553:	1	0	1	1	4	1	1	1
1561:	3	2	1	1	0	0	3	1
1569:	0	2	0	2	1	2	2	4
1577:	1	2	2	1	4	3	6	1
1585:	0	2	5	7	7	4	2	3
1593:	4	1	1	3	1	0	4	3
1601:	3	0	0	1	1	3	3	1
1609:	0	0	1	0	4	1	2	3
1617:	3	3	0	2	1	3	3	2
1625:	1	2	1	5	3	2	4	3
1633:	0	3	1	0	2	3	2	0
1641:	0	2	0	1	2	1	0	0
1649:	1	2	0	2	0	1	4	3
1657:	2	0	1	4	2	3	0	4

1665:	3	2	1	3	1	1	0	3

Sample Title: CP-5014 00-02

Channel								
1673:	1	2	1	4	2	1	0	0
1681:	2	1	1	2	3	0	0	2
1689:	2	2	1	1	1	1	2	0
1697:	0	2	1	1	3	0	1	6
1705:	1	1	2	1	2	0	2	1
1713:	0	1	2	0	2	2	0	2
1721:	1	0	4	1	0	0	1	4
1729:	5	7	5	1	0	2	0	0
1737:	2	3	1	1	1	0	1	1
1745:	0	1	0	0	0	3	1	1
1753:	0	2	0	3	1	2	1	1
1761:	2	0	10	23	28	19	2	2
1769:	1	2	0	1	0	0	0	2
1777:	0	1	2	1	1	1	0	0
1785:	0	0	3	0	1	1	0	1
1793:	2	2	1	3	2	1	1	0
1801:	1	1	4	0	1	0	1	0
1809:	0	3	0	1	0	1	0	2
1817:	0	1	1	3	2	1	0	1
1825:	0	3	0	2	1	0	1	2
1833:	1	4	2	1	2	2	2	1
1841:	0	0	2	1	0	4	7	3
1849:	0	5	1	1	1	1	1	0
1857:	0	1	1	2	1	1	0	3
1865:	1	3	1	0	5	0	1	0
1873:	0	0	1	0	1	0	0	1
1881:	1	1	0	0	0	2	1	1
1889:	1	2	6	0	0	2	0	0
1897:	1	4	1	0	0	0	1	2
1905:	2	3	1	2	0	1	2	0
1913:	1	3	2	0	1	2	2	1
1921:	1	3	0	2	1	4	0	1
1929:	4	0	3	4	2	1	2	0
1937:	0	0	0	2	1	0	1	0
1945:	2	0	0	1	1	2	0	0
1953:	0	1	2	1	1	3	1	1
1961:	0	0	1	1	1	1	0	0
1969:	2	0	1	1	1	0	2	1
1977:	0	1	0	1	3	0	0	2
1985:	0	0	1	0	0	0	1	1
1993:	2	0	1	0	2	1	3	1
2001:	0	0	0	1	0	1	2	1
2009:	1	0	3	0	0	1	2	1
2017:	2	0	0	1	0	2	1	1
2025:	0	1	1	0	1	1	2	1
2033:	0	1	2	1	0	1	2	2
2041:	2	0	0	0	2	1	3	3
2049:	0	0	0	2	2	0	0	0
2057:	1	1	0	0	1	0	0	2
2065:	1	2	1	1	1	2	0	0
2073:	1	0	1	0	1	1	2	0
2081:	1	0	2	0	2	1	0	0
2089:	1	3	0	0	0	1	1	1

2097:	0	0	2	3	0	4	2	5

Sample Title: CP-5014 00-02

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

2529:	1	0	0	1	0	0	0	0

Sample Title: CP-5014 00-02

Channel								
2537:	0	1	0	1	0	2	1	0
2545:	0	0	1	0	1	0	0	0
2553:	1	0	0	2	0	0	0	1
2561:	0	2	0	0	0	1	0	3
2569:	0	0	0	0	0	0	0	0
2577:	0	2	0	1	0	0	0	0
2585:	0	0	0	2	1	0	0	0
2593:	0	0	0	0	1	0	1	0
2601:	0	2	0	1	0	0	0	0
2609:	0	3	0	2	16	39	22	18
2617:	3	0	0	0	0	0	0	0
2625:	1	0	1	1	0	2	1	0
2633:	0	0	0	0	0	0	1	0
2641:	0	0	0	1	0	0	0	1
2649:	0	0	0	1	0	0	1	0
2657:	0	0	0	0	0	0	0	0
2665:	0	0	0	1	0	0	0	0
2673:	0	0	0	0	0	0	0	0
2681:	0	1	0	0	0	0	0	0
2689:	1	1	0	1	0	2	0	2
2697:	0	2	0	0	0	0	0	0
2705:	1	0	0	1	1	1	0	1
2713:	0	0	1	0	0	1	0	0
2721:	1	0	0	0	0	0	0	0
2729:	1	1	0	1	2	0	0	1
2737:	0	0	0	0	0	0	0	0
2745:	0	0	0	0	0	0	0	1
2753:	0	2	0	1	0	0	0	0
2761:	0	1	0	0	0	0	0	0
2769:	1	0	0	0	0	0	0	0
2777:	0	0	0	0	1	0	0	0
2785:	0	0	0	0	0	0	0	1
2793:	0	0	1	0	1	0	0	0
2801:	0	0	0	2	0	0	0	0
2809:	0	0	0	1	0	0	0	0
2817:	1	0	0	2	1	0	0	0
2825:	0	1	0	0	0	0	0	0
2833:	0	1	1	0	0	1	1	0
2841:	1	0	0	0	0	0	1	0
2849:	1	0	0	0	0	1	0	0
2857:	1	1	0	0	0	1	1	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	4	0	1	0	0
2881:	0	1	0	0	0	0	0	1
2889:	0	0	1	0	0	0	0	0
2897:	0	0	1	0	1	0	0	1
2905:	0	0	0	0	0	0	0	0
2913:	0	0	0	0	0	0	0	0
2921:	1	0	0	0	0	0	0	0
2929:	1	0	1	2	0	0	0	0
2937:	0	0	0	0	1	0	0	0
2945:	0	0	0	0	1	0	0	0
2953:	0	0	0	0	0	0	0	1

2961:	0	0	0	1	0	0	1	0

Sample Title: CP-5014 00-02

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

3393:	0	0	1	0	0	0	0	0

Sample Title: CP-5014 00-02

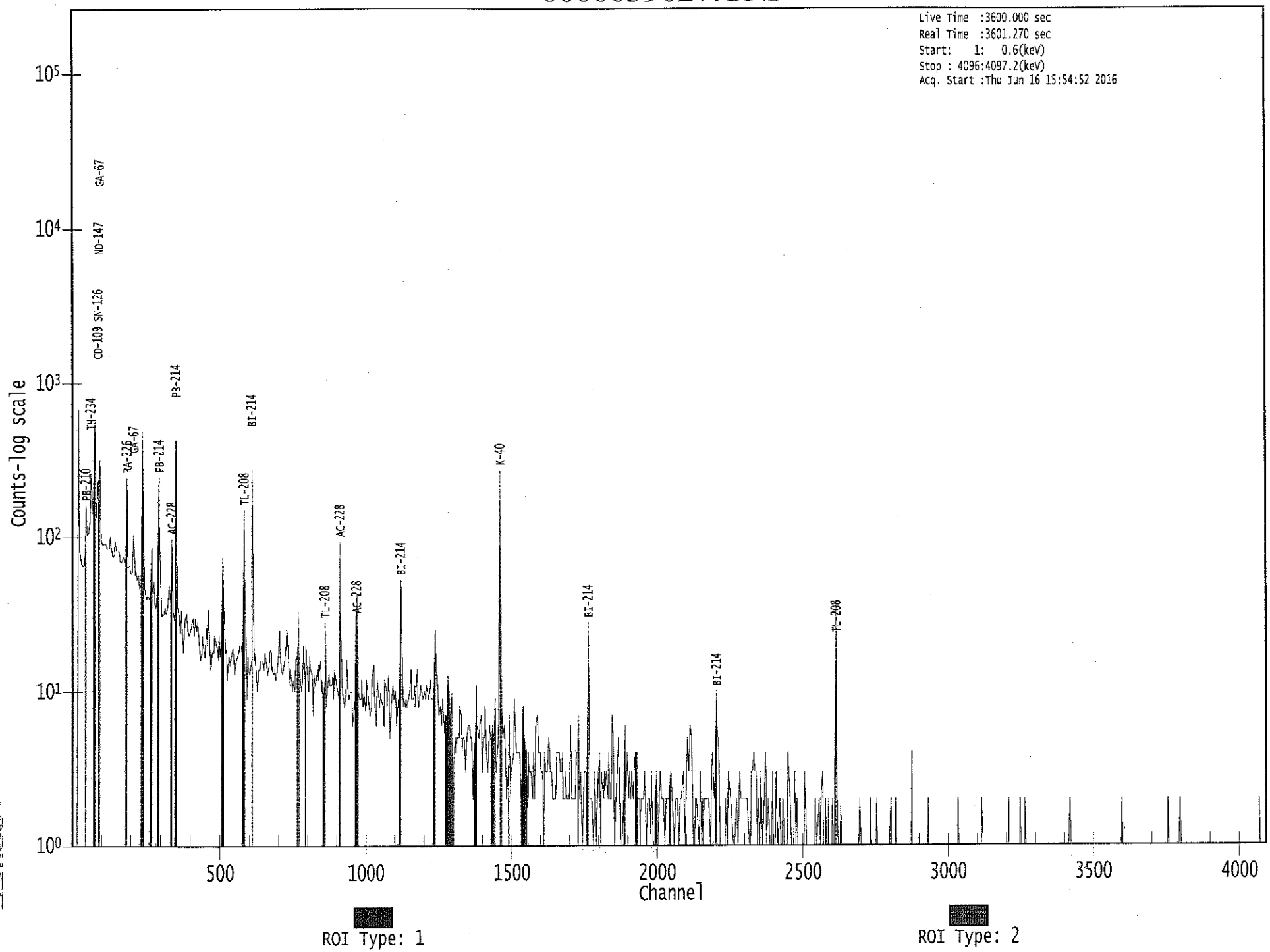
Channel								
3401:	0	0	0	0	0	1	0	0
3409:	0	0	0	0	0	0	1	0
3417:	0	0	0	2	0	1	0	1
3425:	1	0	1	1	0	1	0	0
3433:	0	0	1	0	0	0	0	0
3441:	0	1	0	0	1	1	0	0
3449:	1	0	0	0	0	1	0	0
3457:	0	0	1	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	1	0	0	1	0	0	0
3481:	0	0	0	1	0	0	0	1
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	1	0
3505:	0	0	0	0	1	0	0	0
3513:	0	0	1	0	0	0	0	0
3521:	0	1	0	1	0	0	0	1
3529:	0	0	0	0	0	0	0	0
3537:	0	0	0	0	1	0	0	0
3545:	0	1	0	0	0	1	1	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:	0	0	0	0	0	0	0	0
3585:	0	0	1	0	0	0	0	1
3593:	0	0	1	0	0	2	0	1
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	1	0	0	0	0	0	0
3633:	0	1	0	1	0	0	0	0
3641:	0	0	0	0	0	1	0	0
3649:	0	0	1	0	0	0	0	0
3657:	0	0	0	1	0	0	1	0
3665:	0	0	0	0	0	0	0	0
3673:	0	0	0	0	1	0	0	0
3681:	1	0	0	0	1	0	0	0
3689:	0	0	0	0	0	0	0	1
3697:	0	0	0	0	0	0	0	0
3705:	0	0	0	0	0	0	0	0
3713:	0	0	1	0	0	1	0	1
3721:	0	0	0	1	0	0	1	0
3729:	0	0	0	0	1	0	1	0
3737:	0	0	0	0	0	0	0	0
3745:	0	0	0	1	0	0	0	0
3753:	0	0	2	1	0	0	1	0
3761:	0	1	0	0	0	0	0	0
3769:	0	1	0	0	0	0	0	0
3777:	0	0	0	0	0	0	0	0
3785:	0	0	0	0	0	0	0	1
3793:	1	0	0	2	0	0	0	1
3801:	0	0	0	0	0	0	0	0
3809:	0	1	0	0	0	0	0	0
3817:	0	0	0	1	0	0	0	0

3825:	0	0	1	0	0	1	0	0

Sample Title: CP-5014 00-02

Channel								
3833:	0	0	1	0	1	0	0	0
3841:	1	0	0	1	0	0	0	0
3849:	1	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	1
3873:	1	0	0	0	1	0	0	0
3881:	0	0	0	0	0	0	1	0
3889:	0	0	0	0	1	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	1
3913:	0	0	1	0	1	0	0	0
3921:	0	0	0	0	0	0	0	0
3929:	0	0	1	0	0	1	0	0
3937:	0	0	0	0	0	0	0	1
3945:	1	0	0	0	0	1	0	1
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	1	0	0	0	0
3969:	0	0	1	0	1	0	0	0
3977:	0	0	0	1	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	1	0	0	0
4009:	0	1	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	1	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	1	1	0	0
4065:	0	0	0	0	2	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	1

0000039027.CNF



Apex-Gamma

Analysis Report for 1606064-06
CP-5014 02-05

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1606064-06
Sample Description	: CP-5014 02-05
Sample Type	: SOIL
Sample Size	: 5.746E+02 grams
Facility	: Countroom
Sample Taken On	: 6/7/2016 12:18:09PM
Acquisition Started	: 6/16/2016 4:08:39PM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE2
Geometry	: GAS-1402
Live Time	: 3600.0 seconds
Real Time	: 3602.1 seconds
Dead Time	: 0.06 %
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	: 39030

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

Analysis Report for 1606064-06

CP-5014 02-05

PEAK LOCATE REPORT

Peak Locate Performed on : 6/16/2016 5:08:44PM
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	12.98	13.11	0.0000	0.00
2	42.27	42.38	0.0000	0.00
3	46.91	47.02	0.0000	0.00
4	53.43	53.54	0.0000	0.00
5	63.12	63.22	0.0000	0.00
6	76.56	76.64	0.0000	0.00
7	87.36	87.45	0.0000	0.00
8	99.36	99.44	0.0000	0.00
9	186.07	186.10	0.0000	0.00
10	236.13	236.13	0.0000	0.00
11	239.13	239.13	0.0000	0.00
12	241.97	241.97	0.0000	0.00
13	269.59	269.57	0.0000	0.00
14	295.39	295.36	0.0000	0.00
15	300.14	300.10	0.0000	0.00
16	339.23	339.17	0.0000	0.00
17	349.06	349.00	0.0000	0.00
18	352.19	352.12	0.0000	0.00
19	388.08	388.00	0.0000	0.00
20	426.96	426.86	0.0000	0.00
21	439.54	439.43	0.0000	0.00
22	460.45	460.33	0.0000	0.00
23	463.31	463.19	0.0000	0.00
24	511.00	510.86	0.0000	0.00
25	583.46	583.28	0.0000	0.00
26	609.58	609.39	0.0000	0.00
27	665.47	665.25	0.0000	0.00
28	703.77	703.54	0.0000	0.00
29	728.29	728.04	0.0000	0.00
30	755.06	754.80	0.0000	0.00
31	768.85	768.59	0.0000	0.00
32	830.21	829.92	0.0000	0.00
33	840.13	839.83	0.0000	0.00
34	860.56	860.26	0.0000	0.00
35	911.52	911.20	0.0000	0.00
36	934.49	934.16	0.0000	0.00
37	965.20	964.85	0.0000	0.00
38	969.55	969.20	0.0000	0.00
39	1120.67	1120.26	0.0000	0.00
40	1155.38	1154.96	0.0000	0.00
41	1238.90	1238.45	0.0000	0.00
42	1280.93	1280.47	0.0000	0.00

Analysis Report for 1606064-06

CP-5014 02-05

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1348.50	1348.01	0.0000	0.00
44	1377.97	1377.47	0.0000	0.00
45	1385.90	1385.40	0.0000	0.00
46	1396.73	1396.23	0.0000	0.00
47	1409.28	1408.77	0.0000	0.00
48	1434.87	1434.36	0.0000	0.00
49	1461.49	1460.97	0.0000	0.00
50	1510.07	1509.54	0.0000	0.00
51	1514.41	1513.87	0.0000	0.00
52	1583.73	1583.17	0.0000	0.00
53	1590.93	1590.37	0.0000	0.00
54	1661.82	1661.24	0.0000	0.00
55	1666.58	1666.00	0.0000	0.00
56	1730.31	1729.71	0.0000	0.00
57	1765.21	1764.60	0.0000	0.00
58	1847.63	1847.01	0.0000	0.00
59	1975.49	1974.83	0.0000	0.00
60	2103.49	2102.81	0.0000	0.00
61	2204.74	2204.05	0.0000	0.00
62	2447.98	2447.26	0.0000	0.00
63	2481.01	2480.29	0.0000	0.00
64	2615.25	2614.51	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606064-06

CP-5014 02-05

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/16/2016 5:08:44PM

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	12.98	12 -	16	13.11	2.00E+03	135.63	2.09E+03	1.05
	2	42.27	40 -	45	42.38	7.62E+01	75.17	1.08E+03	2.39
	3	46.91	45 -	49	47.02	1.58E+02	71.57	9.99E+02	1.00
	4	53.43	51 -	55	53.54	6.03E+01	71.74	1.09E+03	1.65
	5	63.12	59 -	66	63.22	3.40E+02	126.59	2.45E+03	1.81
	6	76.56	72 -	82	76.64	1.80E+03	186.19	3.62E+03	3.62
	7	87.36	86 -	89	87.45	1.08E+02	80.77	1.55E+03	1.54
	8	99.36	98 -	102	99.44	7.24E+01	70.30	1.02E+03	4.00
	9	186.07	182 -	189	186.10	5.73E+02	97.02	1.18E+03	1.34
M	10	236.13	235 -	244	236.13	2.68E+01	27.44	2.25E+02	1.41
m	11	239.13	235 -	244	239.13	7.68E+02	65.45	4.21E+02	1.41
m	12	241.97	235 -	244	241.97	4.33E+02	59.63	3.83E+02	1.42
	13	269.59	266 -	272	269.57	5.28E+01	64.46	7.16E+02	1.27
	14	295.39	292 -	298	295.36	8.16E+02	80.89	5.99E+02	1.78
	15	300.14	299 -	303	300.10	4.65E+01	47.43	4.57E+02	1.20
	16	339.23	334 -	344	339.17	1.69E+02	83.66	8.33E+02	1.82
M	17	349.06	347 -	355	349.00	3.44E+01	44.99	3.30E+02	1.57
m	18	352.19	347 -	355	352.12	1.49E+03	82.73	2.42E+02	1.36
	19	388.08	385 -	391	388.00	4.21E+01	46.71	3.70E+02	3.69
	20	426.96	423 -	431	426.86	5.86E+01	53.31	4.03E+02	4.75
	21	439.54	437 -	442	439.43	2.90E+01	34.15	2.10E+02	2.33
M	22	460.45	459 -	465	460.33	1.92E+01	20.56	1.04E+02	1.77
m	23	463.31	459 -	465	463.19	6.20E+01	31.35	1.62E+02	1.54
	24	511.00	507 -	515	510.86	1.26E+02	52.76	3.51E+02	2.14
	25	583.46	579 -	586	583.28	2.03E+02	49.19	2.67E+02	1.70
	26	609.58	604 -	614	609.39	1.07E+03	81.77	3.20E+02	1.91
	27	665.47	661 -	669	665.25	5.41E+01	38.67	1.94E+02	1.65
	28	703.77	699 -	707	703.54	3.44E+01	38.41	2.03E+02	4.54
	29	728.29	724 -	731	728.04	4.89E+01	34.00	1.60E+02	1.67
	30	755.06	751 -	759	754.80	3.01E+01	33.89	1.60E+02	2.84
	31	768.85	764 -	774	768.59	1.16E+02	44.19	2.00E+02	1.87
M	32	830.21	827 -	848	829.92	2.28E+01	20.11	6.44E+01	2.28
m	33	840.13	827 -	848	839.83	2.92E+01	26.20	8.68E+01	2.29
	34	860.56	857 -	864	860.26	2.77E+01	30.85	1.41E+02	1.79
	35	911.52	906 -	916	911.20	1.41E+02	47.05	2.20E+02	2.01
	36	934.49	930 -	939	934.16	3.58E+01	41.44	2.24E+02	2.09
M	37	965.20	961 -	975	964.85	5.81E+01	22.45	5.15E+01	1.97
m	38	969.55	961 -	975	969.20	1.09E+02	26.83	4.69E+01	2.08
	39	1120.67	1116 -	1125	1120.26	2.12E+02	44.87	1.71E+02	2.03
	40	1155.38	1149 -	1160	1154.96	6.12E+01	38.00	1.50E+02	3.14

Analysis Report for 1606064-06

CP-5014 02-05

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1238.90	1235 -	1242	1238.45	8.54E+01	35.67	1.53E+02	1.97
	42	1280.93	1277 -	1283	1280.47	2.93E+01	23.62	7.93E+01	3.20
	43	1348.50	1342 -	1354	1348.01	3.60E+01	28.05	6.81E+01	8.29
	44	1377.97	1372 -	1381	1377.47	6.53E+01	26.08	5.95E+01	1.43
	45	1385.90	1382 -	1389	1385.40	1.87E+01	20.88	6.07E+01	2.40
M	46	1396.73	1394 -	1414	1396.23	1.64E+01	11.31	2.45E+01	2.50
m	47	1409.28	1394 -	1414	1408.77	3.40E+01	22.09	5.97E+01	2.51
	48	1434.87	1431 -	1437	1434.36	1.18E+01	13.33	2.23E+01	1.09
	49	1461.49	1456 -	1466	1460.97	6.89E+02	57.02	6.60E+01	1.93
M	50	1510.07	1504 -	1518	1509.54	2.95E+01	18.59	3.07E+01	3.12
m	51	1514.41	1504 -	1518	1513.87	9.89E+00	17.02	3.44E+01	2.84
	52	1583.73	1581 -	1585	1583.17	1.30E+01	14.04	3.21E+01	2.29
	53	1590.93	1586 -	1597	1590.37	2.74E+01	24.17	5.72E+01	7.25
M	54	1661.82	1657 -	1669	1661.24	1.57E+01	12.17	1.23E+01	2.67
m	55	1666.58	1657 -	1669	1666.00	1.20E+01	12.21	1.69E+01	2.43
	56	1730.31	1725 -	1734	1729.71	3.99E+01	17.32	2.02E+01	1.89
	57	1765.21	1760 -	1768	1764.60	1.54E+02	26.55	1.34E+01	2.22
	58	1847.63	1844 -	1850	1847.01	3.65E+01	12.82	2.97E+00	2.78
	59	1975.49	1972 -	1977	1974.83	6.00E+00	4.90	0.00E+00	2.74
	60	2103.49	2099 -	2106	2102.81	9.70E+00	13.27	2.06E+01	2.05
	61	2204.74	2200 -	2208	2204.05	5.50E+01	15.76	4.00E+00	3.13
	62	2447.98	2442 -	2451	2447.26	1.77E+01	10.25	4.65E+00	2.37
	63	2481.01	2476 -	2484	2480.29	7.00E+00	5.29	0.00E+00	4.99
	64	2615.25	2610 -	2618	2614.51	7.20E+01	16.97	0.00E+00	2.50

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 : 6/16/2016 5:08:44PM

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	12.98	12 -	16	2.00E+03	135.63	2.09E+03	8.37E+01
2	42.27	40 -	45	7.62E+01	75.17	1.08E+03	6.01E+01
3	46.91	45 -	49	1.58E+02	71.57	9.99E+02	5.51E+01
4	53.43	51 -	55	6.03E+01	71.74	1.09E+03	5.76E+01

Analysis Report for 1606064-06

CP-5014 02-05

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	5	63.12	59 -	66	3.40E+02	126.59	2.45E+03	9.95E+01
	6	76.56	72 -	82	1.80E+03	186.19	3.62E+03	1.36E+02
	7	87.36	86 -	89	1.08E+02	80.77	1.55E+03	6.42E+01
	8	99.36	98 -	102	7.24E+01	70.30	1.02E+03	5.61E+01
	9	186.07	182 -	189	5.73E+02	97.02	1.18E+03	6.94E+01
M	10	236.13	235 -	244	2.68E+01	27.44	2.25E+02	2.47E+01
m	11	239.13	235 -	244	7.68E+02	65.45	4.21E+02	3.37E+01
m	12	241.97	235 -	244	4.33E+02	59.63	3.83E+02	3.22E+01
	13	269.59	266 -	272	5.28E+01	64.46	7.16E+02	5.16E+01
	14	295.39	292 -	298	8.16E+02	80.89	5.99E+02	4.71E+01
	15	300.14	299 -	303	4.65E+01	47.43	4.57E+02	3.73E+01
	16	339.23	334 -	344	1.69E+02	83.66	8.33E+02	6.54E+01
M	17	349.06	347 -	355	3.44E+01	44.99	3.30E+02	2.99E+01
m	18	352.19	347 -	355	1.49E+03	82.73	2.42E+02	2.56E+01
	19	388.08	385 -	391	4.21E+01	46.71	3.70E+02	3.69E+01
	20	426.96	423 -	431	5.86E+01	53.31	4.03E+02	4.20E+01
	21	439.54	437 -	442	2.90E+01	34.15	2.10E+02	2.66E+01
M	22	460.45	459 -	465	1.92E+01	20.56	1.04E+02	1.68E+01
m	23	463.31	459 -	465	6.20E+01	31.35	1.62E+02	2.09E+01
	24	511.00	507 -	515	1.26E+02	52.76	3.51E+02	3.93E+01
	25	583.46	579 -	586	2.03E+02	49.19	2.67E+02	3.29E+01
	26	609.58	604 -	614	1.07E+03	81.77	3.20E+02	4.02E+01
	27	665.47	661 -	669	5.41E+01	38.67	1.94E+02	2.94E+01
	28	703.77	699 -	707	3.44E+01	38.41	2.03E+02	3.01E+01
	29	728.29	724 -	731	4.89E+01	34.00	1.60E+02	2.55E+01
	30	755.06	751 -	759	3.01E+01	33.89	1.60E+02	2.64E+01
	31	768.85	764 -	774	1.16E+02	44.19	2.00E+02	3.17E+01
M	32	830.21	827 -	848	2.28E+01	20.11	6.44E+01	1.32E+01
m	33	840.13	827 -	848	2.92E+01	26.20	8.68E+01	1.53E+01
	34	860.56	857 -	864	2.77E+01	30.85	1.41E+02	2.38E+01
	35	911.52	906 -	916	1.41E+02	47.05	2.20E+02	3.34E+01
	36	934.49	930 -	939	3.58E+01	41.44	2.24E+02	3.26E+01
M	37	965.20	961 -	975	5.81E+01	22.45	5.15E+01	1.18E+01
m	38	969.55	961 -	975	1.09E+02	26.83	4.69E+01	1.13E+01
	39	1120.67	1116 -	1125	2.12E+02	44.87	1.71E+02	2.81E+01
	40	1155.38	1149 -	1160	6.12E+01	38.00	1.50E+02	2.85E+01
	41	1238.90	1235 -	1242	8.54E+01	35.67	1.53E+02	2.51E+01
	42	1280.93	1277 -	1283	2.93E+01	23.62	7.93E+01	1.72E+01
	43	1348.50	1342 -	1354	3.60E+01	28.05	6.81E+01	2.08E+01
	44	1377.97	1372 -	1381	6.53E+01	26.08	5.95E+01	1.68E+01
	45	1385.90	1382 -	1389	1.87E+01	20.88	6.07E+01	1.56E+01
M	46	1396.73	1394 -	1414	1.64E+01	11.31	2.45E+01	8.15E+00
m	47	1409.28	1394 -	1414	3.40E+01	22.09	5.97E+01	1.27E+01
	48	1434.87	1431 -	1437	1.18E+01	13.33	2.23E+01	9.39E+00
	49	1461.49	1456 -	1466	6.89E+02	57.02	6.60E+01	1.83E+01
M	50	1510.07	1504 -	1518	2.95E+01	18.59	3.07E+01	9.11E+00
m	51	1514.41	1504 -	1518	9.89E+00	17.02	3.44E+01	9.65E+00
	52	1583.73	1581 -	1585	1.30E+01	14.04	3.21E+01	9.91E+00
	53	1590.93	1586 -	1597	2.74E+01	24.17	5.72E+01	1.79E+01
M	54	1661.82	1657 -	1669	1.57E+01	12.17	1.23E+01	5.77E+00
m	55	1666.58	1657 -	1669	1.20E+01	12.21	1.69E+01	6.76E+00

Analysis Report for 1606064-06

CP-5014 02-05

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
56	1730.31	1725 -	1734	3.99E+01	17.32	2.02E+01	9.74E+00
57	1765.21	1760 -	1768	1.54E+02	26.55	1.34E+01	7.69E+00
58	1847.63	1844 -	1850	3.65E+01	12.82	2.97E+00	3.51E+00
59	1975.49	1972 -	1977	6.00E+00	4.90	0.00E+00	0.00E+00
60	2103.49	2099 -	2106	9.70E+00	13.27	2.06E+01	9.63E+00
61	2204.74	2200 -	2208	5.50E+01	15.76	4.00E+00	4.37E+00
62	2447.98	2442 -	2451	1.77E+01	10.25	4.65E+00	4.81E+00
63	2481.01	2476 -	2484	7.00E+00	5.29	0.00E+00	0.00E+00
64	2615.25	2610 -	2618	7.20E+01	16.97	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 : 6/16/2016 5:08:44PM

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	12.98	12 -	16	13.11	2.00E+03	135.63	2.09E+03	.....
	2	42.27	40 -	45	42.38	7.62E+01	75.17	1.08E+03	PM-145
	3	46.91	45 -	49	47.02	1.58E+02	71.57	9.99E+02	PB-210
	4	53.43	51 -	55	53.54	6.03E+01	71.74	1.09E+03	.....
	5	63.12	59 -	66	63.22	3.40E+02	126.59	2.45E+03	TH-234 TH-230
	6	76.56	72 -	82	76.64	1.80E+03	186.19	3.62E+03	.....
	7	87.36	86 -	89	87.45	1.08E+02	80.77	1.55E+03	SN-126 CD-109 NP-237 EU-155 LU-176
	8	99.36	98 -	102	99.44	7.24E+01	70.30	1.02E+03	.....
	9	186.07	182 -	189	186.10	5.73E+02	97.02	1.18E+03	RA-226
M	10	236.13	235 -	244	236.13	2.68E+01	27.44	2.25E+02	TH-227 NB-95M
m	11	239.13	235 -	244	239.13	7.68E+02	65.45	4.21E+02	PB-212

Analysis Report for 1606064-06

CP-5014 02-05

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	12	241.97	235 -	244	241.97	4.33E+02	59.63	3.83E+02	RA-224
	13	269.59	266 -	272	269.57	5.28E+01	64.46	7.16E+02	.....
	14	295.39	292 -	298	295.36	8.16E+02	80.89	5.99E+02	PB-214
	15	300.14	299 -	303	300.10	4.65E+01	47.43	4.57E+02	PB-212
									GA-67
									BI-210M
	16	339.23	334 -	344	339.17	1.69E+02	83.66	8.33E+02	AC-228
M	17	349.06	347 -	355	349.00	3.44E+01	44.99	3.30E+02	.....
m	18	352.19	347 -	355	352.12	1.49E+03	82.73	2.42E+02	PB-214
	19	388.08	385 -	391	388.00	4.21E+01	46.71	3.70E+02	.....
	20	426.96	423 -	431	426.86	5.86E+01	53.31	4.03E+02	SB-125
	21	439.54	437 -	442	439.43	2.90E+01	34.15	2.10E+02	.....
M	22	460.45	459 -	465	460.33	1.92E+01	20.56	1.04E+02	.....
m	23	463.31	459 -	465	463.19	6.20E+01	31.35	1.62E+02	SB-125
	24	511.00	507 -	515	510.86	1.26E+02	52.76	3.51E+02	.....
	25	583.46	579 -	586	583.28	2.03E+02	49.19	2.67E+02	TL-208
	26	609.58	604 -	614	609.39	1.07E+03	81.77	3.20E+02	BI-214
	27	665.47	661 -	669	665.25	5.41E+01	38.67	1.94E+02	SB-126
									CE-143
	28	703.77	699 -	707	703.54	3.44E+01	38.41	2.03E+02	.....
	29	728.29	724 -	731	728.04	4.89E+01	34.00	1.60E+02	.....
	30	755.06	751 -	759	754.80	3.01E+01	33.89	1.60E+02	.....
	31	768.85	764 -	774	768.59	1.16E+02	44.19	2.00E+02	.....
M	32	830.21	827 -	848	829.92	2.28E+01	20.11	6.44E+01	.....
m	33	840.13	827 -	848	839.83	2.92E+01	26.20	8.68E+01	.....
	34	860.56	857 -	864	860.26	2.77E+01	30.85	1.41E+02	TL-208
	35	911.52	906 -	916	911.20	1.41E+02	47.05	2.20E+02	AC-228
									LU-172
	36	934.49	930 -	939	934.16	3.58E+01	41.44	2.24E+02	.....
M	37	965.20	961 -	975	964.85	5.81E+01	22.45	5.15E+01	.....
m	38	969.55	961 -	975	969.20	1.09E+02	26.83	4.69E+01	AC-228
	39	1120.67	1116 -	1125	1120.26	2.12E+02	44.87	1.71E+02	SC-46
									BI-214
									TA-182
	40	1155.38	1149 -	1160	1154.96	6.12E+01	38.00	1.50E+02	.....
	41	1238.90	1235 -	1242	1238.45	8.54E+01	35.67	1.53E+02	CO-56
	42	1280.93	1277 -	1283	1280.47	2.93E+01	23.62	7.93E+01	.....
	43	1348.50	1342 -	1354	1348.01	3.60E+01	28.05	6.81E+01	.....
	44	1377.97	1372 -	1381	1377.47	6.53E+01	26.08	5.95E+01	.....
	45	1385.90	1382 -	1389	1385.40	1.87E+01	20.88	6.07E+01	.....
M	46	1396.73	1394 -	1414	1396.23	1.64E+01	11.31	2.45E+01	.....
m	47	1409.28	1394 -	1414	1408.77	3.40E+01	22.09	5.97E+01	.....
	48	1434.87	1431 -	1437	1434.36	1.18E+01	13.33	2.23E+01	LA-138
	49	1461.49	1456 -	1466	1460.97	6.89E+02	57.02	6.60E+01	K-40
M	50	1510.07	1504 -	1518	1509.54	2.95E+01	18.59	3.07E+01	.....
m	51	1514.41	1504 -	1518	1513.87	9.89E+00	17.02	3.44E+01	.....
	52	1583.73	1581 -	1585	1583.17	1.30E+01	14.04	3.21E+01	.....
	53	1590.93	1586 -	1597	1590.37	2.74E+01	24.17	5.72E+01	.....
M	54	1661.82	1657 -	1669	1661.24	1.57E+01	12.17	1.23E+01	.....
m	55	1666.58	1657 -	1669	1666.00	1.20E+01	12.21	1.69E+01	.....
	56	1730.31	1725 -	1734	1729.71	3.99E+01	17.32	2.02E+01	.....
	57	1765.21	1760 -	1768	1764.60	1.54E+02	26.55	1.34E+01	BI-214
	58	1847.63	1844 -	1850	1847.01	3.65E+01	12.82	2.97E+00	.....
	59	1975.49	1972 -	1977	1974.83	6.00E+00	4.90	0.00E+00	.....

Analysis Report for 1606064-06

CP-5014 02-05

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
60	2103.49	2099 -	2106	2102.81	9.70E+00	13.27	2.06E+01	.....
61	2204.74	2200 -	2208	2204.05	5.50E+01	15.76	4.00E+00	BI-214
62	2447.98	2442 -	2451	2447.26	1.77E+01	10.25	4.65E+00	.....
63	2481.01	2476 -	2484	2480.29	7.00E+00	5.29	0.00E+00	.....
64	2615.25	2610 -	2618	2614.51	7.20E+01	16.97	0.00E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/16/2016 5:08:44PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	12.98	2.00E+03	135.63	1.23E-05	1.66E-03
	2	42.27	7.62E+01	75.17	1.44E-02	1.66E-03
	3	46.91	1.58E+02	71.57	1.73E-02	1.66E-03
	4	53.43	6.03E+01	71.74	2.05E-02	1.66E-03
	5	63.12	3.40E+02	126.59	2.36E-02	1.74E-03
	6	76.56	1.80E+03	186.19	2.56E-02	2.03E-03
	7	87.36	1.08E+02	80.77	2.60E-02	2.26E-03
	8	99.36	7.24E+01	70.30	2.58E-02	2.27E-03
	9	186.07	5.73E+02	97.02	1.99E-02	2.40E-03
M	10	236.13	2.68E+01	27.44	1.71E-02	2.32E-03
m	11	239.13	7.68E+02	65.45	1.70E-02	2.31E-03
m	12	241.97	4.33E+02	59.63	1.69E-02	2.31E-03
	13	269.59	5.28E+01	64.46	1.57E-02	2.26E-03
	14	295.39	8.16E+02	80.89	1.47E-02	2.21E-03
	15	300.14	4.65E+01	47.43	1.45E-02	2.21E-03
	16	339.23	1.69E+02	83.66	1.33E-02	2.14E-03
M	17	349.06	3.44E+01	44.99	1.30E-02	2.12E-03
m	18	352.19	1.49E+03	82.73	1.30E-02	2.12E-03
	19	388.08	4.21E+01	46.71	1.21E-02	2.06E-03
	20	426.96	5.86E+01	53.31	1.12E-02	1.87E-03
	21	439.54	2.90E+01	34.15	1.10E-02	1.80E-03
M	22	460.45	1.92E+01	20.56	1.06E-02	1.69E-03
m	23	463.31	6.20E+01	31.35	1.05E-02	1.68E-03
	24	511.00	1.26E+02	52.76	9.77E-03	1.43E-03
	25	583.46	2.03E+02	49.19	8.79E-03	1.06E-03

Analysis Report for 1606064-06

CP-5014 02-05

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	26	609.58	1.07E+03	81.77	8.48E-03	9.21E-04
	27	665.47	5.41E+01	38.67	7.90E-03	6.57E-04
	28	703.77	3.44E+01	38.41	7.54E-03	7.06E-04
	29	728.29	4.89E+01	34.00	7.33E-03	7.37E-04
	30	755.06	3.01E+01	33.89	7.12E-03	7.72E-04
	31	768.85	1.16E+02	44.19	7.01E-03	7.89E-04
M	32	830.21	2.28E+01	20.11	6.58E-03	8.68E-04
m	33	840.13	2.92E+01	26.20	6.52E-03	8.81E-04
	34	860.56	2.77E+01	30.85	6.39E-03	9.07E-04
	35	911.52	1.41E+02	47.05	6.09E-03	9.28E-04
	36	934.49	3.58E+01	41.44	5.97E-03	8.82E-04
M	37	965.20	5.81E+01	22.45	5.81E-03	8.20E-04
m	38	969.55	1.09E+02	26.83	5.79E-03	8.11E-04
	39	1120.67	2.12E+02	44.87	5.15E-03	5.05E-04
	40	1155.38	6.12E+01	38.00	5.03E-03	4.35E-04
	41	1238.90	8.54E+01	35.67	4.77E-03	3.84E-04
	42	1280.93	2.93E+01	23.62	4.65E-03	3.74E-04
	43	1348.50	3.60E+01	28.05	4.48E-03	3.64E-04
	44	1377.97	6.53E+01	26.08	4.41E-03	3.66E-04
	45	1385.90	1.87E+01	20.88	4.39E-03	3.67E-04
M	46	1396.73	1.64E+01	11.31	4.37E-03	3.68E-04
m	47	1409.28	3.40E+01	22.09	4.34E-03	3.68E-04
	48	1434.87	1.18E+01	13.33	4.28E-03	3.70E-04
	49	1461.49	6.89E+02	57.02	4.23E-03	3.72E-04
M	50	1510.07	2.95E+01	18.59	4.14E-03	3.76E-04
m	51	1514.41	9.89E+00	17.02	4.13E-03	3.76E-04
	52	1583.73	1.30E+01	14.04	4.01E-03	3.82E-04
	53	1590.93	2.74E+01	24.17	4.00E-03	3.82E-04
M	54	1661.82	1.57E+01	12.17	3.90E-03	3.88E-04
m	55	1666.58	1.20E+01	12.21	3.89E-03	3.88E-04
	56	1730.31	3.99E+01	17.32	3.81E-03	3.93E-04
	57	1765.21	1.54E+02	26.55	3.77E-03	3.96E-04
	58	1847.63	3.65E+01	12.82	3.69E-03	4.01E-04
	59	1975.49	6.00E+00	4.90	3.58E-03	4.01E-04
	60	2103.49	9.70E+00	13.27	3.50E-03	4.01E-04
	61	2204.74	5.50E+01	15.76	3.45E-03	4.01E-04
	62	2447.98	1.77E+01	10.25	3.40E-03	4.01E-04
	63	2481.01	7.00E+00	5.29	3.40E-03	4.01E-04
	64	2615.25	7.20E+01	16.97	3.40E-03	4.01E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/16/2016 5:08:44PM

Analysis Report for 1606064-06

CP-5014 02-05

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	12.98	2.00E+03	135.63			2.00E+03	1.36E+02
	2	42.27	7.62E+01	75.17			7.62E+01	7.52E+01
	3	46.91	1.58E+02	71.57	2.17E+01	5.74E+00	1.36E+02	7.18E+01
	4	53.43	6.03E+01	71.74			6.03E+01	7.17E+01
	5	63.12	3.40E+02	126.59	2.91E+01	8.34E+00	3.11E+02	1.27E+02
	6	76.56	1.80E+03	186.19			1.80E+03	1.86E+02
	7	87.36	1.08E+02	80.77			1.08E+02	8.08E+01
	8	99.36	7.24E+01	70.30			7.24E+01	7.03E+01
	9	186.07	5.73E+02	97.02	3.13E+01	6.95E+00	5.42E+02	9.73E+01
M	10	236.13	2.68E+01	27.44			2.68E+01	2.74E+01
m	11	239.13	7.68E+02	65.45	1.19E+01	7.10E+00	7.56E+02	6.58E+01
m	12	241.97	4.33E+02	59.63	2.33E+00	1.42E+00	4.31E+02	5.96E+01
	13	269.59	5.28E+01	64.46			5.28E+01	6.45E+01
	14	295.39	8.16E+02	80.89			8.16E+02	8.09E+01
	15	300.14	4.65E+01	47.43			4.65E+01	4.74E+01
	16	339.23	1.69E+02	83.66			1.69E+02	8.37E+01
M	17	349.06	3.44E+01	44.99			3.44E+01	4.50E+01
m	18	352.19	1.49E+03	82.73	9.12E+00	4.79E+00	1.48E+03	8.29E+01
	19	388.08	4.21E+01	46.71			4.21E+01	4.67E+01
	20	426.96	5.86E+01	53.31			5.86E+01	5.33E+01
	21	439.54	2.90E+01	34.15			2.90E+01	3.41E+01
M	22	460.45	1.92E+01	20.56			1.92E+01	2.06E+01
m	23	463.31	6.20E+01	31.35			6.20E+01	3.13E+01
	24	511.00	1.26E+02	52.76	6.97E+01	5.00E+00	5.58E+01	5.30E+01
	25	583.46	2.03E+02	49.19	3.98E+00	3.57E+00	1.99E+02	4.93E+01
	26	609.58	1.07E+03	81.77	8.66E+00	3.90E+00	1.06E+03	8.19E+01
	27	665.47	5.41E+01	38.67			5.41E+01	3.87E+01
	28	703.77	3.44E+01	38.41			3.44E+01	3.84E+01
	29	728.29	4.89E+01	34.00			4.89E+01	3.40E+01
	30	755.06	3.01E+01	33.89			3.01E+01	3.39E+01
	31	768.85	1.16E+02	44.19			1.16E+02	4.42E+01
M	32	830.21	2.28E+01	20.11			2.28E+01	2.01E+01
m	33	840.13	2.92E+01	26.20			2.92E+01	2.62E+01
	34	860.56	2.77E+01	30.85			2.77E+01	3.09E+01
	35	911.52	1.41E+02	47.05	2.01E+00	2.72E+00	1.39E+02	4.71E+01
	36	934.49	3.58E+01	41.44			3.58E+01	4.14E+01
M	37	965.20	5.81E+01	22.45			5.81E+01	2.24E+01
m	38	969.55	1.09E+02	26.83			1.09E+02	2.68E+01
	39	1120.67	2.12E+02	44.87			2.12E+02	4.49E+01
	40	1155.38	6.12E+01	38.00			6.12E+01	3.80E+01
	41	1238.90	8.54E+01	35.67			8.54E+01	3.57E+01
	42	1280.93	2.93E+01	23.62			2.93E+01	2.36E+01
	43	1348.50	3.60E+01	28.05			3.60E+01	2.81E+01
	44	1377.97	6.53E+01	26.08			6.53E+01	2.61E+01
	45	1385.90	1.87E+01	20.88			1.87E+01	2.09E+01
M	46	1396.73	1.64E+01	11.31			1.64E+01	1.13E+01
m	47	1409.28	3.40E+01	22.09			3.40E+01	2.21E+01
	48	1434.87	1.18E+01	13.33			1.18E+01	1.33E+01
	49	1461.49	6.89E+02	57.02	3.09E+00	1.97E+00	6.86E+02	5.71E+01

Analysis Report for 1606064-06

CP-5014 02-05

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	50	1510.07	2.95E+01	18.59			2.95E+01	1.86E+01
m	51	1514.41	9.89E+00	17.02			9.89E+00	1.70E+01
	52	1583.73	1.30E+01	14.04			1.30E+01	1.40E+01
	53	1590.93	2.74E+01	24.17			2.74E+01	2.42E+01
M	54	1661.82	1.57E+01	12.17			1.57E+01	1.22E+01
m	55	1666.58	1.20E+01	12.21			1.20E+01	1.22E+01
	56	1730.31	3.99E+01	17.32			3.99E+01	1.73E+01
	57	1765.21	1.54E+02	26.55	2.70E+00	1.86E+00	1.52E+02	2.66E+01
	58	1847.63	3.65E+01	12.82			3.65E+01	1.28E+01
	59	1975.49	6.00E+00	4.90			6.00E+00	4.90E+00
	60	2103.49	9.70E+00	13.27			9.70E+00	1.33E+01
	61	2204.74	5.50E+01	15.76			5.50E+01	1.58E+01
	62	2447.98	1.77E+01	10.25			1.77E+01	1.02E+01
	63	2481.01	7.00E+00	5.29	2.49E-01	7.77E-01	6.75E+00	5.35E+00
	64	2615.25	7.20E+01	16.97	3.07E+00	1.34E+00	6.89E+01	1.70E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 6/16/2016 5:08:44PM

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	12.98	2.00E+03	135.63			2.00E+03	1.36E+02
	2	42.27	7.62E+01	75.17			7.62E+01	7.52E+01
	3	46.91	1.58E+02	71.57	2.17E+01	5.74E+00	1.36E+02	7.18E+01
	4	53.43	6.03E+01	71.74			6.03E+01	7.17E+01
	5	63.12	3.40E+02	126.59	2.91E+01	8.34E+00	3.11E+02	1.27E+02
	6	76.56	1.80E+03	186.19			1.80E+03	1.86E+02
	7	87.36	1.08E+02	80.77			1.08E+02	8.08E+01
	8	99.36	7.24E+01	70.30			7.24E+01	7.03E+01
	9	186.07	5.73E+02	97.02	3.13E+01	6.95E+00	5.42E+02	9.73E+01
M	10	236.13	2.68E+01	27.44			2.68E+01	2.74E+01
m	11	239.13	7.68E+02	65.45	1.19E+01	7.10E+00	7.56E+02	6.58E+01
m	12	241.97	4.33E+02	59.63	2.33E+00	1.42E+00	4.31E+02	5.96E+01
	13	269.59	5.28E+01	64.46			5.28E+01	6.45E+01

Analysis Report for 1606064-06

CP-5014 02-05

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	14	295.39	8.16E+02	80.89			8.16E+02	8.09E+01
	15	300.14	4.65E+01	47.43			4.65E+01	4.74E+01
	16	339.23	1.69E+02	83.66			1.69E+02	8.37E+01
M	17	349.06	3.44E+01	44.99			3.44E+01	4.50E+01
m	18	352.19	1.49E+03	82.73	9.12E+00	4.79E+00	1.48E+03	8.29E+01
	19	388.08	4.21E+01	46.71			4.21E+01	4.67E+01
	20	426.96	5.86E+01	53.31			5.86E+01	5.33E+01
	21	439.54	2.90E+01	34.15			2.90E+01	3.41E+01
M	22	460.45	1.92E+01	20.56			1.92E+01	2.06E+01
m	23	463.31	6.20E+01	31.35			6.20E+01	3.13E+01
	24	511.00	1.26E+02	52.76	6.97E+01	5.00E+00	5.58E+01	5.30E+01
	25	583.46	2.03E+02	49.19	3.98E+00	3.57E+00	1.99E+02	4.93E+01
	26	609.58	1.07E+03	81.77	8.66E+00	3.90E+00	1.06E+03	8.19E+01
	27	665.47	5.41E+01	38.67			5.41E+01	3.87E+01
	28	703.77	3.44E+01	38.41			3.44E+01	3.84E+01
	29	728.29	4.89E+01	34.00			4.89E+01	3.40E+01
	30	755.06	3.01E+01	33.89			3.01E+01	3.39E+01
	31	768.85	1.16E+02	44.19			1.16E+02	4.42E+01
M	32	830.21	2.28E+01	20.11			2.28E+01	2.01E+01
m	33	840.13	2.92E+01	26.20			2.92E+01	2.62E+01
	34	860.56	2.77E+01	30.85			2.77E+01	3.09E+01
	35	911.52	1.41E+02	47.05	2.01E+00	2.72E+00	1.39E+02	4.71E+01
	36	934.49	3.58E+01	41.44			3.58E+01	4.14E+01
M	37	965.20	5.81E+01	22.45			5.81E+01	2.24E+01
m	38	969.55	1.09E+02	26.83			1.09E+02	2.68E+01
	39	1120.67	2.12E+02	44.87			2.12E+02	4.49E+01
	40	1155.38	6.12E+01	38.00			6.12E+01	3.80E+01
	41	1238.90	8.54E+01	35.67			8.54E+01	3.57E+01
	42	1280.93	2.93E+01	23.62			2.93E+01	2.36E+01
	43	1348.50	3.60E+01	28.05			3.60E+01	2.81E+01
	44	1377.97	6.53E+01	26.08			6.53E+01	2.61E+01
	45	1385.90	1.87E+01	20.88			1.87E+01	2.09E+01
M	46	1396.73	1.64E+01	11.31			1.64E+01	1.13E+01
m	47	1409.28	3.40E+01	22.09			3.40E+01	2.21E+01
	48	1434.87	1.18E+01	13.33			1.18E+01	1.33E+01
	49	1461.49	6.89E+02	57.02	3.09E+00	1.97E+00	6.86E+02	5.71E+01
M	50	1510.07	2.95E+01	18.59			2.95E+01	1.86E+01
m	51	1514.41	9.89E+00	17.02			9.89E+00	1.70E+01
	52	1583.73	1.30E+01	14.04			1.30E+01	1.40E+01
	53	1590.93	2.74E+01	24.17			2.74E+01	2.42E+01
M	54	1661.82	1.57E+01	12.17			1.57E+01	1.22E+01
m	55	1666.58	1.20E+01	12.21			1.20E+01	1.22E+01
	56	1730.31	3.99E+01	17.32			3.99E+01	1.73E+01
	57	1765.21	1.54E+02	26.55	2.70E+00	1.86E+00	1.52E+02	2.66E+01
	58	1847.63	3.65E+01	12.82			3.65E+01	1.28E+01
	59	1975.49	6.00E+00	4.90			6.00E+00	4.90E+00
	60	2103.49	9.70E+00	13.27			9.70E+00	1.33E+01
	61	2204.74	5.50E+01	15.76			5.50E+01	1.58E+01
	62	2447.98	1.77E+01	10.25			1.77E+01	1.02E+01
	63	2481.01	7.00E+00	5.29	2.49E-01	7.77E-01	6.75E+00	5.35E+00
	64	2615.25	7.20E+01	16.97	3.07E+00	1.34E+00	6.89E+01	1.70E+01

Analysis Report for 1606064-06

CP-5014 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	0.929	1460.81	*	10.67	1.99E+01	2.44E+00
NB-95M	0.939	235.69	*	25.00	4.76E-01	4.92E-01
CD-109	0.931	88.03	*	3.72	1.47E+00	1.11E+00
SN-126	0.993	87.57	*	37.00	1.46E-01	1.10E-01
TL-208	0.964	583.14	*	30.22	9.81E-01	2.70E-01
		860.37	*	4.48	1.26E+00	1.42E+00
		2614.66	*	35.85	7.39E-01	2.02E-01
PB-210	0.973	46.50	*	4.25	2.42E+00	1.30E+00
PB-212	0.963	238.63	*	44.60	1.30E+00	2.10E-01
		300.09	*	3.41	1.23E+00	1.26E+00
BI-214	0.971	609.31	*	46.30	3.54E+00	4.71E-01
		1120.29	*	15.10	3.55E+00	8.30E-01
		1764.49	*	15.80	3.32E+00	6.80E-01
		2204.22	*	4.98	4.18E+00	1.29E+00
PB-214	0.991	295.21	*	19.19	3.77E+00	6.80E-01
		351.92	*	37.19	4.01E+00	6.92E-01
RA-224	0.855	240.98	*	3.95	8.45E+00	1.64E+00
RA-226	0.997	186.21	*	3.28	1.09E+01	2.00E+01
AC-228	0.949	338.32	*	11.40	1.45E+00	7.56E-01
		911.07	*	27.70	1.08E+00	4.00E-01
		969.11	*	16.60	1.48E+00	4.19E-01
TH-234	0.995	63.29	*	3.80	4.52E+00	1.88E+00
NP-237	0.888	86.50	*	12.60	4.28E-01	3.24E-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 1606064-06

CP-5014 02-05

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/16/2016 5:08:44PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	12.98	5.56654E-01	3.38		
	2	42.27	2.11561E-02	49.35		
	4	53.43	1.67440E-02	59.51		
	6	76.56	4.98734E-01	5.18		
	8	99.36	2.00996E-02	48.58	D-Esc	
	13	269.59	1.46573E-02	61.08		
M	17	349.06	9.55282E-03	65.41		
	19	388.08	1.16813E-02	55.54	Sum	
	20	426.96	1.62821E-02	45.48	Sum	
	21	439.54	8.05556E-03	58.87	D-Esc	
M	22	460.45	5.34064E-03	53.47		
m	23	463.31	1.72119E-02	25.30	Tol.	SB-125
	24	511.00	1.55128E-02	47.45		
	27	665.47	1.50368E-02	35.71	Tol.	SB-126
	28	703.77	9.56699E-03	55.76	Sum	
	29	728.29	1.35917E-02	34.74		
	30	755.06	8.35227E-03	56.36		
	31	768.85	3.21759E-02	19.08	Sum	
M	32	830.21	6.34303E-03	44.02		
m	33	840.13	8.11152E-03	44.85		
	36	934.49	9.94932E-03	57.84		
M	37	965.20	1.61282E-02	19.33		
	40	1155.38	1.69975E-02	31.05	Sum	
	41	1238.90	2.37320E-02	20.87		
	42	1280.93	8.15217E-03	40.24		
	43	1348.50	9.99206E-03	38.99		
	44	1377.97	1.81257E-02	19.98		
	45	1385.90	5.18424E-03	55.94		
M	46	1396.73	4.56847E-03	34.40		
m	47	1409.28	9.43070E-03	32.53		
	48	1434.87	3.28502E-03	56.37	Tol.	LA-138
M	50	1510.07	8.19231E-03	31.52		
m	51	1514.41	2.74636E-03	86.08		
	52	1583.73	3.60153E-03	54.16		
	53	1590.93	7.60913E-03	44.11		
M	54	1661.82	4.36827E-03	38.68		
m	55	1666.58	3.33480E-03	50.84		
	56	1730.31	1.10833E-02	21.70	Sum	
	58	1847.63	1.01425E-02	17.55		
	59	1975.49	1.66667E-03	40.82		
	60	2103.49	2.69444E-03	68.38	S-Esc	
	62	2447.98	4.90972E-03	28.99		
	63	2481.01	1.87537E-03	39.61		

Analysis Report for 1606064-06

CP-5014 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	0.92	1460.81	*	10.67	1.99E+01	2.44E+00
NB-95M	0.93	235.69	*	25.00	4.76E-01	4.92E-01
CD-109	0.93	88.03	*	3.72	1.47E+00	1.11E+00
SN-126	0.99	87.57	*	37.00	1.46E-01	1.10E-01
TL-208	0.96	583.14	*	30.22	9.81E-01	2.70E-01
		860.37	*	4.48	1.26E+00	1.42E+00
		2614.66	*	35.85	7.39E-01	2.02E-01
PB-210	0.97	46.50	*	4.25	2.42E+00	1.30E+00
PB-212	0.96	238.63	*	44.60	1.30E+00	2.10E-01
		300.09	*	3.41	1.23E+00	1.26E+00
BI-214	0.97	609.31	*	46.30	3.54E+00	4.71E-01
		1120.29	*	15.10	3.55E+00	8.30E-01
		1764.49	*	15.80	3.32E+00	6.80E-01
		2204.22	*	4.98	4.18E+00	1.29E+00
PB-214	0.99	295.21	*	19.19	3.77E+00	6.80E-01
		351.92	*	37.19	4.01E+00	6.92E-01
RA-224	0.85	240.98	*	3.95	8.45E+00	1.64E+00
RA-226	0.99	186.21	*	3.28	1.09E+01	2.00E+01
AC-228	0.94	338.32	*	11.40	1.45E+00	7.56E-01
		911.07	*	27.70	1.08E+00	4.00E-01
		969.11	*	16.60	1.48E+00	4.19E-01
TH-234	0.99	63.29	*	3.80	4.52E+00	1.88E+00
NP-237	0.88	86.50	*	12.60	4.28E-01	3.24E-01

Analysis Report for 1606064-06

CP-5014 02-05

* = 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	0.929	1.99E+01	2.44E+00	
	NB-95M	0.939	4.76E-01	4.92E-01	
?	CD-109	0.931	1.47E+00	1.11E+00	
?	SN-126	0.993	1.46E-01	1.10E-01	
	TL-208	0.964	8.32E-01	1.61E-01	
	PB-210	0.973	2.42E+00	1.30E+00	
	PB-212	0.963	1.30E+00	2.07E-01	
	BI-214	0.971	3.53E+00	3.39E-01	
	PB-214	0.991	3.89E+00	4.85E-01	
	RA-224	0.855	8.45E+00	1.64E+00	
	RA-226	0.997	1.09E+01	2.00E+01	
	AC-228	0.949	1.29E+00	2.70E-01	
	TH-234	0.995	4.52E+00	1.88E+00	
?	NP-237	0.888	4.28E-01	3.24E-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 1606064-06

CP-5014 02-05

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/16/2016 5:08:44PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	12.98	5.56654E-01	3.38		
	2	42.27	2.11561E-02	49.35		
	4	53.43	1.67440E-02	59.51		
	6	76.56	4.98734E-01	5.18		
	8	99.36	2.00996E-02	48.58	D-Esc	
	13	269.59	1.46573E-02	61.08		
M	17	349.06	9.55282E-03	65.41		
	19	388.08	1.16813E-02	55.54	Sum	
	20	426.96	1.62821E-02	45.48	Sum	
	21	439.54	8.05556E-03	58.87	D-Esc	
M	22	460.45	5.34064E-03	53.47		
m	23	463.31	1.72119E-02	25.30	Tol.	SB-125
	24	511.00	1.55128E-02	47.45		
	27	665.47	1.50368E-02	35.71	Tol.	SB-126
	28	703.77	9.56699E-03	55.76	Sum	
	29	728.29	1.35917E-02	34.74		
	30	755.06	8.35227E-03	56.36		
	31	768.85	3.21759E-02	19.08	Sum	
M	32	830.21	6.34303E-03	44.02		
m	33	840.13	8.11152E-03	44.85		
	36	934.49	9.94932E-03	57.84		
M	37	965.20	1.61282E-02	19.33		
	40	1155.38	1.69975E-02	31.05	Sum	
	41	1238.90	2.37320E-02	20.87		
	42	1280.93	8.15217E-03	40.24		
	43	1348.50	9.99206E-03	38.99		
	44	1377.97	1.81257E-02	19.98		
	45	1385.90	5.18424E-03	55.94		
M	46	1396.73	4.56847E-03	34.40		
m	47	1409.28	9.43070E-03	32.53		
	48	1434.87	3.28502E-03	56.37	Tol.	LA-138
M	50	1510.07	8.19231E-03	31.52		
m	51	1514.41	2.74636E-03	86.08		
	52	1583.73	3.60153E-03	54.16		

Analysis Report for 1606064-06
CP-5014 02-05

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	53	1590.93	7.60913E-03	44.11		
M	54	1661.82	4.36827E-03	38.68		
m	55	1666.58	3.33480E-03	50.84		
	56	1730.31	1.10833E-02	21.70	Sum	
	58	1847.63	1.01425E-02	17.55		
	59	1975.49	1.66667E-03	40.82		
	60	2103.49	2.69444E-03	68.38	S-Esc	
	62	2447.98	4.90972E-03	28.99		
	63	2481.01	1.87537E-03	39.61		

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	7.85E-02	7.24E-01	7.24E-01
+	NA-22	1274.54		99.94	-1.02E-02	9.86E-02	9.86E-02
+	NA-24	1368.53		99.99	-2.80E+02	1.21E+03	2.10E+03
		2754.09		99.86	4.04E+02		1.21E+03
+	AL-26	1808.65		99.76	-1.52E-02	7.29E-02	7.29E-02
+	K-40	1460.81	*	10.67	1.99E+01	1.15E+00	1.15E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	2.87E-02	6.46E-02	6.46E-02
		78.34		96.00	4.52E-01		9.66E-02
+	SC-46	889.25		99.98	-2.83E-02	1.02E-01	1.02E-01
		1120.51		99.99	5.82E-01		2.17E-01
+	V-48	983.52		99.98	1.76E-02	1.33E-01	1.33E-01
		1312.10		97.50	-1.29E-02		1.36E-01
+	CR-51	320.08		9.83	1.17E-01	8.12E-01	8.12E-01
+	MN-54	834.83		99.97	-9.19E-02	8.86E-02	8.86E-02
+	CO-56	846.75		99.96	-5.09E-02	6.68E-02	9.05E-02
		1037.75		14.03	-1.04E-01		6.50E-01
		1238.25		67.00	4.16E-01		2.69E-01
		1771.40		15.51	2.37E-01		5.70E-01

Analysis Report for 1606064-06

CP-5014 02-05

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-56	2598.48		16.90	0.00E+00	6.68E-02	6.68E-02
+	CO-57	122.06		85.51	4.34E-03	7.30E-02	7.30E-02
		136.48		10.60	-6.46E-02		5.99E-01
+	CO-58	810.76		99.40	-5.28E-02	9.10E-02	9.10E-02
+	FE-59	1099.22		56.50	4.84E-03	1.81E-01	1.81E-01
		1291.56		43.20	-3.15E-02		2.56E-01
+	CO-60	1173.22		100.00	2.62E-02	8.43E-02	1.08E-01
		1332.49		100.00	-3.24E-02		8.43E-02
+	ZN-65	1115.52		50.75	-1.38E-02	1.79E-01	1.79E-01
+	GA-67	93.31		35.70	2.85E+00	1.63E+00	1.63E+00
		208.95		2.24	1.09E+01		2.19E+01
		300.22		16.00	1.98E+00		3.15E+00
+	SE-75	121.11		16.70	-4.18E-02	1.09E-01	3.85E-01
		136.00		59.20	2.09E-02		1.11E-01
		264.65		59.80	-3.21E-02		1.09E-01
		279.53		25.20	1.32E-01		2.86E-01
		400.65		11.40	2.04E-01		6.33E-01
+	RB-82	776.52		13.00	-1.21E-01	8.31E-01	8.31E-01
+	RB-83	520.41		46.00	3.11E-02	1.53E-01	1.53E-01
		529.64		30.30	-1.05E-01		2.12E-01
		552.65		16.40	-8.76E-04		4.14E-01
+	KR-85	513.99		0.43	-9.54E+00	1.70E+01	1.70E+01
+	SR-85	513.99		99.27	-4.59E-02	8.20E-02	8.20E-02
+	Y-88	898.02		93.40	-7.86E-03	5.32E-02	1.02E-01
		1836.01		99.38	-4.53E-02		5.32E-02
+	NB-93M	16.57		9.43	1.03E+01	9.30E+01	9.30E+01
+	NB-94	702.63		100.00	3.14E-02	8.49E-02	8.99E-02
		871.10		100.00	3.90E-02		8.49E-02
+	NB-95	765.79		99.81	1.88E-01	1.37E-01	1.37E-01
+	NB-95M	235.69	*	25.00	4.76E-01	2.23E+00	2.23E+00
+	ZR-95	724.18		43.70	8.96E-04	1.76E-01	1.96E-01
		756.72		55.30	8.32E-02		1.76E-01
+	MO-99	181.06		6.20	-2.27E+00	6.01E+00	1.03E+01
		739.58		12.80	-3.19E+00		6.01E+00
		778.00		4.50	6.34E-01		1.85E+01
+	RU-103	497.08		89.00	3.19E-03	8.06E-02	8.06E-02
+	RU-106	621.84		9.80	-6.36E-02	7.41E-01	7.41E-01
+	AG-108M	433.93		89.90	2.60E-02	7.15E-02	7.15E-02
		614.37		90.40	1.40E-03		9.91E-02
		722.95		90.50	2.83E-02		8.26E-02
+	CD-109	88.03	*	3.72	1.47E+00	1.79E+00	1.79E+00
+	AG-110M	657.75		93.14	-2.40E-02	8.41E-02	8.41E-02
		677.61		10.53	-3.17E-01		7.25E-01
		706.67		16.46	-1.08E-02		5.36E-01
		763.93		21.98	2.83E-02		3.79E-01
		884.67		71.63	1.17E-02		1.27E-01
		1384.27		23.94	1.69E-01		4.37E-01
+	CD-113M	263.70		0.02	-6.06E+01	2.77E+02	2.77E+02

Analysis Report for 1606064-06

CP-5014 02-05

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SN-113	255.12		1.93	-8.32E-01	1.07E-01	3.37E+00
		391.69		64.90	1.53E-02		1.07E-01
+	TE123M	159.00		84.10	2.86E-02	8.26E-02	8.26E-02
+	SB-124	602.71		97.87	-2.48E-03	9.19E-02	9.19E-02
		645.85		7.26	-7.53E-02		1.18E+00
		722.78		11.10	2.56E-01		7.48E-01
		1691.02		49.00	-3.84E-03		1.88E-01
+	I-125	35.49		6.49	2.49E-01	1.82E+00	1.82E+00
+	SB-125	176.33		6.89	1.54E-01	2.45E-01	9.63E-01
		427.89		29.33	1.15E-01		2.45E-01
		463.38		10.35	4.12E-01		6.98E-01
		600.56		17.80	1.20E-01		4.58E-01
		635.90		11.32	1.97E-01		6.74E-01
+	SB-126	414.70		83.30	6.73E-03	1.33E-01	1.33E-01
		666.33		99.60	7.95E-02		1.50E-01
		695.00		99.60	9.48E-02		1.49E-01
		720.50		53.80	2.25E-01		2.62E-01
+	SN-126	87.57	*	37.00	1.46E-01	1.78E-01	1.78E-01
+	SB-127	473.00		25.00	-5.78E-01	1.20E+00	1.30E+00
		685.20		35.70	4.48E-01		1.20E+00
		783.80		14.70	6.13E-01		3.23E+00
+	I-129	29.78		57.00	-2.15E-01	3.04E-01	3.04E-01
		33.60		13.20	-4.36E-01		9.06E-01
		39.58		7.52	-8.58E-01		1.07E+00
+	I-131	284.30		6.05	1.32E+00	1.70E-01	2.44E+00
		364.48		81.20	7.95E-02		1.70E-01
		636.97		7.26	-1.94E-01		2.24E+00
		722.89		1.80	3.13E+00		9.16E+00
+	TE-132	49.72		13.10	2.92E-01	5.01E-01	3.13E+00
		228.16		88.00	-8.43E-02		5.01E-01
+	BA-133	81.00		33.00	9.15E-02	9.63E-02	1.70E-01
		302.84		17.80	-1.75E-02		3.62E-01
		356.01		60.00	-1.53E-02		9.63E-02
+	I-133	529.87		86.30	-1.73E+01	1.13E+02	1.13E+02
+	XE-133	81.00		38.00	2.67E-01	4.95E-01	4.95E-01
+	CS-134	563.23		8.38	-1.21E-01	9.47E-02	8.02E-01
		569.32		15.43	-3.67E-02		4.46E-01
		604.70		97.60	8.43E-03		9.47E-02
		795.84		85.40	5.92E-02		1.08E-01
		801.93		8.73	8.09E-02		9.64E-01
+	CS-135	268.24		16.00	1.27E-01	4.30E-01	4.30E-01
+	I-135	1131.51		22.50	-1.11E+09	3.49E+09	4.69E+09
		1260.41		28.60	0.00E+00		3.49E+09
		1678.03		9.54	1.63E+09		7.45E+09
+	CS-136	153.22		7.46	9.42E-01	1.29E-01	1.41E+00
		163.89		4.61	1.39E+00		2.28E+00
		176.55		13.56	1.11E-01		7.81E-01
		273.65		12.66	-1.73E-01		8.29E-01
		340.57		48.50	-6.78E-02		2.65E-01

Analysis Report for 1606064-06

CP-5014 02-05

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	818.50	99.70	-1.18E-02	1.29E-01	1.29E-01
		1048.07	79.60	-1.92E-03		2.03E-01
		1235.34	19.70	1.82E-01		1.19E+00
+	CS-137	661.65	85.12	-1.16E-03	9.21E-02	9.21E-02
+	LA-138	788.74	34.00	1.77E-01	1.13E-01	2.88E-01
		1435.80	66.00	-3.07E-02		1.13E-01
+	CE-139	165.85	80.35	-5.79E-02	8.07E-02	8.07E-02
+	BA-140	162.64	6.70	1.33E+00	3.76E-01	1.63E+00
		304.84	4.50	-7.69E-02		2.28E+00
		423.70	3.20	-2.75E+00		3.28E+00
		437.55	2.00	6.48E-01		5.13E+00
		537.32	25.00	-2.92E-01		3.76E-01
+	LA-140	328.77	20.50	-1.66E-01	1.63E-01	5.34E-01
		487.03	45.50	3.24E-02		2.29E-01
		815.85	23.50	-5.99E-02		5.74E-01
		1596.49	95.49	2.82E-02		1.63E-01
+	CE-141	145.44	48.40	1.06E-01	1.63E-01	1.63E-01
+	CE-143	57.36	11.80	-4.68E+00	2.67E+01	4.78E+01
		293.26	42.00	-1.47E+01		2.67E+01
		664.55	5.20	1.22E+02		1.80E+02
+	CE-144	133.54	10.80	-1.37E-01	5.80E-01	5.80E-01
+	PM-144	476.78	42.00	1.76E-02	8.14E-02	1.62E-01
		618.01	98.60	4.94E-02		8.14E-02
		696.49	99.49	3.85E-02		8.97E-02
+	PM-145	36.85	21.70	1.55E-01	2.35E-01	4.45E-01
		37.36	39.70	8.16E-02		2.35E-01
		42.30	15.10	1.50E-01		5.19E-01
		72.40	2.31	-9.13E-01		2.58E+00
+	PM-146	453.90	39.94	6.63E-02	1.70E-01	1.70E-01
		735.90	14.01	-6.10E-02		5.53E-01
		747.13	13.10	-1.62E-02		5.92E-01
+	ND-147	91.11	28.90	1.31E+00	5.27E-01	5.27E-01
		531.02	13.10	1.52E-01		8.85E-01
+	PM-149	285.90	3.10	2.74E+01	3.79E+01	3.79E+01
+	EU-152	121.78	20.50	1.77E-02	2.97E-01	2.97E-01
		244.69	5.40	6.22E-01		1.27E+00
		344.27	19.13	-2.40E-02		3.43E-01
		778.89	9.20	2.93E-01		9.09E-01
		964.01	10.40	-1.40E+00		1.03E+00
		1085.78	7.22	3.23E-04		1.25E+00
		1112.02	9.60	-3.45E-02		9.44E-01
		1407.95	14.94	3.84E-01		7.94E-01
+	GD-153	97.43	31.30	-7.23E-02	1.93E-01	1.93E-01
		103.18	22.20	-9.45E-02		2.50E-01
+	EU-154	123.07	40.50	8.30E-02	1.52E-01	1.52E-01
		723.30	19.70	1.30E-01		3.80E-01
		873.19	11.50	-3.95E-01		6.88E-01
		996.32	10.30	-1.04E-01		8.21E-01
		1004.76	17.90	2.04E-01		5.52E-01

Analysis Report for 1606064-06

CP-5014 02-05

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	1274.45		35.50	-2.86E-02	1.52E-01	2.76E-01
+	EU-155	86.50		30.90	-4.90E-01	2.52E-01	2.52E-01
		105.30		20.70	4.87E-02		2.71E-01
+	EU-156	811.77		10.40	1.33E-01	1.26E+00	1.26E+00
		1153.47		7.20	1.98E+00		2.65E+00
		1230.71		8.90	2.31E-01		1.98E+00
+	HO-166M	184.41		72.60	1.59E-01	1.21E-01	1.21E-01
		280.45		29.60	1.06E-01		2.31E-01
		410.94		11.10	3.46E-02		6.27E-01
		711.69		54.10	4.52E-02		1.47E-01
+	TM-171	66.72		0.14	3.04E+00	4.31E+01	4.31E+01
+	HF-172	81.75		4.52	-2.57E+00	5.31E-01	1.19E+00
		125.81		11.30	-4.78E-01		5.31E-01
+	LU-172	181.53		20.60	-2.10E-01	3.83E-01	7.85E-01
		810.06		16.63	-7.46E-01		1.28E+00
		912.12		15.25	4.92E+00		2.55E+00
		1093.66		62.50	3.66E-02		3.83E-01
+	LU-173	100.72		5.24	5.39E-01	3.33E-01	1.11E+00
		272.11		21.20	-1.29E-01		3.33E-01
+	HF-175	343.40		84.00	3.38E-02	8.79E-02	8.79E-02
+	LU-176	88.34		13.30	1.08E+00	6.52E-02	6.09E-01
		201.83		86.00	-4.93E-02		7.63E-02
		306.78		94.00	1.80E-02		6.52E-02
+	TA-182	67.75		41.20	6.97E-02	1.57E-01	1.57E-01
		1121.30		34.90	1.58E+00		6.10E-01
		1189.05		16.23	1.18E-01		7.01E-01
		1221.41		26.98	2.06E-01		4.54E-01
		1231.02		11.44	2.51E-01		1.06E+00
+	IR-192	308.46		29.68	5.29E-02	1.45E-01	2.20E-01
		468.07		48.10	5.22E-02		1.45E-01
+	HG-203	279.19		77.30	-7.75E-04	9.99E-02	9.99E-02
+	BI-207	569.67		97.72	-5.75E-03	7.00E-02	7.00E-02
		1063.62		74.90	3.25E-02		1.25E-01
+	TL-208	583.14	*	30.22	9.81E-01	9.52E-02	3.41E-01
		860.37	*	4.48	1.26E+00		2.30E+00
		2614.66	*	35.85	7.39E-01		9.52E-02
+	BI-210M	262.00		45.00	-3.78E-02	1.37E-01	1.37E-01
		300.00		23.00	1.96E-01		3.11E-01
+	PB-210	46.50	*	4.25	2.42E+00	2.04E+00	2.04E+00
+	PB-211	404.84		2.90	-2.19E+00	2.22E+00	2.22E+00
		831.96		2.90	3.90E-01		3.11E+00
+	BI-212	727.17		11.80	6.83E-01	8.00E-01	8.00E-01
		1620.62		2.75	1.89E+00		3.23E+00
+	PB-212	238.63	*	44.60	1.30E+00	2.25E-01	2.25E-01
		300.09	*	3.41	1.23E+00		2.04E+00
+	BI-214	609.31	*	46.30	3.54E+00	2.80E-01	2.80E-01
		1120.29	*	15.10	3.55E+00		9.89E-01
		1764.49	*	15.80	3.32E+00		4.23E-01

Analysis Report for 1606064-06

CP-5014 02-05

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-214	2204.22	*	4.98	4.18E+00	2.80E-01	8.70E-01
+	PB-214	295.21	*	19.19	3.77E+00	2.51E-01	4.49E-01
		351.92	*	37.19	4.01E+00		2.51E-01
+	RN-219	401.80		6.50	2.94E-01	1.06E+00	1.06E+00
+	RA-223	323.87		3.88	1.37E-01	1.67E+00	1.67E+00
+	RA-224	240.98	*	3.95	8.45E+00	2.53E+00	2.53E+00
+	RA-225	40.00		31.00	-3.12E-01	3.91E-01	3.91E-01
+	RA-226	186.21	*	3.28	1.09E+01	2.87E+00	2.87E+00
+	TH-227	50.10		8.40	6.39E-02	6.39E-01	6.86E-01
		236.00		11.50	-7.51E+00		6.39E-01
		256.20		6.30	-8.56E-01		9.69E-01
+	AC-228	338.32	*	11.40	1.45E+00	5.41E-01	1.15E+00
		911.07	*	27.70	1.08E+00		5.41E-01
		969.11	*	16.60	1.48E+00		7.42E-01
+	TH-230	48.44		16.90	-7.46E-01	3.58E-01	3.58E-01
		62.85		4.60	3.41E+00		1.60E+00
		67.67		0.37	7.34E+00		1.65E+01
+	PA-231	283.67		1.60	2.27E+00	2.79E+00	4.17E+00
		302.67		2.30	-1.35E-01		2.79E+00
+	TH-231	25.64		14.70	-1.09E+00	9.09E-01	2.34E+00
		84.21		6.40	1.34E+00		9.09E-01
+	PA-233	311.98		38.60	-3.96E-02	1.91E-01	1.91E-01
+	PA-234	131.20		20.40	2.81E-02	3.05E-01	3.05E-01
		733.99		8.80	-3.13E-01		8.60E-01
		946.00		12.00	9.37E-02		7.77E-01
+	PA-234M	1001.03		0.92	3.86E+00	1.09E+01	1.09E+01
+	TH-234	63.29	*	3.80	4.52E+00	2.96E+00	2.96E+00
+	U-235	143.76		10.50	5.02E-01	6.18E-01	6.18E-01
		163.35		4.70	1.15E+00		1.42E+00
		205.31		4.70	1.00E+00		1.44E+00
+	NP-237	86.50	*	12.60	4.28E-01	5.22E-01	5.22E-01
+	NP-239	106.10		22.70	1.03E+00	3.68E+00	3.68E+00
		228.18		10.70	-1.47E+00		8.71E+00
		277.60		14.10	-2.62E-01		7.04E+00
+	AM-241	59.54		35.90	-3.81E-02	1.65E-01	1.65E-01
+	AM-243	74.67		66.00	-4.37E-01	1.25E-01	1.25E-01
+	CM-243	209.75		3.29	1.53E+00	4.76E-01	2.12E+00
		228.14		10.60	-9.93E-02		5.90E-01
		277.60		14.00	-1.77E-02		4.76E-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 1606064-06

CP-5014 02-05

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	7.24E-01	7.24E-01	7.85E-02	3.44E-01
	NA-22	1274.54		99.94	9.86E-02	9.86E-02	-1.02E-02	4.55E-02
	NA-24	1368.53		99.99	2.10E+03	1.21E+03	-2.80E+02	9.42E+02
		2754.09		99.86	1.21E+03		4.04E+02	4.70E+02
	AL-26	1808.65		99.76	7.29E-02	7.29E-02	-1.52E-02	3.17E-02
+	K-40	1460.81	*	10.67	1.15E+00	1.15E+00	1.99E+01	5.38E-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	2.87E-02	3.15E-02
		78.34		96.00	9.66E-02		4.52E-01	4.76E-02
	SC-46	889.25		99.98	1.02E-01	1.02E-01	-2.83E-02	4.78E-02
		1120.51		99.99	2.17E-01		5.82E-01	1.05E-01
	V-48	983.52		99.98	1.33E-01	1.33E-01	1.76E-02	6.18E-02
		1312.10		97.50	1.36E-01		-1.29E-02	6.19E-02
	CR-51	320.08		9.83	8.12E-01	8.12E-01	1.17E-01	3.90E-01
	MN-54	834.83		99.97	8.86E-02	8.86E-02	-9.19E-02	4.16E-02
	CO-56	846.75		99.96	9.05E-02	6.68E-02	-5.09E-02	4.23E-02
		1037.75		14.03	6.50E-01		-1.04E-01	3.00E-01
		1238.25		67.00	2.69E-01		4.16E-01	1.28E-01
		1771.40		15.51	5.70E-01		2.37E-01	2.52E-01
		2598.48		16.90	6.68E-02		0.00E+00	0.00E+00
	CO-57	122.06		85.51	7.30E-02	7.30E-02	4.34E-03	3.56E-02
		136.48		10.60	5.99E-01		-6.46E-02	2.92E-01
	CO-58	810.76		99.40	9.10E-02	9.10E-02	-5.28E-02	4.26E-02
	FE-59	1099.22		56.50	1.81E-01	1.81E-01	4.84E-03	8.38E-02
		1291.56		43.20	2.56E-01		-3.15E-02	1.18E-01
	CO-60	1173.22		100.00	1.08E-01	8.43E-02	2.62E-02	5.06E-02
		1332.49		100.00	8.43E-02		-3.24E-02	3.82E-02
	ZN-65	1115.52		50.75	1.79E-01	1.79E-01	-1.38E-02	8.24E-02
	GA-67	93.31		35.70	1.63E+00	1.63E+00	2.85E+00	8.02E-01
		208.95		2.24	2.19E+01		1.09E+01	1.06E+01
		300.22		16.00	3.15E+00		1.98E+00	1.52E+00
	SE-75	121.11		16.70	3.85E-01	1.09E-01	-4.18E-02	1.88E-01
		136.00		59.20	1.11E-01		2.09E-02	5.39E-02
		264.65		59.80	1.09E-01		-3.21E-02	5.26E-02
		279.53		25.20	2.86E-01		1.32E-01	1.38E-01
		400.65		11.40	6.33E-01		2.04E-01	3.03E-01
	RB-82	776.52		13.00	8.31E-01	8.31E-01	-1.21E-01	3.91E-01

Analysis Report for 1606064-06

CP-5014 02-05

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RB-83	520.41		46.00	1.53E-01	1.53E-01	3.11E-02	7.20E-02
		529.64		30.30	2.12E-01		-1.05E-01	9.92E-02
		552.65		16.40	4.14E-01		-8.76E-04	1.94E-01
	KR-85	513.99		0.43	1.70E+01	1.70E+01	-9.54E+00	8.10E+00
	SR-85	513.99		99.27	8.20E-02	8.20E-02	-4.59E-02	3.90E-02
	Y-88	898.02		93.40	1.02E-01	5.32E-02	-7.86E-03	4.75E-02
		1836.01		99.38	5.32E-02		-4.53E-02	2.15E-02
	NB-93M	16.57		9.43	9.30E+01	9.30E+01	1.03E+01	4.53E+01
	NB-94	702.63		100.00	8.99E-02	8.49E-02	3.14E-02	4.26E-02
		871.10		100.00	8.49E-02		3.90E-02	3.96E-02
	NB-95	765.79		99.81	1.37E-01	1.37E-01	1.88E-01	6.54E-02
+	NB-95M	235.69	*	25.00	2.23E+00	2.23E+00	4.76E-01	1.09E+00
	ZR-95	724.18		43.70	1.96E-01	1.76E-01	8.96E-04	9.21E-02
		756.72		55.30	1.76E-01		8.32E-02	8.28E-02
	MO-99	181.06		6.20	1.03E+01	6.01E+00	-2.27E+00	4.99E+00
		739.58		12.80	6.01E+00		-3.19E+00	2.81E+00
		778.00		4.50	1.85E+01		6.34E-01	8.68E+00
	RU-103	497.08		89.00	8.06E-02	8.06E-02	3.19E-03	3.79E-02
	RU-106	621.84		9.80	7.41E-01	7.41E-01	-6.36E-02	3.49E-01
	AG-108M	433.93		89.90	7.15E-02	7.15E-02	2.60E-02	3.40E-02
		614.37		90.40	9.91E-02		1.40E-03	4.72E-02
		722.95		90.50	8.26E-02		2.83E-02	3.86E-02
+	CD-109	88.03	*	3.72	1.79E+00	1.79E+00	1.47E+00	8.78E-01
	AG-110M	657.75		93.14	8.41E-02	8.41E-02	-2.40E-02	3.96E-02
		677.61		10.53	7.25E-01		-3.17E-01	3.40E-01
		706.67		16.46	5.36E-01		-1.08E-02	2.53E-01
		763.93		21.98	3.79E-01		2.83E-02	1.78E-01
		884.67		71.63	1.27E-01		1.17E-02	5.96E-02
		1384.27		23.94	4.37E-01		1.69E-01	2.01E-01
	CD-113M	263.70		0.02	2.77E+02	2.77E+02	-6.06E+01	1.34E+02
	SN-113	255.12		1.93	3.37E+00	1.07E-01	-8.32E-01	1.62E+00
		391.69		64.90	1.07E-01		1.53E-02	5.11E-02
	TE123M	159.00		84.10	8.26E-02	8.26E-02	2.86E-02	4.03E-02
	SB-124	602.71		97.87	9.19E-02	9.19E-02	-2.48E-03	4.36E-02
		645.85		7.26	1.18E+00		-7.53E-02	5.58E-01
		722.78		11.10	7.48E-01		2.56E-01	3.50E-01
		1691.02		49.00	1.88E-01		-3.84E-03	8.38E-02
	I-125	35.49		6.49	1.82E+00	1.82E+00	2.49E-01	8.76E-01
	SB-125	176.33		6.89	9.63E-01	2.45E-01	1.54E-01	4.69E-01
		427.89		29.33	2.45E-01		1.15E-01	1.17E-01
		463.38		10.35	6.98E-01		4.12E-01	3.33E-01
		600.56		17.80	4.58E-01		1.20E-01	2.17E-01
		635.90		11.32	6.74E-01		1.97E-01	3.18E-01
	SB-126	414.70		83.30	1.33E-01	1.33E-01	6.73E-03	6.33E-02
		666.33		99.60	1.50E-01		7.95E-02	7.11E-02
		695.00		99.60	1.49E-01		9.48E-02	7.08E-02
		720.50		53.80	2.62E-01		2.25E-01	1.24E-01
+	SN-126	87.57	*	37.00	1.78E-01	1.78E-01	1.46E-01	8.70E-02
	SB-127	473.00		25.00	1.30E+00	1.20E+00	-5.78E-01	6.15E-01
		685.20		35.70	1.20E+00		4.48E-01	5.65E-01
		783.80		14.70	3.23E+00		6.13E-01	1.52E+00
	I-129	29.78		57.00	3.04E-01	3.04E-01	-2.15E-01	1.46E-01
		33.60		13.20	9.06E-01		-4.36E-01	4.36E-01

Analysis Report for 1606064-06

CP-5014 02-05

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-129	39.58	7.52	1.07E+00	3.04E-01	-8.58E-01	5.17E-01
I-131	284.30	6.05	2.44E+00	1.70E-01	1.32E+00	1.18E+00
	364.48	81.20	1.70E-01		7.95E-02	8.11E-02
	636.97	7.26	2.24E+00		-1.94E-01	1.05E+00
	722.89	1.80	9.16E+00		3.13E+00	4.29E+00
TE-132	49.72	13.10	3.13E+00	5.01E-01	2.92E-01	1.52E+00
	228.16	88.00	5.01E-01		-8.43E-02	2.42E-01
BA-133	81.00	33.00	1.70E-01	9.63E-02	9.15E-02	8.28E-02
	302.84	17.80	3.62E-01		-1.75E-02	1.74E-01
	356.01	60.00	9.63E-02		-1.53E-02	4.58E-02
I-133	529.87	86.30	1.13E+02	1.13E+02	-1.73E+01	5.32E+01
XE-133	81.00	38.00	4.95E-01	4.95E-01	2.67E-01	2.42E-01
CS-134	563.23	8.38	8.02E-01	9.47E-02	-1.21E-01	3.77E-01
	569.32	15.43	4.46E-01		-3.67E-02	2.10E-01
	604.70	97.60	9.47E-02		8.43E-03	4.52E-02
	795.84	85.40	1.08E-01		5.92E-02	5.11E-02
	801.93	8.73	9.64E-01		8.09E-02	4.52E-01
CS-135	268.24	16.00	4.30E-01	4.30E-01	1.27E-01	2.08E-01
I-135	1131.51	22.50	4.69E+09	3.49E+09	-1.11E+09	2.18E+09
	1260.41	28.60	3.49E+09		0.00E+00	1.60E+09
	1678.03	9.54	7.45E+09		1.63E+09	3.21E+09
CS-136	153.22	7.46	1.41E+00	1.29E-01	9.42E-01	6.90E-01
	163.89	4.61	2.28E+00		1.39E+00	1.11E+00
	176.55	13.56	7.81E-01		1.11E-01	3.80E-01
	273.65	12.66	8.29E-01		-1.73E-01	4.00E-01
	340.57	48.50	2.65E-01		-6.78E-02	1.28E-01
	818.50	99.70	1.29E-01		-1.18E-02	6.03E-02
	1048.07	79.60	2.03E-01		-1.92E-03	9.46E-02
	1235.34	19.70	1.19E+00		1.82E-01	5.64E-01
CS-137	661.65	85.12	9.21E-02	9.21E-02	-1.16E-03	4.34E-02
LA-138	788.74	34.00	2.88E-01	1.13E-01	1.77E-01	1.37E-01
	1435.80	66.00	1.13E-01		-3.07E-02	5.04E-02
CE-139	165.85	80.35	8.07E-02	8.07E-02	-5.79E-02	3.93E-02
BA-140	162.64	6.70	1.63E+00	3.76E-01	1.33E+00	7.96E-01
	304.84	4.50	2.28E+00		-7.69E-02	1.10E+00
	423.70	3.20	3.28E+00		-2.75E+00	1.56E+00
	437.55	2.00	5.13E+00		6.48E-01	2.43E+00
	537.32	25.00	3.76E-01		-2.92E-01	1.76E-01
LA-140	328.77	20.50	5.34E-01	1.63E-01	-1.66E-01	2.57E-01
	487.03	45.50	2.29E-01		3.24E-02	1.08E-01
	815.85	23.50	5.74E-01		-5.99E-02	2.68E-01
	1596.49	95.49	1.63E-01		2.82E-02	7.41E-02
CE-141	145.44	48.40	1.63E-01	1.63E-01	1.06E-01	7.94E-02
CE-143	57.36	11.80	4.78E+01	2.67E+01	-4.68E+00	2.32E+01
	293.26	42.00	2.67E+01		-1.47E+01	1.31E+01
	664.55	5.20	1.80E+02		1.22E+02	8.56E+01
CE-144	133.54	10.80	5.80E-01	5.80E-01	-1.37E-01	2.83E-01
PM-144	476.78	42.00	1.62E-01	8.14E-02	1.76E-02	7.69E-02
	618.01	98.60	8.14E-02		4.94E-02	3.85E-02
	696.49	99.49	8.97E-02		3.85E-02	4.25E-02
PM-145	36.85	21.70	4.45E-01	2.35E-01	1.55E-01	2.15E-01
	37.36	39.70	2.35E-01		8.16E-02	1.13E-01
	42.30	15.10	5.19E-01		1.50E-01	2.52E-01

Analysis Report for 1606064-06

CP-5014 02-05

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-145	72.40	2.31	2.58E+00	2.35E-01	-9.13E-01	1.26E+00
PM-146	453.90	39.94	1.70E-01	1.70E-01	6.63E-02	8.06E-02
	735.90	14.01	5.53E-01		-6.10E-02	2.59E-01
	747.13	13.10	5.92E-01		-1.62E-02	2.77E-01
ND-147	91.11	28.90	5.27E-01	5.27E-01	1.31E+00	2.59E-01
	531.02	13.10	8.85E-01		1.52E-01	4.17E-01
PM-149	285.90	3.10	3.79E+01	3.79E+01	2.74E+01	1.83E+01
EU-152	121.78	20.50	2.97E-01	2.97E-01	1.77E-02	1.45E-01
	244.69	5.40	1.27E+00		6.22E-01	6.17E-01
	344.27	19.13	3.43E-01		-2.40E-02	1.65E-01
	778.89	9.20	9.09E-01		2.93E-01	4.27E-01
	964.01	10.40	1.03E+00		-1.40E+00	4.88E-01
	1085.78	7.22	1.25E+00		3.23E-04	5.81E-01
	1112.02	9.60	9.44E-01		-3.45E-02	4.37E-01
	1407.95	14.94	7.94E-01		3.84E-01	3.70E-01
GD-153	97.43	31.30	1.93E-01	1.93E-01	-7.23E-02	9.45E-02
	103.18	22.20	2.50E-01		-9.45E-02	1.22E-01
EU-154	123.07	40.50	1.52E-01	1.52E-01	8.30E-02	7.41E-02
	723.30	19.70	3.80E-01		1.30E-01	1.78E-01
	873.19	11.50	6.88E-01		-3.95E-01	3.20E-01
	996.32	10.30	8.21E-01		-1.04E-01	3.80E-01
	1004.76	17.90	5.52E-01		2.04E-01	2.58E-01
	1274.45	35.50	2.76E-01		-2.86E-02	1.27E-01
EU-155	86.50	30.90	2.52E-01	2.52E-01	-4.90E-01	1.24E-01
	105.30	20.70	2.71E-01		4.87E-02	1.32E-01
EU-156	811.77	10.40	1.26E+00	1.26E+00	1.33E-01	5.89E-01
	1153.47	7.20	2.65E+00		1.98E+00	1.25E+00
	1230.71	8.90	1.98E+00		2.31E-01	9.26E-01
HO-166M	184.41	72.60	1.21E-01	1.21E-01	1.59E-01	5.94E-02
	280.45	29.60	2.31E-01		1.06E-01	1.12E-01
	410.94	11.10	6.27E-01		3.46E-02	3.00E-01
	711.69	54.10	1.47E-01		4.52E-02	6.89E-02
TM-171	66.72	0.14	4.31E+01	4.31E+01	3.04E+00	2.10E+01
HF-172	81.75	4.52	1.19E+00	5.31E-01	-2.57E+00	5.81E-01
	125.81	11.30	5.31E-01		-4.78E-01	2.59E-01
LU-172	181.53	20.60	7.85E-01	3.83E-01	-2.10E-01	3.82E-01
	810.06	16.63	1.28E+00		-7.46E-01	6.01E-01
	912.12	15.25	2.55E+00		4.92E+00	1.22E+00
	1093.66	62.50	3.83E-01		3.66E-02	1.77E-01
LU-173	100.72	5.24	1.11E+00	3.33E-01	5.39E-01	5.42E-01
	272.11	21.20	3.33E-01		-1.29E-01	1.61E-01
HF-175	343.40	84.00	8.79E-02	8.79E-02	3.38E-02	4.22E-02
LU-176	88.34	13.30	6.09E-01	6.52E-02	1.08E+00	3.00E-01
	201.83	86.00	7.63E-02		-4.93E-02	3.71E-02
	306.78	94.00	6.52E-02		1.80E-02	3.13E-02
TA-182	67.75	41.20	1.57E-01	1.57E-01	6.97E-02	7.64E-02
	1121.30	34.90	6.10E-01		1.58E+00	2.95E-01
	1189.05	16.23	7.01E-01		1.18E-01	3.27E-01
	1221.41	26.98	4.54E-01		2.06E-01	2.13E-01
	1231.02	11.44	1.06E+00		2.51E-01	4.94E-01
IR-192	308.46	29.68	2.20E-01	1.45E-01	5.29E-02	1.06E-01
	468.07	48.10	1.45E-01		5.22E-02	6.87E-02
HG-203	279.19	77.30	9.99E-02	9.99E-02	-7.75E-04	4.82E-02

Analysis Report for 1606064-06

CP-5014 02-05

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BI-207	569.67		97.72	7.00E-02	7.00E-02	-5.75E-03	3.30E-02
		1063.62		74.90	1.25E-01		3.25E-02	5.81E-02
+	TL-208	583.14	*	30.22	3.41E-01	9.52E-02	9.81E-01	1.64E-01
		860.37	*	4.48	2.30E+00		1.26E+00	1.09E+00
		2614.66	*	35.85	9.52E-02		7.39E-01	3.31E-02
	BI-210M	262.00		45.00	1.37E-01	1.37E-01	-3.78E-02	6.63E-02
		300.00		23.00	3.11E-01		1.96E-01	1.50E-01
+	PB-210	46.50	*	4.25	2.04E+00	2.04E+00	2.42E+00	9.95E-01
	PB-211	404.84		2.90	2.22E+00	2.22E+00	-2.19E+00	1.06E+00
		831.96		2.90	3.11E+00		3.90E-01	1.46E+00
	BI-212	727.17		11.80	8.00E-01	8.00E-01	6.83E-01	3.79E-01
		1620.62		2.75	3.23E+00		1.89E+00	1.45E+00
+	PB-212	238.63	*	44.60	2.25E-01	2.25E-01	1.30E+00	1.10E-01
		300.09	*	3.41	2.04E+00		1.23E+00	9.84E-01
+	BI-214	609.31	*	46.30	2.80E-01	2.80E-01	3.54E+00	1.35E-01
		1120.29	*	15.10	9.89E-01		3.55E+00	4.72E-01
		1764.49	*	15.80	4.23E-01		3.32E+00	1.82E-01
		2204.22	*	4.98	8.70E-01		4.18E+00	3.32E-01
+	PB-214	295.21	*	19.19	4.49E-01	2.51E-01	3.77E+00	2.18E-01
		351.92	*	37.19	2.51E-01		4.01E+00	1.22E-01
	RN-219	401.80		6.50	1.06E+00	1.06E+00	2.94E-01	5.08E-01
	RA-223	323.87		3.88	1.67E+00	1.67E+00	1.37E-01	8.00E-01
+	RA-224	240.98	*	3.95	2.53E+00	2.53E+00	8.45E+00	1.24E+00
	RA-225	40.00		31.00	3.91E-01	3.91E-01	-3.12E-01	1.89E-01
+	RA-226	186.21	*	3.28	2.87E+00	2.87E+00	1.09E+01	1.41E+00
	TH-227	50.10		8.40	6.86E-01	6.39E-01	6.39E-02	3.32E-01
		236.00		11.50	6.39E-01		-7.51E+00	3.11E-01
		256.20		6.30	9.69E-01		-8.56E-01	4.67E-01
+	AC-228	338.32	*	11.40	1.15E+00	5.41E-01	1.45E+00	5.63E-01
		911.07	*	27.70	5.41E-01		1.08E+00	2.60E-01
		969.11	*	16.60	7.42E-01		1.48E+00	3.52E-01
	TH-230	48.44		16.90	3.58E-01	3.58E-01	-7.46E-01	1.73E-01
		62.85		4.60	1.60E+00		3.41E+00	7.82E-01
		67.67		0.37	1.65E+01		7.34E+00	8.05E+00
	PA-231	283.67		1.60	4.17E+00	2.79E+00	2.27E+00	2.01E+00
		302.67		2.30	2.79E+00		-1.35E-01	1.34E+00
	TH-231	25.64		14.70	2.34E+00	9.09E-01	-1.09E+00	1.13E+00
		84.21		6.40	9.09E-01		1.34E+00	4.44E-01
	PA-233	311.98		38.60	1.91E-01	1.91E-01	-3.96E-02	9.16E-02
	PA-234	131.20		20.40	3.05E-01	3.05E-01	2.81E-02	1.49E-01
		733.99		8.80	8.60E-01		-3.13E-01	4.02E-01
		946.00		12.00	7.77E-01		9.37E-02	3.64E-01
	PA-234M	1001.03		0.92	1.09E+01	1.09E+01	3.86E+00	5.10E+00
+	TH-234	63.29	*	3.80	2.96E+00	2.96E+00	4.52E+00	1.46E+00
	U-235	143.76		10.50	6.18E-01	6.18E-01	5.02E-01	3.02E-01
		163.35		4.70	1.42E+00		1.15E+00	6.91E-01
		205.31		4.70	1.44E+00		1.00E+00	6.98E-01
+	NP-237	86.50	*	12.60	5.22E-01	5.22E-01	4.28E-01	2.56E-01
	NP-239	106.10		22.70	3.68E+00	3.68E+00	1.03E+00	1.80E+00
		228.18		10.70	8.71E+00		-1.47E+00	4.21E+00
		277.60		14.10	7.04E+00		-2.62E-01	3.40E+00
	AM-241	59.54		35.90	1.65E-01	1.65E-01	-3.81E-02	8.05E-02
	AM-243	74.67		66.00	1.25E-01	1.25E-01	-4.37E-01	6.16E-02

Analysis Report for 1606064-06

CP-5014 02-05

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CM-243	209.75	3.29	2.12E+00	4.76E-01	1.53E+00	1.03E+00
	228.14	10.60	5.90E-01		-9.93E-02	2.85E-01
	277.60	14.00	4.76E-01		-1.77E-02	2.30E-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

No Data Review Comments Entered.

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

Sample Title: CP-5014 02-05

Elapsed Live time: 3600
Elapsed Real Time: 3602

Channel								
1:	0	0	0	0	0	0	31	516
9:	1110	789	415	245	2085	408	147	164
17:	168	139	143	130	83	86	92	95
25:	75	87	82	92	85	65	71	90
33:	83	71	86	93	81	89	75	91
41:	93	117	115	105	93	96	272	103
49:	93	108	102	96	149	157	103	122
57:	111	141	141	152	172	175	275	327
65:	160	164	164	219	197	183	177	193
73:	212	221	662	280	771	547	181	198
81:	194	148	151	259	181	136	301	298
89:	148	283	172	199	490	207	142	121
97:	96	127	128	129	113	87	107	87
105:	98	122	108	110	93	121	126	114
113:	112	112	108	101	120	107	129	98
121:	116	125	109	125	102	106	86	113
129:	137	102	108	115	101	109	103	110
137:	116	106	107	112	98	103	104	154
145:	107	99	93	93	126	95	103	92
153:	101	115	123	90	100	117	100	104
161:	106	103	116	100	99	76	74	94
169:	95	93	84	87	87	103	105	80
177:	90	92	93	80	71	87	84	86
185:	116	432	201	90	69	70	93	81
193:	74	78	70	89	100	82	84	82
201:	96	58	75	84	96	88	66	75
209:	104	104	77	66	74	51	81	84
217:	64	79	77	70	78	74	69	72
225:	66	66	47	63	68	60	62	57
233:	49	53	61	76	60	156	568	82
241:	112	357	133	38	53	61	51	42
249:	57	48	44	53	60	41	44	43
257:	64	55	65	45	46	52	48	55
265:	45	59	36	58	55	88	62	53
273:	48	47	67	39	55	48	68	54
281:	43	63	43	56	45	50	43	55
289:	36	42	34	42	43	61	501	379
297:	46	43	51	91	56	33	44	46
305:	37	43	32	38	42	27	31	31
313:	40	40	32	53	32	41	41	31
321:	45	36	40	43	39	40	34	55
329:	45	35	37	49	51	38	42	43
337:	32	114	112	35	46	42	45	36
345:	29	34	33	32	56	34	162	1085
353:	309	33	23	31	26	22	32	21
361:	27	33	31	37	24	29	24	30

369:	31	30	27	34	34	33	31	28

Sample Title: CP-5014 02-05

Channel								
377:	24	27	34	31	35	33	23	21
385:	25	29	38	39	40	35	21	37
393:	34	26	33	29	29	35	21	28
401:	38	49	25	23	34	27	30	32
409:	33	44	34	21	28	39	24	22
417:	29	20	36	29	27	23	19	32
425:	28	25	39	40	28	27	22	25
433:	25	27	26	21	14	23	31	32
441:	21	13	22	23	30	24	17	31
449:	17	23	22	26	28	24	29	21
457:	22	19	17	30	21	23	54	30
465:	13	18	22	15	31	23	15	16
473:	20	21	29	19	26	20	22	20
481:	26	11	18	21	15	23	22	24
489:	16	20	16	11	22	18	12	17
497:	24	18	18	14	17	17	11	22
505:	21	24	15	21	29	52	80	51
513:	22	14	17	22	15	18	20	17
521:	16	24	16	16	21	18	11	13
529:	22	18	12	21	18	25	14	11
537:	18	15	10	21	17	12	19	22
545:	15	17	21	18	17	16	14	15
553:	21	14	16	14	10	11	15	22
561:	16	15	23	16	17	15	23	14
569:	16	21	16	23	18	13	16	25
577:	17	17	20	19	16	26	138	92
585:	15	11	19	15	18	8	15	9
593:	13	22	17	11	16	14	23	17
601:	12	24	12	11	20	21	14	49
609:	541	486	45	16	14	16	19	17
617:	13	18	15	9	15	8	8	13
625:	17	12	9	13	13	7	10	9
633:	17	17	9	12	12	14	12	11
641:	14	12	14	14	17	12	8	11
649:	18	16	13	8	17	14	16	9
657:	13	11	14	15	11	19	10	13
665:	37	25	13	14	9	9	15	12
673:	12	11	6	8	21	12	13	9
681:	11	21	3	16	13	14	12	17
689:	15	9	13	15	13	23	17	14
697:	14	16	11	12	15	20	20	18
705:	16	14	10	9	14	15	9	15
713:	11	11	8	9	18	16	10	20
721:	10	7	13	6	8	8	26	39
729:	15	15	12	9	11	14	14	6
737:	6	15	9	12	12	12	17	9
745:	14	11	15	5	11	8	7	9
753:	11	19	19	16	11	11	7	13
761:	10	11	7	9	6	17	18	59
769:	43	13	9	15	14	13	7	14
777:	15	9	10	15	8	9	9	9
785:	16	25	19	13	11	16	10	14
793:	11	9	25	17	8	8	16	8

801:	8	12	11	9	12	18	6	11

Sample Title: CP-5014 02-05

Channel								
809:	13	8	9	10	16	12	14	5
817:	3	11	10	9	14	7	6	15
825:	9	7	6	14	11	18	13	10
833:	9	9	14	16	8	11	17	21
841:	11	11	10	13	13	7	14	6
849:	6	16	13	12	11	10	16	5
857:	12	10	9	21	18	9	13	6
865:	12	10	8	7	14	11	11	2
873:	9	14	6	5	8	16	8	9
881:	5	11	9	18	9	14	7	12
889:	10	13	10	16	12	15	6	17
897:	9	6	9	12	13	6	11	12
905:	11	9	12	11	11	27	78	69
913:	7	9	8	10	10	10	12	15
921:	11	10	8	6	10	11	10	12
929:	10	13	7	8	18	33	32	10
937:	8	10	9	13	8	14	3	11
945:	6	10	14	15	13	6	10	5
953:	6	13	9	3	11	3	12	5
961:	4	7	7	19	34	15	8	22
969:	53	36	10	11	9	11	3	4
977:	7	8	9	7	5	7	15	9
985:	6	12	6	9	7	5	7	8
993:	2	8	7	7	8	12	9	11
1001:	7	21	11	5	10	9	10	5
1009:	9	9	8	7	7	5	9	4
1017:	9	14	7	10	4	10	6	4
1025:	8	7	7	6	12	10	4	8
1033:	7	7	9	9	4	10	7	3
1041:	11	5	9	7	11	11	8	5
1049:	12	3	19	12	11	8	9	7
1057:	9	7	7	8	7	11	8	7
1065:	11	7	7	7	11	9	15	8
1073:	8	6	8	11	4	6	6	8
1081:	9	11	6	8	9	9	4	6
1089:	7	7	9	7	8	7	10	7
1097:	11	5	7	7	7	6	5	7
1105:	8	5	9	9	8	8	9	8
1113:	6	7	5	6	7	9	36	109
1121:	82	21	6	9	12	10	8	5
1129:	8	16	7	7	8	7	11	9
1137:	6	9	10	12	7	15	7	11
1145:	7	8	8	6	7	7	10	7
1153:	11	18	21	22	11	11	6	5
1161:	7	8	5	11	8	11	13	9
1169:	7	11	12	9	7	11	10	8
1177:	10	7	8	11	7	5	7	7
1185:	6	10	8	11	6	10	10	11
1193:	10	10	8	7	5	8	8	14
1201:	6	6	13	5	15	8	9	8
1209:	9	8	7	5	6	10	14	8
1217:	7	11	12	13	14	6	6	12
1225:	10	6	12	11	8	9	9	16

1233:	8	10	12	5	16	49	52	12

Sample Title: CP-5014 02-05

Channel								
1241:	9	7	10	9	8	6	5	7
1249:	13	4	13	8	3	4	5	5
1257:	10	1	7	7	3	9	6	4
1265:	10	7	4	4	8	6	4	4
1273:	10	7	10	5	8	7	9	15
1281:	11	14	5	5	9	10	7	7
1289:	8	7	3	8	6	6	6	6
1297:	6	9	4	4	6	8	3	6
1305:	2	6	7	5	7	1	9	6
1313:	4	6	4	5	6	2	4	6
1321:	5	6	4	4	5	4	5	8
1329:	6	8	4	5	3	5	1	10
1337:	2	2	4	9	4	6	8	2
1345:	5	5	10	9	8	4	6	3
1353:	3	1	1	3	1	7	3	4
1361:	5	4	8	2	6	4	3	4
1369:	5	2	3	2	6	4	4	2
1377:	19	43	10	3	2	5	4	6
1385:	9	12	8	3	2	6	5	5
1393:	5	1	4	10	3	3	6	10
1401:	11	9	6	5	4	4	7	15
1409:	18	9	5	4	6	2	6	3
1417:	3	2	4	7	8	2	4	2
1425:	4	2	4	2	10	2	3	2
1433:	5	2	9	2	0	2	7	3
1441:	7	1	5	2	5	6	0	1
1449:	4	3	6	1	5	0	4	2
1457:	7	7	25	165	327	153	20	7
1465:	4	5	1	6	2	2	3	4
1473:	1	3	1	4	1	3	5	5
1481:	8	1	3	2	4	2	1	2
1489:	2	2	5	4	2	2	4	7
1497:	1	3	3	2	2	0	3	0
1505:	4	0	4	8	12	8	9	2
1513:	4	6	1	3	2	2	2	3
1521:	1	1	5	4	4	3	0	3
1529:	4	2	5	1	6	3	4	3
1537:	5	5	5	5	4	2	3	3
1545:	3	5	1	0	3	3	3	3
1553:	3	1	2	2	1	3	2	6
1561:	2	2	1	0	2	1	1	4
1569:	2	3	1	2	0	0	2	1
1577:	2	3	3	4	3	6	9	8
1585:	3	3	7	8	10	2	3	3
1593:	7	7	2	3	1	3	3	3
1601:	1	1	3	4	3	5	2	2
1609:	2	1	1	2	2	0	2	0
1617:	3	3	4	3	5	3	1	5
1625:	1	2	3	3	3	3	2	5
1633:	1	1	1	2	0	7	4	0
1641:	4	1	0	3	1	2	3	4
1649:	2	1	1	1	0	3	0	0
1657:	1	1	1	2	7	4	4	1

1665:	4	6	2	4	0	3	1	2

Sample Title: CP-5014 02-05

Channel								
1673:	2	1	3	1	0	0	0	3
1681:	3	0	1	4	1	2	2	5
1689:	3	1	0	3	4	2	0	5
1697:	6	2	1	3	4	0	2	0
1705:	4	0	2	2	0	1	2	1
1713:	1	1	2	2	4	1	2	1
1721:	3	3	0	1	0	2	1	2
1729:	13	20	6	2	3	1	2	2
1737:	3	3	3	3	1	2	2	3
1745:	1	0	4	2	2	0	1	4
1753:	3	2	5	1	1	1	0	1
1761:	0	1	12	63	58	22	4	0
1769:	2	2	3	2	2	2	3	0
1777:	0	2	3	3	1	0	0	1
1785:	1	2	1	0	1	3	0	0
1793:	0	2	0	1	1	2	0	1
1801:	2	1	4	2	1	1	2	2
1809:	2	3	2	0	1	3	2	0
1817:	0	2	1	1	0	0	2	0
1825:	4	1	2	2	2	2	0	2
1833:	0	1	2	0	0	0	1	3
1841:	2	1	1	0	4	8	13	11
1849:	2	0	0	0	1	0	1	1
1857:	2	0	1	0	1	0	1	0
1865:	2	2	1	2	2	2	2	1
1873:	2	4	1	2	1	1	1	4
1881:	0	1	1	1	4	1	3	0
1889:	1	1	3	1	1	1	2	1
1897:	4	0	1	2	1	0	1	3
1905:	1	0	1	0	1	0	1	2
1913:	1	0	1	0	2	1	0	2
1921:	0	0	0	3	0	1	2	1
1929:	1	0	0	2	2	3	4	1
1937:	1	2	0	0	2	2	4	3
1945:	1	0	4	0	3	0	1	0
1953:	0	0	0	2	0	1	0	2
1961:	1	0	0	3	1	1	0	0
1969:	1	2	0	0	0	3	1	2
1977:	0	0	2	1	0	0	0	1
1985:	1	3	1	1	0	0	2	2
1993:	3	2	0	0	3	1	0	1
2001:	0	0	2	0	0	0	2	1
2009:	0	0	0	1	2	2	2	0
2017:	3	0	2	1	1	0	2	0
2025:	1	0	0	0	0	1	1	1
2033:	2	1	0	1	1	0	1	2
2041:	1	0	0	1	1	0	1	0
2049:	3	1	1	2	0	0	0	2
2057:	3	0	0	2	2	3	0	1
2065:	3	0	0	1	0	2	0	0
2073:	0	0	1	1	2	0	1	3
2081:	0	1	1	1	1	0	1	0
2089:	0	0	0	2	1	0	0	1

2097:	2	3	2	1	2	6	6	2

Sample Title: CP-5014 02-05

Channel								
2105:	1	0	1	0	1	2	1	0
2113:	1	2	1	1	3	1	4	1
2121:	3	1	2	0	1	1	0	1
2129:	1	1	0	0	0	1	1	1
2137:	0	1	0	0	1	1	1	1
2145:	1	2	0	3	1	2	0	1
2153:	0	1	2	1	1	2	1	1
2161:	1	0	0	0	2	0	2	0
2169:	2	1	1	0	4	1	1	2
2177:	1	0	1	2	0	1	1	1
2185:	2	0	1	1	1	0	0	0
2193:	2	0	0	2	1	2	1	0
2201:	2	3	15	17	14	5	1	0
2209:	0	0	1	0	1	1	0	0
2217:	1	0	1	1	1	0	1	2
2225:	1	3	1	1	2	1	1	1
2233:	5	0	0	2	0	0	0	1
2241:	3	0	2	2	0	0	2	3
2249:	1	0	1	1	0	1	1	0
2257:	3	1	3	1	0	1	0	1
2265:	2	1	0	0	0	0	1	1
2273:	1	0	1	0	0	1	0	0
2281:	0	0	1	1	0	3	1	0
2289:	0	1	2	0	3	1	1	1
2297:	0	1	1	2	1	1	0	2
2305:	0	1	1	0	0	1	1	0
2313:	2	1	1	2	2	0	0	0
2321:	0	3	1	3	1	1	0	0
2329:	1	0	0	1	1	1	2	0
2337:	0	1	3	0	2	0	2	0
2345:	1	0	2	1	1	1	2	0
2353:	0	1	0	1	0	2	0	0
2361:	1	0	0	1	2	0	1	0
2369:	1	1	1	0	2	1	1	1
2377:	3	3	0	0	1	3	0	1
2385:	1	1	1	2	2	1	1	1
2393:	2	1	1	2	0	0	0	1
2401:	0	0	2	0	0	0	1	1
2409:	1	0	1	1	0	0	1	0
2417:	1	0	0	0	0	1	0	0
2425:	1	0	2	1	2	1	1	0
2433:	1	0	0	0	0	0	2	0
2441:	0	0	1	1	0	3	6	4
2449:	2	3	0	1	0	1	0	0
2457:	0	1	0	0	1	1	1	2
2465:	1	0	0	0	0	0	0	0
2473:	0	2	0	0	2	0	0	0
2481:	3	1	1	0	0	0	1	0
2489:	0	0	1	0	2	1	1	1
2497:	1	1	0	0	0	0	0	0
2505:	1	0	1	0	0	0	0	0
2513:	0	0	0	1	0	1	1	1
2521:	1	0	0	1	1	0	0	0

2529:	0	0	0	1	0	0	1	0

Sample Title: CP-5014 02-05

Channel								
2537:	1	0	0	0	1	0	0	0
2545:	0	0	1	0	0	0	1	0
2553:	0	1	0	1	0	0	0	0
2561:	0	0	1	0	0	1	1	1
2569:	0	0	1	0	0	1	1	0
2577:	1	0	0	0	0	0	1	0
2585:	1	1	1	0	0	0	0	0
2593:	0	0	0	0	0	0	0	0
2601:	0	0	0	0	1	0	0	1
2609:	0	0	1	1	11	21	26	9
2617:	3	0	0	1	1	1	0	1
2625:	0	0	0	0	0	2	0	0
2633:	0	0	1	0	0	0	0	0
2641:	1	1	0	2	0	0	0	0
2649:	0	0	1	0	2	0	0	1
2657:	0	1	0	0	0	0	1	0
2665:	0	0	0	0	0	0	0	3
2673:	1	0	0	0	0	1	0	0
2681:	0	0	1	0	0	1	0	0
2689:	0	0	0	0	1	0	1	0
2697:	0	0	0	1	0	1	0	1
2705:	0	1	0	0	0	0	0	0
2713:	0	1	0	0	0	0	0	0
2721:	0	2	0	0	0	0	0	0
2729:	1	0	0	1	0	0	0	0
2737:	0	0	0	1	0	1	0	0
2745:	0	0	0	0	0	0	0	1
2753:	1	1	0	1	0	0	0	0
2761:	1	0	0	0	0	0	1	1
2769:	0	2	0	0	0	0	0	0
2777:	0	0	0	0	0	0	1	0
2785:	0	0	1	0	1	0	0	0
2793:	0	0	1	1	1	0	2	1
2801:	2	0	0	1	0	1	0	0
2809:	0	1	0	0	0	0	1	0
2817:	0	0	0	1	0	0	0	0
2825:	0	0	1	0	0	0	0	1
2833:	0	0	0	1	0	0	0	0
2841:	0	0	0	0	0	1	0	0
2849:	0	0	1	0	0	0	0	0
2857:	0	2	1	0	0	0	0	0
2865:	1	0	0	2	0	1	0	1
2873:	0	1	0	0	0	0	0	0
2881:	0	0	1	0	0	0	0	0
2889:	0	0	1	0	0	0	1	0
2897:	0	2	0	0	0	0	0	0
2905:	0	0	0	0	0	1	0	0
2913:	1	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	1	0
2929:	0	1	0	0	0	0	0	0
2937:	0	0	0	0	0	1	0	0
2945:	1	1	0	1	0	1	0	0
2953:	0	1	1	0	0	1	0	0

2961:	0	0	0	0	0	0	0	0

Sample Title: CP-5014 02-05

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

3393:	0	0	0	0	0	0	0	0

Sample Title: CP-5014 02-05

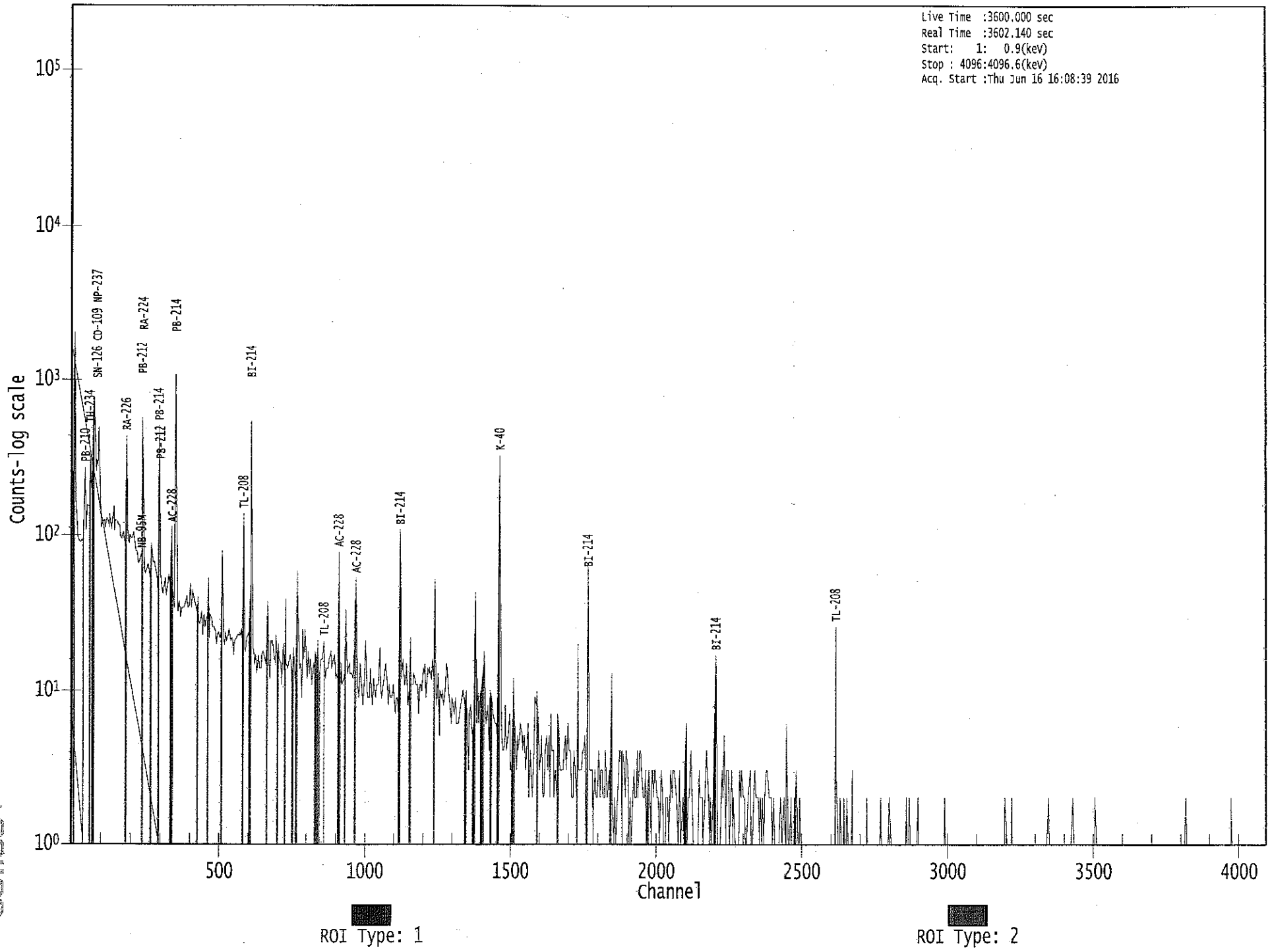
Channel								
3401:	0	0	1	0	0	0	0	0
3409:	0	0	0	0	0	1	0	0
3417:	0	0	1	0	1	1	0	1
3425:	1	0	0	0	0	2	0	0
3433:	0	0	0	0	0	1	0	0
3441:	1	1	0	0	0	0	1	0
3449:	0	0	0	0	0	0	0	1
3457:	0	0	0	0	0	1	1	0
3465:	0	0	0	1	0	0	0	0
3473:	1	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	1
3497:	0	0	0	0	0	0	0	0
3505:	2	0	0	0	0	0	1	0
3513:	0	0	0	0	0	0	0	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	1	0	0	0	0
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	0	1	0	0	0
3569:	0	1	0	0	0	0	0	0
3577:	0	1	0	0	0	0	0	0
3585:	0	0	0	0	0	0	1	0
3593:	1	0	0	0	0	0	0	1
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	1
3625:	0	0	0	0	0	0	0	0
3633:	1	0	1	0	0	0	0	0
3641:	0	0	0	0	0	0	0	0
3649:	0	0	0	0	0	0	0	1
3657:	0	0	0	0	0	0	0	0
3665:	0	0	0	0	0	0	0	0
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:	1	1	0	0	0	0	0	0
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	0	0	0	0	1	0
3745:	0	0	0	0	0	0	0	0
3753:	0	0	0	0	0	0	1	0
3761:	0	0	0	0	0	0	0	0
3769:	0	0	0	1	0	0	0	0
3777:	0	0	1	0	0	0	0	0
3785:	0	1	0	1	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	1	0	0	0
3817:	0	2	0	0	0	0	0	0

3825:	1	0	0	0	0	0	0	0

Sample Title: CP-5014 02-05

Channel								
3833:	0	0	0	0	1	0	0	0
3841:	0	0	1	0	0	0	0	0
3849:	0	0	0	0	0	0	0	1
3857:	0	0	0	0	0	0	0	0
3865:	1	1	0	0	0	0	1	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	1	0	0
3897:	0	1	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	1	0	0	0	0	0	0
3929:	0	0	0	0	0	0	0	0
3937:	0	0	0	0	0	0	0	0
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	1
3961:	0	0	0	0	0	0	1	0
3969:	0	0	0	0	2	1	0	0
3977:	0	0	0	0	0	0	1	0
3985:	0	0	1	0	0	1	0	0
3993:	0	0	0	0	0	0	0	0
4001:	0	0	1	0	0	0	0	0
4009:	0	0	0	0	1	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	1	0	0	0	0	0
4049:	0	1	0	0	0	0	0	0
4057:	0	0	0	0	0	1	0	1
4065:	0	0	0	0	0	0	0	1
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	1	0	0	0
4089:	0	0	0	0	0	0	0	0

0000039030.CNF



Apex-Gamma

Analysis Report for 1606064-07
CP-5014 05-09

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1606064-07
Sample Description	: CP-5014 05-09
Sample Type	: SOIL
Sample Size	: 2.180E+02 grams
Facility	: Countroom
Sample Taken On	: 6/7/2016 12:18:33PM
Acquisition Started	: 6/16/2016 4:55:15PM
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)	: 18 - 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	: 39035

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606064-07

CP-5014 05-09

PEAK LOCATE REPORT

Peak Locate Performed on : 6/16/2016 5:55:22PM
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	47.00	47.36	0.0000	0.00
2	53.33	53.68	0.0000	0.00
3	64.10	64.44	0.0000	0.00
4	77.10	77.44	0.0000	0.00
5	93.38	93.72	0.0000	0.00
6	115.01	115.34	0.0000	0.00
7	130.35	130.67	0.0000	0.00
8	162.47	162.78	0.0000	0.00
9	186.76	187.07	0.0000	0.00
10	191.55	191.85	0.0000	0.00
11	210.53	210.82	0.0000	0.00
12	239.33	239.62	0.0000	0.00
13	242.77	243.06	0.0000	0.00
14	270.89	271.16	0.0000	0.00
15	278.12	278.40	0.0000	0.00
16	295.83	296.09	0.0000	0.00
17	339.00	339.25	0.0000	0.00
18	352.58	352.83	0.0000	0.00
19	389.90	390.14	0.0000	0.00
20	437.84	438.06	0.0000	0.00
21	463.68	463.89	0.0000	0.00
22	512.84	513.04	0.0000	0.00
23	524.21	524.40	0.0000	0.00
24	583.90	584.07	0.0000	0.00
25	609.96	610.13	0.0000	0.00
26	667.77	667.91	0.0000	0.00
27	702.26	702.39	0.0000	0.00
28	708.26	708.39	0.0000	0.00
29	720.39	720.51	0.0000	0.00
30	727.96	728.07	0.0000	0.00
31	768.59	768.70	0.0000	0.00
32	806.47	806.56	0.0000	0.00
33	860.11	860.18	0.0000	0.00
34	911.77	911.82	0.0000	0.00
35	934.87	934.92	0.0000	0.00
36	970.01	970.05	0.0000	0.00
37	1002.09	1002.12	0.0000	0.00
38	1098.32	1098.31	0.0000	0.00
39	1120.94	1120.92	0.0000	0.00
40	1155.04	1155.01	0.0000	0.00
41	1208.47	1208.42	0.0000	0.00
42	1239.57	1239.51	0.0000	0.00

Analysis Report for 1606064-07

CP-5014 05-09

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1272.81	1272.73	0.0000	0.00
44	1281.51	1281.43	0.0000	0.00
45	1353.91	1353.81	0.0000	0.00
46	1359.42	1359.32	0.0000	0.00
47	1378.08	1377.97	0.0000	0.00
48	1408.46	1408.34	0.0000	0.00
49	1414.17	1414.05	0.0000	0.00
50	1456.42	1456.28	0.0000	0.00
51	1461.48	1461.33	0.0000	0.00
52	1509.89	1509.73	0.0000	0.00
53	1516.53	1516.37	0.0000	0.00
54	1589.64	1589.45	0.0000	0.00
55	1593.89	1593.70	0.0000	0.00
56	1661.51	1661.29	0.0000	0.00
57	1704.06	1703.83	0.0000	0.00
58	1729.76	1729.52	0.0000	0.00
59	1765.11	1764.85	0.0000	0.00
60	1775.59	1775.33	0.0000	0.00
61	1847.72	1847.43	0.0000	0.00
62	1861.56	1861.26	0.0000	0.00
63	1874.05	1873.75	0.0000	0.00
64	1936.42	1936.10	0.0000	0.00
65	2118.22	2117.83	0.0000	0.00
66	2204.42	2203.99	0.0000	0.00
67	2214.14	2213.71	0.0000	0.00
68	2339.76	2339.29	0.0000	0.00
69	2352.85	2352.37	0.0000	0.00
70	2373.32	2372.83	0.0000	0.00
71	2447.96	2447.44	0.0000	0.00
72	2614.98	2614.40	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606064-07

CP-5014 05-09

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/16/2016 5:55:22PM

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)
	1	47.00	44 -	49	47.36	2.47E+02	73.59	8.86E+02	1.79
	2	53.33	51 -	56	53.68	1.22E+02	75.62	1.04E+03	2.66
	3	64.10	61 -	68	64.44	3.23E+02	113.95	1.97E+03	1.74
	4	77.10	73 -	83	77.44	1.51E+03	168.65	2.95E+03	3.11
	5	93.38	91 -	97	93.72	4.12E+02	102.41	1.57E+03	1.39
	6	115.01	112 -	119	115.34	8.77E+01	82.83	1.08E+03	3.60
	7	130.35	128 -	133	130.67	5.61E+01	63.05	7.46E+02	2.08
	8	162.47	159 -	166	162.78	7.22E+01	75.79	9.12E+02	3.21
M	9	186.76	183 -	197	187.07	3.99E+02	64.77	5.89E+02	1.59
m	10	191.55	183 -	197	191.85	4.15E+01	51.84	5.15E+02	1.63
	11	210.53	209 -	213	210.82	5.56E+01	48.07	4.57E+02	2.31
M	12	239.33	235 -	247	239.62	7.30E+02	69.12	4.57E+02	1.70
m	13	242.77	235 -	247	243.06	3.68E+02	73.79	4.59E+02	1.90
	14	270.89	268 -	274	271.16	1.02E+02	53.93	4.54E+02	1.88
	15	278.12	275 -	284	278.40	1.14E+02	66.47	5.56E+02	4.00
	16	295.83	292 -	299	296.09	5.67E+02	73.21	5.15E+02	1.40
	17	339.00	337 -	342	339.25	1.31E+02	44.64	2.99E+02	1.84
	18	352.58	348 -	357	352.83	1.03E+03	83.98	4.19E+02	1.51
	19	389.90	387 -	393	390.14	5.63E+01	37.79	2.15E+02	4.52
	20	437.84	433 -	442	438.06	5.50E+01	44.34	2.48E+02	5.29
	21	463.68	461 -	467	463.89	3.95E+01	33.77	1.79E+02	1.47
	22	512.84	507 -	520	513.04	2.00E+02	56.34	2.55E+02	2.70
	23	524.21	522 -	528	524.40	2.62E+01	29.36	1.40E+02	2.04
	24	583.90	581 -	588	584.07	1.92E+02	41.81	1.62E+02	1.42
	25	609.96	605 -	614	610.13	6.84E+02	68.01	2.70E+02	1.49
	26	667.77	663 -	672	667.91	3.07E+01	37.20	1.81E+02	1.65
M	27	702.26	697 -	723	702.39	3.02E+01	26.74	9.95E+01	2.46
m	28	708.26	697 -	723	708.39	2.05E+01	26.52	1.01E+02	2.47
m	29	720.39	697 -	723	720.51	1.82E+01	25.28	1.04E+02	2.48
	30	727.96	724 -	731	728.07	4.66E+01	31.69	1.37E+02	2.34
	31	768.59	765 -	772	768.70	4.77E+01	33.59	1.57E+02	1.28
	32	806.47	803 -	811	806.56	3.04E+01	30.05	1.17E+02	3.96
	33	860.11	855 -	863	860.18	3.17E+01	29.30	1.13E+02	1.87
	34	911.77	909 -	916	911.82	1.25E+02	32.68	9.95E+01	1.69
	35	934.87	931 -	938	934.92	4.43E+01	26.00	8.14E+01	1.70
	36	970.01	966 -	973	970.05	4.81E+01	32.62	1.40E+02	1.45
	37	1002.09	999 -	1007	1002.12	3.28E+01	23.83	6.64E+01	3.79
	38	1098.32	1094 -	1102	1098.31	2.01E+01	24.09	6.79E+01	5.02
	39	1120.94	1116 -	1125	1120.92	1.70E+02	38.56	1.15E+02	1.67
	40	1155.04	1150 -	1158	1155.01	2.73E+01	26.63	8.75E+01	2.06

Analysis Report for 1606064-07

CP-5014 05-09

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1208.47	1207	1210	1208.42	1.41E+01	14.42	3.59E+01	1.88
	42	1239.57	1235	1245	1239.51	4.35E+01	39.71	1.87E+02	1.97
	43	1272.81	1268	1277	1272.73	1.54E+01	20.25	4.92E+01	7.08
	44	1281.51	1278	1284	1281.43	3.59E+01	16.67	2.43E+01	1.39
M	45	1353.91	1348	1365	1353.81	1.45E+01	20.12	4.89E+01	3.47
m	46	1359.42	1348	1365	1359.32	1.09E+01	19.31	2.69E+01	3.47
	47	1378.08	1374	1382	1377.97	4.06E+01	22.69	5.48E+01	1.83
M	48	1408.46	1404	1416	1408.34	2.56E+01	20.59	6.03E+01	2.63
m	49	1414.17	1404	1416	1414.05	9.73E+00	14.90	3.35E+01	2.64
M	50	1456.42	1454	1471	1456.28	9.24E+00	9.38	2.37E+01	2.65
m	51	1461.48	1454	1471	1461.33	5.39E+02	47.53	2.25E+01	2.13
M	52	1509.89	1506	1519	1509.73	2.31E+01	15.93	2.55E+01	2.95
m	53	1516.53	1506	1519	1516.37	1.02E+01	12.56	2.20E+01	2.95
M	54	1589.64	1588	1596	1589.45	1.02E+01	6.63	1.07E+01	1.99
m	55	1593.89	1588	1596	1593.70	1.11E+01	11.83	1.69E+01	3.20
	56	1661.51	1656	1666	1661.29	1.60E+01	15.13	2.20E+01	3.98
	57	1704.06	1701	1707	1703.83	6.06E+00	6.65	3.88E+00	1.36
	58	1729.76	1723	1734	1729.52	2.51E+01	20.88	4.18E+01	2.81
	59	1765.11	1761	1770	1764.85	1.36E+02	26.78	2.39E+01	1.90
	60	1775.59	1773	1777	1775.33	6.00E+00	4.90	0.00E+00	1.92
	61	1847.72	1842	1851	1847.43	2.04E+01	13.67	1.51E+01	2.05
	62	1861.56	1857	1864	1861.26	7.17E+00	7.21	3.67E+00	2.63
	63	1874.05	1870	1877	1873.75	1.20E+01	6.93	0.00E+00	1.24
	64	1936.42	1932	1938	1936.10	6.00E+00	6.65	4.00E+00	1.37
	65	2118.22	2112	2122	2117.83	1.35E+01	11.68	1.10E+01	3.21
	66	2204.42	2198	2208	2203.99	4.51E+01	14.91	5.85E+00	2.14
	67	2214.14	2210	2217	2213.71	6.25E+00	6.93	3.50E+00	1.85
	68	2339.76	2335	2342	2339.29	7.00E+00	5.29	0.00E+00	3.41
	69	2352.85	2348	2358	2352.37	1.20E+01	11.51	1.20E+01	3.75
	70	2373.32	2369	2375	2372.83	8.68E+00	9.63	1.06E+01	1.42
	71	2447.96	2443	2451	2447.44	6.50E+00	9.19	9.00E+00	1.91
	72	2614.98	2611	2618	2614.40	7.33E+01	17.78	3.37E+00	2.91

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 : 6/16/2016 5:55:22PM

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

Analysis Report for 1606064-07

CP-5014 05-09

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	47.00	44 -	49	2.47E+02	73.59	8.86E+02	5.47E+01
	2	53.33	51 -	56	1.22E+02	75.62	1.04E+03	5.94E+01
	3	64.10	61 -	68	3.23E+02	113.95	1.97E+03	8.89E+01
	4	77.10	73 -	83	1.51E+03	168.65	2.95E+03	1.23E+02
	5	93.38	91 -	97	4.12E+02	102.41	1.57E+03	1.58E+02
	6	115.01	112 -	119	8.77E+01	82.83	1.08E+03	6.63E+01
	7	130.35	128 -	133	5.61E+01	63.05	7.46E+02	5.03E+01
	8	162.47	159 -	166	7.22E+01	75.79	9.12E+02	6.07E+01
M	9	186.76	183 -	197	3.99E+02	64.77	5.89E+02	3.99E+01
m	10	191.55	183 -	197	4.15E+01	51.84	5.15E+02	3.73E+01
	11	210.53	209 -	213	5.56E+01	48.07	4.57E+02	3.76E+01
M	12	239.33	235 -	247	7.30E+02	69.12	4.57E+02	3.52E+01
m	13	242.77	235 -	247	3.68E+02	73.79	4.59E+02	3.52E+01
	14	270.89	268 -	274	1.02E+02	53.93	4.54E+02	4.11E+01
	15	278.12	275 -	284	1.14E+02	66.47	5.56E+02	5.17E+01
	16	295.83	292 -	299	5.67E+02	73.21	5.15E+02	4.57E+01
	17	339.00	337 -	342	1.31E+02	44.64	2.99E+02	3.15E+01
	18	352.58	348 -	357	1.03E+03	83.98	4.19E+02	4.46E+01
	19	389.90	387 -	393	5.63E+01	37.79	2.15E+02	2.85E+01
	20	437.84	433 -	442	5.50E+01	44.34	2.48E+02	3.43E+01
	21	463.68	461 -	467	3.95E+01	33.77	1.79E+02	2.58E+01
	22	512.84	507 -	520	2.00E+02	56.34	2.55E+02	4.00E+01
	23	524.21	522 -	528	2.62E+01	29.36	1.40E+02	2.26E+01
	24	583.90	581 -	588	1.92E+02	41.81	1.62E+02	2.57E+01
	25	609.96	605 -	614	6.84E+02	68.01	2.70E+02	3.57E+01
	26	667.77	663 -	672	3.07E+01	37.20	1.81E+02	2.92E+01
M	27	702.26	697 -	723	3.02E+01	26.74	9.95E+01	1.64E+01
m	28	708.26	697 -	723	2.05E+01	26.52	1.01E+02	1.65E+01
m	29	720.39	697 -	723	1.82E+01	25.28	1.04E+02	1.68E+01
	30	727.96	724 -	731	4.66E+01	31.69	1.37E+02	2.35E+01
	31	768.59	765 -	772	4.77E+01	33.59	1.57E+02	2.52E+01
	32	806.47	803 -	811	3.04E+01	30.05	1.17E+02	2.30E+01
	33	860.11	855 -	863	3.17E+01	29.30	1.13E+02	2.22E+01
	34	911.77	909 -	916	1.25E+02	32.68	9.95E+01	1.96E+01
	35	934.87	931 -	938	4.43E+01	26.00	8.14E+01	1.84E+01
	36	970.01	966 -	973	4.81E+01	32.62	1.40E+02	2.43E+01
	37	1002.09	999 -	1007	3.28E+01	23.83	6.64E+01	1.72E+01
	38	1098.32	1094 -	1102	2.01E+01	24.09	6.79E+01	1.18E+01
	39	1120.94	1116 -	1125	1.70E+02	38.56	1.15E+02	2.33E+01
	40	1155.04	1150 -	1158	2.73E+01	26.63	8.75E+01	2.01E+01
	41	1208.47	1207 -	1210	1.41E+01	14.42	3.59E+01	1.01E+01
	42	1239.57	1235 -	1245	4.35E+01	39.71	1.87E+02	3.08E+01
	43	1272.81	1268 -	1277	1.54E+01	20.25	4.92E+01	1.53E+01
	44	1281.51	1278 -	1284	3.59E+01	16.67	2.43E+01	9.53E+00
M	45	1353.91	1348 -	1365	1.45E+01	20.12	4.89E+01	1.15E+01
m	46	1359.42	1348 -	1365	1.09E+01	19.31	2.69E+01	8.52E+00
	47	1378.08	1374 -	1382	4.06E+01	22.69	5.48E+01	1.54E+01
M	48	1408.46	1404 -	1416	2.56E+01	20.59	6.03E+01	1.28E+01
m	49	1414.17	1404 -	1416	9.73E+00	14.90	3.35E+01	9.51E+00
M	50	1456.42	1454 -	1471	9.24E+00	9.38	2.37E+01	8.00E+00
m	51	1461.48	1454 -	1471	5.39E+02	47.53	2.25E+01	7.79E+00

Analysis Report for 1606064-07

CP-5014 05-09

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	52	1509.89	1506 -	1519	2.31E+01	15.93	2.55E+01	8.30E+00
m	53	1516.53	1506 -	1519	1.02E+01	12.56	2.20E+01	7.71E+00
M	54	1589.64	1588 -	1596	1.02E+01	6.63	1.07E+01	5.38E+00
m	55	1593.89	1588 -	1596	1.11E+01	11.83	1.69E+01	6.76E+00
	56	1661.51	1656 -	1666	1.60E+01	15.13	2.20E+01	1.06E+01
	57	1704.06	1701 -	1707	6.06E+00	6.65	3.88E+00	3.68E+00
	58	1729.76	1723 -	1734	2.51E+01	20.88	4.18E+01	1.51E+01
	59	1765.11	1761 -	1770	1.36E+02	26.78	2.39E+01	1.08E+01
	60	1775.59	1773 -	1777	6.00E+00	4.90	0.00E+00	0.00E+00
	61	1847.72	1842 -	1851	2.04E+01	13.67	1.51E+01	8.43E+00
	62	1861.56	1857 -	1864	7.17E+00	7.21	3.67E+00	3.97E+00
	63	1874.05	1870 -	1877	1.20E+01	6.93	0.00E+00	0.00E+00
	64	1936.42	1932 -	1938	6.00E+00	6.65	4.00E+00	3.70E+00
	65	2118.22	2112 -	2122	1.35E+01	11.68	1.10E+01	7.47E+00
	66	2204.42	2198 -	2208	4.51E+01	14.91	5.85E+00	5.32E+00
	67	2214.14	2210 -	2217	6.25E+00	6.93	3.50E+00	3.94E+00
	68	2339.76	2335 -	2342	7.00E+00	5.29	0.00E+00	0.00E+00
	69	2352.85	2348 -	2358	1.20E+01	11.51	1.20E+01	7.56E+00
	70	2373.32	2369 -	2375	8.68E+00	9.63	1.06E+01	6.26E+00
	71	2447.96	2443 -	2451	6.50E+00	9.19	9.00E+00	6.29E+00
	72	2614.98	2611 -	2618	7.33E+01	17.78	3.37E+00	3.92E+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 : 6/16/2016 5:55:22PM

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	47.00	44 -	49	47.36	2.47E+02	73.59	8.86E+02	PB-210
2	53.33	51 -	56	53.68	1.22E+02	75.62	1.04E+03	.....
3	64.10	61 -	68	64.44	3.23E+02	113.95	1.97E+03	TH-234
4	77.10	73 -	83	77.44	1.51E+03	168.65	2.95E+03	.....

Analysis Report for 1606064-07

CP-5014 05-09

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	5	93.38	91 -	97	93.72	4.12E+02	102.41	1.57E+03	GA-67
	6	115.01	112 -	119	115.34	8.77E+01	82.83	1.08E+03	.....
	7	130.35	128 -	133	130.67	5.61E+01	63.05	7.46E+02	PA-234
	8	162.47	159 -	166	162.78	7.22E+01	75.79	9.12E+02	BA-140
									U-235
M	9	186.76	183 -	197	187.07	3.99E+02	64.77	5.89E+02	RA-226
m	10	191.55	183 -	197	191.85	4.15E+01	51.84	5.15E+02	.....
	11	210.53	209 -	213	210.82	5.56E+01	48.07	4.57E+02	CM-243
M	12	239.33	235 -	247	239.62	7.30E+02	69.12	4.57E+02	PB-212
m	13	242.77	235 -	247	243.06	3.68E+02	73.79	4.59E+02	.....
	14	270.89	268 -	274	271.16	1.02E+02	53.93	4.54E+02	.....
	15	278.12	275 -	284	278.40	1.14E+02	66.47	5.56E+02	CM-243
									NP-239
	16	295.83	292 -	299	296.09	5.67E+02	73.21	5.15E+02	PB-214
	17	339.00	337 -	342	339.25	1.31E+02	44.64	2.99E+02	AC-228
	18	352.58	348 -	357	352.83	1.03E+03	83.98	4.19E+02	PB-214
	19	389.90	387 -	393	390.14	5.63E+01	37.79	2.15E+02	.....
	20	437.84	433 -	442	438.06	5.50E+01	44.34	2.48E+02	BA-140
	21	463.68	461 -	467	463.89	3.95E+01	33.77	1.79E+02	SB-125
	22	512.84	507 -	520	513.04	2.00E+02	56.34	2.55E+02	.....
	23	524.21	522 -	528	524.40	2.62E+01	29.36	1.40E+02	.....
	24	583.90	581 -	588	584.07	1.92E+02	41.81	1.62E+02	TL-208
	25	609.96	605 -	614	610.13	6.84E+02	68.01	2.70E+02	BI-214
	26	667.77	663 -	672	667.91	3.07E+01	37.20	1.81E+02	.....
M	27	702.26	697 -	723	702.39	3.02E+01	26.74	9.95E+01	NB-94
m	28	708.26	697 -	723	708.39	2.05E+01	26.52	1.01E+02	.....
m	29	720.39	697 -	723	720.51	1.82E+01	25.28	1.04E+02	SB-126
	30	727.96	724 -	731	728.07	4.66E+01	31.69	1.37E+02	BI-212
	31	768.59	765 -	772	768.70	4.77E+01	33.59	1.57E+02	.....
	32	806.47	803 -	811	806.56	3.04E+01	30.05	1.17E+02	.....
	33	860.11	855 -	863	860.18	3.17E+01	29.30	1.13E+02	TL-208
	34	911.77	909 -	916	911.82	1.25E+02	32.68	9.95E+01	LU-172
									AC-228
	35	934.87	931 -	938	934.92	4.43E+01	26.00	8.14E+01	.....
	36	970.01	966 -	973	970.05	4.81E+01	32.62	1.40E+02	AC-228
	37	1002.09	999 -	1007	1002.12	3.28E+01	23.83	6.64E+01	.....
	38	1098.32	1094 -	1102	1098.31	2.01E+01	24.09	6.79E+01	FE-59
	39	1120.94	1116 -	1125	1120.92	1.70E+02	38.56	1.15E+02	TA-182
									SC-46
									BI-214
	40	1155.04	1150 -	1158	1155.01	2.73E+01	26.63	8.75E+01	.....
	41	1208.47	1207 -	1210	1208.42	1.41E+01	14.42	3.59E+01	.....
	42	1239.57	1235 -	1245	1239.51	4.35E+01	39.71	1.87E+02	.....
	43	1272.81	1268 -	1277	1272.73	1.54E+01	20.25	4.92E+01	.....
	44	1281.51	1278 -	1284	1281.43	3.59E+01	16.67	2.43E+01	.....
M	45	1353.91	1348 -	1365	1353.81	1.45E+01	20.12	4.89E+01	.....
m	46	1359.42	1348 -	1365	1359.32	1.09E+01	19.31	2.69E+01	.....
	47	1378.08	1374 -	1382	1377.97	4.06E+01	22.69	5.48E+01	.....
M	48	1408.46	1404 -	1416	1408.34	2.56E+01	20.59	6.03E+01	EU-152
m	49	1414.17	1404 -	1416	1414.05	9.73E+00	14.90	3.35E+01	.....
M	50	1456.42	1454 -	1471	1456.28	9.24E+00	9.38	2.37E+01	.....
m	51	1461.48	1454 -	1471	1461.33	5.39E+02	47.53	2.25E+01	K-40
M	52	1509.89	1506 -	1519	1509.73	2.31E+01	15.93	2.55E+01	.....
m	53	1516.53	1506 -	1519	1516.37	1.02E+01	12.56	2.20E+01	.....

Analysis Report for 1606064-07

CP-5014 05-09

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	54	1589.64	1588 -	1596	1589.45	1.02E+01	6.63	1.07E+01	.....
m	55	1593.89	1588 -	1596	1593.70	1.11E+01	11.83	1.69E+01	.....
	56	1661.51	1656 -	1666	1661.29	1.60E+01	15.13	2.20E+01	.....
	57	1704.06	1701 -	1707	1703.83	6.06E+00	6.65	3.88E+00	.....
	58	1729.76	1723 -	1734	1729.52	2.51E+01	20.88	4.18E+01	.....
	59	1765.11	1761 -	1770	1764.85	1.36E+02	26.78	2.39E+01	BI-214
	60	1775.59	1773 -	1777	1775.33	6.00E+00	4.90	0.00E+00	.....
	61	1847.72	1842 -	1851	1847.43	2.04E+01	13.67	1.51E+01	.....
	62	1861.56	1857 -	1864	1861.26	7.17E+00	7.21	3.67E+00	.....
	63	1874.05	1870 -	1877	1873.75	1.20E+01	6.93	0.00E+00	.....
	64	1936.42	1932 -	1938	1936.10	6.00E+00	6.65	4.00E+00	.....
	65	2118.22	2112 -	2122	2117.83	1.35E+01	11.68	1.10E+01	.....
	66	2204.42	2198 -	2208	2203.99	4.51E+01	14.91	5.85E+00	BI-214
	67	2214.14	2210 -	2217	2213.71	6.25E+00	6.93	3.50E+00	.....
	68	2339.76	2335 -	2342	2339.29	7.00E+00	5.29	0.00E+00	.....
	69	2352.85	2348 -	2358	2352.37	1.20E+01	11.51	1.20E+01	.....
	70	2373.32	2369 -	2375	2372.83	8.68E+00	9.63	1.06E+01	.....
	71	2447.96	2443 -	2451	2447.44	6.50E+00	9.19	9.00E+00	.....
	72	2614.98	2611 -	2618	2614.40	7.33E+01	17.78	3.37E+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 : 6/16/2016 5:55:22PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	47.00	2.47E+02	73.59	1.71E-02	1.78E-03
	2	53.33	1.22E+02	75.62	2.08E-02	1.78E-03
	3	64.10	3.23E+02	113.95	2.52E-02	1.94E-03
	4	77.10	1.51E+03	168.65	2.78E-02	2.37E-03
	5	93.38	4.12E+02	102.41	2.86E-02	2.63E-03
	6	115.01	8.77E+01	82.83	2.77E-02	2.21E-03
	7	130.35	5.61E+01	63.05	2.66E-02	2.09E-03
	8	162.47	7.22E+01	75.79	2.41E-02	2.17E-03
M	9	186.76	3.99E+02	64.77	2.23E-02	2.02E-03
m	10	191.55	4.15E+01	51.84	2.20E-02	1.99E-03
	11	210.53	5.56E+01	48.07	2.08E-02	1.85E-03

Analysis Report for 1606064-07

CP-5014 05-09

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	12	239.33	7.30E+02	69.12	1.92E-02	1.63E-03
m	13	242.77	3.68E+02	73.79	1.90E-02	1.61E-03
	14	270.89	1.02E+02	53.93	1.77E-02	1.40E-03
	15	278.12	1.14E+02	66.47	1.74E-02	1.35E-03
	16	295.83	5.67E+02	73.21	1.67E-02	1.31E-03
	17	339.00	1.31E+02	44.64	1.52E-02	1.22E-03
	18	352.58	1.03E+03	83.98	1.47E-02	1.19E-03
	19	389.90	5.63E+01	37.79	1.37E-02	1.12E-03
	20	437.84	5.50E+01	44.34	1.26E-02	1.07E-03
	21	463.68	3.95E+01	33.77	1.21E-02	1.04E-03
	22	512.84	2.00E+02	56.34	1.12E-02	9.88E-04
	23	524.21	2.62E+01	29.36	1.10E-02	9.77E-04
	24	583.90	1.92E+02	41.81	1.02E-02	9.15E-04
	25	609.96	6.84E+02	68.01	9.82E-03	8.88E-04
	26	667.77	3.07E+01	37.20	9.15E-03	8.29E-04
M	27	702.26	3.02E+01	26.74	8.79E-03	7.98E-04
m	28	708.26	2.05E+01	26.52	8.74E-03	7.92E-04
m	29	720.39	1.82E+01	25.28	8.62E-03	7.82E-04
	30	727.96	4.66E+01	31.69	8.55E-03	7.75E-04
	31	768.59	4.77E+01	33.59	8.19E-03	7.38E-04
	32	806.47	3.04E+01	30.05	7.88E-03	7.04E-04
	33	860.11	3.17E+01	29.30	7.49E-03	6.56E-04
	34	911.77	1.25E+02	32.68	7.14E-03	6.15E-04
	35	934.87	4.43E+01	26.00	7.00E-03	6.03E-04
	36	970.01	4.81E+01	32.62	6.80E-03	5.85E-04
	37	1002.09	3.28E+01	23.83	6.63E-03	5.68E-04
	38	1098.32	2.01E+01	24.09	6.16E-03	5.18E-04
	39	1120.94	1.70E+02	38.56	6.06E-03	5.06E-04
	40	1155.04	2.73E+01	26.63	5.92E-03	4.89E-04
	41	1208.47	1.41E+01	14.42	5.72E-03	4.73E-04
	42	1239.57	4.35E+01	39.71	5.61E-03	4.67E-04
	43	1272.81	1.54E+01	20.25	5.50E-03	4.62E-04
	44	1281.51	3.59E+01	16.67	5.47E-03	4.60E-04
M	45	1353.91	1.45E+01	20.12	5.25E-03	4.46E-04
m	46	1359.42	1.09E+01	19.31	5.23E-03	4.44E-04
	47	1378.08	4.06E+01	22.69	5.18E-03	4.40E-04
M	48	1408.46	2.56E+01	20.59	5.10E-03	4.32E-04
m	49	1414.17	9.73E+00	14.90	5.09E-03	4.31E-04
M	50	1456.42	9.24E+00	9.38	4.98E-03	4.20E-04
m	51	1461.48	5.39E+02	47.53	4.97E-03	4.19E-04
M	52	1509.89	2.31E+01	15.93	4.86E-03	4.07E-04
m	53	1516.53	1.02E+01	12.56	4.84E-03	4.05E-04
M	54	1589.64	1.02E+01	6.63	4.69E-03	3.87E-04
m	55	1593.89	1.11E+01	11.83	4.68E-03	3.86E-04
	56	1661.51	1.60E+01	15.13	4.56E-03	3.69E-04
	57	1704.06	6.06E+00	6.65	4.49E-03	3.59E-04
	58	1729.76	2.51E+01	20.88	4.45E-03	3.52E-04
	59	1765.11	1.36E+02	26.78	4.39E-03	3.43E-04
	60	1775.59	6.00E+00	4.90	4.38E-03	3.41E-04
	61	1847.72	2.04E+01	13.67	4.28E-03	3.26E-04
	62	1861.56	7.17E+00	7.21	4.26E-03	3.26E-04
	63	1874.05	1.20E+01	6.93	4.25E-03	3.26E-04
	64	1936.42	6.00E+00	6.65	4.18E-03	3.26E-04

Analysis Report for 1606064-07

CP-5014 05-09

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
65	2118.22	1.35E+01	11.68	4.01E-03	3.26E-04
66	2204.42	4.51E+01	14.91	3.95E-03	3.26E-04
67	2214.14	6.25E+00	6.93	3.94E-03	3.26E-04
68	2339.76	7.00E+00	5.29	3.87E-03	3.26E-04
69	2352.85	1.20E+01	11.51	3.87E-03	3.26E-04
70	2373.32	8.68E+00	9.63	3.86E-03	3.26E-04
71	2447.96	6.50E+00	9.19	3.83E-03	3.26E-04
72	2614.98	7.33E+01	17.78	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 : 6/16/2016 5:55:22PM

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	47.00	2.47E+02	73.59	4.33E+01	8.35E+00	2.03E+02	7.41E+01
	2	53.33	1.22E+02	75.62	1.11E+01	8.04E+00	1.11E+02	7.60E+01
	3	64.10	3.23E+02	113.95	1.14E+02	2.81E+01	2.09E+02	1.17E+02
	4	77.10	1.51E+03	168.65			1.51E+03	1.69E+02
	5	93.38	4.12E+02	102.41	1.29E+02	7.14E+00	2.83E+02	1.03E+02
	6	115.01	8.77E+01	82.83			8.77E+01	8.28E+01
	7	130.35	5.61E+01	63.05			5.61E+01	6.30E+01
	8	162.47	7.22E+01	75.79			7.22E+01	7.58E+01
M	9	186.76	3.99E+02	64.77	5.81E+01	8.50E+00	3.41E+02	6.53E+01
m	10	191.55	4.15E+01	51.84			4.15E+01	5.18E+01
	11	210.53	5.56E+01	48.07			5.56E+01	4.81E+01
M	12	239.33	7.30E+02	69.12	1.81E+01	5.76E+00	7.12E+02	6.94E+01
m	13	242.77	3.68E+02	73.79			3.68E+02	7.38E+01
	14	270.89	1.02E+02	53.93			1.02E+02	5.39E+01
	15	278.12	1.14E+02	66.47			1.14E+02	6.65E+01
	16	295.83	5.67E+02	73.21	1.02E+00	5.38E+00	5.65E+02	7.34E+01
	17	339.00	1.31E+02	44.64	3.86E+00	4.98E+00	1.27E+02	4.49E+01
	18	352.58	1.03E+03	83.98	7.25E+00	4.86E+00	1.02E+03	8.41E+01
	19	389.90	5.63E+01	37.79			5.63E+01	3.78E+01
	20	437.84	5.50E+01	44.34			5.50E+01	4.43E+01
	21	463.68	3.95E+01	33.77			3.95E+01	3.38E+01
	22	512.84	2.00E+02	56.34			2.00E+02	5.63E+01

Analysis Report for 1606064-07

CP-5014 05-09

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	23	524.21	2.62E+01	29.36			2.62E+01	2.94E+01
	24	583.90	1.92E+02	41.81	6.11E+00	3.78E+00	1.86E+02	4.20E+01
	25	609.96	6.84E+02	68.01	6.74E+00	3.64E+00	6.77E+02	6.81E+01
	26	667.77	3.07E+01	37.20			3.07E+01	3.72E+01
M	27	702.26	3.02E+01	26.74			3.02E+01	2.67E+01
m	28	708.26	2.05E+01	26.52			2.05E+01	2.65E+01
m	29	720.39	1.82E+01	25.28			1.82E+01	2.53E+01
	30	727.96	4.66E+01	31.69			4.66E+01	3.17E+01
	31	768.59	4.77E+01	33.59			4.77E+01	3.36E+01
	32	806.47	3.04E+01	30.05			3.04E+01	3.00E+01
	33	860.11	3.17E+01	29.30			3.17E+01	2.93E+01
	34	911.77	1.25E+02	32.68	4.21E+00	2.98E+00	1.21E+02	3.28E+01
	35	934.87	4.43E+01	26.00			4.43E+01	2.60E+01
	36	970.01	4.81E+01	32.62			4.81E+01	3.26E+01
	37	1002.09	3.28E+01	23.83	4.72E+00	2.83E+00	2.81E+01	2.40E+01
	38	1098.32	2.01E+01	24.09			2.01E+01	2.41E+01
	39	1120.94	1.70E+02	38.56			1.70E+02	3.86E+01
	40	1155.04	2.73E+01	26.63			2.73E+01	2.66E+01
	41	1208.47	1.41E+01	14.42			1.41E+01	1.44E+01
	42	1239.57	4.35E+01	39.71			4.35E+01	3.97E+01
	43	1272.81	1.54E+01	20.25			1.54E+01	2.02E+01
	44	1281.51	3.59E+01	16.67			3.59E+01	1.67E+01
M	45	1353.91	1.45E+01	20.12			1.45E+01	2.01E+01
m	46	1359.42	1.09E+01	19.31			1.09E+01	1.93E+01
	47	1378.08	4.06E+01	22.69			4.06E+01	2.27E+01
M	48	1408.46	2.56E+01	20.59			2.56E+01	2.06E+01
m	49	1414.17	9.73E+00	14.90			9.73E+00	1.49E+01
M	50	1456.42	9.24E+00	9.38			9.24E+00	9.38E+00
m	51	1461.48	5.39E+02	47.53	6.83E+00	2.10E+00	5.32E+02	4.76E+01
M	52	1509.89	2.31E+01	15.93			2.31E+01	1.59E+01
m	53	1516.53	1.02E+01	12.56			1.02E+01	1.26E+01
M	54	1589.64	1.02E+01	6.63			1.02E+01	6.63E+00
m	55	1593.89	1.11E+01	11.83			1.11E+01	1.18E+01
	56	1661.51	1.60E+01	15.13			1.60E+01	1.51E+01
	57	1704.06	6.06E+00	6.65			6.06E+00	6.65E+00
	58	1729.76	2.51E+01	20.88			2.51E+01	2.09E+01
	59	1765.11	1.36E+02	26.78	1.66E+00	1.65E+00	1.34E+02	2.68E+01
	60	1775.59	6.00E+00	4.90			6.00E+00	4.90E+00
	61	1847.72	2.04E+01	13.67			2.04E+01	1.37E+01
	62	1861.56	7.17E+00	7.21			7.17E+00	7.21E+00
	63	1874.05	1.20E+01	6.93			1.20E+01	6.93E+00
	64	1936.42	6.00E+00	6.65			6.00E+00	6.65E+00
	65	2118.22	1.35E+01	11.68			1.35E+01	1.17E+01
	66	2204.42	4.51E+01	14.91			4.51E+01	1.49E+01
	67	2214.14	6.25E+00	6.93			6.25E+00	6.93E+00
	68	2339.76	7.00E+00	5.29			7.00E+00	5.29E+00
	69	2352.85	1.20E+01	11.51			1.20E+01	1.15E+01
	70	2373.32	8.68E+00	9.63			8.68E+00	9.63E+00
	71	2447.96	6.50E+00	9.19			6.50E+00	9.19E+00
	72	2614.98	7.33E+01	17.78	4.95E+00	1.35E+00	6.84E+01	1.78E+01

Analysis Report for 1606064-07

CP-5014 05-09

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 : 6/16/2016 5:55:22PM

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	47.00	2.47E+02	73.59	4.33E+01	8.35E+00	2.03E+02	7.41E+01
	2	53.33	1.22E+02	75.62	1.11E+01	8.04E+00	1.11E+02	7.60E+01
	3	64.10	3.23E+02	113.95	1.14E+02	2.81E+01	2.09E+02	1.17E+02
	4	77.10	1.51E+03	168.65			1.51E+03	1.69E+02
	5	93.38	4.12E+02	102.41	1.29E+02	7.14E+00	2.83E+02	1.03E+02
	6	115.01	8.77E+01	82.83			8.77E+01	8.28E+01
	7	130.35	5.61E+01	63.05			5.61E+01	6.30E+01
	8	162.47	7.22E+01	75.79			7.22E+01	7.58E+01
M	9	186.76	3.99E+02	64.77	5.81E+01	8.50E+00	3.41E+02	6.53E+01
m	10	191.55	4.15E+01	51.84			4.15E+01	5.18E+01
	11	210.53	5.56E+01	48.07			5.56E+01	4.81E+01
M	12	239.33	7.30E+02	69.12	1.81E+01	5.76E+00	7.12E+02	6.94E+01
m	13	242.77	3.68E+02	73.79			3.68E+02	7.38E+01
	14	270.89	1.02E+02	53.93			1.02E+02	5.39E+01
	15	278.12	1.14E+02	66.47			1.14E+02	6.65E+01
	16	295.83	5.67E+02	73.21	1.02E+00	5.38E+00	5.65E+02	7.34E+01
	17	339.00	1.31E+02	44.64	3.86E+00	4.98E+00	1.27E+02	4.49E+01
	18	352.58	1.03E+03	83.98	7.25E+00	4.86E+00	1.02E+03	8.41E+01
	19	389.90	5.63E+01	37.79			5.63E+01	3.78E+01
	20	437.84	5.50E+01	44.34			5.50E+01	4.43E+01
	21	463.68	3.95E+01	33.77			3.95E+01	3.38E+01
	22	512.84	2.00E+02	56.34			2.00E+02	5.63E+01
	23	524.21	2.62E+01	29.36			2.62E+01	2.94E+01
	24	583.90	1.92E+02	41.81	6.11E+00	3.78E+00	1.86E+02	4.20E+01
	25	609.96	6.84E+02	68.01	6.74E+00	3.64E+00	6.77E+02	6.81E+01
	26	667.77	3.07E+01	37.20			3.07E+01	3.72E+01
M	27	702.26	3.02E+01	26.74			3.02E+01	2.67E+01
m	28	708.26	2.05E+01	26.52			2.05E+01	2.65E+01
m	29	720.39	1.82E+01	25.28			1.82E+01	2.53E+01
	30	727.96	4.66E+01	31.69			4.66E+01	3.17E+01
	31	768.59	4.77E+01	33.59			4.77E+01	3.36E+01
	32	806.47	3.04E+01	30.05			3.04E+01	3.00E+01

Analysis Report for 1606064-07

CP-5014 05-09

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	33	860.11	3.17E+01	29.30			3.17E+01	2.93E+01
	34	911.77	1.25E+02	32.68	4.21E+00	2.98E+00	1.21E+02	3.28E+01
	35	934.87	4.43E+01	26.00			4.43E+01	2.60E+01
	36	970.01	4.81E+01	32.62			4.81E+01	3.26E+01
	37	1002.09	3.28E+01	23.83	4.72E+00	2.83E+00	2.81E+01	2.40E+01
	38	1098.32	2.01E+01	24.09			2.01E+01	2.41E+01
	39	1120.94	1.70E+02	38.56			1.70E+02	3.86E+01
	40	1155.04	2.73E+01	26.63			2.73E+01	2.66E+01
	41	1208.47	1.41E+01	14.42			1.41E+01	1.44E+01
	42	1239.57	4.35E+01	39.71			4.35E+01	3.97E+01
	43	1272.81	1.54E+01	20.25			1.54E+01	2.02E+01
	44	1281.51	3.59E+01	16.67			3.59E+01	1.67E+01
M	45	1353.91	1.45E+01	20.12			1.45E+01	2.01E+01
m	46	1359.42	1.09E+01	19.31			1.09E+01	1.93E+01
	47	1378.08	4.06E+01	22.69			4.06E+01	2.27E+01
M	48	1408.46	2.56E+01	20.59			2.56E+01	2.06E+01
m	49	1414.17	9.73E+00	14.90			9.73E+00	1.49E+01
M	50	1456.42	9.24E+00	9.38			9.24E+00	9.38E+00
m	51	1461.48	5.39E+02	47.53	6.83E+00	2.10E+00	5.32E+02	4.76E+01
M	52	1509.89	2.31E+01	15.93			2.31E+01	1.59E+01
m	53	1516.53	1.02E+01	12.56			1.02E+01	1.26E+01
M	54	1589.64	1.02E+01	6.63			1.02E+01	6.63E+00
m	55	1593.89	1.11E+01	11.83			1.11E+01	1.18E+01
	56	1661.51	1.60E+01	15.13			1.60E+01	1.51E+01
	57	1704.06	6.06E+00	6.65			6.06E+00	6.65E+00
	58	1729.76	2.51E+01	20.88			2.51E+01	2.09E+01
	59	1765.11	1.36E+02	26.78	1.66E+00	1.65E+00	1.34E+02	2.68E+01
	60	1775.59	6.00E+00	4.90			6.00E+00	4.90E+00
	61	1847.72	2.04E+01	13.67			2.04E+01	1.37E+01
	62	1861.56	7.17E+00	7.21			7.17E+00	7.21E+00
	63	1874.05	1.20E+01	6.93			1.20E+01	6.93E+00
	64	1936.42	6.00E+00	6.65			6.00E+00	6.65E+00
	65	2118.22	1.35E+01	11.68			1.35E+01	1.17E+01
	66	2204.42	4.51E+01	14.91			4.51E+01	1.49E+01
	67	2214.14	6.25E+00	6.93			6.25E+00	6.93E+00
	68	2339.76	7.00E+00	5.29			7.00E+00	5.29E+00
	69	2352.85	1.20E+01	11.51			1.20E+01	1.15E+01
	70	2373.32	8.68E+00	9.63			8.68E+00	9.63E+00
	71	2447.96	6.50E+00	9.19			6.50E+00	9.19E+00
	72	2614.98	7.33E+01	17.78	4.95E+00	1.35E+00	6.84E+01	1.78E+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 1606064-07

CP-5014 05-09

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	0.931	1460.81	*	10.67	3.46E+01	4.31E+00
GA-67	0.526	93.31	*	35.70	6.78E+00	1.14E+01
		208.95		2.24		
		300.22		16.00		
TL-208	0.953	583.14	*	30.22	2.09E+00	5.07E-01
		860.37	*	4.48	3.26E+00	3.02E+00
		2614.66	*	35.85	1.73E+00	4.75E-01
PB-210	0.960	46.50	*	4.25	9.64E+00	3.65E+00
BI-212	0.689	727.17	*	11.80	1.59E+00	1.09E+00
		1620.62		2.75		
PB-212	0.824	238.63	*	44.60	2.86E+00	3.71E-01
		300.09		3.41		
BI-214	0.939	609.31	*	46.30	5.13E+00	6.94E-01
		1120.29	*	15.10	6.41E+00	1.55E+00
		1764.49	*	15.80	6.67E+00	1.43E+00
		2204.22	*	4.98	7.90E+00	2.69E+00
PB-214	0.936	295.21	*	19.19	6.09E+00	9.24E-01
		351.92	*	37.19	6.41E+00	7.40E-01
RA-226	0.953	186.21	*	3.28	1.60E+01	2.95E+01
AC-228	0.911	338.32	*	11.40	2.52E+00	9.18E-01
		911.07	*	27.70	2.11E+00	5.99E-01
		969.11	*	16.60	1.47E+00	1.00E+00
PA-234	0.380	131.20	*	20.40	3.56E-01	4.01E-01
		733.99		8.80		
		946.00		12.00		
TH-234	0.901	63.29	*	3.80	7.54E+00	4.27E+00
CM-243	0.342	209.75	*	3.29	2.80E+00	2.43E+00
		228.14		10.60		
		277.60	*	14.00	1.61E+00	9.50E-01

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

Analysis Report for 1606064-07

CP-5014 05-09

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/16/2016 5:55:22PM
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	53.33	3.08984E-02	34.18		
	4	77.10	4.18656E-01	5.60		
	6	115.01	2.43669E-02	47.21		
	8	162.47	2.00513E-02	52.50	Tol.	BA-140 U-235
m	10	191.55	1.15394E-02	62.39		
m	13	242.77	1.02108E-01	10.04		
	14	270.89	2.83376E-02	26.43		
	19	389.90	1.56394E-02	33.56	Sum	
	20	437.84	1.52700E-02	40.33	Tol.	BA-140
	21	463.68	1.09765E-02	42.74	Tol.	SB-125
	22	512.84	5.56402E-02	14.06		
	23	524.21	7.27431E-03	56.05		
	26	667.77	8.51928E-03	60.65		
M	27	702.26	8.38529E-03	44.30	Tol.	NB-94
m	28	708.26	5.68908E-03	64.74		
m	29	720.39	5.06201E-03	69.37	Tol.	SB-126
	31	768.59	1.32628E-02	35.17		
	32	806.47	8.44413E-03	49.42		
	35	934.87	1.23105E-02	29.33		
	37	1002.09	7.79842E-03	42.74		
	38	1098.32	5.57099E-03	60.07	Sum	
	40	1155.04	7.57629E-03	48.82	Sum	
	41	1208.47	3.90625E-03	51.28	Sum	
	42	1239.57	1.20833E-02	45.64		
	43	1272.81	4.27778E-03	65.74		
	44	1281.51	9.96238E-03	23.23		
M	45	1353.91	4.04156E-03	69.16		
m	46	1359.42	3.03206E-03	88.47	Sum	
	47	1378.08	1.12745E-02	27.96		
M	48	1408.46	7.11004E-03	40.22	Tol.	EU-152
m	49	1414.17	2.70168E-03	76.60		
M	50	1456.42	2.56692E-03	50.76	Sum	
M	52	1509.89	6.42995E-03	34.41		
m	53	1516.53	2.82882E-03	61.67		
M	54	1589.64	2.82760E-03	32.58		
m	55	1593.89	3.07576E-03	53.43	D-Esc	
	56	1661.51	4.44444E-03	47.29		
	57	1704.06	1.68403E-03	54.86	Sum	
	58	1729.76	6.97464E-03	41.58		
	60	1775.59	1.66667E-03	40.82		
	61	1847.72	5.67956E-03	33.44		
	62	1861.56	1.99074E-03	50.31		
	63	1874.05	3.33333E-03	28.87		
	64	1936.42	1.66667E-03	55.43		

Analysis Report for 1606064-07

CP-5014 05-09

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
65	2118.22	3.75000E-03	43.27	Sum	
67	2214.14	1.73611E-03	55.43		
68	2339.76	1.94444E-03	37.80		
69	2352.85	3.33333E-03	47.96		
70	2373.32	2.41071E-03	55.49	Sum	
71	2447.96	1.80556E-03	70.71		

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	0.93	1460.81	*	10.67	3.46E+01	4.31E+00
GA-67	0.52	93.31	*	35.70	6.78E+00	1.14E+01
		208.95		2.24		
		300.22		16.00		
TL-208	0.95	583.14	*	30.22	2.09E+00	5.07E-01
		860.37	*	4.48	3.26E+00	3.02E+00
		2614.66	*	35.85	1.73E+00	4.75E-01
PB-210	0.96	46.50	*	4.25	9.64E+00	3.65E+00
BI-212	0.68	727.17	*	11.80	1.59E+00	1.09E+00
		1620.62		2.75		
PB-212	0.82	238.63	*	44.60	2.86E+00	3.71E-01
		300.09		3.41		
BI-214	0.93	609.31	*	46.30	5.13E+00	6.94E-01
		1120.29	*	15.10	6.41E+00	1.55E+00
		1764.49	*	15.80	6.67E+00	1.43E+00
		2204.22	*	4.98	7.90E+00	2.69E+00
PB-214	0.93	295.21	*	19.19	6.09E+00	9.24E-01
		351.92	*	37.19	6.41E+00	7.40E-01
RA-226	0.95	186.21	*	3.28	1.60E+01	2.95E+01
AC-228	0.91	338.32	*	11.40	2.52E+00	9.18E-01
		911.07	*	27.70	2.11E+00	5.99E-01
		969.11	*	16.60	1.47E+00	1.00E+00

Analysis Report for 1606064-07

CP-5014 05-09

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PA-234	0.38	131.20	*	20.40	3.56E-01	4.01E-01
		733.99		8.80		
		946.00		12.00		
TH-234	0.90	63.29	*	3.80	7.54E+00	4.27E+00
CM-243	0.34	209.75	*	3.29	2.80E+00	2.43E+00
		228.14		10.60		
		277.60	*	14.00	1.61E+00	9.50E-01

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

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.931	3.46E+01	4.31E+00	
GA-67	0.526	6.78E+00	1.14E+01	
TL-208	0.953	1.92E+00	3.45E-01	
PB-210	0.960	9.64E+00	3.65E+00	
BI-212	0.689	1.59E+00	1.09E+00	
PB-212	0.824	2.86E+00	3.71E-01	
BI-214	0.939	5.67E+00	5.66E-01	
PB-214	0.936	6.29E+00	5.78E-01	
RA-226	0.953	1.60E+01	2.95E+01	
AC-228	0.911	2.08E+00	4.49E-01	
PA-234	0.380	3.56E-01	4.01E-01	
TH-234	0.901	7.54E+00	4.27E+00	
CM-243	0.342	1.77E+00	8.85E-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 1606064-07

CP-5014 05-09

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/16/2016 5:55:22PM
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	53.33	3.08984E-02	34.18		
	4	77.10	4.18656E-01	5.60		
	6	115.01	2.43669E-02	47.21		
	8	162.47	2.00513E-02	52.50	Tol.	BA-140 U-235
m	10	191.55	1.15394E-02	62.39		
m	13	242.77	1.02108E-01	10.04		
	14	270.89	2.83376E-02	26.43		
	19	389.90	1.56394E-02	33.56	Sum	
	20	437.84	1.52700E-02	40.33	Tol.	BA-140
	21	463.68	1.09765E-02	42.74	Tol.	SB-125
	22	512.84	5.56402E-02	14.06		
	23	524.21	7.27431E-03	56.05		
	26	667.77	8.51928E-03	60.65		
M	27	702.26	8.38529E-03	44.30	Tol.	NB-94
m	28	708.26	5.68908E-03	64.74		
m	29	720.39	5.06201E-03	69.37	Tol.	SB-126
	31	768.59	1.32628E-02	35.17		
	32	806.47	8.44413E-03	49.42		
	35	934.87	1.23105E-02	29.33		
	37	1002.09	7.79842E-03	42.74		
	38	1098.32	5.57099E-03	60.07	Sum	
	40	1155.04	7.57629E-03	48.82	Sum	
	41	1208.47	3.90625E-03	51.28	Sum	
	42	1239.57	1.20833E-02	45.64		
	43	1272.81	4.27778E-03	65.74		
	44	1281.51	9.96238E-03	23.23		
M	45	1353.91	4.04156E-03	69.16		
m	46	1359.42	3.03206E-03	88.47	Sum	
	47	1378.08	1.12745E-02	27.96		
M	48	1408.46	7.11004E-03	40.22	Tol.	EU-152
m	49	1414.17	2.70168E-03	76.60		
M	50	1456.42	2.56692E-03	50.76	Sum	
M	52	1509.89	6.42995E-03	34.41		
m	53	1516.53	2.82882E-03	61.67		

Analysis Report for 1606064-07

CP-5014 05-09

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	54	1589.64	2.82760E-03	32.58		
m	55	1593.89	3.07576E-03	53.43	D-Esc	
	56	1661.51	4.44444E-03	47.29		
	57	1704.06	1.68403E-03	54.86	Sum	
	58	1729.76	6.97464E-03	41.58		
	60	1775.59	1.66667E-03	40.82		
	61	1847.72	5.67956E-03	33.44		
	62	1861.56	1.99074E-03	50.31		
	63	1874.05	3.33333E-03	28.87		
	64	1936.42	1.66667E-03	55.43		
	65	2118.22	3.75000E-03	43.27	Sum	
	67	2214.14	1.73611E-03	55.43		
	68	2339.76	1.94444E-03	37.80		
	69	2352.85	3.33333E-03	47.96		
	70	2373.32	2.41071E-03	55.49	Sum	
	71	2447.96	1.80556E-03	70.71		

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	-2.76E-01	1.66E+00	1.66E+00
+	NA-22	1274.54		99.94	2.59E-02	1.78E-01	1.78E-01
+	NA-24	1368.53		99.99	2.28E+03	6.75E+02	4.26E+03
		2754.09		99.86	0.00E+00		6.75E+02
+	AL-26	1808.65		99.76	5.53E-02	1.26E-01	1.26E-01
+	K-40	1460.81	*	10.67	3.46E+01	2.89E+00	2.89E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	6.09E-02	1.73E-01	1.73E-01
		78.34		96.00	5.78E-01		2.49E-01
+	SC-46	889.25		99.98	4.06E-02	2.07E-01	2.07E-01
		1120.51		99.99	9.88E-01		4.28E-01
+	V-48	983.52		99.98	-5.66E-03	2.82E-01	2.82E-01

Analysis Report for 1606064-07

CP-5014 05-09

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	V-48	1312.10		97.50	-3.85E-02	2.82E-01	2.89E-01
+	CR-51	320.08		9.83	-1.93E-01	1.54E+00	1.54E+00
+	MN-54	834.83		99.97	3.25E-02	1.75E-01	1.75E-01
+	CO-56	846.75		99.96	-5.15E-02	1.71E-01	1.71E-01
		1037.75		14.03	-8.57E-02		1.34E+00
		1238.25		67.00	1.61E-01		4.77E-01
		1771.40		15.51	0.00E+00		7.20E-01
		2598.48		16.90	1.16E-01		7.63E-01
+	CO-57	122.06		85.51	-4.85E-02	1.31E-01	1.31E-01
		136.48		10.60	2.54E-01		1.13E+00
+	CO-58	810.76		99.40	-1.56E-02	1.75E-01	1.75E-01
+	FE-59	1099.22		56.50	2.78E-02	3.67E-01	3.67E-01
		1291.56		43.20	-1.29E-01		4.98E-01
+	CO-60	1173.22		100.00	1.46E-02	1.99E-01	2.12E-01
		1332.49		100.00	9.45E-02		1.99E-01
+	ZN-65	1115.52		50.75	-9.92E-02	3.96E-01	3.96E-01
+	GA-67	93.31	*	35.70	6.78E+00	6.41E+00	7.68E+00
		208.95		2.24	1.38E+01		4.43E+01
		300.22		16.00	1.57E+00		6.41E+00
+	SE-75	121.11		16.70	-8.73E-02	2.07E-01	6.97E-01
		136.00		59.20	9.08E-02		2.07E-01
		264.65		59.80	-4.40E-02		2.11E-01
		279.53		25.20	3.30E-01		5.81E-01
		400.65		11.40	-5.12E-02		1.31E+00
+	RB-82	776.52		13.00	-5.45E-01	1.58E+00	1.58E+00
+	RB-83	520.41		46.00	-2.16E-01	3.41E-01	3.41E-01
		529.64		30.30	1.21E-02		5.02E-01
		552.65		16.40	3.07E-02		1.06E+00
+	KR-85	513.99		0.43	6.61E+01	5.08E+01	5.08E+01
+	SR-85	513.99		99.27	3.18E-01	2.45E-01	2.45E-01
+	Y-88	898.02		93.40	1.41E-02	1.29E-01	2.10E-01
		1836.01		99.38	5.50E-03		1.29E-01
+	NB-93M	16.57		9.43	-2.49E+02	1.46E+02	1.46E+02
+	NB-94	702.63		100.00	4.11E-03	1.76E-01	1.84E-01
		871.10		100.00	-2.92E-02		1.76E-01
+	NB-95	765.79		99.81	1.64E-02	2.66E-01	2.66E-01
+	NB-95M	235.69		25.00	-3.83E+01	3.25E+00	3.25E+00
+	ZR-95	724.18		43.70	-5.18E-01	3.46E-01	4.36E-01
		756.72		55.30	7.31E-02		3.46E-01
+	MO-99	181.06		6.20	-5.05E+00	1.40E+01	1.99E+01
		739.58		12.80	4.44E+00		1.40E+01
		778.00		4.50	-2.53E+01		3.52E+01
+	RU-103	497.08		89.00	5.08E-02	1.95E-01	1.95E-01
+	RU-106	621.84		9.80	2.56E-01	1.63E+00	1.63E+00
+	AG-108M	433.93		89.90	-2.32E-02	1.56E-01	1.56E-01
		614.37		90.40	-5.24E-02		1.87E-01
		722.95		90.50	-2.51E-01		1.84E-01

Analysis Report for 1606064-07

CP-5014 05-09

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CD-109	88.03	3.72	-6.13E+00	4.54E+00	4.54E+00
+	AG-110M	657.75	93.14	2.63E-02	1.56E-01	1.56E-01
		677.61	10.53	2.10E-01		1.48E+00
		706.67	16.46	-6.35E-01		1.09E+00
		763.93	21.98	1.56E-02		8.51E-01
		884.67	71.63	8.89E-02		2.69E-01
		1384.27	23.94	1.59E-01		7.81E-01
+	CD-113M	263.70	0.02	-1.17E+02	5.17E+02	5.17E+02
+	SN-113	255.12	1.93	2.27E+00	2.03E-01	6.59E+00
		391.69	64.90	-6.52E-02		2.03E-01
+	TE123M	159.00	84.10	2.23E-02	1.49E-01	1.49E-01
+	SB-124	602.71	97.87	5.35E-02	1.87E-01	1.87E-01
		645.85	7.26	-9.55E-01		2.11E+00
		722.78	11.10	-2.28E+00		1.67E+00
		1691.02	49.00	1.13E-01		3.59E-01
+	I-125	35.49	6.49	1.05E+00	6.23E+00	6.23E+00
+	SB-125	176.33	6.89	5.75E-01	5.23E-01	1.74E+00
		427.89	29.33	-1.69E-02		5.23E-01
		463.38	10.35	1.90E-01		1.54E+00
		600.56	17.80	1.86E-01		9.18E-01
		635.90	11.32	1.36E-01		1.37E+00
+	SB-126	414.70	83.30	-1.32E-02	2.61E-01	3.20E-01
		666.33	99.60	1.75E-02		2.82E-01
		695.00	99.60	5.14E-02		2.61E-01
		720.50	53.80	3.49E-02		5.14E-01
+	SN-126	87.57	37.00	-6.09E-01	4.50E-01	4.50E-01
+	SB-127	473.00	25.00	1.13E+00	2.26E+00	3.30E+00
		685.20	35.70	5.38E-01		2.26E+00
		783.80	14.70	3.27E+00		6.81E+00
+	I-129	29.78	57.00	-4.70E-01	1.17E+00	1.17E+00
		33.60	13.20	1.59E+00		3.32E+00
		39.58	7.52	4.59E-01		3.55E+00
+	I-131	284.30	6.05	-9.88E-01	3.55E-01	4.35E+00
		364.48	81.20	1.82E-01		3.55E-01
		636.97	7.26	3.03E-02		4.70E+00
		722.89	1.80	-2.80E+01		2.05E+01
+	TE-132	49.72	13.10	-9.92E+00	9.87E-01	1.12E+01
		228.16	88.00	5.68E-02		9.87E-01
+	BA-133	81.00	33.00	-2.20E+00	2.87E-01	5.30E-01
		302.84	17.80	5.61E-02		7.41E-01
		356.01	60.00	-1.17E+00		2.87E-01
+	I-133	529.87	86.30	6.26E+00	2.59E+02	2.59E+02
+	XE-133	81.00	38.00	-6.44E+00	1.55E+00	1.55E+00
+	CS-134	563.23	8.38	1.31E-01	1.76E-01	1.89E+00
		569.32	15.43	2.82E-01		1.03E+00
		604.70	97.60	-5.59E-03		1.76E-01
		795.84	85.40	8.17E-02		2.11E-01
		801.93	8.73	-3.24E-01		1.95E+00
+	CS-135	268.24	16.00	3.85E-01	8.99E-01	8.99E-01

Analysis Report for 1606064-07

CP-5014 05-09

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	I-135	1131.51	22.50	-3.88E+09	8.29E+09	8.29E+09
		1260.41	28.60	3.07E+09		8.66E+09
		1678.03	9.54	6.73E+09		1.63E+10
+	CS-136	153.22	7.46	-9.55E-02	2.44E-01	2.68E+00
		163.89	4.61	1.14E+00		4.52E+00
		176.55	13.56	4.72E-01		1.43E+00
		273.65	12.66	-1.35E+00		1.79E+00
		340.57	48.50	1.01E+00		5.96E-01
		818.50	99.70	-1.60E-03		2.44E-01
		1048.07	79.60	2.74E-02		3.65E-01
		1235.34	19.70	3.07E-01		2.06E+00
+	CS-137	661.65	85.12	9.19E-03	1.68E-01	1.68E-01
+	LA-138	788.74	34.00	2.74E-01	2.64E-01	5.29E-01
		1435.80	66.00	3.46E-02		2.64E-01
+	CE-139	165.85	80.35	2.07E-02	1.65E-01	1.65E-01
+	BA-140	162.64	6.70	2.42E+00	1.02E+00	3.20E+00
		304.84	4.50	-7.13E-01		4.54E+00
		423.70	3.20	1.44E+00		8.25E+00
		437.55	2.00	9.94E+00		1.29E+01
		537.32	25.00	7.52E-01		1.02E+00
+	LA-140	328.77	20.50	4.81E-01	2.78E-01	1.15E+00
		487.03	45.50	-8.27E-02		5.39E-01
		815.85	23.50	6.50E-01		1.13E+00
		1596.49	95.49	-6.35E-03		2.78E-01
+	CE-141	145.44	48.40	1.58E-01	3.30E-01	3.30E-01
+	CE-143	57.36	11.80	1.25E+02	5.81E+01	1.44E+02
		293.26	42.00	1.60E+02		5.81E+01
		664.55	5.20	1.22E+02		3.34E+02
+	CE-144	133.54	10.80	1.07E-01	1.09E+00	1.09E+00
+	PM-144	476.78	42.00	-1.70E-01	1.55E-01	3.68E-01
		618.01	98.60	-1.51E-01		1.55E-01
		696.49	99.49	9.13E-03		1.66E-01
+	PM-145	36.85	21.70	2.41E-01	7.72E-01	1.48E+00
		37.36	39.70	2.33E-01		7.72E-01
		42.30	15.10	7.98E-01		1.56E+00
		72.40	2.31	3.80E-01		7.50E+00
+	PM-146	453.90	39.94	1.96E-01	3.98E-01	3.98E-01
		735.90	14.01	-8.48E-01		1.09E+00
		747.13	13.10	-1.31E+00		1.17E+00
+	ND-147	91.11	28.90	-9.18E-01	1.01E+00	1.01E+00
		531.02	13.10	-9.55E-01		1.91E+00
+	PM-149	285.90	3.10	-6.12E+00	7.00E+01	7.00E+01
+	EU-152	121.78	20.50	-1.98E-01	5.34E-01	5.34E-01
		244.69	5.40	7.34E+00		3.38E+00
		344.27	19.13	4.14E-01		6.94E-01
		778.89	9.20	-7.26E-01		1.74E+00
		964.01	10.40	-2.32E-01		1.87E+00
		1085.78	7.22	-4.02E-02		2.52E+00
		1112.02	9.60	9.31E-01		2.17E+00

Analysis Report for 1606064-07

CP-5014 05-09

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-152	1407.95		14.94	8.58E-01	5.34E-01	1.53E+00
+	GD-153	97.43		31.30	1.59E-01	3.95E-01	3.95E-01
		103.18		22.20	8.23E-02		5.20E-01
+	EU-154	123.07		40.50	1.98E-01	2.78E-01	2.78E-01
		723.30		19.70	-1.16E+00		8.49E-01
		873.19		11.50	5.85E-01		1.63E+00
		996.32		10.30	5.03E-02		1.67E+00
		1004.76		17.90	-1.25E-01		1.01E+00
		1274.45		35.50	7.26E-02		4.99E-01
+	EU-155	86.50		30.90	1.27E+00	5.51E-01	5.72E-01
		105.30		20.70	8.82E-02		5.51E-01
+	EU-156	811.77		10.40	7.54E-02	2.31E+00	2.31E+00
		1153.47		7.20	2.79E+00		4.80E+00
		1230.71		8.90	7.44E-01		3.89E+00
+	HO-166M	184.41		72.60	2.14E-01	2.47E-01	2.47E-01
		280.45		29.60	1.30E-01		4.42E-01
		410.94		11.10	-1.10E-01		1.45E+00
		711.69		54.10	-3.16E-02		3.34E-01
+	TM-171	66.72		0.14	-1.46E+02	1.30E+02	1.30E+02
+	HF-172	81.75		4.52	-2.09E+01	9.86E-01	3.31E+00
		125.81		11.30	2.14E-01		9.86E-01
+	LU-172	181.53		20.60	2.18E-02	8.23E-01	1.54E+00
		810.06		16.63	1.15E-01		2.73E+00
		912.12		15.25	9.80E+00		5.17E+00
		1093.66		62.50	1.18E-01		8.23E-01
+	LU-173	100.72		5.24	5.72E-01	7.24E-01	2.24E+00
		272.11		21.20	4.55E-01		7.24E-01
+	HF-175	343.40		84.00	5.57E-02	1.68E-01	1.68E-01
+	LU-176	88.34		13.30	2.90E-01	1.28E-01	1.30E+00
		201.83		86.00	-1.90E-02		1.45E-01
		306.78		94.00	-2.90E-02		1.28E-01
+	TA-182	67.75		41.20	1.48E-01	4.20E-01	4.20E-01
		1121.30		34.90	2.86E+00		1.20E+00
		1189.05		16.23	4.37E-02		1.34E+00
		1221.41		26.98	-1.49E-01		7.82E-01
		1231.02		11.44	4.02E-01		2.10E+00
+	IR-192	308.46		29.68	5.07E-02	3.31E-01	4.48E-01
		468.07		48.10	-7.30E-02		3.31E-01
+	HG-203	279.19		77.30	9.21E-02	2.09E-01	2.09E-01
+	BI-207	569.67		97.72	6.18E-02	1.61E-01	1.61E-01
		1063.62		74.90	-4.49E-02		2.29E-01
+	TL-208	583.14	*	30.22	2.09E+00	3.46E-01	6.19E-01
		860.37	*	4.48	3.26E+00		4.85E+00
		2614.66	*	35.85	1.73E+00		3.46E-01
+	BI-210M	262.00		45.00	9.91E-02	2.74E-01	2.74E-01
		300.00		23.00	1.54E-01		6.29E-01
+	PB-210	46.50	*	4.25	9.64E+00	5.45E+00	5.45E+00
+	PB-211	404.84		2.90	3.00E+00	5.17E+00	5.17E+00
		831.96		2.90	-4.81E+00		5.40E+00

Analysis Report for 1606064-07

CP-5014 05-09

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-212	727.17	*	11.80	1.59E+00	1.70E+00	1.70E+00
		1620.62		2.75	-7.77E-01		5.76E+00
+	PB-212	238.63	*	44.60	2.86E+00	6.15E-01	6.15E-01
		300.09		3.41	1.04E+00		4.24E+00
+	BI-214	609.31	*	46.30	5.13E+00	5.68E-01	5.68E-01
		1120.29	*	15.10	6.41E+00		1.86E+00
		1764.49	*	15.80	6.67E+00		1.24E+00
		2204.22	*	4.98	7.90E+00		2.34E+00
+	PB-214	295.21	*	19.19	6.09E+00	5.82E-01	1.02E+00
		351.92	*	37.19	6.41E+00		5.82E-01
+	RN-219	401.80		6.50	3.61E-03	2.21E+00	2.21E+00
+	RA-223	323.87		3.88	-9.25E-01	3.20E+00	3.20E+00
+	RA-224	240.98		3.95	3.95E+01	7.37E+00	7.37E+00
+	RA-225	40.00		31.00	1.67E-01	1.29E+00	1.29E+00
+	RA-226	186.21	*	3.28	1.60E+01	9.40E+00	9.40E+00
+	TH-227	50.10		8.40	-2.15E+00	1.21E+00	2.44E+00
		236.00		11.50	-1.42E+01		1.21E+00
		256.20		6.30	2.77E-01		1.90E+00
+	AC-228	338.32	*	11.40	2.52E+00	7.44E-01	1.33E+00
		911.07	*	27.70	2.11E+00		7.44E-01
		969.11	*	16.60	1.47E+00		1.56E+00
+	TH-230	48.44		16.90	2.46E+00	1.37E+00	1.37E+00
		62.85		4.60	9.86E+00		4.32E+00
		67.67		0.37	1.56E+01		4.42E+01
+	PA-231	283.67		1.60	-1.69E-01	5.72E+00	7.45E+00
		302.67		2.30	4.33E-01		5.72E+00
+	TH-231	25.64		14.70	-5.04E+00	2.43E+00	1.43E+01
		84.21		6.40	-5.35E+00		2.43E+00
+	PA-233	311.98		38.60	-2.17E-02	3.92E-01	3.92E-01
+	PA-234	131.20	*	20.40	3.56E-01	6.56E-01	6.56E-01
		733.99		8.80	8.53E-03		1.79E+00
		946.00		12.00	-2.75E-01		1.49E+00
+	PA-234M	1001.03		0.92	7.81E+00	2.17E+01	2.17E+01
+	TH-234	63.29	*	3.80	7.54E+00	6.84E+00	6.84E+00
+	U-235	143.76		10.50	6.66E-01	1.21E+00	1.21E+00
		163.35		4.70	6.86E-01		2.72E+00
		205.31		4.70	1.32E+00		2.78E+00
+	NP-237	86.50		12.60	3.09E+00	1.40E+00	1.40E+00
+	NP-239	106.10		22.70	1.21E+00	7.55E+00	7.55E+00
		228.18		10.70	9.90E-01		1.72E+01
		277.60		14.10	1.22E+01		1.54E+01
+	AM-241	59.54		35.90	4.52E-01	4.58E-01	4.58E-01
+	AM-243	74.67		66.00	-1.65E+00	3.30E-01	3.30E-01
+	CM-243	209.75	*	3.29	2.80E+00	1.16E+00	3.92E+00
		228.14		10.60	6.64E-02		1.16E+00
		277.60	*	14.00	1.61E+00		1.51E+00

Analysis Report for 1606064-07

CP-5014 05-09

+ = 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	1.66E+00	1.66E+00	-2.76E-01	7.86E-01
	NA-22	1274.54		99.94	1.78E-01	1.78E-01	2.59E-02	8.05E-02
	NA-24	1368.53		99.99	4.26E+03	6.75E+02	2.28E+03	1.88E+03
		2754.09		99.86	6.75E+02		0.00E+00	0.00E+00
	AL-26	1808.65		99.76	1.26E-01	1.26E-01	5.53E-02	5.24E-02
+	K-40	1460.81	*	10.67	2.89E+00	2.89E+00	3.46E+01	1.36E+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	1.73E-01	1.73E-01	6.09E-02	8.47E-02
		78.34		96.00	2.49E-01		5.78E-01	1.23E-01
	SC-46	889.25		99.98	2.07E-01	2.07E-01	4.06E-02	9.64E-02
		1120.51		99.99	4.28E-01		9.88E-01	2.06E-01
	V-48	983.52		99.98	2.82E-01	2.82E-01	-5.66E-03	1.31E-01
		1312.10		97.50	2.89E-01		-3.85E-02	1.31E-01
	CR-51	320.08		9.83	1.54E+00	1.54E+00	-1.93E-01	7.30E-01
	MN-54	834.83		99.97	1.75E-01	1.75E-01	3.25E-02	8.13E-02
	CO-56	846.75		99.96	1.71E-01	1.71E-01	-5.15E-02	7.86E-02
		1037.75		14.03	1.34E+00		-8.57E-02	6.15E-01
		1238.25		67.00	4.77E-01		1.61E-01	2.25E-01
		1771.40		15.51	7.20E-01		0.00E+00	2.86E-01
		2598.48		16.90	7.63E-01		1.16E-01	3.03E-01
	CO-57	122.06		85.51	1.31E-01	1.31E-01	-4.85E-02	6.35E-02
		136.48		10.60	1.13E+00		2.54E-01	5.48E-01
	CO-58	810.76		99.40	1.75E-01	1.75E-01	-1.56E-02	8.11E-02
	FE-59	1099.22		56.50	3.67E-01	3.67E-01	2.78E-02	1.68E-01
		1291.56		43.20	4.98E-01		-1.29E-01	2.26E-01
	CO-60	1173.22		100.00	2.12E-01	1.99E-01	1.46E-02	9.81E-02
		1332.49		100.00	1.99E-01		9.45E-02	9.08E-02
	ZN-65	1115.52		50.75	3.96E-01	3.96E-01	-9.92E-02	1.83E-01
+	GA-67	93.31	*	35.70	7.68E+00	6.41E+00	6.78E+00	3.81E+00

Analysis Report for 1606064-07

CP-5014 05-09

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	4.43E+01	6.41E+00	1.38E+01	2.15E+01
	300.22	16.00	6.41E+00		1.57E+00	3.08E+00
SE-75	121.11	16.70	6.97E-01	2.07E-01	-8.73E-02	3.38E-01
	136.00	59.20	2.07E-01		9.08E-02	1.01E-01
	264.65	59.80	2.11E-01		-4.40E-02	1.01E-01
	279.53	25.20	5.81E-01		3.30E-01	2.79E-01
	400.65	11.40	1.31E+00		-5.12E-02	6.21E-01
RB-82	776.52	13.00	1.58E+00	1.58E+00	-5.45E-01	7.36E-01
RB-83	520.41	46.00	3.41E-01	3.41E-01	-2.16E-01	1.61E-01
	529.64	30.30	5.02E-01		1.21E-02	2.36E-01
	552.65	16.40	1.06E+00		3.07E-02	4.99E-01
KR-85	513.99	0.43	5.08E+01	5.08E+01	6.61E+01	2.45E+01
SR-85	513.99	99.27	2.45E-01	2.45E-01	3.18E-01	1.18E-01
Y-88	898.02	93.40	2.10E-01	1.29E-01	1.41E-02	9.76E-02
	1836.01	99.38	1.29E-01		5.50E-03	5.27E-02
NB-93M	16.57	9.43	1.46E+02	1.46E+02	-2.49E+02	6.70E+01
NB-94	702.63	100.00	1.84E-01	1.76E-01	4.11E-03	8.65E-02
	871.10	100.00	1.76E-01		-2.92E-02	8.16E-02
NB-95	765.79	99.81	2.66E-01	2.66E-01	1.64E-02	1.26E-01
NB-95M	235.69	25.00	3.25E+00	3.25E+00	-3.83E+01	1.57E+00
ZR-95	724.18	43.70	4.36E-01	3.46E-01	-5.18E-01	2.04E-01
	756.72	55.30	3.46E-01		7.31E-02	1.62E-01
MO-99	181.06	6.20	1.99E+01	1.40E+01	-5.05E+00	9.59E+00
	739.58	12.80	1.40E+01		4.44E+00	6.54E+00
	778.00	4.50	3.52E+01		-2.53E+01	1.63E+01
RU-103	497.08	89.00	1.95E-01	1.95E-01	5.08E-02	9.23E-02
RU-106	621.84	9.80	1.63E+00	1.63E+00	2.56E-01	7.64E-01
AG-108M	433.93	89.90	1.56E-01	1.56E-01	-2.32E-02	7.40E-02
	614.37	90.40	1.87E-01		-5.24E-02	8.80E-02
	722.95	90.50	1.84E-01		-2.51E-01	8.62E-02
CD-109	88.03	3.72	4.54E+00	4.54E+00	-6.13E+00	2.22E+00
AG-110M	657.75	93.14	1.56E-01	1.56E-01	2.63E-02	7.26E-02
	677.61	10.53	1.48E+00		2.10E-01	6.90E-01
	706.67	16.46	1.09E+00		-6.35E-01	5.14E-01
	763.93	21.98	8.51E-01		1.56E-02	3.99E-01
	884.67	71.63	2.69E-01		8.89E-02	1.25E-01
	1384.27	23.94	7.81E-01		1.59E-01	3.52E-01
CD-113M	263.70	0.02	5.17E+02	5.17E+02	-1.17E+02	2.47E+02
SN-113	255.12	1.93	6.59E+00	2.03E-01	2.27E+00	3.15E+00
	391.69	64.90	2.03E-01		-6.52E-02	9.59E-02
TE123M	159.00	84.10	1.49E-01	1.49E-01	2.23E-02	7.20E-02
SB-124	602.71	97.87	1.87E-01	1.87E-01	5.35E-02	8.81E-02
	645.85	7.26	2.11E+00		-9.55E-01	9.78E-01
	722.78	11.10	1.67E+00		-2.28E+00	7.81E-01
	1691.02	49.00	3.59E-01		1.13E-01	1.56E-01
I-125	35.49	6.49	6.23E+00	6.23E+00	1.05E+00	3.02E+00
SB-125	176.33	6.89	1.74E+00	5.23E-01	5.75E-01	8.41E-01
	427.89	29.33	5.23E-01		-1.69E-02	2.49E-01
	463.38	10.35	1.54E+00		1.90E-01	7.32E-01
	600.56	17.80	9.18E-01		1.86E-01	4.32E-01
	635.90	11.32	1.37E+00		1.36E-01	6.40E-01
SB-126	414.70	83.30	3.20E-01	2.61E-01	-1.32E-02	1.53E-01
	666.33	99.60	2.82E-01		1.75E-02	1.32E-01

Analysis Report for 1606064-07

CP-5014 05-09

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	2.61E-01	2.61E-01	5.14E-02	1.21E-01
	720.50	53.80	5.14E-01		3.49E-02	2.40E-01
SN-126	87.57	37.00	4.50E-01	4.50E-01	-6.09E-01	2.21E-01
SB-127	473.00	25.00	3.30E+00	2.26E+00	1.13E+00	1.57E+00
	685.20	35.70	2.26E+00		5.38E-01	1.05E+00
	783.80	14.70	6.81E+00		3.27E+00	3.20E+00
I-129	29.78	57.00	1.17E+00	1.17E+00	-4.70E-01	5.64E-01
	33.60	13.20	3.32E+00		1.59E+00	1.61E+00
	39.58	7.52	3.55E+00		4.59E-01	1.72E+00
I-131	284.30	6.05	4.35E+00	3.55E-01	-9.88E-01	2.08E+00
	364.48	81.20	3.55E-01		1.82E-01	1.69E-01
	636.97	7.26	4.70E+00		3.03E-02	2.20E+00
	722.89	1.80	2.05E+01		-2.80E+01	9.59E+00
TE-132	49.72	13.10	1.12E+01	9.87E-01	-9.92E+00	5.48E+00
	228.16	88.00	9.87E-01		5.68E-02	4.75E-01
BA-133	81.00	33.00	5.30E-01	2.87E-01	-2.20E+00	2.60E-01
	302.84	17.80	7.41E-01		5.61E-02	3.54E-01
	356.01	60.00	2.87E-01		-1.17E+00	1.38E-01
I-133	529.87	86.30	2.59E+02	2.59E+02	6.26E+00	1.22E+02
XE-133	81.00	38.00	1.55E+00	1.55E+00	-6.44E+00	7.61E-01
CS-134	563.23	8.38	1.89E+00	1.76E-01	1.31E-01	8.91E-01
	569.32	15.43	1.03E+00		2.82E-01	4.88E-01
	604.70	97.60	1.76E-01		-5.59E-03	8.29E-02
	795.84	85.40	2.11E-01		8.17E-02	9.87E-02
	801.93	8.73	1.95E+00		-3.24E-01	9.06E-01
CS-135	268.24	16.00	8.99E-01	8.99E-01	3.85E-01	4.33E-01
I-135	1131.51	22.50	8.29E+09	8.29E+09	-3.88E+09	3.74E+09
	1260.41	28.60	8.66E+09		3.07E+09	3.98E+09
	1678.03	9.54	1.63E+10		6.73E+09	6.88E+09
CS-136	153.22	7.46	2.68E+00	2.44E-01	-9.55E-02	1.30E+00
	163.89	4.61	4.52E+00		1.14E+00	2.19E+00
	176.55	13.56	1.43E+00		4.72E-01	6.90E-01
	273.65	12.66	1.79E+00		-1.35E+00	8.62E-01
	340.57	48.50	5.96E-01		1.01E+00	2.87E-01
	818.50	99.70	2.44E-01		-1.60E-03	1.12E-01
	1048.07	79.60	3.65E-01		2.74E-02	1.68E-01
	1235.34	19.70	2.06E+00		3.07E-01	9.62E-01
CS-137	661.65	85.12	1.68E-01	1.68E-01	9.19E-03	7.78E-02
LA-138	788.74	34.00	5.29E-01	2.64E-01	2.74E-01	2.48E-01
	1435.80	66.00	2.64E-01		3.46E-02	1.18E-01
CE-139	165.85	80.35	1.65E-01	1.65E-01	2.07E-02	8.01E-02
BA-140	162.64	6.70	3.20E+00	1.02E+00	2.42E+00	1.55E+00
	304.84	4.50	4.54E+00		-7.13E-01	2.16E+00
	423.70	3.20	8.25E+00		1.44E+00	3.94E+00
	437.55	2.00	1.29E+01		9.94E+00	6.17E+00
	537.32	25.00	1.02E+00		7.52E-01	4.81E-01
LA-140	328.77	20.50	1.15E+00	2.78E-01	4.81E-01	5.53E-01
	487.03	45.50	5.39E-01		-8.27E-02	2.55E-01
	815.85	23.50	1.13E+00		6.50E-01	5.24E-01
	1596.49	95.49	2.78E-01		-6.35E-03	1.22E-01
CE-141	145.44	48.40	3.30E-01	3.30E-01	1.58E-01	1.60E-01
CE-143	57.36	11.80	1.44E+02	5.81E+01	1.25E+02	7.02E+01
	293.26	42.00	5.81E+01		1.60E+02	2.84E+01

Analysis Report for 1606064-07

CP-5014 05-09

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	3.34E+02	5.81E+01	1.22E+02	1.57E+02
CE-144	133.54	10.80	1.09E+00	1.09E+00	1.07E-01	5.26E-01
PM-144	476.78	42.00	3.68E-01	1.55E-01	-1.70E-01	1.74E-01
	618.01	98.60	1.55E-01		-1.51E-01	7.27E-02
	696.49	99.49	1.66E-01		9.13E-03	7.75E-02
PM-145	36.85	21.70	1.48E+00	7.72E-01	2.41E-01	7.18E-01
	37.36	39.70	7.72E-01		2.33E-01	3.74E-01
	42.30	15.10	1.56E+00		7.98E-01	7.59E-01
	72.40	2.31	7.50E+00		3.80E-01	3.67E+00
PM-146	453.90	39.94	3.98E-01	3.98E-01	1.96E-01	1.90E-01
	735.90	14.01	1.09E+00		-8.48E-01	5.07E-01
	747.13	13.10	1.17E+00		-1.31E+00	5.43E-01
ND-147	91.11	28.90	1.01E+00	1.01E+00	-9.18E-01	4.96E-01
	531.02	13.10	1.91E+00		-9.55E-01	8.96E-01
PM-149	285.90	3.10	7.00E+01	7.00E+01	-6.12E+00	3.34E+01
EU-152	121.78	20.50	5.34E-01	5.34E-01	-1.98E-01	2.59E-01
	244.69	5.40	3.38E+00		7.34E+00	1.64E+00
	344.27	19.13	6.94E-01		4.14E-01	3.31E-01
	778.89	9.20	1.74E+00		-7.26E-01	8.06E-01
	964.01	10.40	1.87E+00		-2.32E-01	8.67E-01
	1085.78	7.22	2.52E+00		-4.02E-02	1.16E+00
	1112.02	9.60	2.17E+00		9.31E-01	1.01E+00
	1407.95	14.94	1.53E+00		8.58E-01	7.06E-01
GD-153	97.43	31.30	3.95E-01	3.95E-01	1.59E-01	1.92E-01
	103.18	22.20	5.20E-01		8.23E-02	2.53E-01
EU-154	123.07	40.50	2.78E-01	2.78E-01	1.98E-01	1.35E-01
	723.30	19.70	8.49E-01		-1.16E+00	3.97E-01
	873.19	11.50	1.63E+00		5.85E-01	7.61E-01
	996.32	10.30	1.67E+00		5.03E-02	7.68E-01
	1004.76	17.90	1.01E+00		-1.25E-01	4.65E-01
	1274.45	35.50	4.99E-01		7.26E-02	2.26E-01
EU-155	86.50	30.90	5.72E-01	5.51E-01	1.27E+00	2.81E-01
	105.30	20.70	5.51E-01		8.82E-02	2.68E-01
EU-156	811.77	10.40	2.31E+00	2.31E+00	7.54E-02	1.07E+00
	1153.47	7.20	4.80E+00		2.79E+00	2.23E+00
	1230.71	8.90	3.89E+00		7.44E-01	1.80E+00
HO-166M	184.41	72.60	2.47E-01	2.47E-01	2.14E-01	1.20E-01
	280.45	29.60	4.42E-01		1.30E-01	2.12E-01
	410.94	11.10	1.45E+00		-1.10E-01	6.91E-01
	711.69	54.10	3.34E-01		-3.16E-02	1.57E-01
TM-171	66.72	0.14	1.30E+02	1.30E+02	-1.46E+02	6.37E+01
HF-172	81.75	4.52	3.31E+00	9.86E-01	-2.09E+01	1.62E+00
	125.81	11.30	9.86E-01		2.14E-01	4.78E-01
LU-172	181.53	20.60	1.54E+00	8.23E-01	2.18E-02	7.45E-01
	810.06	16.63	2.73E+00		1.15E-01	1.27E+00
	912.12	15.25	5.17E+00		9.80E+00	2.47E+00
	1093.66	62.50	8.23E-01		1.18E-01	3.80E-01
LU-173	100.72	5.24	2.24E+00	7.24E-01	5.72E-01	1.09E+00
	272.11	21.20	7.24E-01		4.55E-01	3.49E-01
HF-175	343.40	84.00	1.68E-01	1.68E-01	5.57E-02	7.99E-02
LU-176	88.34	13.30	1.30E+00	1.28E-01	2.90E-01	6.37E-01
	201.83	86.00	1.45E-01		-1.90E-02	7.01E-02
	306.78	94.00	1.28E-01		-2.90E-02	6.07E-02

Analysis Report for 1606064-07

CP-5014 05-09

	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	4.20E-01	4.20E-01	1.48E-01	2.05E-01
		1121.30		34.90	1.20E+00		2.86E+00	5.78E-01
		1189.05		16.23	1.34E+00		4.37E-02	6.18E-01
		1221.41		26.98	7.82E-01		-1.49E-01	3.59E-01
		1231.02		11.44	2.10E+00		4.02E-01	9.74E-01
	IR-192	308.46		29.68	4.48E-01	3.31E-01	5.07E-02	2.14E-01
		468.07		48.10	3.31E-01		-7.30E-02	1.56E-01
	HG-203	279.19		77.30	2.09E-01	2.09E-01	9.21E-02	1.00E-01
	BI-207	569.67		97.72	1.61E-01	1.61E-01	6.18E-02	7.60E-02
		1063.62		74.90	2.29E-01		-4.49E-02	1.04E-01
+	TL-208	583.14	*	30.22	6.19E-01	3.46E-01	2.09E+00	2.95E-01
		860.37	*	4.48	4.85E+00		3.26E+00	2.28E+00
		2614.66	*	35.85	3.46E-01		1.73E+00	1.39E-01
	BI-210M	262.00		45.00	2.74E-01	2.74E-01	9.91E-02	1.31E-01
		300.00		23.00	6.29E-01		1.54E-01	3.02E-01
+	PB-210	46.50	*	4.25	5.45E+00	5.45E+00	9.64E+00	2.66E+00
	PB-211	404.84		2.90	5.17E+00	5.17E+00	3.00E+00	2.47E+00
		831.96		2.90	5.40E+00		-4.81E+00	2.49E+00
+	BI-212	727.17	*	11.80	1.70E+00	1.70E+00	1.59E+00	8.03E-01
		1620.62		2.75	5.76E+00		-7.77E-01	2.52E+00
+	PB-212	238.63	*	44.60	6.15E-01	6.15E-01	2.86E+00	3.02E-01
		300.09		3.41	4.24E+00		1.04E+00	2.04E+00
+	BI-214	609.31	*	46.30	5.68E-01	5.68E-01	5.13E+00	2.74E-01
		1120.29	*	15.10	1.86E+00		6.41E+00	8.78E-01
		1764.49	*	15.80	1.24E+00		6.67E+00	5.51E-01
		2204.22	*	4.98	2.34E+00		7.90E+00	9.33E-01
+	PB-214	295.21	*	19.19	1.02E+00	5.82E-01	6.09E+00	4.95E-01
		351.92	*	37.19	5.82E-01		6.41E+00	2.83E-01
	RN-219	401.80		6.50	2.21E+00	2.21E+00	3.61E-03	1.05E+00
	RA-223	323.87		3.88	3.20E+00	3.20E+00	-9.25E-01	1.52E+00
	RA-224	240.98		3.95	7.37E+00	7.37E+00	3.95E+01	3.62E+00
	RA-225	40.00		31.00	1.29E+00	1.29E+00	1.67E-01	6.27E-01
+	RA-226	186.21	*	3.28	9.40E+00	9.40E+00	1.60E+01	4.63E+00
	TH-227	50.10		8.40	2.44E+00	1.21E+00	-2.15E+00	1.19E+00
		236.00		11.50	1.21E+00		-1.42E+01	5.83E-01
		256.20		6.30	1.90E+00		2.77E-01	9.12E-01
+	AC-228	338.32	*	11.40	1.33E+00	7.44E-01	2.52E+00	6.37E-01
		911.07	*	27.70	7.44E-01		2.11E+00	3.49E-01
		969.11	*	16.60	1.56E+00		1.47E+00	7.41E-01
	TH-230	48.44		16.90	1.37E+00	1.37E+00	2.46E+00	6.69E-01
		62.85		4.60	4.32E+00		9.86E+00	2.12E+00
		67.67		0.37	4.42E+01		1.56E+01	2.16E+01
	PA-231	283.67		1.60	7.45E+00	5.72E+00	-1.69E-01	3.55E+00
		302.67		2.30	5.72E+00		4.33E-01	2.74E+00
	TH-231	25.64		14.70	1.43E+01	2.43E+00	-5.04E+00	7.03E+00
		84.21		6.40	2.43E+00		-5.35E+00	1.19E+00
	PA-233	311.98		38.60	3.92E-01	3.92E-01	-2.17E-02	1.87E-01
+	PA-234	131.20	*	20.40	6.56E-01	6.56E-01	3.56E-01	3.19E-01
		733.99		8.80	1.79E+00		8.53E-03	8.30E-01
		946.00		12.00	1.49E+00		-2.75E-01	6.87E-01
	PA-234M	1001.03		0.92	2.17E+01	2.17E+01	7.81E+00	1.01E+01
+	TH-234	63.29	*	3.80	6.84E+00	6.84E+00	7.54E+00	3.37E+00
	U-235	143.76		10.50	1.21E+00	1.21E+00	6.66E-01	5.89E-01

Analysis Report for 1606064-07

CP-5014 05-09

	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	2.72E+00	1.21E+00	6.86E-01	1.32E+00
		205.31		4.70	2.78E+00		1.32E+00	1.34E+00
	NP-237	86.50		12.60	1.40E+00	1.40E+00	3.09E+00	6.86E-01
	NP-239	106.10		22.70	7.55E+00	7.55E+00	1.21E+00	3.67E+00
		228.18		10.70	1.72E+01		9.90E-01	8.28E+00
		277.60		14.10	1.54E+01		1.22E+01	7.41E+00
	AM-241	59.54		35.90	4.58E-01	4.58E-01	4.52E-01	2.23E-01
	AM-243	74.67		66.00	3.30E-01	3.30E-01	-1.65E+00	1.63E-01
+	CM-243	209.75	*	3.29	3.92E+00	1.16E+00	2.80E+00	1.89E+00
		228.14		10.60	1.16E+00		6.64E-02	5.55E-01
		277.60	*	14.00	1.51E+00		1.61E+00	7.34E-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

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-5014 05-09

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	1	40	94	112	135	606	451
25:	106	84	85	55	61	69	67	72
33:	62	80	64	83	61	71	73	59
41:	64	96	77	65	89	80	173	207
49:	76	77	115	89	113	115	124	84
57:	75	110	119	123	83	124	127	313
65:	263	110	163	123	156	129	120	162
73:	141	143	255	504	307	729	378	131
81:	135	142	117	126	223	128	132	282
89:	178	123	194	119	200	349	159	102
97:	72	77	92	91	74	69	74	74
105:	66	90	70	79	72	77	73	71
113:	86	82	85	95	67	69	72	56
121:	69	67	68	65	71	55	75	58
129:	68	90	83	68	62	56	65	83
137:	67	69	59	70	64	56	67	89
145:	114	63	70	74	76	77	74	65
153:	62	52	88	74	65	59	50	63
161:	68	75	62	88	67	55	63	61
169:	57	49	49	62	61	51	58	65
177:	61	49	42	49	46	73	64	49
185:	70	120	300	138	63	62	59	77
193:	53	43	57	44	35	57	66	62
201:	42	56	54	44	46	64	61	62
209:	43	74	73	57	37	46	44	45
217:	47	54	43	46	55	49	40	42
225:	39	32	48	55	34	42	34	50
233:	43	61	43	46	57	55	315	411
241:	86	115	237	81	42	38	40	29
249:	31	39	29	34	37	46	28	26
257:	38	35	25	37	41	32	32	36
265:	30	33	34	32	38	50	83	60
273:	41	25	39	52	37	56	48	34
281:	39	31	31	25	25	36	30	35
289:	42	30	23	26	24	33	100	392
297:	165	48	36	44	44	33	32	31
305:	26	26	30	32	20	23	33	27
313:	26	21	25	29	26	31	16	32
321:	23	24	23	29	37	20	30	33
329:	55	29	30	27	35	31	29	26
337:	15	37	101	78	27	22	34	27
345:	25	24	30	14	24	19	41	294
353:	637	142	25	22	20	20	29	21
361:	15	20	22	27	19	25	31	28

369:	13	10	31	22	20	16	22	24

Sample Title: CP-5014 05-09

Channel								
377:	15	14	28	10	18	20	21	25
385:	24	18	18	27	26	30	22	22
393:	19	8	18	26	24	18	20	27
401:	23	27	30	24	35	27	26	15
409:	24	17	28	34	15	27	21	21
417:	18	19	24	21	16	17	35	22
425:	24	20	18	18	19	21	15	11
433:	16	16	12	23	18	22	21	25
441:	18	8	15	17	23	16	13	19
449:	8	19	21	14	17	22	16	24
457:	20	9	24	16	9	15	25	37
465:	12	19	12	14	17	14	19	22
473:	20	17	17	14	16	13	14	22
481:	19	18	16	18	16	9	21	17
489:	13	11	18	13	16	15	15	15
497:	11	16	19	9	8	14	15	7
505:	14	11	13	12	11	32	52	59
513:	32	25	14	17	20	17	16	8
521:	6	11	11	21	19	13	12	9
529:	13	10	13	12	13	10	16	22
537:	10	14	12	8	15	10	4	11
545:	15	12	16	14	10	15	12	13
553:	16	14	14	17	20	12	16	19
561:	11	4	22	17	8	12	10	14
569:	13	11	15	18	11	10	12	9
577:	9	16	11	17	5	18	43	124
585:	45	17	13	8	11	7	7	10
593:	17	18	8	14	9	13	8	13
601:	18	7	14	17	10	13	19	18
609:	106	420	179	18	20	16	11	9
617:	8	12	10	11	12	17	13	10
625:	6	8	13	10	8	9	13	9
633:	10	7	21	5	11	11	8	10
641:	8	14	8	8	11	3	8	11
649:	7	11	9	7	8	5	5	11
657:	11	7	10	7	7	9	7	7
665:	11	15	21	11	9	14	14	12
673:	8	11	8	8	11	15	7	6
681:	9	7	8	13	9	11	7	9
689:	11	5	5	13	4	18	5	6
697:	8	10	10	13	11	16	23	6
705:	11	10	12	17	18	7	12	11
713:	12	12	13	12	11	7	8	15
721:	17	7	6	9	6	10	20	28
729:	19	17	6	13	8	9	8	11
737:	5	8	7	16	12	13	14	5
745:	11	9	9	7	9	5	17	11
753:	9	11	16	10	10	7	8	8
761:	10	6	14	10	9	13	15	14
769:	41	19	9	6	14	11	10	6
777:	7	7	9	7	7	13	8	12
785:	10	16	15	9	9	8	7	7
793:	7	3	19	16	8	10	6	12

801:	4	10	6	14	8	13	18	11

Sample Title: CP-5014 05-09

Channel								
809:	9	6	4	7	9	6	10	10
817:	9	5	4	4	4	9	4	7
825:	7	11	13	9	10	5	8	6
833:	11	2	6	11	12	10	10	6
841:	18	6	4	4	17	7	5	4
849:	4	6	13	7	4	6	6	7
857:	9	8	7	14	20	11	6	7
865:	10	6	11	5	6	9	12	8
873:	11	6	6	13	12	5	5	3
881:	11	8	7	8	8	9	11	13
889:	7	8	6	12	3	14	11	7
897:	11	7	11	4	9	11	5	10
905:	10	7	7	4	3	11	37	73
913:	28	7	9	7	9	11	6	7
921:	4	9	5	5	4	12	8	5
929:	5	9	5	4	9	19	28	7
937:	9	4	3	6	9	6	3	6
945:	10	2	10	10	10	6	12	4
953:	7	8	4	6	10	9	9	8
961:	4	4	7	9	16	11	8	7
969:	24	41	12	8	7	3	6	9
977:	9	7	7	11	5	13	6	8
985:	9	8	5	4	10	8	5	8
993:	6	9	4	7	9	5	3	10
1001:	11	13	10	7	7	3	2	5
1009:	4	8	11	3	9	10	10	8
1017:	6	3	8	7	7	4	7	10
1025:	11	12	10	9	8	13	4	10
1033:	4	10	8	4	5	3	10	4
1041:	7	5	6	4	3	7	6	7
1049:	4	9	7	8	5	9	11	13
1057:	7	4	7	11	2	9	5	10
1065:	5	4	3	5	4	12	8	3
1073:	1	8	9	7	4	7	3	3
1081:	6	4	5	6	3	10	3	8
1089:	7	2	12	4	8	7	7	11
1097:	1	7	7	10	3	1	2	7
1105:	8	10	4	5	12	5	11	11
1113:	5	3	7	4	8	11	9	40
1121:	91	40	9	8	8	4	8	3
1129:	2	4	3	7	5	5	9	3
1137:	12	8	8	5	9	8	4	5
1145:	10	4	10	3	9	7	11	6
1153:	7	6	10	14	8	2	3	6
1161:	7	5	3	2	3	8	10	5
1169:	5	12	6	7	10	7	5	4
1177:	9	7	9	9	6	8	11	6
1185:	3	9	5	9	4	7	5	8
1193:	6	10	7	4	10	11	3	10
1201:	16	10	6	7	8	6	7	11
1209:	11	3	4	6	10	3	8	6
1217:	5	3	6	8	10	3	6	6
1225:	7	9	8	9	9	6	7	2

1233:	10	12	5	6	12	20	27	14

Sample Title: CP-5014 05-09

Channel								
1241:	11	14	9	8	11	6	10	8
1249:	4	3	4	5	6	9	5	6
1257:	7	7	3	4	6	8	10	6
1265:	2	4	4	2	6	2	1	7
1273:	8	4	3	5	2	2	5	4
1281:	18	8	8	3	0	7	9	6
1289:	3	9	4	5	3	3	5	4
1297:	3	1	2	5	5	6	2	5
1305:	4	7	6	4	3	7	6	2
1313:	2	7	6	5	6	2	6	7
1321:	1	2	0	7	3	3	2	3
1329:	5	7	3	7	2	5	7	4
1337:	3	1	4	2	7	2	1	2
1345:	5	4	4	4	6	2	5	3
1353:	8	4	7	2	4	4	2	6
1361:	2	4	2	1	0	1	5	1
1369:	4	3	6	3	1	4	4	1
1377:	11	23	13	6	2	4	3	4
1385:	5	7	3	3	4	2	2	5
1393:	3	4	2	4	4	0	3	2
1401:	3	5	4	5	3	3	3	15
1409:	12	5	4	3	3	7	4	3
1417:	2	5	5	1	1	3	8	2
1425:	2	3	3	3	2	0	2	5
1433:	2	5	3	2	6	1	5	4
1441:	1	6	4	3	4	5	2	9
1449:	0	7	3	2	4	2	4	7
1457:	2	5	11	84	220	190	39	5
1465:	7	3	4	1	2	2	0	1
1473:	1	1	1	3	4	1	4	3
1481:	1	6	2	2	1	3	3	3
1489:	4	1	1	3	5	2	1	2
1497:	2	1	5	5	6	5	4	5
1505:	1	3	3	2	12	12	6	4
1513:	2	2	1	3	6	2	2	1
1521:	4	4	2	3	2	0	2	2
1529:	3	2	2	2	4	4	3	2
1537:	1	3	4	7	5	4	3	7
1545:	5	2	1	2	3	2	2	0
1553:	1	1	3	2	1	3	2	2
1561:	1	2	3	4	1	0	1	0
1569:	3	0	1	3	2	7	1	5
1577:	4	3	2	0	0	4	4	4
1585:	4	5	5	1	8	5	1	3
1593:	7	3	3	0	2	1	1	1
1601:	2	2	3	1	3	2	1	0
1609:	5	0	1	0	3	1	5	2
1617:	1	3	1	3	3	4	1	0
1625:	4	0	0	2	1	2	2	3
1633:	2	3	1	1	1	3	2	0
1641:	1	3	1	1	1	1	3	0
1649:	2	2	2	2	4	1	1	1
1657:	2	2	2	4	3	5	4	2

1665:	2	0	2	0	2	2	3	2

Sample Title: CP-5014 05-09

Channel								
1673:	1	1	1	1	2	3	1	2
1681:	0	0	0	3	2	3	1	1
1689:	3	3	0	3	1	4	1	0
1697:	0	1	2	0	0	0	4	2
1705:	0	1	1	0	1	2	1	1
1713:	0	2	1	2	1	3	0	3
1721:	0	1	2	1	2	3	1	2
1729:	10	11	9	2	2	1	3	1
1737:	1	3	1	3	2	2	3	1
1745:	0	2	1	2	1	3	0	0
1753:	2	0	1	0	0	0	0	3
1761:	0	2	7	39	68	25	4	1
1769:	1	1	1	0	0	1	2	3
1777:	0	0	0	2	1	0	1	1
1785:	0	1	1	1	0	1	1	2
1793:	2	1	2	0	1	3	2	0
1801:	0	2	1	0	2	1	2	2
1809:	0	0	1	0	0	2	3	1
1817:	2	1	0	1	1	0	1	1
1825:	0	3	0	0	1	1	1	0
1833:	3	2	1	0	0	1	0	0
1841:	2	0	1	2	1	2	10	8
1849:	3	1	0	1	1	1	1	0
1857:	0	1	1	0	2	2	3	0
1865:	1	1	1	0	0	0	1	1
1873:	2	6	0	2	0	0	1	0
1881:	2	0	1	2	1	2	1	1
1889:	2	2	3	1	1	1	3	3
1897:	0	0	2	1	2	0	0	4
1905:	1	0	2	1	2	1	2	2
1913:	1	2	1	0	0	1	1	2
1921:	0	3	2	0	1	1	0	1
1929:	0	0	1	0	0	2	0	2
1937:	4	0	0	0	1	2	2	0
1945:	2	1	0	0	0	1	2	2
1953:	0	1	3	0	3	0	1	2
1961:	2	0	1	1	0	2	3	0
1969:	1	1	0	1	0	1	2	0
1977:	1	2	0	2	1	2	2	1
1985:	2	1	0	0	1	1	1	0
1993:	1	0	0	2	1	1	0	0
2001:	0	1	0	1	0	0	1	2
2009:	0	2	1	1	3	0	3	0
2017:	1	0	2	1	0	2	1	0
2025:	0	1	0	1	0	1	3	1
2033:	0	2	2	1	2	1	1	1
2041:	3	0	2	1	3	1	0	0
2049:	0	0	3	0	2	0	0	1
2057:	1	0	3	3	2	0	2	2
2065:	0	1	0	1	0	1	1	1
2073:	0	0	2	0	0	1	1	3
2081:	0	1	0	0	0	2	1	0
2089:	0	0	1	0	0	1	1	1

2097:	0	3	1	1	2	1	2	2

Sample Title: CP-5014 05-09

Channel								
2105:	1	1	0	0	2	0	1	0
2113:	1	1	2	0	3	5	3	3
2121:	1	0	1	0	0	0	0	0
2129:	1	1	1	0	1	1	2	2
2137:	1	1	1	0	1	1	0	0
2145:	0	0	3	3	0	2	0	0
2153:	0	0	1	1	2	0	1	0
2161:	1	0	0	1	0	2	2	0
2169:	2	0	1	0	2	1	0	3
2177:	0	2	1	2	0	1	2	3
2185:	2	0	2	1	0	0	2	0
2193:	2	0	0	2	1	0	2	1
2201:	2	1	8	18	12	1	3	0
2209:	0	1	0	0	3	2	1	1
2217:	0	0	0	0	1	0	3	0
2225:	1	0	0	1	0	1	0	0
2233:	0	0	1	0	1	0	1	0
2241:	1	0	1	1	1	1	1	1
2249:	1	0	0	3	0	0	3	0
2257:	0	2	0	0	2	0	2	0
2265:	1	0	1	0	1	0	0	2
2273:	0	2	2	0	2	1	1	0
2281:	2	1	1	2	1	2	1	1
2289:	0	0	1	0	1	0	3	1
2297:	1	0	3	2	0	1	0	0
2305:	1	2	0	0	0	0	2	0
2313:	1	0	0	1	0	0	0	3
2321:	3	2	1	3	1	2	1	2
2329:	1	0	1	2	1	0	0	0
2337:	0	2	2	2	1	0	0	0
2345:	1	0	0	0	1	0	3	4
2353:	3	3	2	1	1	0	2	3
2361:	0	1	1	0	1	1	0	2
2369:	0	2	0	2	7	3	0	1
2377:	3	2	0	2	0	2	0	0
2385:	0	1	2	1	1	0	0	0
2393:	0	0	0	1	0	0	2	2
2401:	0	1	1	0	0	2	0	1
2409:	0	1	0	0	0	2	0	0
2417:	0	1	0	0	0	0	2	0
2425:	0	2	1	0	0	0	1	1
2433:	1	2	1	1	1	0	0	0
2441:	1	0	1	0	0	1	3	4
2449:	1	1	0	1	1	2	0	0
2457:	1	1	2	0	0	1	0	0
2465:	0	0	2	0	0	1	0	1
2473:	2	0	0	2	0	0	0	0
2481:	0	0	1	1	0	1	0	1
2489:	1	1	0	0	1	1	0	1
2497:	1	2	0	1	0	0	0	0
2505:	0	0	0	0	2	0	1	0
2513:	1	2	0	0	0	0	0	0
2521:	0	0	0	0	0	2	0	0

2529:	1	1	1	0	1	1	0	1

Sample Title: CP-5014 05-09

Channel								
2537:	0	0	0	1	0	1	0	0
2545:	0	1	2	0	0	0	0	0
2553:	0	0	1	2	0	0	1	0
2561:	0	0	1	2	1	0	0	0
2569:	1	1	0	0	0	0	0	0
2577:	1	0	0	0	1	1	2	0
2585:	0	0	1	0	0	0	0	0
2593:	1	0	0	0	1	1	1	1
2601:	0	1	0	1	0	0	2	0
2609:	2	1	0	6	11	23	21	12
2617:	2	0	0	1	0	1	1	0
2625:	0	1	1	0	0	0	1	0
2633:	0	0	1	0	2	0	0	1
2641:	0	0	1	0	0	0	0	0
2649:	0	0	1	0	0	0	0	1
2657:	1	0	1	0	0	0	0	0
2665:	0	0	1	0	0	0	0	0
2673:	0	0	0	0	0	1	0	0
2681:	0	0	0	2	1	0	0	0
2689:	1	0	0	0	0	0	0	0
2697:	0	0	0	0	1	0	1	0
2705:	0	0	0	0	0	0	1	0
2713:	1	0	0	0	0	1	0	2
2721:	0	0	0	0	1	0	0	0
2729:	1	0	0	0	0	0	2	0
2737:	0	1	0	1	1	0	0	1
2745:	1	0	0	0	0	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	1	0	2	0	0	0	0	1
2769:	2	0	0	0	0	0	0	0
2777:	1	0	0	0	0	0	0	0
2785:	0	0	1	1	0	0	0	0
2793:	0	1	0	0	1	0	0	0
2801:	1	2	0	0	1	0	0	0
2809:	0	0	0	0	0	1	0	0
2817:	0	0	0	0	0	1	0	0
2825:	0	0	0	0	0	1	0	1
2833:	0	0	0	0	0	0	0	0
2841:	1	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	2	0	0	0	0
2865:	1	1	0	0	0	0	0	0
2873:	1	0	0	1	1	0	0	0
2881:	0	0	1	0	0	1	1	0
2889:	0	0	0	0	0	0	0	0
2897:	0	0	0	0	1	0	0	0
2905:	0	0	0	0	1	0	1	0
2913:	0	0	0	0	0	0	0	1
2921:	0	0	0	0	0	1	0	1
2929:	0	0	0	1	1	0	0	1
2937:	1	0	1	0	1	0	0	1
2945:	0	0	0	0	0	1	1	0
2953:	0	0	0	0	0	0	2	0

2961:	1	0	0	0	0	0	0	0

Sample Title: CP-5014 05-09

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

3393:	0	0	1	0	1	0	0	0

Sample Title: CP-5014 05-09

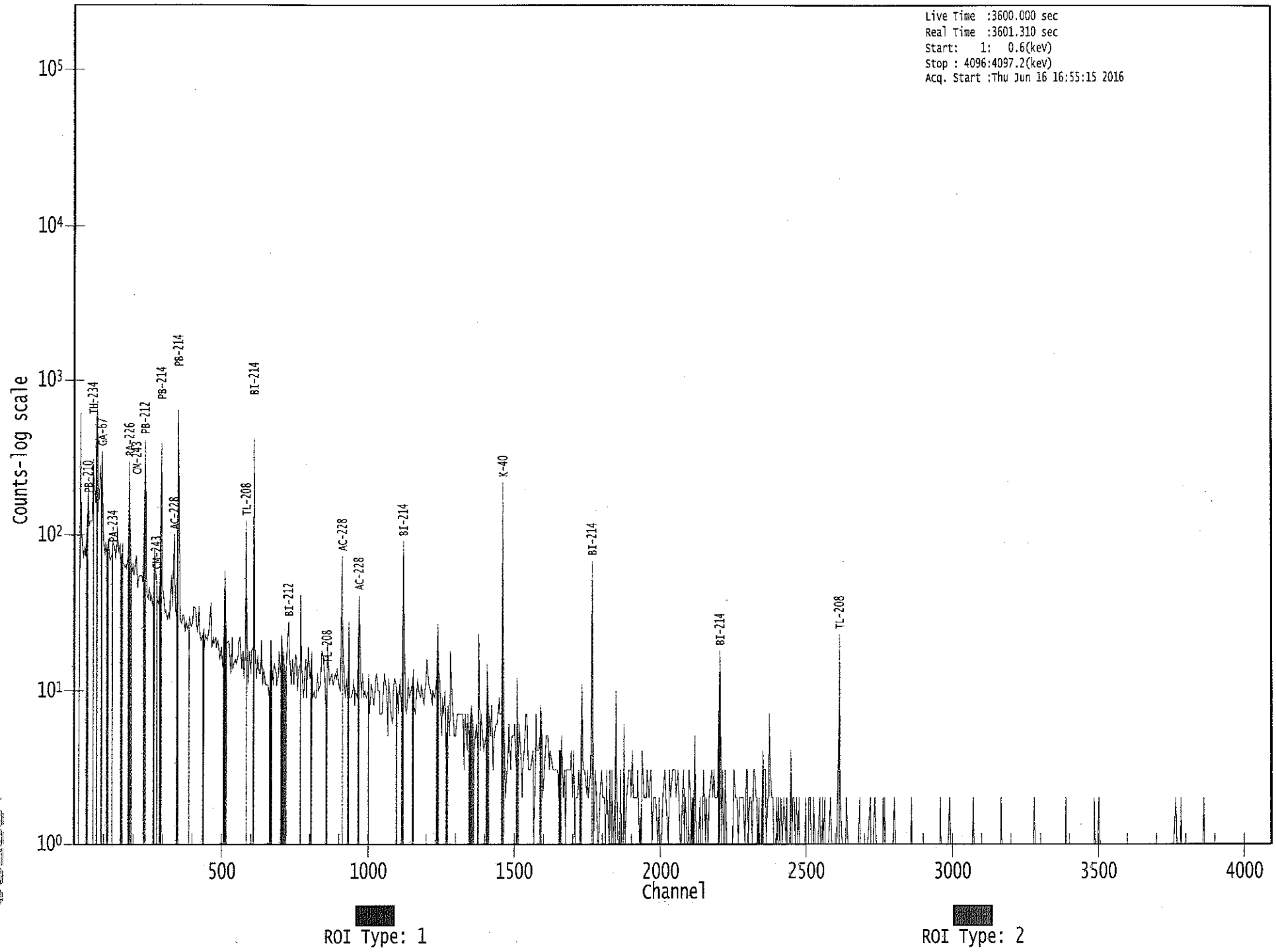
Channel								
3401:	0	0	1	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	1	0	0	0	0	0	0	0
3433:	1	0	1	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	1	0	1	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	1	0	0
3473:	0	1	0	0	0	0	1	1
3481:	0	0	0	0	2	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	1	0	0	2	0	0	0
3505:	0	1	0	0	0	0	0	0
3513:	1	0	0	0	0	0	0	0
3521:	1	0	0	0	0	0	1	1
3529:	1	0	0	1	1	0	0	0
3537:	0	0	0	0	0	0	0	0
3545:	1	0	0	0	0	1	1	1
3553:	0	0	0	1	0	0	0	0
3561:	0	0	0	0	0	0	0	1
3569:	0	0	0	0	0	0	0	0
3577:	0	0	0	0	0	0	0	0
3585:	1	0	0	0	1	0	0	0
3593:	1	0	0	0	0	1	0	0
3601:	1	0	0	0	0	0	0	0
3609:	0	0	1	0	0	0	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	0
3641:	0	0	0	1	0	0	0	0
3649:	0	0	0	1	0	0	0	0
3657:	0	1	1	0	1	0	0	0
3665:	0	1	0	1	1	0	0	0
3673:	1	0	0	1	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	0	0	0
3713:	0	0	1	0	1	0	0	0
3721:	0	0	0	1	0	0	0	0
3729:	0	1	0	0	0	0	1	0
3737:	0	0	1	0	0	0	0	1
3745:	0	0	0	0	0	0	0	0
3753:	0	1	0	0	0	0	1	0
3761:	1	0	0	0	0	0	2	1
3769:	0	0	0	0	0	0	0	0
3777:	0	0	0	0	0	0	0	2
3785:	0	1	0	0	0	0	0	0
3793:	0	0	0	0	0	0	0	0
3801:	1	0	0	0	0	0	0	0
3809:	0	0	0	0	0	0	1	0
3817:	0	0	0	0	0	0	0	0

3825:	1	0	0	1	0	0	0	0

Sample Title: CP-5014 05-09

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

0000039035.CNF



Apex-Gamma

Analysis Report for 1606064-08
CP-5014 09-15

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1606064-08
Sample Description	: CP-5014 09-15
Sample Type	: SOIL
Sample Size	: 3.327E+02 grams
Facility	: Countroom
Sample Taken On	: 6/7/2016 12:18:59PM
Acquisition Started	: 6/16/2016 4:59:10PM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE4
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)	: 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	: 39036

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 6/17/16

Analysis Report for 1606064-08

CP-5014 09-15

PEAK LOCATE REPORT

Peak Locate Performed on : 6/16/2016 5:59:13PM
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	63.47	62.73	0.0000	0.00
2	75.88	75.15	0.0000	0.00
3	86.26	85.53	0.0000	0.00
4	93.12	92.39	0.0000	0.00
5	187.27	186.58	0.0000	0.00
6	209.54	208.87	0.0000	0.00
7	239.36	238.70	0.0000	0.00
8	296.49	295.85	0.0000	0.00
9	338.69	338.07	0.0000	0.00
10	351.75	351.14	0.0000	0.00
11	511.19	510.65	0.0000	0.00
12	583.20	582.70	0.0000	0.00
13	609.28	608.78	0.0000	0.00
14	729.33	728.90	0.0000	0.00
15	880.11	879.75	0.0000	0.00
16	911.62	911.28	0.0000	0.00
17	967.51	967.20	0.0000	0.00
18	1052.00	1051.73	0.0000	0.00
19	1134.83	1134.61	0.0000	0.00
20	1161.28	1161.08	0.0000	0.00
21	1299.23	1299.10	0.0000	0.00
22	1305.06	1304.94	0.0000	0.00
23	1321.60	1321.49	0.0000	0.00
24	1460.33	1460.30	0.0000	0.00
25	1589.80	1589.85	0.0000	0.00
26	1763.50	1763.66	0.0000	0.00
27	2100.42	2100.81	0.0000	0.00
28	2284.70	2285.22	0.0000	0.00
29	2445.36	2446.00	0.0000	0.00
30	2613.18	2613.94	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606064-08

CP-5014 09-15

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/16/2016 5:59:13PM

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	63.47	58	67	62.73	1.50E+02	102.02	1.40E+03	1.57
	2	75.88	69	81	75.15	7.53E+02	131.19	1.67E+03	4.61
	3	86.26	82	89	85.53	8.69E+01	89.53	1.29E+03	1.80
	4	93.12	89	96	92.39	1.92E+02	84.81	1.01E+03	2.34
	5	187.27	181	192	186.58	1.48E+02	79.52	7.06E+02	2.98
	6	209.54	205	211	208.87	8.52E+01	47.76	3.52E+02	2.46
	7	239.36	233	245	238.70	4.75E+02	83.17	5.86E+02	2.30
	8	296.49	288	302	295.85	1.70E+02	68.28	4.15E+02	2.66
	9	338.69	334	343	338.07	9.72E+01	47.38	2.66E+02	2.55
	10	351.75	347	355	351.14	1.34E+02	45.71	2.40E+02	2.16
	11	511.19	505	518	510.65	9.33E+01	51.26	2.45E+02	3.51
	12	583.20	576	588	582.70	1.26E+02	45.88	1.88E+02	2.20
	13	609.28	602	615	608.78	1.32E+02	48.51	2.03E+02	2.56
	14	729.33	721	736	728.90	4.39E+01	40.99	1.44E+02	9.00
	15	880.11	876	883	879.75	1.20E+01	16.12	3.40E+01	1.40
	16	911.62	906	918	911.28	1.05E+02	30.34	5.95E+01	2.69
	17	967.51	961	971	967.20	4.83E+01	29.90	9.34E+01	1.91
	18	1052.00	1041	1061	1051.73	3.90E+01	36.55	9.41E+01	16.40
	19	1134.83	1131	1139	1134.61	1.54E+01	17.26	3.71E+01	1.28
	20	1161.28	1150	1172	1161.08	6.46E+01	38.70	9.07E+01	19.43
M	21	1299.23	1297	1310	1299.10	1.14E+01	8.25	1.12E+01	3.18
m	22	1305.06	1297	1310	1304.94	1.16E+01	17.20	2.84E+01	3.89
	23	1321.60	1315	1329	1321.49	2.43E+01	19.42	2.74E+01	7.86
	24	1460.33	1453	1466	1460.30	2.40E+02	33.93	2.14E+01	3.35
	25	1589.80	1584	1593	1589.85	1.09E+01	10.68	1.01E+01	1.06
	26	1763.50	1759	1767	1763.66	1.48E+01	9.39	4.47E+00	2.13
	27	2100.42	2095	2105	2100.81	1.10E+01	11.16	1.00E+01	2.89
	28	2284.70	2280	2289	2285.22	6.56E+00	7.81	4.89E+00	1.10
	29	2445.36	2441	2448	2446.00	5.00E+00	4.47	0.00E+00	1.50
	30	2613.18	2609	2617	2613.94	3.60E+01	12.00	0.00E+00	3.61

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 1606064-08

CP-5014 09-15

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/16/2016 5:59:13PM

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	63.47	58 -	67	1.50E+02	102.02	1.40E+03	8.14E+01
	2	75.88	69 -	81	7.53E+02	131.19	1.67E+03	9.79E+01
	3	86.26	82 -	89	8.69E+01	89.53	1.29E+03	7.20E+01
	4	93.12	89 -	96	1.92E+02	84.81	1.01E+03	6.59E+01
	5	187.27	181 -	192	1.48E+02	79.52	7.06E+02	6.22E+01
	6	209.54	205 -	211	8.52E+01	47.76	3.52E+02	3.62E+01
	7	239.36	233 -	245	4.75E+02	83.17	5.86E+02	5.82E+01
	8	296.49	288 -	302	1.70E+02	68.28	4.15E+02	5.19E+01
	9	338.69	334 -	343	9.72E+01	47.38	2.66E+02	3.54E+01
	10	351.75	347 -	355	1.34E+02	45.71	2.40E+02	3.24E+01
	11	511.19	505 -	518	9.33E+01	51.26	2.45E+02	3.90E+01
	12	583.20	576 -	588	1.26E+02	45.88	1.88E+02	3.29E+01
	13	609.28	602 -	615	1.32E+02	48.51	2.03E+02	3.51E+01
	14	729.33	721 -	736	4.39E+01	40.99	1.44E+02	3.19E+01
	15	880.11	876 -	883	1.20E+01	16.12	3.40E+01	1.20E+01
	16	911.62	906 -	918	1.05E+02	30.34	5.95E+01	1.84E+01
	17	967.51	961 -	971	4.83E+01	29.90	9.34E+01	2.18E+01
	18	1052.00	1041 -	1061	3.90E+01	36.55	9.41E+01	2.82E+01
	19	1134.83	1131 -	1139	1.54E+01	17.26	3.71E+01	1.26E+01
	20	1161.28	1150 -	1172	6.46E+01	38.70	9.07E+01	2.89E+01
M	21	1299.23	1297 -	1310	1.14E+01	8.25	1.12E+01	5.51E+00
m	22	1305.06	1297 -	1310	1.16E+01	17.20	2.84E+01	8.76E+00
	23	1321.60	1315 -	1329	2.43E+01	19.42	2.74E+01	1.37E+01
	24	1460.33	1453 -	1466	2.40E+02	33.93	2.14E+01	1.13E+01
	25	1589.80	1584 -	1593	1.09E+01	10.68	1.01E+01	6.89E+00
	26	1763.50	1759 -	1767	1.48E+01	9.39	4.47E+00	4.44E+00
	27	2100.42	2095 -	2105	1.10E+01	11.16	1.00E+01	7.38E+00
	28	2284.70	2280 -	2289	6.56E+00	7.81	4.89E+00	4.85E+00
	29	2445.36	2441 -	2448	5.00E+00	4.47	0.00E+00	0.00E+00
	30	2613.18	2609 -	2617	3.60E+01	12.00	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 1606064-08

CP-5014 09-15

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/16/2016 5:59:13PM

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	63.47	58 -	67	62.73	1.50E+02	102.02	1.40E+03	TH-234 TH-230
	2	75.88	69 -	81	75.15	7.53E+02	131.19	1.67E+03	.....
	3	86.26	82 -	89	85.53	8.69E+01	89.53	1.29E+03	EU-155 NP-237
	4	93.12	89 -	96	92.39	1.92E+02	84.81	1.01E+03	GA-67
	5	187.27	181 -	192	186.58	1.48E+02	79.52	7.06E+02	.....
	6	209.54	205 -	211	208.87	8.52E+01	47.76	3.52E+02	CM-243 GA-67
	7	239.36	233 -	245	238.70	4.75E+02	83.17	5.86E+02	PB-212
	8	296.49	288 -	302	295.85	1.70E+02	68.28	4.15E+02	.....
	9	338.69	334 -	343	338.07	9.72E+01	47.38	2.66E+02	AC-228
	10	351.75	347 -	355	351.14	1.34E+02	45.71	2.40E+02	PB-214
	11	511.19	505 -	518	510.65	9.33E+01	51.26	2.45E+02	.....
	12	583.20	576 -	588	582.70	1.26E+02	45.88	1.88E+02	TL-208
	13	609.28	602 -	615	608.78	1.32E+02	48.51	2.03E+02	BI-214
	14	729.33	721 -	736	728.90	4.39E+01	40.99	1.44E+02	.....
	15	880.11	876 -	883	879.75	1.20E+01	16.12	3.40E+01	.....
	16	911.62	906 -	918	911.28	1.05E+02	30.34	5.95E+01	LU-172 AC-228
	17	967.51	961 -	971	967.20	4.83E+01	29.90	9.34E+01	.....
	18	1052.00	1041 -	1061	1051.73	3.90E+01	36.55	9.41E+01	.....
	19	1134.83	1131 -	1139	1134.61	1.54E+01	17.26	3.71E+01	.....
	20	1161.28	1150 -	1172	1161.08	6.46E+01	38.70	9.07E+01	.....
M	21	1299.23	1297 -	1310	1299.10	1.14E+01	8.25	1.12E+01	.....
m	22	1305.06	1297 -	1310	1304.94	1.16E+01	17.20	2.84E+01	.....
	23	1321.60	1315 -	1329	1321.49	2.43E+01	19.42	2.74E+01	.....
	24	1460.33	1453 -	1466	1460.30	2.40E+02	33.93	2.14E+01	K-40
	25	1589.80	1584 -	1593	1589.85	1.09E+01	10.68	1.01E+01	.....
	26	1763.50	1759 -	1767	1763.66	1.48E+01	9.39	4.47E+00	BI-214
	27	2100.42	2095 -	2105	2100.81	1.10E+01	11.16	1.00E+01	.....
	28	2284.70	2280 -	2289	2285.22	6.56E+00	7.81	4.89E+00	.....
	29	2445.36	2441 -	2448	2446.00	5.00E+00	4.47	0.00E+00	.....
	30	2613.18	2609 -	2617	2613.94	3.60E+01	12.00	0.00E+00	.....

Analysis Report for 1606064-08

CP-5014 09-15

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 : 6/16/2016 5:59:13PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.47	1.50E+02	102.02	2.32E-02	1.76E-03
	2	75.88	7.53E+02	131.19	2.13E-02	1.69E-03
	3	86.26	8.69E+01	89.53	1.98E-02	1.64E-03
	4	93.12	1.92E+02	84.81	1.90E-02	1.62E-03
	5	187.27	1.48E+02	79.52	1.16E-02	1.15E-03
	6	209.54	8.52E+01	47.76	1.05E-02	1.08E-03
	7	239.36	4.75E+02	83.17	9.39E-03	9.85E-04
	8	296.49	1.70E+02	68.28	7.75E-03	8.42E-04
	9	338.69	9.72E+01	47.38	6.85E-03	7.95E-04
	10	351.75	1.34E+02	45.71	6.61E-03	7.80E-04
	11	511.19	9.33E+01	51.26	4.61E-03	5.61E-04
	12	583.20	1.26E+02	45.88	4.05E-03	4.55E-04
	13	609.28	1.32E+02	48.51	3.88E-03	4.17E-04
	14	729.33	4.39E+01	40.99	3.25E-03	3.02E-04
	15	880.11	1.20E+01	16.12	2.70E-03	2.18E-04
	16	911.62	1.05E+02	30.34	2.61E-03	2.06E-04
	17	967.51	4.83E+01	29.90	2.46E-03	1.99E-04
	18	1052.00	3.90E+01	36.55	2.27E-03	1.88E-04
	19	1134.83	1.54E+01	17.26	2.12E-03	1.78E-04
	20	1161.28	6.46E+01	38.70	2.07E-03	1.74E-04
M	21	1299.23	1.14E+01	8.25	1.87E-03	2.07E-04
m	22	1305.06	1.16E+01	17.20	1.86E-03	2.08E-04
	23	1321.60	2.43E+01	19.42	1.84E-03	2.13E-04
	24	1460.33	2.40E+02	33.93	1.68E-03	1.89E-04
	25	1589.80	1.09E+01	10.68	1.57E-03	1.62E-04
	26	1763.50	1.48E+01	9.39	1.44E-03	1.26E-04
	27	2100.42	1.10E+01	11.16	1.25E-03	1.11E-04
	28	2284.70	6.56E+00	7.81	1.18E-03	1.11E-04
	29	2445.36	5.00E+00	4.47	1.12E-03	1.11E-04
	30	2613.18	3.60E+01	12.00	1.07E-03	1.11E-04

Analysis Report for 1606064-08

CP-5014 09-15

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 : 6/16/2016 5:59:13PM

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	63.47	1.50E+02	102.02	3.84E+01	6.93E+00	1.12E+02	1.02E+02
	2	75.88	7.53E+02	131.19	1.70E+01	4.04E+00	7.36E+02	1.31E+02
	3	86.26	8.69E+01	89.53			8.69E+01	8.95E+01
	4	93.12	1.92E+02	84.81	5.93E+01	9.62E+00	1.33E+02	8.53E+01
	5	187.27	1.48E+02	79.52			1.48E+02	7.95E+01
	6	209.54	8.52E+01	47.76			8.52E+01	4.78E+01
	7	239.36	4.75E+02	83.17	7.10E+00	5.46E+00	4.68E+02	8.33E+01
	8	296.49	1.70E+02	68.28			1.70E+02	6.83E+01
	9	338.69	9.72E+01	47.38			9.72E+01	4.74E+01
	10	351.75	1.34E+02	45.71	1.61E+00	4.34E+00	1.32E+02	4.59E+01
	11	511.19	9.33E+01	51.26	4.57E+01	5.07E+00	4.76E+01	5.15E+01
	12	583.20	1.26E+02	45.88	2.37E+00	3.72E+00	1.24E+02	4.60E+01
	13	609.28	1.32E+02	48.51			1.32E+02	4.85E+01
	14	729.33	4.39E+01	40.99			4.39E+01	4.10E+01
	15	880.11	1.20E+01	16.12			1.20E+01	1.61E+01
	16	911.62	1.05E+02	30.34			1.05E+02	3.03E+01
	17	967.51	4.83E+01	29.90			4.83E+01	2.99E+01
	18	1052.00	3.90E+01	36.55			3.90E+01	3.66E+01
	19	1134.83	1.54E+01	17.26			1.54E+01	1.73E+01
	20	1161.28	6.46E+01	38.70			6.46E+01	3.87E+01
M	21	1299.23	1.14E+01	8.25			1.14E+01	8.25E+00
m	22	1305.06	1.16E+01	17.20			1.16E+01	1.72E+01
	23	1321.60	2.43E+01	19.42			2.43E+01	1.94E+01
	24	1460.33	2.40E+02	33.93	9.79E-01	1.85E+00	2.39E+02	3.40E+01
	25	1589.80	1.09E+01	10.68			1.09E+01	1.07E+01
	26	1763.50	1.48E+01	9.39			1.48E+01	9.39E+00
	27	2100.42	1.10E+01	11.16			1.10E+01	1.12E+01
	28	2284.70	6.56E+00	7.81			6.56E+00	7.81E+00
	29	2445.36	5.00E+00	4.47			5.00E+00	4.47E+00
	30	2613.18	3.60E+01	12.00			3.60E+01	1.20E+01

Analysis Report for 1606064-08

CP-5014 09-15

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 : 6/16/2016 5:59:13PM

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	63.47	1.50E+02	102.02	3.84E+01	6.93E+00	1.12E+02	1.02E+02
	2	75.88	7.53E+02	131.19	1.70E+01	4.04E+00	7.36E+02	1.31E+02
	3	86.26	8.69E+01	89.53			8.69E+01	8.95E+01
	4	93.12	1.92E+02	84.81	5.93E+01	9.62E+00	1.33E+02	8.53E+01
	5	187.27	1.48E+02	79.52			1.48E+02	7.95E+01
	6	209.54	8.52E+01	47.76			8.52E+01	4.78E+01
	7	239.36	4.75E+02	83.17	7.10E+00	5.46E+00	4.68E+02	8.33E+01
	8	296.49	1.70E+02	68.28			1.70E+02	6.83E+01
	9	338.69	9.72E+01	47.38			9.72E+01	4.74E+01
	10	351.75	1.34E+02	45.71	1.61E+00	4.34E+00	1.32E+02	4.59E+01
	11	511.19	9.33E+01	51.26	4.57E+01	5.07E+00	4.76E+01	5.15E+01
	12	583.20	1.26E+02	45.88	2.37E+00	3.72E+00	1.24E+02	4.60E+01
	13	609.28	1.32E+02	48.51			1.32E+02	4.85E+01
	14	729.33	4.39E+01	40.99			4.39E+01	4.10E+01
	15	880.11	1.20E+01	16.12			1.20E+01	1.61E+01
	16	911.62	1.05E+02	30.34			1.05E+02	3.03E+01
	17	967.51	4.83E+01	29.90			4.83E+01	2.99E+01
	18	1052.00	3.90E+01	36.55			3.90E+01	3.66E+01
	19	1134.83	1.54E+01	17.26			1.54E+01	1.73E+01
	20	1161.28	6.46E+01	38.70			6.46E+01	3.87E+01
M	21	1299.23	1.14E+01	8.25			1.14E+01	8.25E+00
m	22	1305.06	1.16E+01	17.20			1.16E+01	1.72E+01
	23	1321.60	2.43E+01	19.42			2.43E+01	1.94E+01
	24	1460.33	2.40E+02	33.93	9.79E-01	1.85E+00	2.39E+02	3.40E+01
	25	1589.80	1.09E+01	10.68			1.09E+01	1.07E+01
	26	1763.50	1.48E+01	9.39			1.48E+01	9.39E+00
	27	2100.42	1.10E+01	11.16			1.10E+01	1.12E+01
	28	2284.70	6.56E+00	7.81			6.56E+00	7.81E+00
	29	2445.36	5.00E+00	4.47			5.00E+00	4.47E+00
	30	2613.18	3.60E+01	12.00			3.60E+01	1.20E+01

Analysis Report for 1606064-08

CP-5014 09-15

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	0.963	1460.81	*	10.67	3.00E+01	5.47E+00
GA-67	0.626	93.31	*	35.70	3.14E+00	5.54E+00
		208.95	*	2.24	5.78E+01	7.68E+01
		300.22		16.00		
EU-155	0.375	86.50	*	30.90	3.21E-01	3.32E-01
		105.30		20.70		
TL-208	0.323	583.14	*	30.22	2.28E+00	8.88E-01
		860.37		4.48		
		2614.66		35.85		
PB-212	0.821	238.63	*	44.60	2.52E+00	5.21E-01
		300.09		3.41		
BI-214	0.649	609.31	*	46.30	1.66E+00	6.36E-01
		1120.29		15.10		
		1764.49	*	15.80	1.47E+00	9.44E-01
		2204.22		4.98		
PB-214	0.423	295.21		19.19		
		351.92	*	37.19	1.21E+00	4.45E-01
AC-228	0.558	338.32	*	11.40	2.81E+00	1.41E+00
		911.07	*	27.70	3.29E+00	9.82E-01
		969.11		16.60		
TH-234	0.995	63.29	*	3.80	2.85E+00	2.62E+00
NP-237	0.990	86.50	*	12.60	7.84E-01	8.11E-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 1606064-08

CP-5014 09-15

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/16/2016 5:59:13PM
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	75.88	2.04580E-01	8.91		
	5	187.27	4.11460E-02	26.84		
	8	296.49	4.73589E-02	20.02	Sum	
	11	511.19	1.32132E-02	54.15		
	14	729.33	1.21923E-02	46.69		
	15	880.11	3.32854E-03	67.28		
	17	967.51	1.34225E-02	30.94		
	18	1052.00	1.08236E-02	46.91		
	19	1134.83	4.28922E-03	55.90		
	20	1161.28	1.79571E-02	29.94		
M	21	1299.23	3.16758E-03	36.16		
m	22	1305.06	3.22749E-03	74.04		
	23	1321.60	6.75439E-03	39.93		
	25	1589.80	3.03819E-03	48.81		
	27	2100.42	3.05556E-03	50.72		
	28	2284.70	1.82099E-03	59.57		
	29	2445.36	1.38889E-03	44.72		
	30	2613.18	1.00000E-02	16.67		

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	0.96	1460.81	*	10.67	3.00E+01	5.47E+00

Analysis Report for 1606064-08

CP-5014 09-15

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
GA-67	0.62	93.31	*	35.70	3.14E+00	5.54E+00
		208.95	*	2.24	5.78E+01	7.68E+01
		300.22		16.00		
EU-155	0.37	86.50	*	30.90	3.21E-01	3.32E-01
		105.30		20.70		
TL-208	0.32	583.14	*	30.22	2.28E+00	8.88E-01
		860.37		4.48		
		2614.66		35.85		
PB-212	0.82	238.63	*	44.60	2.52E+00	5.21E-01
		300.09		3.41		
BI-214	0.64	609.31	*	46.30	1.66E+00	6.36E-01
		1120.29		15.10		
		1764.49	*	15.80	1.47E+00	9.44E-01
		2204.22		4.98		
PB-214	0.42	295.21		19.19		
		351.92	*	37.19	1.21E+00	4.45E-01
AC-228	0.55	338.32	*	11.40	2.81E+00	1.41E+00
		911.07	*	27.70	3.29E+00	9.82E-01
		969.11		16.60		
TH-234	0.99	63.29	*	3.80	2.85E+00	2.62E+00
NP-237	0.99	86.50	*	12.60	7.84E-01	8.11E-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	0.963	3.00E+01	5.47E+00	
	GA-67	0.626	3.96E+00	6.23E+00	
?	EU-155	0.375	3.21E-01	3.32E-01	
	TL-208	0.323	2.28E+00	8.88E-01	
	PB-212	0.821	2.52E+00	5.21E-01	
	BI-214	0.649	1.60E+00	5.27E-01	

Analysis Report for 1606064-08

CP-5014 09-15

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	PB-214	0.423	1.21E+00	4.45E-01	
	AC-228	0.558	3.13E+00	8.05E-01	
	TH-234	0.995	2.85E+00	2.62E+00	
?	NP-237	0.990	7.84E-01	8.11E-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 1606064-08

CP-5014 09-15

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/16/2016 5:59:13PM
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	75.88	2.04580E-01	8.91		
	5	187.27	4.11460E-02	26.84		
	8	296.49	4.73589E-02	20.02	Sum	
	11	511.19	1.32132E-02	54.15		
	14	729.33	1.21923E-02	46.69		
	15	880.11	3.32854E-03	67.28		
	17	967.51	1.34225E-02	30.94		
	18	1052.00	1.08236E-02	46.91		
	19	1134.83	4.28922E-03	55.90		
	20	1161.28	1.79571E-02	29.94		
M	21	1299.23	3.16758E-03	36.16		
m	22	1305.06	3.22749E-03	74.04		
	23	1321.60	6.75439E-03	39.93		
	25	1589.80	3.03819E-03	48.81		
	27	2100.42	3.05556E-03	50.72		
	28	2284.70	1.82099E-03	59.57		
	29	2445.36	1.38889E-03	44.72		
	30	2613.18	1.00000E-02	16.67		

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)

Analysis Report for 1606064-08

CP-5014 09-15

+		BE-7	477.59		10.42	-2.54E-01	2.23E+00	2.23E+00
+		NA-22	1274.54		99.94	-3.22E-02	3.42E-01	3.42E-01
+		NA-24	1368.53		99.99	-1.73E+03	1.62E+03	6.54E+03
			2754.09		99.86	0.00E+00		1.62E+03
+		AL-26	1808.65		99.76	-1.45E-01	1.49E-01	1.49E-01
+		K-40	1460.81	*	10.67	3.00E+01	3.24E+00	3.24E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-2.77E-01	1.39E-01	1.39E-01
			78.34		96.00	4.47E-01		1.84E-01
+		SC-46	889.25		99.98	1.38E-01	2.83E-01	2.83E-01
			1120.51		99.99	2.95E-01		4.37E-01
+		V-48	983.52		99.98	9.92E-03	3.34E-01	3.34E-01
			1312.10		97.50	-3.11E-02		4.57E-01
+		CR-51	320.08		9.83	-4.99E-01	2.21E+00	2.21E+00
+		MN-54	834.83		99.97	1.13E-01	3.04E-01	3.04E-01
+		CO-56	846.75		99.96	8.73E-03	2.90E-01	2.90E-01
			1037.75		14.03	6.19E-01		2.26E+00
			1238.25		67.00	5.94E-01		7.07E-01
			1771.40		15.51	-5.89E-01		1.75E+00
			2598.48		16.90	1.35E-01		9.90E-01
+		CO-57	122.06		85.51	-2.83E-02	1.60E-01	1.60E-01
			136.48		10.60	-7.39E-01		1.37E+00
+		CO-58	810.76		99.40	-1.52E-01	2.73E-01	2.73E-01
+		FE-59	1099.22		56.50	-1.86E-01	6.79E-01	6.79E-01
			1291.56		43.20	1.05E-01		8.18E-01
+		CO-60	1173.22		100.00	-6.43E-03	2.49E-01	3.20E-01
			1332.49		100.00	2.48E-02		2.49E-01
+		ZN-65	1115.52		50.75	-2.01E-01	6.97E-01	6.97E-01
+		GA-67	93.31	*	35.70	3.14E+00	3.26E+00	3.26E+00
			208.95	*	2.24	5.78E+01		5.10E+01
			300.22		16.00	-1.69E-01		8.79E+00
+		SE-75	121.11		16.70	-4.62E-02	2.52E-01	8.44E-01
			136.00		59.20	-1.18E-01		2.52E-01
			264.65		59.80	-3.24E-01		2.94E-01
			279.53		25.20	2.11E-01		7.74E-01
			400.65		11.40	-7.62E-01		1.79E+00
+		RB-82	776.52		13.00	-1.64E+00	2.45E+00	2.45E+00
+		RB-83	520.41		46.00	-1.17E-01	4.79E-01	4.79E-01
			529.64		30.30	5.43E-02		7.35E-01
			552.65		16.40	-3.47E-01		1.37E+00
+		KR-85	513.99		0.43	1.01E+02	7.14E+01	7.14E+01
+		SR-85	513.99		99.27	4.88E-01	3.44E-01	3.44E-01
+		Y-88	898.02		93.40	-1.82E-01	2.60E-01	2.60E-01
			1836.01		99.38	1.51E-01		3.02E-01
+		NB-93M	16.57		9.43	1.26E+00	7.22E-01	7.22E-01
+		NB-94	702.63		100.00	6.69E-02	2.26E-01	2.45E-01
			871.10		100.00	-9.37E-02		2.26E-01
+		NB-95	765.79		99.81	-1.30E-02	3.24E-01	3.24E-01
+		NB-95M	235.69		25.00	-6.74E-01	6.33E+00	6.33E+00
+		ZR-95	724.18		43.70	4.49E-01	5.32E-01	7.69E-01
			756.72		55.30	1.41E-01		5.32E-01

Analysis Report for 1606064-08

CP-5014 09-15

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	MO-99	181.06	6.20	1.66E+00	2.07E+01	2.68E+01
		739.58	12.80	2.15E+00		2.07E+01
		778.00	4.50	-3.19E+01		5.81E+01
+	RU-103	497.08	89.00	-8.62E-02	2.67E-01	2.67E-01
+	RU-106	621.84	9.80	-2.93E-01	2.53E+00	2.53E+00
+	AG-108M	433.93	89.90	4.28E-02	2.28E-01	2.28E-01
		614.37	90.40	-2.66E-02		3.18E-01
		722.95	90.50	1.74E-02		3.21E-01
+	CD-109	88.03	3.72	2.03E+00	4.35E+00	4.35E+00
+	AG-110M	657.75	93.14	-1.28E-01	2.37E-01	2.37E-01
		677.61	10.53	-1.15E-02		2.12E+00
		706.67	16.46	1.29E-01		1.48E+00
		763.93	21.98	-3.88E-01		1.21E+00
		884.67	71.63	-3.21E-02		3.39E-01
		1384.27	23.94	8.08E-02		1.32E+00
+	CD-113M	263.70	0.02	-6.10E+02	7.20E+02	7.20E+02
+	SN-113	255.12	1.93	4.86E+00	3.56E-01	9.85E+00
		391.69	64.90	1.82E-01		3.56E-01
+	TE123M	159.00	84.10	-2.53E-02	1.92E-01	1.92E-01
+	SB-124	602.71	97.87	-2.14E-02	2.74E-01	2.74E-01
		645.85	7.26	1.94E+00		3.93E+00
		722.78	11.10	1.28E-01		2.74E+00
		1691.02	49.00	7.55E-02		5.18E-01
+	I-125	35.49	6.49	-3.42E-01	1.40E+00	1.40E+00
+	SB-125	176.33	6.89	6.14E-01	6.48E-01	2.33E+00
		427.89	29.33	-4.27E-02		6.48E-01
		463.38	10.35	1.02E+00		2.13E+00
		600.56	17.80	-2.94E-02		1.35E+00
		635.90	11.32	-1.60E-01		1.98E+00
+	SB-126	414.70	83.30	4.97E-02	3.86E-01	3.86E-01
		666.33	99.60	1.23E-01		4.30E-01
		695.00	99.60	-9.95E-02		4.25E-01
		720.50	53.80	1.63E-02		7.75E-01
+	SN-126	87.57	37.00	2.01E-01	4.30E-01	4.30E-01
+	SB-127	473.00	25.00	6.20E-02	3.40E+00	4.23E+00
		685.20	35.70	-4.21E-01		3.40E+00
		783.80	14.70	4.84E+00		9.67E+00
+	I-129	29.78	57.00	-2.74E-02	1.41E-01	1.41E-01
		33.60	13.20	7.85E-03		6.13E-01
		39.58	7.52	-7.13E-01		1.15E+00
+	I-131	284.30	6.05	-1.12E+00	5.25E-01	6.27E+00
		364.48	81.20	1.50E-01		5.25E-01
		636.97	7.26	9.85E-01		6.96E+00
		722.89	1.80	1.57E+00		3.36E+01
+	TE-132	49.72	13.10	-1.34E-01	1.38E+00	5.42E+00
		228.16	88.00	-8.21E-03		1.38E+00
+	BA-133	81.00	33.00	-4.40E-01	4.30E-01	4.95E-01
		302.84	17.80	-1.77E-01		1.04E+00
		356.01	60.00	-1.82E-02		4.30E-01

Analysis Report for 1606064-08

CP-5014 09-15

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	I-133	529.87	86.30	2.81E+01	3.81E+02	3.81E+02
+	XE-133	81.00	38.00	-1.29E+00	1.45E+00	1.45E+00
+	CS-134	563.23	8.38	-2.52E-01	3.18E-01	2.66E+00
		569.32	15.43	2.86E-02		1.49E+00
		604.70	97.60	-5.27E-03		3.18E-01
		795.84	85.40	3.34E-01		3.70E-01
		801.93	8.73	-1.41E-01		2.99E+00
+	CS-135	268.24	16.00	8.70E-01	1.19E+00	1.19E+00
+	I-135	1131.51	22.50	-2.16E+09	1.09E+10	1.62E+10
		1260.41	28.60	1.29E+09		1.09E+10
		1678.03	9.54	1.29E+10		3.11E+10
+	CS-136	153.22	7.46	-3.89E-01	4.39E-01	3.27E+00
		163.89	4.61	2.80E+00		5.42E+00
		176.55	13.56	5.04E-01		1.91E+00
		273.65	12.66	2.28E+00		2.57E+00
		340.57	48.50	9.39E-01		7.81E-01
		818.50	99.70	-1.60E-01		4.39E-01
		1048.07	79.60	2.08E-01		6.56E-01
		1235.34	19.70	2.52E+00		3.60E+00
+	CS-137	661.65	85.12	6.49E-02	2.79E-01	2.79E-01
+	LA-138	788.74	34.00	-7.41E-01	3.63E-01	7.42E-01
		1435.80	66.00	-8.18E-02		3.63E-01
+	CE-139	165.85	80.35	-1.08E-01	1.93E-01	1.93E-01
+	BA-140	162.64	6.70	3.01E+00	1.44E+00	3.83E+00
		304.84	4.50	-5.33E-01		6.53E+00
		423.70	3.20	-1.06E+00		9.58E+00
		437.55	2.00	4.98E+00		1.67E+01
		537.32	25.00	4.34E-01		1.44E+00
+	LA-140	328.77	20.50	4.56E-01	3.75E-01	1.56E+00
		487.03	45.50	1.73E-02		7.76E-01
		815.85	23.50	4.35E-01		1.88E+00
		1596.49	95.49	-8.20E-02		3.75E-01
+	CE-141	145.44	48.40	3.42E-04	3.70E-01	3.70E-01
+	CE-143	57.36	11.80	-2.81E+01	5.56E+01	9.67E+01
		293.26	42.00	5.67E+01		5.56E+01
		664.55	5.20	3.68E+02		5.07E+02
+	CE-144	133.54	10.80	5.01E-01	1.39E+00	1.39E+00
+	PM-144	476.78	42.00	-2.51E-01	2.52E-01	4.80E-01
		618.01	98.60	-1.35E-02		2.52E-01
		696.49	99.49	1.36E-02		2.63E-01
+	PM-145	36.85	21.70	-1.17E-01	2.13E-01	3.82E-01
		37.36	39.70	-3.31E-02		2.13E-01
		42.30	15.10	-8.55E-02		6.11E-01
		72.40	2.31	7.08E+00		7.08E+00
+	PM-146	453.90	39.94	8.76E-02	5.02E-01	5.02E-01
		735.90	14.01	-1.88E-01		1.65E+00
		747.13	13.10	3.27E-01		2.16E+00
+	ND-147	91.11	28.90	2.55E+00	1.05E+00	1.05E+00
		531.02	13.10	2.89E-03		2.77E+00

Analysis Report for 1606064-08

CP-5014 09-15

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PM-149	285.90		3.10	1.10E+01	1.01E+02	1.01E+02
+	EU-152	121.78		20.50	-1.15E-01	6.53E-01	6.53E-01
		244.69		5.40	-1.04E-01		3.81E+00
		344.27		19.13	1.59E-02		9.32E-01
		778.89		9.20	-1.53E+00		2.79E+00
		964.01		10.40	-1.63E-01		3.58E+00
		1085.78		7.22	-5.80E-01		4.17E+00
		1112.02		9.60	-2.95E+00		3.21E+00
		1407.95		14.94	4.09E-01		1.85E+00
+	GD-153	97.43		31.30	-1.71E-01	4.39E-01	4.39E-01
		103.18		22.20	-5.19E-02		5.86E-01
+	EU-154	123.07		40.50	-6.39E-02	3.38E-01	3.38E-01
		723.30		19.70	8.02E-02		1.48E+00
		873.19		11.50	-2.89E-01		1.97E+00
		996.32		10.30	-8.80E-01		2.50E+00
		1004.76		17.90	6.49E-01		1.82E+00
		1274.45		35.50	-9.03E-02		9.58E-01
+	EU-155	86.50	*	30.90	3.21E-01	5.42E-01	5.42E-01
		105.30		20.70	3.29E-02		6.28E-01
+	EU-156	811.77		10.40	-1.13E+00	3.68E+00	3.68E+00
		1153.47		7.20	3.60E+00		8.07E+00
		1230.71		8.90	-7.84E+00		5.78E+00
+	HO-166M	184.41		72.60	2.53E-01	2.57E-01	2.57E-01
		280.45		29.60	6.88E-02		6.14E-01
		410.94		11.10	-4.99E-01		1.68E+00
		711.69		54.10	-8.90E-02		4.17E-01
+	TM-171	66.72		0.14	-3.73E+01	9.40E+01	9.40E+01
+	HF-172	81.75		4.52	-9.73E+00	1.27E+00	3.43E+00
		125.81		11.30	3.74E-01		1.27E+00
+	LU-172	181.53		20.60	1.37E-01	1.26E+00	2.16E+00
		810.06		16.63	-2.16E+00		3.86E+00
		912.12		15.25	1.41E+01		7.93E+00
		1093.66		62.50	-7.94E-01		1.26E+00
+	LU-173	100.72		5.24	-1.56E+00	9.22E-01	2.38E+00
		272.11		21.20	1.79E-01		9.22E-01
+	HF-175	343.40		84.00	3.94E-03	2.61E-01	2.61E-01
+	LU-176	88.34		13.30	1.56E+00	1.85E-01	1.22E+00
		201.83		86.00	5.13E-02		2.01E-01
		306.78		94.00	1.79E-02		1.85E-01
+	TA-182	67.75		41.20	-6.70E-01	3.36E-01	3.36E-01
		1121.30		34.90	5.86E-01		1.20E+00
		1189.05		16.23	4.35E-01		2.22E+00
		1221.41		26.98	7.48E-01		1.65E+00
		1231.02		11.44	-4.24E+00		3.13E+00
+	IR-192	308.46		29.68	4.11E-01	4.57E-01	6.66E-01
		468.07		48.10	-2.94E-01		4.57E-01
+	HG-203	279.19		77.30	7.48E-02	2.74E-01	2.74E-01
+	BI-207	569.67		97.72	4.48E-03	2.34E-01	2.34E-01
		1063.62		74.90	1.20E-01		4.54E-01

Analysis Report for 1606064-08

CP-5014 09-15

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TL-208	583.14	*	30.22	2.28E+00	1.27E+00	1.27E+00
		860.37		4.48	2.50E+00		6.50E+00
		2614.66		35.85	0.00E+00		1.80E+00
+	BI-210M	262.00		45.00	3.48E-02	3.79E-01	3.79E-01
		300.00		23.00	5.74E-01		9.37E-01
+	PB-210	46.50		4.25	1.89E+00	2.34E+00	2.34E+00
+	PB-211	404.84		2.90	6.36E-01	6.72E+00	6.72E+00
		831.96		2.90	2.18E+00		9.98E+00
+	BI-212	727.17		11.80	1.76E+00	2.63E+00	2.63E+00
		1620.62		2.75	3.38E+00		9.67E+00
+	PB-212	238.63	*	44.60	2.52E+00	6.46E-01	6.46E-01
		300.09		3.41	3.87E+00		6.32E+00
+	BI-214	609.31	*	46.30	1.66E+00	9.18E-01	9.18E-01
		1120.29		15.10	1.81E+00		2.68E+00
		1764.49	*	15.80	1.47E+00		1.15E+00
		2204.22		4.98	3.31E+00		7.55E+00
+	PB-214	295.21		19.19	1.85E+00	6.25E-01	1.21E+00
		351.92	*	37.19	1.21E+00		6.25E-01
+	RN-219	401.80		6.50	5.14E-02	3.08E+00	3.08E+00
+	RA-223	323.87		3.88	-4.47E-01	4.75E+00	4.75E+00
+	RA-224	240.98		3.95	2.89E+01	7.56E+00	7.56E+00
+	RA-225	40.00		31.00	-2.67E-01	4.29E-01	4.29E-01
+	RA-226	186.21		3.28	7.63E+00	5.78E+00	5.78E+00
+	TH-227	50.10		8.40	-2.94E-02	1.19E+00	1.19E+00
		236.00		11.50	-2.50E-01		2.35E+00
		256.20		6.30	1.56E+00		2.79E+00
+	AC-228	338.32	*	11.40	2.81E+00	1.23E+00	2.13E+00
		911.07	*	27.70	3.29E+00		1.23E+00
		969.11		16.60	-2.79E-01		2.32E+00
+	TH-230	48.44		16.90	3.01E-01	5.95E-01	5.95E-01
		62.85		4.60	3.39E+00		2.77E+00
		67.67		0.37	-7.05E+01		3.54E+01
+	PA-231	283.67		1.60	-2.97E+00	8.06E+00	1.09E+01
		302.67		2.30	-1.37E+00		8.06E+00
+	TH-231	25.64		14.70	9.50E-03	5.46E-01	5.46E-01
		84.21		6.40	-9.20E+00		2.26E+00
+	PA-233	311.98		38.60	-5.63E-02	5.76E-01	5.76E-01
+	PA-234	131.20		20.40	1.14E-01	7.18E-01	7.18E-01
		733.99		8.80	1.53E-01		2.83E+00
		946.00		12.00	1.37E+00		2.51E+00
+	PA-234M	1001.03		0.92	5.42E+00	3.31E+01	3.31E+01
+	TH-234	63.29	*	3.80	2.85E+00	4.28E+00	4.28E+00
+	U-235	143.76		10.50	4.29E-01	1.41E+00	1.41E+00
		163.35		4.70	1.68E+00		3.27E+00
		205.31		4.70	-7.79E-01		3.73E+00
+	NP-237	86.50	*	12.60	7.84E-01	1.32E+00	1.32E+00
+	NP-239	106.10		22.70	4.52E-01	8.64E+00	8.64E+00

Analysis Report for 1606064-08

CP-5014 09-15

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	NP-239	228.18	10.70	-4.13E+00	8.64E+00	2.36E+01
		277.60	14.10	6.06E-01		2.00E+01
+	AM-241	59.54	35.90	-3.91E-02	3.34E-01	3.34E-01
+	AM-243	74.67	66.00	1.16E+00	2.75E-01	2.75E-01
+	CM-243	209.75	3.29	-1.01E+00	1.34E+00	5.59E+00
		228.14	10.60	-9.60E-03		1.61E+00
		277.60	14.00	4.05E-02		1.34E+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	2.23E+00	2.23E+00	-2.54E-01	1.05E+00
	NA-22	1274.54		99.94	3.42E-01	3.42E-01	-3.22E-02	1.55E-01
	NA-24	1368.53		99.99	6.54E+03	1.62E+03	-1.73E+03	2.80E+03
		2754.09		99.86	1.62E+03		0.00E+00	0.00E+00
	AL-26	1808.65		99.76	1.49E-01	1.49E-01	-1.45E-01	5.29E-02
+	K-40	1460.81	*	10.67	3.24E+00	3.24E+00	3.00E+01	1.45E+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	1.39E-01	1.39E-01	-2.77E-01	6.81E-02
		78.34		96.00	1.84E-01		4.47E-01	9.06E-02
	SC-46	889.25		99.98	2.83E-01	2.83E-01	1.38E-01	1.29E-01
		1120.51		99.99	4.37E-01		2.95E-01	2.03E-01
	V-48	983.52		99.98	3.34E-01	3.34E-01	9.92E-03	1.48E-01
		1312.10		97.50	4.57E-01		-3.11E-02	2.03E-01
	CR-51	320.08		9.83	2.21E+00	2.21E+00	-4.99E-01	1.05E+00
	MN-54	834.83		99.97	3.04E-01	3.04E-01	1.13E-01	1.41E-01
	CO-56	846.75		99.96	2.90E-01	2.90E-01	8.73E-03	1.33E-01

Analysis Report for 1606064-08

CP-5014 09-15

	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	2.26E+00	2.90E-01	6.19E-01	1.03E+00
		1238.25		67.00	7.07E-01		5.94E-01	3.28E-01
		1771.40		15.51	1.75E+00		-5.89E-01	7.26E-01
		2598.48		16.90	9.90E-01		1.35E-01	3.13E-01
	CO-57	122.06		85.51	1.60E-01	1.60E-01	-2.83E-02	7.78E-02
		136.48		10.60	1.37E+00		-7.39E-01	6.65E-01
	CO-58	810.76		99.40	2.73E-01	2.73E-01	-1.52E-01	1.25E-01
	FE-59	1099.22		56.50	6.79E-01	6.79E-01	-1.86E-01	3.11E-01
		1291.56		43.20	8.18E-01		1.05E-01	3.65E-01
	CO-60	1173.22		100.00	3.20E-01	2.49E-01	-6.43E-03	1.45E-01
		1332.49		100.00	2.49E-01		2.48E-02	1.08E-01
	ZN-65	1115.52		50.75	6.97E-01	6.97E-01	-2.01E-01	3.20E-01
+	GA-67	93.31	*	35.70	3.26E+00	3.26E+00	3.14E+00	1.60E+00
		208.95	*	2.24	5.10E+01		5.78E+01	2.46E+01
		300.22		16.00	8.79E+00		-1.69E-01	4.22E+00
	SE-75	121.11		16.70	8.44E-01	2.52E-01	-4.62E-02	4.10E-01
		136.00		59.20	2.52E-01		-1.18E-01	1.22E-01
		264.65		59.80	2.94E-01		-3.24E-01	1.41E-01
		279.53		25.20	7.74E-01		2.11E-01	3.71E-01
		400.65		11.40	1.79E+00		-7.62E-01	8.48E-01
	RB-82	776.52		13.00	2.45E+00	2.45E+00	-1.64E+00	1.13E+00
	RB-83	520.41		46.00	4.79E-01	4.79E-01	-1.17E-01	2.24E-01
		529.64		30.30	7.35E-01		5.43E-02	3.43E-01
		552.65		16.40	1.37E+00		-3.47E-01	6.36E-01
	KR-85	513.99		0.43	7.14E+01	7.14E+01	1.01E+02	3.42E+01
	SR-85	513.99		99.27	3.44E-01	3.44E-01	4.88E-01	1.65E-01
	Y-88	898.02		93.40	2.60E-01	2.60E-01	-1.82E-01	1.17E-01
		1836.01		99.38	3.02E-01		1.51E-01	1.28E-01
	NB-93M	16.57		9.43	7.22E-01	7.22E-01	1.26E+00	3.50E-01
	NB-94	702.63		100.00	2.45E-01	2.26E-01	6.69E-02	1.14E-01
		871.10		100.00	2.26E-01		-9.37E-02	1.02E-01
	NB-95	765.79		99.81	3.24E-01	3.24E-01	-1.30E-02	1.50E-01
	NB-95M	235.69		25.00	6.33E+00	6.33E+00	-6.74E-01	3.09E+00
	ZR-95	724.18		43.70	7.69E-01	5.32E-01	4.49E-01	3.61E-01
		756.72		55.30	5.32E-01		1.41E-01	2.46E-01
	MO-99	181.06		6.20	2.68E+01	2.07E+01	1.66E+00	1.30E+01
		739.58		12.80	2.07E+01		2.15E+00	9.60E+00
		778.00		4.50	5.81E+01		-3.19E+01	2.68E+01
	RU-103	497.08		89.00	2.67E-01	2.67E-01	-8.62E-02	1.25E-01
	RU-106	621.84		9.80	2.53E+00	2.53E+00	-2.93E-01	1.18E+00
	AG-108M	433.93		89.90	2.28E-01	2.28E-01	4.28E-02	1.07E-01
		614.37		90.40	3.18E-01		-2.66E-02	1.50E-01
		722.95		90.50	3.21E-01		1.74E-02	1.50E-01
	CD-109	88.03		3.72	4.35E+00	4.35E+00	2.03E+00	2.13E+00
	AG-110M	657.75		93.14	2.37E-01	2.37E-01	-1.28E-01	1.09E-01
		677.61		10.53	2.12E+00		-1.15E-02	9.72E-01
		706.67		16.46	1.48E+00		1.29E-01	6.84E-01
		763.93		21.98	1.21E+00		-3.88E-01	5.59E-01
		884.67		71.63	3.39E-01		-3.21E-02	1.53E-01
		1384.27		23.94	1.32E+00		8.08E-02	5.84E-01
	CD-113M	263.70		0.02	7.20E+02	7.20E+02	-6.10E+02	3.45E+02
	SN-113	255.12		1.93	9.85E+00	3.56E-01	4.86E+00	4.74E+00
		391.69		64.90	3.56E-01		1.82E-01	1.70E-01

Analysis Report for 1606064-08

CP-5014 09-15

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	1.92E-01	1.92E-01	-2.53E-02	9.30E-02
SB-124	602.71	97.87	2.74E-01	2.74E-01	-2.14E-02	1.28E-01
	645.85	7.26	3.93E+00		1.94E+00	1.84E+00
	722.78	11.10	2.74E+00		1.28E-01	1.27E+00
	1691.02	49.00	5.18E-01		7.55E-02	2.12E-01
I-125	35.49	6.49	1.40E+00	1.40E+00	-3.42E-01	6.83E-01
SB-125	176.33	6.89	2.33E+00	6.48E-01	6.14E-01	1.13E+00
	427.89	29.33	6.48E-01		-4.27E-02	3.05E-01
	463.38	10.35	2.13E+00		1.02E+00	1.01E+00
	600.56	17.80	1.35E+00		-2.94E-02	6.32E-01
	635.90	11.32	1.98E+00		-1.60E-01	9.15E-01
SB-126	414.70	83.30	3.86E-01	3.86E-01	4.97E-02	1.82E-01
	666.33	99.60	4.30E-01		1.23E-01	2.01E-01
	695.00	99.60	4.25E-01		-9.95E-02	1.97E-01
	720.50	53.80	7.75E-01		1.63E-02	3.59E-01
SN-126	87.57	37.00	4.30E-01	4.30E-01	2.01E-01	2.11E-01
SB-127	473.00	25.00	4.23E+00	3.40E+00	6.20E-02	1.99E+00
	685.20	35.70	3.40E+00		-4.21E-01	1.57E+00
	783.80	14.70	9.67E+00		4.84E+00	4.48E+00
I-129	29.78	57.00	1.41E-01	1.41E-01	-2.74E-02	6.85E-02
	33.60	13.20	6.13E-01		7.85E-03	2.98E-01
	39.58	7.52	1.15E+00		-7.13E-01	5.58E-01
I-131	284.30	6.05	6.27E+00	5.25E-01	-1.12E+00	3.00E+00
	364.48	81.20	5.25E-01		1.50E-01	2.49E-01
	636.97	7.26	6.96E+00		9.85E-01	3.23E+00
	722.89	1.80	3.36E+01		1.57E+00	1.57E+01
TE-132	49.72	13.10	5.42E+00	1.38E+00	-1.34E-01	2.65E+00
	228.16	88.00	1.38E+00		-8.21E-03	6.63E-01
BA-133	81.00	33.00	4.95E-01	4.30E-01	-4.40E-01	2.43E-01
	302.84	17.80	1.04E+00		-1.77E-01	4.99E-01
	356.01	60.00	4.30E-01		-1.82E-02	2.07E-01
I-133	529.87	86.30	3.81E+02	3.81E+02	2.81E+01	1.78E+02
XE-133	81.00	38.00	1.45E+00	1.45E+00	-1.29E+00	7.13E-01
CS-134	563.23	8.38	2.66E+00	3.18E-01	-2.52E-01	1.24E+00
	569.32	15.43	1.49E+00		2.86E-02	6.98E-01
	604.70	97.60	3.18E-01		-5.27E-03	1.51E-01
	795.84	85.40	3.70E-01		3.34E-01	1.73E-01
	801.93	8.73	2.99E+00		-1.41E-01	1.38E+00
CS-135	268.24	16.00	1.19E+00	1.19E+00	8.70E-01	5.71E-01
I-135	1131.51	22.50	1.62E+10	1.09E+10	-2.16E+09	7.34E+09
	1260.41	28.60	1.09E+10		1.29E+09	4.79E+09
	1678.03	9.54	3.11E+10		1.29E+10	1.30E+10
CS-136	153.22	7.46	3.27E+00	4.39E-01	-3.89E-01	1.59E+00
	163.89	4.61	5.42E+00		2.80E+00	2.63E+00
	176.55	13.56	1.91E+00		5.04E-01	9.26E-01
	273.65	12.66	2.57E+00		2.28E+00	1.24E+00
	340.57	48.50	7.81E-01		9.39E-01	3.76E-01
	818.50	99.70	4.39E-01		-1.60E-01	2.02E-01
	1048.07	79.60	6.56E-01		2.08E-01	3.01E-01
	1235.34	19.70	3.60E+00		2.52E+00	1.67E+00
CS-137	661.65	85.12	2.79E-01	2.79E-01	6.49E-02	1.29E-01
LA-138	788.74	34.00	7.42E-01	3.63E-01	-7.41E-01	3.41E-01
	1435.80	66.00	3.63E-01		-8.18E-02	1.54E-01

Analysis Report for 1606064-08

CP-5014 09-15

	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	1.93E-01	1.93E-01	-1.08E-01	9.36E-02
	BA-140	162.64		6.70	3.83E+00	1.44E+00	3.01E+00	1.86E+00
		304.84		4.50	6.53E+00		-5.33E-01	3.12E+00
		423.70		3.20	9.58E+00		-1.06E+00	4.50E+00
		437.55		2.00	1.67E+01		4.98E+00	7.86E+00
		537.32		25.00	1.44E+00		4.34E-01	6.74E-01
	LA-140	328.77		20.50	1.56E+00	3.75E-01	4.56E-01	7.43E-01
		487.03		45.50	7.76E-01		1.73E-02	3.65E-01
		815.85		23.50	1.88E+00		4.35E-01	8.68E-01
		1596.49		95.49	3.75E-01		-8.20E-02	1.54E-01
	CE-141	145.44		48.40	3.70E-01	3.70E-01	3.42E-04	1.80E-01
	CE-143	57.36		11.80	9.67E+01	5.56E+01	-2.81E+01	4.72E+01
		293.26		42.00	5.56E+01		5.67E+01	2.68E+01
		664.55		5.20	5.07E+02		3.68E+02	2.36E+02
	CE-144	133.54		10.80	1.39E+00	1.39E+00	5.01E-01	6.75E-01
	PM-144	476.78		42.00	4.80E-01	2.52E-01	-2.51E-01	2.25E-01
		618.01		98.60	2.52E-01		-1.35E-02	1.18E-01
		696.49		99.49	2.63E-01		1.36E-02	1.22E-01
	PM-145	36.85		21.70	3.82E-01	2.13E-01	-1.17E-01	1.86E-01
		37.36		39.70	2.13E-01		-3.31E-02	1.04E-01
		42.30		15.10	6.11E-01		-8.55E-02	2.98E-01
		72.40		2.31	7.08E+00		7.08E+00	3.48E+00
	PM-146	453.90		39.94	5.02E-01	5.02E-01	8.76E-02	2.36E-01
		735.90		14.01	1.65E+00		-1.88E-01	7.57E-01
		747.13		13.10	2.16E+00		3.27E-01	1.01E+00
	ND-147	91.11		28.90	1.05E+00	1.05E+00	2.55E+00	5.13E-01
		531.02		13.10	2.77E+00		2.89E-03	1.29E+00
	PM-149	285.90		3.10	1.01E+02	1.01E+02	1.10E+01	4.82E+01
	EU-152	121.78		20.50	6.53E-01	6.53E-01	-1.15E-01	3.17E-01
		244.69		5.40	3.81E+00		-1.04E-01	1.85E+00
		344.27		19.13	9.32E-01		1.59E-02	4.42E-01
		778.89		9.20	2.79E+00		-1.53E+00	1.29E+00
		964.01		10.40	3.58E+00		-1.63E-01	1.67E+00
		1085.78		7.22	4.17E+00		-5.80E-01	1.89E+00
		1112.02		9.60	3.21E+00		-2.95E+00	1.46E+00
		1407.95		14.94	1.85E+00		4.09E-01	8.09E-01
	GD-153	97.43		31.30	4.39E-01	4.39E-01	-1.71E-01	2.14E-01
		103.18		22.20	5.86E-01		-5.19E-02	2.85E-01
	EU-154	123.07		40.50	3.38E-01	3.38E-01	-6.39E-02	1.64E-01
		723.30		19.70	1.48E+00		8.02E-02	6.93E-01
		873.19		11.50	1.97E+00		-2.89E-01	8.90E-01
		996.32		10.30	2.50E+00		-8.80E-01	1.13E+00
		1004.76		17.90	1.82E+00		6.49E-01	8.39E-01
		1274.45		35.50	9.58E-01		-9.03E-02	4.34E-01
+	EU-155	86.50	*	30.90	5.42E-01	5.42E-01	3.21E-01	2.66E-01
		105.30		20.70	6.28E-01		3.29E-02	3.06E-01
	EU-156	811.77		10.40	3.68E+00	3.68E+00	-1.13E+00	1.68E+00
		1153.47		7.20	8.07E+00		3.60E+00	3.73E+00
		1230.71		8.90	5.78E+00		-7.84E+00	2.63E+00
	HO-166M	184.41		72.60	2.57E-01	2.57E-01	2.53E-01	1.25E-01
		280.45		29.60	6.14E-01		6.88E-02	2.94E-01
		410.94		11.10	1.68E+00		-4.99E-01	7.92E-01
		711.69		54.10	4.17E-01		-8.90E-02	1.91E-01

Analysis Report for 1606064-08

CP-5014 09-15

	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	9.40E+01	9.40E+01	-3.73E+01	4.61E+01
	HF-172	81.75		4.52	3.43E+00	1.27E+00	-9.73E+00	1.68E+00
		125.81		11.30	1.27E+00		3.74E-01	6.19E-01
	LU-172	181.53		20.60	2.16E+00	1.26E+00	1.37E-01	1.05E+00
		810.06		16.63	3.86E+00		-2.16E+00	1.77E+00
		912.12		15.25	7.93E+00		1.41E+01	3.77E+00
		1093.66		62.50	1.26E+00		-7.94E-01	5.71E-01
	LU-173	100.72		5.24	2.38E+00	9.22E-01	-1.56E+00	1.16E+00
		272.11		21.20	9.22E-01		1.79E-01	4.44E-01
	HF-175	343.40		84.00	2.61E-01	2.61E-01	3.94E-03	1.25E-01
	LU-176	88.34		13.30	1.22E+00	1.85E-01	1.56E+00	6.00E-01
		201.83		86.00	2.01E-01		5.13E-02	9.70E-02
		306.78		94.00	1.85E-01		1.79E-02	8.83E-02
	TA-182	67.75		41.20	3.36E-01	3.36E-01	-6.70E-01	1.65E-01
		1121.30		34.90	1.20E+00		5.86E-01	5.56E-01
		1189.05		16.23	2.22E+00		4.35E-01	1.01E+00
		1221.41		26.98	1.65E+00		7.48E-01	7.64E-01
		1231.02		11.44	3.13E+00		-4.24E+00	1.42E+00
	IR-192	308.46		29.68	6.66E-01	4.57E-01	4.11E-01	3.18E-01
		468.07		48.10	4.57E-01		-2.94E-01	2.14E-01
	HG-203	279.19		77.30	2.74E-01	2.74E-01	7.48E-02	1.31E-01
	BI-207	569.67		97.72	2.34E-01	2.34E-01	4.48E-03	1.09E-01
		1063.62		74.90	4.54E-01		1.20E-01	2.09E-01
+	TL-208	583.14	*	30.22	1.27E+00	1.27E+00	2.28E+00	6.12E-01
		860.37		4.48	6.50E+00		2.50E+00	3.00E+00
		2614.66		35.85	1.80E+00		0.00E+00	8.20E-01
	BI-210M	262.00		45.00	3.79E-01	3.79E-01	3.48E-02	1.82E-01
		300.00		23.00	9.37E-01		5.74E-01	4.51E-01
	PB-210	46.50		4.25	2.34E+00	2.34E+00	1.89E+00	1.14E+00
	PB-211	404.84		2.90	6.72E+00	6.72E+00	6.36E-01	3.18E+00
		831.96		2.90	9.98E+00		2.18E+00	4.62E+00
	BI-212	727.17		11.80	2.63E+00	2.63E+00	1.76E+00	1.24E+00
		1620.62		2.75	9.67E+00		3.38E+00	4.11E+00
+	PB-212	238.63	*	44.60	6.46E-01	6.46E-01	2.52E+00	3.16E-01
		300.09		3.41	6.32E+00		3.87E+00	3.05E+00
+	BI-214	609.31	*	46.30	9.18E-01	9.18E-01	1.66E+00	4.42E-01
		1120.29		15.10	2.68E+00		1.81E+00	1.25E+00
		1764.49	*	15.80	1.15E+00		1.47E+00	4.42E-01
		2204.22		4.98	7.55E+00		3.31E+00	3.27E+00
+	PB-214	295.21		19.19	1.21E+00	6.25E-01	1.85E+00	5.84E-01
		351.92	*	37.19	6.25E-01		1.21E+00	3.00E-01
	RN-219	401.80		6.50	3.08E+00	3.08E+00	5.14E-02	1.46E+00
	RA-223	323.87		3.88	4.75E+00	4.75E+00	-4.47E-01	2.26E+00
	RA-224	240.98		3.95	7.56E+00	7.56E+00	2.89E+01	3.70E+00
	RA-225	40.00		31.00	4.29E-01	4.29E-01	-2.67E-01	2.09E-01
	RA-226	186.21		3.28	5.78E+00	5.78E+00	7.63E+00	2.81E+00
	TH-227	50.10		8.40	1.19E+00	1.19E+00	-2.94E-02	5.83E-01
		236.00		11.50	2.35E+00		-2.50E-01	1.15E+00
		256.20		6.30	2.79E+00		1.56E+00	1.34E+00
+	AC-228	338.32	*	11.40	2.13E+00	1.23E+00	2.81E+00	1.02E+00
		911.07	*	27.70	1.23E+00		3.29E+00	5.74E-01
		969.11		16.60	2.32E+00		-2.79E-01	1.08E+00
	TH-230	48.44		16.90	5.95E-01	5.95E-01	3.01E-01	2.91E-01

Analysis Report for 1606064-08

CP-5014 09-15

	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	2.77E+00	5.95E-01	3.39E+00	1.36E+00
		67.67		0.37	3.54E+01		-7.05E+01	1.73E+01
	PA-231	283.67		1.60	1.09E+01	8.06E+00	-2.97E+00	5.21E+00
		302.67		2.30	8.06E+00		-1.37E+00	3.85E+00
	TH-231	25.64		14.70	5.46E-01	5.46E-01	9.50E-03	2.66E-01
		84.21		6.40	2.26E+00		-9.20E+00	1.11E+00
	PA-233	311.98		38.60	5.76E-01	5.76E-01	-5.63E-02	2.75E-01
	PA-234	131.20		20.40	7.18E-01	7.18E-01	1.14E-01	3.49E-01
		733.99		8.80	2.83E+00		1.53E-01	1.31E+00
		946.00		12.00	2.51E+00		1.37E+00	1.15E+00
	PA-234M	1001.03		0.92	3.31E+01	3.31E+01	5.42E+00	1.51E+01
+	TH-234	63.29	*	3.80	4.28E+00	4.28E+00	2.85E+00	2.10E+00
	U-235	143.76		10.50	1.41E+00	1.41E+00	4.29E-01	6.83E-01
		163.35		4.70	3.27E+00		1.68E+00	1.58E+00
		205.31		4.70	3.73E+00		-7.79E-01	1.81E+00
+	NP-237	86.50	*	12.60	1.32E+00	1.32E+00	7.84E-01	6.50E-01
	NP-239	106.10		22.70	8.64E+00	8.64E+00	4.52E-01	4.20E+00
		228.18		10.70	2.36E+01		-4.13E+00	1.14E+01
		277.60		14.10	2.00E+01		6.06E-01	9.61E+00
	AM-241	59.54		35.90	3.34E-01	3.34E-01	-3.91E-02	1.64E-01
	AM-243	74.67		66.00	2.75E-01	2.75E-01	1.16E+00	1.35E-01
	CM-243	209.75		3.29	5.59E+00	1.34E+00	-1.01E+00	2.71E+00
		228.14		10.60	1.61E+00		-9.60E-03	7.76E-01
		277.60		14.00	1.34E+00		4.05E-02	6.43E-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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

Analysis Report for 1606064-08

CP-5014 09-15

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-5014 09-15

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	9	82
17:	79	66	74	57	59	64	69	44
25:	59	53	52	51	50	55	47	42
33:	70	46	49	63	44	49	56	49
41:	59	62	57	66	80	61	84	63
49:	64	52	58	61	47	63	66	66
57:	60	75	79	70	87	90	122	88
65:	76	83	82	63	67	92	86	94
73:	117	196	197	200	214	136	67	64
81:	58	69	85	90	79	103	120	97
89:	89	102	88	118	124	80	51	46
97:	43	65	42	41	36	62	41	50
105:	57	44	58	59	39	51	40	55
113:	49	39	52	43	29	41	43	48
121:	36	46	43	64	40	42	44	51
129:	59	54	44	34	49	46	46	36
137:	45	36	38	44	33	43	53	44
145:	41	42	38	34	38	43	39	43
153:	42	45	44	26	32	47	38	41
161:	38	34	37	38	40	32	35	26
169:	23	40	31	39	43	29	31	37
177:	31	28	43	37	33	29	40	40
185:	73	60	55	42	32	44	31	22
193:	28	32	41	38	45	37	38	42
201:	36	22	24	27	27	29	27	48
209:	60	47	23	24	33	32	30	38
217:	27	31	28	27	30	29	29	20
225:	24	24	19	31	28	40	20	21
233:	28	23	22	35	97	190	133	68
241:	53	49	29	21	20	22	23	20
249:	15	31	20	23	26	21	21	19
257:	27	26	15	25	21	10	15	19
265:	24	19	21	17	30	29	31	28
273:	20	23	21	25	28	21	20	15
281:	26	20	15	13	22	13	20	14
289:	18	18	23	16	20	51	57	39
297:	19	20	31	24	18	10	12	20
305:	14	16	19	17	20	13	18	15
313:	10	16	11	18	14	15	13	10
321:	14	17	15	14	18	19	23	19
329:	17	16	11	17	13	13	19	10
337:	40	51	38	18	10	18	13	14
345:	18	7	16	4	17	38	71	49
353:	27	19	13	17	14	16	13	18
361:	10	13	12	18	16	14	13	10

369:	9	12	10	15	15	12	13	13

Sample Title: CP-5014 09-15

Channel								
377:	17	14	6	14	15	3	17	11
385:	14	14	13	19	14	18	10	18
393:	13	20	15	9	16	10	13	8
401:	13	16	14	5	16	13	8	10
409:	10	11	7	8	13	11	10	13
417:	12	10	14	7	10	8	5	9
425:	10	10	12	11	7	8	14	9
433:	13	12	10	8	18	7	8	12
441:	7	11	4	9	12	8	11	7
449:	12	12	13	8	8	6	9	11
457:	7	8	10	8	14	14	15	6
465:	13	8	12	5	7	13	10	8
473:	11	10	11	5	5	11	5	10
481:	15	11	9	8	10	11	8	9
489:	11	9	12	9	6	8	12	7
497:	12	4	4	11	9	11	5	12
505:	9	9	9	15	28	33	37	26
513:	9	7	8	12	7	7	8	8
521:	7	9	2	8	9	7	10	7
529:	9	5	4	9	7	6	9	8
537:	6	7	10	10	10	6	7	9
545:	10	6	8	6	5	4	9	8
553:	5	7	6	12	10	8	6	8
561:	7	8	12	5	6	7	9	4
569:	9	6	18	9	3	6	8	8
577:	7	9	11	10	20	38	57	29
585:	10	11	4	6	7	8	6	4
593:	2	6	5	5	8	7	5	12
601:	5	10	10	8	7	7	20	39
609:	55	36	4	9	13	8	7	7
617:	6	9	10	4	11	7	8	4
625:	9	10	10	6	4	7	3	6
633:	6	9	6	8	5	5	5	6
641:	7	7	5	3	11	5	7	17
649:	8	6	6	5	10	4	3	7
657:	1	2	7	3	9	7	11	7
665:	9	6	5	7	5	8	0	10
673:	7	2	3	5	8	5	3	6
681:	5	3	5	4	2	7	7	6
689:	10	5	8	9	10	8	5	7
697:	5	6	0	10	7	6	4	7
705:	8	5	3	3	6	7	7	4
713:	3	8	2	6	4	4	6	8
721:	5	6	8	5	6	15	13	13
729:	8	10	4	2	3	11	6	1
737:	5	8	2	6	8	5	13	3
745:	6	10	9	5	3	5	9	6
753:	3	10	6	6	5	8	7	3
761:	5	3	5	4	10	5	5	10
769:	7	5	9	5	8	3	7	1
777:	6	6	4	4	8	8	7	7
785:	8	3	3	3	3	4	7	6
793:	9	12	7	8	8	6	6	2

801:	4	5	5	4	6	7	2	5

Sample Title: CP-5014 09-15

Channel								
809:	2	3	7	3	5	6	8	6
817:	9	2	1	4	7	4	6	10
825:	7	2	6	5	3	3	11	3
833:	4	7	9	8	5	6	4	6
841:	4	2	5	12	3	2	5	3
849:	4	7	2	8	4	1	3	5
857:	8	3	7	9	5	5	4	4
865:	6	8	1	5	5	1	2	6
873:	1	3	4	2	4	3	4	9
881:	4	2	1	2	2	1	5	4
889:	4	3	6	5	7	1	5	4
897:	2	0	5	5	4	1	5	6
905:	2	2	5	6	9	24	34	22
913:	9	3	7	7	3	4	1	6
921:	7	6	2	6	6	3	5	4
929:	5	3	8	3	6	5	6	6
937:	2	4	2	3	3	4	5	5
945:	6	5	7	1	8	3	3	3
953:	3	7	2	3	7	2	4	5
961:	5	12	6	8	4	3	6	18
969:	23	7	3	4	3	6	4	4
977:	3	1	1	6	2	3	2	3
985:	0	2	2	2	1	3	4	2
993:	4	1	4	3	1	6	2	5
1001:	8	2	7	5	4	4	5	6
1009:	4	5	4	2	5	2	5	6
1017:	4	2	5	3	5	3	5	3
1025:	3	4	4	4	1	3	2	3
1033:	0	5	2	9	7	4	2	2
1041:	3	2	4	6	9	4	3	2
1049:	3	7	4	3	2	5	4	2
1057:	3	4	6	9	1	3	9	4
1065:	5	2	6	1	3	2	3	5
1073:	6	2	4	4	7	7	4	5
1081:	7	2	0	6	1	5	3	7
1089:	2	7	2	5	1	5	3	3
1097:	5	9	4	6	7	3	0	4
1105:	4	12	3	2	5	5	2	2
1113:	2	4	5	6	3	2	16	13
1121:	8	4	3	4	3	6	2	3
1129:	4	1	2	3	4	4	9	3
1137:	5	2	2	3	3	3	3	5
1145:	3	3	5	4	5	0	8	2
1153:	4	6	6	7	11	3	2	5
1161:	5	4	5	6	3	9	2	6
1169:	4	7	4	1	2	2	3	5
1177:	4	1	6	1	3	2	6	4
1185:	3	2	2	8	3	3	6	3
1193:	6	3	3	2	1	3	4	6
1201:	6	4	3	5	6	2	4	4
1209:	5	5	5	3	4	5	5	4
1217:	3	8	6	7	5	3	7	7
1225:	8	3	5	3	3	5	3	2

1233:	4	7	1	8	13	8	11	2

Sample Title: CP-5014 09-15

Channel								
1241:	1	6	2	4	2	3	2	1
1249:	2	2	3	4	2	3	2	3
1257:	3	1	2	3	2	2	1	1
1265:	2	1	1	3	2	4	1	4
1273:	3	4	3	4	4	4	4	5
1281:	7	2	4	3	2	4	2	3
1289:	4	1	2	3	2	2	5	2
1297:	1	2	6	3	0	1	1	4
1305:	5	2	1	3	2	1	1	3
1313:	3	1	2	6	0	2	2	2
1321:	4	6	4	2	3	2	2	1
1329:	0	1	3	2	2	1	2	2
1337:	3	1	2	1	1	2	2	3
1345:	1	3	4	3	2	1	4	1
1353:	4	4	0	1	0	2	0	4
1361:	2	1	2	4	1	0	0	2
1369:	3	1	1	0	0	3	3	2
1377:	5	2	1	3	1	3	1	0
1385:	3	3	4	3	2	1	2	1
1393:	0	0	2	3	1	1	1	2
1401:	1	1	3	3	2	2	2	1
1409:	2	1	1	2	1	2	0	2
1417:	1	1	0	0	0	1	1	1
1425:	0	1	2	0	3	0	4	1
1433:	1	1	4	3	0	0	1	0
1441:	0	3	1	1	0	1	0	0
1449:	0	0	2	2	1	3	2	1
1457:	5	14	49	66	66	34	7	2
1465:	1	0	0	1	1	2	0	0
1473:	2	0	0	5	3	1	4	1
1481:	2	0	0	2	2	2	2	1
1489:	1	1	3	0	0	2	3	2
1497:	1	2	2	2	0	0	2	1
1505:	1	0	1	0	0	0	4	1
1513:	1	0	2	1	1	2	2	0
1521:	3	0	1	0	1	1	1	1
1529:	1	1	0	1	0	0	0	1
1537:	2	0	2	0	2	0	1	0
1545:	0	0	1	0	1	3	1	0
1553:	0	2	0	0	1	0	0	0
1561:	1	0	0	2	0	2	1	2
1569:	1	2	0	1	0	1	0	0
1577:	1	0	1	1	0	4	1	1
1585:	2	2	0	2	0	2	1	6
1593:	0	0	3	3	1	0	0	0
1601:	0	0	3	0	1	1	2	0
1609:	1	1	1	0	0	0	1	0
1617:	0	1	3	2	1	1	1	0
1625:	2	1	1	0	1	1	0	0
1633:	1	0	1	2	1	1	1	0
1641:	0	1	1	0	2	0	0	2
1649:	0	1	0	1	1	0	0	0
1657:	1	0	2	0	0	0	0	1

1665:	0	0	1	0	1	1	0	0

Sample Title: CP-5014 09-15

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

2097:	2	1	0	0	1	4	1	5

Sample Title: CP-5014 09-15

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

2529:	0	0	0	0	0	0	0	0

Sample Title: CP-5014 09-15

Channel								
2537:	0	0	0	1	0	0	0	0
2545:	0	0	0	0	0	0	0	0
2553:	0	0	0	0	0	0	0	0
2561:	0	0	0	2	0	0	0	0
2569:	0	0	0	0	0	1	0	0
2577:	0	1	0	0	1	0	0	0
2585:	0	1	0	0	0	0	0	0
2593:	0	0	1	0	0	0	0	0
2601:	0	0	0	0	0	0	0	0
2609:	0	2	0	2	10	7	10	5
2617:	0	0	0	0	0	0	0	1
2625:	0	0	0	0	1	2	0	1
2633:	0	1	0	0	0	0	0	0
2641:	0	1	0	1	2	0	0	0
2649:	0	0	0	1	0	0	0	0
2657:	0	2	0	0	1	0	0	1
2665:	2	0	0	0	0	0	0	0
2673:	1	0	0	0	0	0	0	1
2681:	0	0	0	0	0	0	0	0
2689:	0	0	0	1	0	0	0	0
2697:	1	1	0	0	0	0	0	1
2705:	1	0	1	0	0	0	0	1
2713:	0	0	0	0	1	0	0	1
2721:	0	0	0	0	0	0	0	0
2729:	0	0	0	0	1	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	0	1	0	0	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	0	0	0	0	0
2769:	0	0	0	0	1	0	0	0
2777:	0	0	0	0	0	1	0	0
2785:	0	2	1	0	0	1	0	1
2793:	0	0	0	1	0	0	1	0
2801:	0	0	0	0	0	0	0	0
2809:	0	1	0	0	1	0	0	0
2817:	0	1	0	1	0	0	1	0
2825:	0	0	0	1	0	0	1	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	1	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	1	0	0	0	0	0
2873:	0	1	0	0	0	1	1	0
2881:	0	0	0	1	1	0	1	0
2889:	0	0	0	0	0	0	1	1
2897:	1	0	0	0	0	1	0	0
2905:	0	0	0	0	0	1	0	0
2913:	0	0	0	0	0	0	0	0
2921:	1	0	0	0	0	1	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	0	0

2961:	0	0	1	0	0	1	0	0

Sample Title: CP-5014 09-15

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

3393:	0	0	0	0	0	2	1	0

Sample Title: CP-5014 09-15

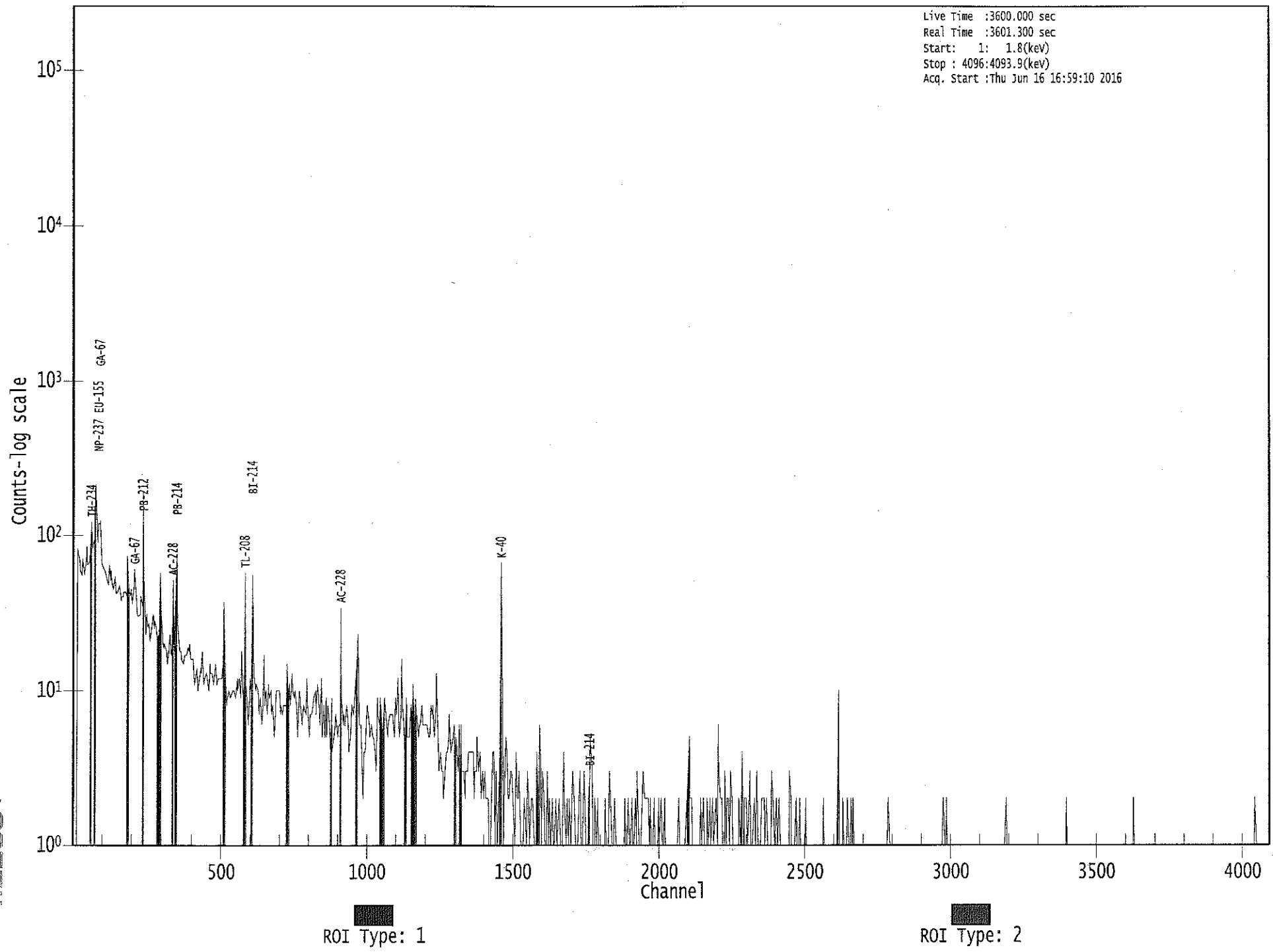
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	1	0	0	0	0	0
3417:	0	0	0	0	1	0	0	0
3425:	0	0	0	0	0	0	0	1
3433:	0	0	0	0	0	0	0	1
3441:	0	0	0	0	0	1	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	1	0	1
3465:	1	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	1	0	0	0	0	0	0	0
3497:	0	1	1	0	0	0	0	0
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:	0	0	0	1	1	0	0	0
3537:	0	0	0	0	0	0	0	0
3545:	0	0	0	0	0	0	1	0
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	0	0	0	0	0	0
3577:	0	0	0	0	0	0	0	0
3585:	0	0	0	0	0	0	0	0
3593:	0	0	0	0	0	0	1	0
3601:	0	1	0	0	0	1	0	0
3609:	1	0	0	0	0	0	0	1
3617:	0	0	0	0	0	0	0	0
3625:	0	2	0	0	0	0	0	0
3633:	0	1	0	0	0	0	0	0
3641:	0	0	0	0	0	0	1	0
3649:	0	0	0	1	0	0	0	0
3657:	0	0	0	0	1	0	0	0
3665:	1	0	0	1	1	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	0	0	0	0	0	0	0	1
3689:	0	0	0	0	0	0	1	0
3697:	0	0	0	0	0	1	1	0
3705:	0	0	0	0	0	0	0	0
3713:	0	1	0	1	0	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	1	0	0	0	0	0
3745:	0	1	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	1	0	0	0	0	0
3777:	1	0	0	0	1	0	0	0
3785:	1	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:	1	0	0	0	0	1	0	1

Sample Title: CP-5014 09-15

Channel								
3833:	0	0	0	0	0	0	1	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	1	0	0	0	0
3857:	0	1	0	0	0	0	0	0
3865:	0	0	0	0	0	0	1	0
3873:	1	1	1	0	0	0	1	0
3881:	0	1	0	0	0	1	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	1	0	0	0	0	0	0
3921:	0	0	0	0	0	0	0	0
3929:	0	0	0	0	0	0	0	0
3937:	0	0	0	0	1	0	0	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	0	0	0
3977:	0	0	0	0	1	0	0	0
3985:	0	0	0	1	0	0	0	0
3993:	0	0	1	0	0	0	0	0
4001:	0	0	0	1	0	0	0	0
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	1	0	0
4025:	0	0	0	0	1	0	0	0
4033:	0	0	0	1	0	0	0	0
4041:	0	0	2	1	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	0	0	0	0	1	0
4073:	1	0	0	0	0	0	0	0
4081:	0	0	0	0	1	1	0	0
4089:	0	0	0	0	0	0	0	0

0000039036.CNF



Apex-Gamma

Analysis Report for 1606064-09
CP-5015 00-02

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1606064-09
Sample Description	: CP-5015 00-02
Sample Type	: SOIL
Sample Size	: 5.852E+02 grams
Facility	: Countroom
Sample Taken On	: 6/7/2016 12:19:22PM
Acquisition Started	: 6/16/2016 5:09:51PM
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	: 39038

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606064-09

CP-5015 00-02

PEAK LOCATE REPORT

Peak Locate Performed on : 6/16/2016 6:09:56PM
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	12.96	13.09	0.0000	0.00
2	46.82	46.92	0.0000	0.00
3	63.53	63.62	0.0000	0.00
4	76.30	76.38	0.0000	0.00
5	86.38	86.46	0.0000	0.00
6	129.12	129.18	0.0000	0.00
7	186.19	186.22	0.0000	0.00
8	210.33	210.34	0.0000	0.00
9	218.64	218.64	0.0000	0.00
10	239.03	239.03	0.0000	0.00
11	270.64	270.62	0.0000	0.00
12	277.28	277.26	0.0000	0.00
13	293.17	293.14	0.0000	0.00
14	300.17	300.14	0.0000	0.00
15	327.85	327.80	0.0000	0.00
16	338.63	338.58	0.0000	0.00
17	352.16	352.10	0.0000	0.00
18	408.94	408.84	0.0000	0.00
19	463.00	462.88	0.0000	0.00
20	510.52	510.37	0.0000	0.00
21	583.50	583.32	0.0000	0.00
22	609.76	609.57	0.0000	0.00
23	727.98	727.73	0.0000	0.00
24	795.53	795.25	0.0000	0.00
25	808.67	808.38	0.0000	0.00
26	860.77	860.46	0.0000	0.00
27	911.71	911.38	0.0000	0.00
28	934.85	934.51	0.0000	0.00
29	964.84	964.49	0.0000	0.00
30	969.49	969.14	0.0000	0.00
31	1120.39	1119.98	0.0000	0.00
32	1238.68	1238.23	0.0000	0.00
33	1381.48	1380.98	0.0000	0.00
34	1402.20	1401.69	0.0000	0.00
35	1457.52	1457.00	0.0000	0.00
36	1461.62	1461.10	0.0000	0.00
37	1512.40	1511.86	0.0000	0.00
38	1582.45	1581.90	0.0000	0.00
39	1588.66	1588.10	0.0000	0.00
40	1618.33	1617.76	0.0000	0.00
41	1630.82	1630.25	0.0000	0.00
42	1676.06	1675.48	0.0000	0.00

Analysis Report for 1606064-09

CP-5015 00-02

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1722.78	1722.18	0.0000	0.00
44	1731.95	1731.36	0.0000	0.00
45	1765.53	1764.92	0.0000	0.00
46	1872.06	1871.43	0.0000	0.00
47	1906.24	1905.61	0.0000	0.00
48	1957.48	1956.83	0.0000	0.00
49	2103.64	2102.96	0.0000	0.00
50	2204.84	2204.14	0.0000	0.00
51	2615.51	2614.77	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606064-09

CP-5015 00-02

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/16/2016 6:09:56PM

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	12.96	12 -	15	13.09	1.71E+03	120.62	2.01E+03	1.02
	2	46.82	44 -	49	46.92	9.36E+01	66.39	8.11E+02	1.01
M	3	63.53	59 -	80	63.62	2.11E+02	99.58	1.49E+03	2.60
m	4	76.30	59 -	80	76.38	1.00E+03	116.79	1.49E+03	2.60
	5	86.38	83 -	89	86.46	1.31E+02	94.23	1.54E+03	1.60
	6	129.12	127 -	132	129.18	6.41E+01	63.76	7.66E+02	1.26
	7	186.19	181 -	188	186.22	1.54E+02	77.67	9.01E+02	1.66
	8	210.33	207 -	214	210.34	1.18E+02	64.44	6.08E+02	1.72
	9	218.64	215 -	222	218.64	5.99E+01	61.02	5.82E+02	2.88
	10	239.03	236 -	242	239.03	6.69E+02	91.26	1.04E+03	1.13
	11	270.64	266 -	274	270.62	1.21E+02	59.89	4.78E+02	2.10
	12	277.28	275 -	280	277.26	4.07E+01	42.79	3.35E+02	1.74
M	13	293.17	292 -	304	293.14	2.24E+01	17.75	8.44E+01	1.49
m	14	300.17	292 -	304	300.14	3.12E+01	33.16	2.22E+02	1.50
	15	327.85	325 -	331	327.80	6.55E+01	44.93	3.21E+02	1.18
	16	338.63	334 -	344	338.58	1.66E+02	69.25	5.39E+02	1.81
	17	352.16	348 -	354	352.10	4.00E+02	56.50	2.93E+02	1.18
	18	408.94	406 -	411	408.84	3.59E+01	31.80	1.68E+02	2.14
	19	463.00	459 -	466	462.88	6.32E+01	35.55	1.70E+02	1.59
	20	510.52	500 -	515	510.37	1.54E+02	67.50	4.01E+02	1.68
	21	583.50	580 -	587	583.32	2.11E+02	45.48	2.03E+02	1.67
	22	609.76	605 -	615	609.57	2.97E+02	54.73	2.38E+02	1.97
	23	727.98	723 -	733	727.73	8.81E+01	38.27	1.48E+02	2.27
	24	795.53	792 -	798	795.25	3.71E+01	25.35	8.79E+01	1.37
	25	808.67	803 -	813	808.38	2.59E+01	32.83	1.24E+02	2.08
	26	860.77	856 -	864	860.46	4.01E+01	30.37	1.18E+02	1.68
	27	911.71	905 -	915	911.38	1.59E+02	36.64	9.55E+01	2.11
	28	934.85	932 -	937	934.51	1.46E+01	19.21	6.07E+01	1.90
M	29	964.84	961 -	977	964.49	4.67E+01	26.68	6.77E+01	2.65
m	30	969.49	961 -	977	969.14	8.02E+01	26.32	6.61E+01	2.03
	31	1120.39	1114 -	1125	1119.98	8.58E+01	36.11	1.20E+02	1.92
	32	1238.68	1235 -	1242	1238.23	2.90E+01	28.07	1.12E+02	2.23
	33	1381.48	1371 -	1390	1380.98	3.91E+01	31.56	6.97E+01	10.43
	34	1402.20	1399 -	1406	1401.69	1.30E+01	14.14	2.61E+01	1.18
M	35	1457.52	1456 -	1470	1457.00	1.08E+01	6.22	8.94E+00	2.31
m	36	1461.62	1456 -	1470	1461.10	6.90E+02	52.75	9.34E+00	2.07
	37	1512.40	1507 -	1518	1511.86	1.75E+01	17.55	2.91E+01	6.95
	38	1582.45	1578 -	1586	1581.90	1.06E+01	12.69	1.88E+01	3.39
	39	1588.66	1586 -	1590	1588.10	1.74E+01	11.28	1.31E+01	1.40
	40	1618.33	1612 -	1622	1617.76	2.31E+01	16.03	2.17E+01	1.80

Analysis Report for 1606064-09

CP-5015 00-02

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1630.82	1626 -	1634	1630.25	9.50E+00	9.82	9.00E+00	1.31
42	1676.06	1673 -	1677	1675.48	4.75E+00	5.50	2.50E+00	1.79
43	1722.78	1719 -	1727	1722.18	9.00E+00	9.82	1.00E+01	1.93
44	1731.95	1727 -	1737	1731.36	1.51E+01	13.22	1.19E+01	2.28
45	1765.53	1761 -	1770	1764.92	6.00E+01	16.64	6.00E+00	2.31
46	1872.06	1866 -	1876	1871.43	8.50E+00	10.79	1.10E+01	5.56
47	1906.24	1903 -	1909	1905.61	4.93E+00	6.34	4.14E+00	1.10
48	1957.48	1954 -	1959	1956.83	6.00E+00	4.90	0.00E+00	1.98
49	2103.64	2099 -	2106	2102.96	1.71E+01	9.59	3.84E+00	4.98
50	2204.84	2200 -	2207	2204.14	1.92E+01	11.14	7.57E+00	2.02
51	2615.51	2610 -	2618	2614.77	9.00E+01	18.97	0.00E+00	2.84

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 : 6/16/2016 6:09:56PM

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	12.96	12 -	15	1.71E+03	120.62	2.01E+03	8.16E+01
	2	46.82	44 -	49	9.36E+01	66.39	8.11E+02	5.22E+01
M	3	63.53	59 -	80	2.11E+02	99.58	1.49E+03	6.36E+01
m	4	76.30	59 -	80	1.00E+03	116.79	1.49E+03	6.35E+01
	5	86.38	83 -	89	1.31E+02	94.23	1.54E+03	7.51E+01
	6	129.12	127 -	132	6.41E+01	63.76	7.66E+02	5.07E+01
	7	186.19	181 -	188	1.54E+02	77.67	9.01E+02	6.05E+01
	8	210.33	207 -	214	1.18E+02	64.44	6.08E+02	4.99E+01
	9	218.64	215 -	222	5.99E+01	61.02	5.82E+02	4.85E+01
	10	239.03	236 -	242	6.69E+02	91.26	1.04E+03	6.18E+01
	11	270.64	266 -	274	1.21E+02	59.89	4.78E+02	4.58E+01
	12	277.28	275 -	280	4.07E+01	42.79	3.35E+02	3.36E+01
M	13	293.17	292 -	304	2.24E+01	17.75	8.44E+01	1.51E+01
m	14	300.17	292 -	304	3.12E+01	33.16	2.22E+02	2.45E+01
	15	327.85	325 -	331	6.55E+01	44.93	3.21E+02	3.45E+01
	16	338.63	334 -	344	1.66E+02	69.25	5.39E+02	5.28E+01
	17	352.16	348 -	354	4.00E+02	56.50	2.93E+02	3.28E+01

Analysis Report for 1606064-09

CP-5015 00-02

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	18	408.94	406 -	411	3.59E+01	31.80	1.68E+02	2.42E+01
	19	463.00	459 -	466	6.32E+01	35.55	1.70E+02	2.61E+01
	20	510.52	500 -	515	1.54E+02	67.50	4.01E+02	2.18E+01
	21	583.50	580 -	587	2.11E+02	45.48	2.03E+02	2.87E+01
	22	609.76	605 -	615	2.97E+02	54.73	2.38E+02	3.50E+01
	23	727.98	723 -	733	8.81E+01	38.27	1.48E+02	2.74E+01
	24	795.53	792 -	798	3.71E+01	25.35	8.79E+01	1.83E+01
	25	808.67	803 -	813	2.59E+01	32.83	1.24E+02	2.57E+01
	26	860.77	856 -	864	4.01E+01	30.37	1.18E+02	2.27E+01
	27	911.71	905 -	915	1.59E+02	36.64	9.55E+01	2.18E+01
	28	934.85	932 -	937	1.46E+01	19.21	6.07E+01	1.45E+01
M	29	964.84	961 -	977	4.67E+01	26.68	6.77E+01	1.35E+01
m	30	969.49	961 -	977	8.02E+01	26.32	6.61E+01	1.34E+01
	31	1120.39	1114 -	1125	8.58E+01	36.11	1.20E+02	2.55E+01
	32	1238.68	1235 -	1242	2.90E+01	28.07	1.12E+02	2.13E+01
	33	1381.48	1371 -	1390	3.91E+01	31.56	6.97E+01	2.38E+01
	34	1402.20	1399 -	1406	1.30E+01	14.14	2.61E+01	1.00E+01
M	35	1457.52	1456 -	1470	1.08E+01	6.22	8.94E+00	4.92E+00
m	36	1461.62	1456 -	1470	6.90E+02	52.75	9.34E+00	5.02E+00
	37	1512.40	1507 -	1518	1.75E+01	17.55	2.91E+01	1.27E+01
	38	1582.45	1578 -	1586	1.06E+01	12.69	1.88E+01	8.95E+00
	39	1588.66	1586 -	1590	1.74E+01	11.28	1.31E+01	6.23E+00
	40	1618.33	1612 -	1622	2.31E+01	16.03	2.17E+01	1.05E+01
	41	1630.82	1626 -	1634	9.50E+00	9.82	9.00E+00	6.29E+00
	42	1676.06	1673 -	1677	4.75E+00	5.50	2.50E+00	2.76E+00
	43	1722.78	1719 -	1727	9.00E+00	9.82	1.00E+01	6.39E+00
	44	1731.95	1727 -	1737	1.51E+01	13.22	1.19E+01	8.79E+00
	45	1765.53	1761 -	1770	6.00E+01	16.64	6.00E+00	5.00E+00
	46	1872.06	1866 -	1876	8.50E+00	10.79	1.10E+01	7.47E+00
	47	1906.24	1903 -	1909	4.93E+00	6.34	4.14E+00	3.73E+00
	48	1957.48	1954 -	1959	6.00E+00	4.90	0.00E+00	0.00E+00
	49	2103.64	2099 -	2106	1.71E+01	9.59	3.84E+00	4.00E+00
	50	2204.84	2200 -	2207	1.92E+01	11.14	7.57E+00	5.64E+00
	51	2615.51	2610 -	2618	9.00E+01	18.97	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 1606064-09

CP-5015 00-02

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/16/2016 6:09:56PM

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	12.96	12 -	15	13.09	1.71E+03	120.62	2.01E+03	.....
	2	46.82	44 -	49	46.92	9.36E+01	66.39	8.11E+02	PB-210
M	3	63.53	59 -	80	63.62	2.11E+02	99.58	1.49E+03	TH-234
									TH-230
m	4	76.30	59 -	80	76.38	1.00E+03	116.79	1.49E+03	.....
	5	86.38	83 -	89	86.46	1.31E+02	94.23	1.54E+03	EU-155
									NP-237
	6	129.12	127 -	132	129.18	6.41E+01	63.76	7.66E+02	.....
	7	186.19	181 -	188	186.22	1.54E+02	77.67	9.01E+02	RA-226
	8	210.33	207 -	214	210.34	1.18E+02	64.44	6.08E+02	CM-243
	9	218.64	215 -	222	218.64	5.99E+01	61.02	5.82E+02	.....
	10	239.03	236 -	242	239.03	6.69E+02	91.26	1.04E+03	PB-212
	11	270.64	266 -	274	270.62	1.21E+02	59.89	4.78E+02	.....
	12	277.28	275 -	280	277.26	4.07E+01	42.79	3.35E+02	CM-243
									NP-239
M	13	293.17	292 -	304	293.14	2.24E+01	17.75	8.44E+01	CE-143
m	14	300.17	292 -	304	300.14	3.12E+01	33.16	2.22E+02	GA-67
									PB-212
									BI-210M
	15	327.85	325 -	331	327.80	6.55E+01	44.93	3.21E+02	LA-140
	16	338.63	334 -	344	338.58	1.66E+02	69.25	5.39E+02	AC-228
	17	352.16	348 -	354	352.10	4.00E+02	56.50	2.93E+02	PB-214
	18	408.94	406 -	411	408.84	3.59E+01	31.80	1.68E+02	.....
	19	463.00	459 -	466	462.88	6.32E+01	35.55	1.70E+02	SB-125
	20	510.52	500 -	515	510.37	1.54E+02	67.50	4.01E+02	.....
	21	583.50	580 -	587	583.32	2.11E+02	45.48	2.03E+02	TL-208
	22	609.76	605 -	615	609.57	2.97E+02	54.73	2.38E+02	BI-214
	23	727.98	723 -	733	727.73	8.81E+01	38.27	1.48E+02	BI-212
	24	795.53	792 -	798	795.25	3.71E+01	25.35	8.79E+01	CS-134
	25	808.67	803 -	813	808.38	2.59E+01	32.83	1.24E+02	.....
	26	860.77	856 -	864	860.46	4.01E+01	30.37	1.18E+02	TL-208
	27	911.71	905 -	915	911.38	1.59E+02	36.64	9.55E+01	LU-172
									AC-228
	28	934.85	932 -	937	934.51	1.46E+01	19.21	6.07E+01	.....
M	29	964.84	961 -	977	964.49	4.67E+01	26.68	6.77E+01	EU-152
m	30	969.49	961 -	977	969.14	8.02E+01	26.32	6.61E+01	AC-228
	31	1120.39	1114 -	1125	1119.98	8.58E+01	36.11	1.20E+02	BI-214
									SC-46
									TA-182
	32	1238.68	1235 -	1242	1238.23	2.90E+01	28.07	1.12E+02	CO-56
	33	1381.48	1371 -	1390	1380.98	3.91E+01	31.56	6.97E+01	.....

Analysis Report for 1606064-09

CP-5015 00-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	34	1402.20	1399 -	1406	1401.69	1.30E+01	14.14	2.61E+01	.....
M	35	1457.52	1456 -	1470	1457.00	1.08E+01	6.22	8.94E+00	.....
m	36	1461.62	1456 -	1470	1461.10	6.90E+02	52.75	9.34E+00	K-40
	37	1512.40	1507 -	1518	1511.86	1.75E+01	17.55	2.91E+01	.....
	38	1582.45	1578 -	1586	1581.90	1.06E+01	12.69	1.88E+01	.....
	39	1588.66	1586 -	1590	1588.10	1.74E+01	11.28	1.31E+01	.....
	40	1618.33	1612 -	1622	1617.76	2.31E+01	16.03	2.17E+01	.....
	41	1630.82	1626 -	1634	1630.25	9.50E+00	9.82	9.00E+00	.....
	42	1676.06	1673 -	1677	1675.48	4.75E+00	5.50	2.50E+00	.....
	43	1722.78	1719 -	1727	1722.18	9.00E+00	9.82	1.00E+01	.....
	44	1731.95	1727 -	1737	1731.36	1.51E+01	13.22	1.19E+01	.....
	45	1765.53	1761 -	1770	1764.92	6.00E+01	16.64	6.00E+00	.....
	46	1872.06	1866 -	1876	1871.43	8.50E+00	10.79	1.10E+01	.....
	47	1906.24	1903 -	1909	1905.61	4.93E+00	6.34	4.14E+00	.....
	48	1957.48	1954 -	1959	1956.83	6.00E+00	4.90	0.00E+00	.....
	49	2103.64	2099 -	2106	2102.96	1.71E+01	9.59	3.84E+00	.....
	50	2204.84	2200 -	2207	2204.14	1.92E+01	11.14	7.57E+00	BI-214
	51	2615.51	2610 -	2618	2614.77	9.00E+01	18.97	0.00E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 6/16/2016 6:09:56PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	12.96	1.71E+03	120.62	1.22E-05	1.66E-03
	2	46.82	9.36E+01	66.39	1.72E-02	1.66E-03
M	3	63.53	2.11E+02	99.58	2.37E-02	1.75E-03
m	4	76.30	1.00E+03	116.79	2.56E-02	2.02E-03
	5	86.38	1.31E+02	94.23	2.60E-02	2.24E-03
	6	129.12	6.41E+01	63.76	2.39E-02	2.29E-03
	7	186.19	1.54E+02	77.67	1.99E-02	2.40E-03
	8	210.33	1.18E+02	64.44	1.85E-02	2.36E-03
	9	218.64	5.99E+01	61.02	1.80E-02	2.34E-03
	10	239.03	6.69E+02	91.26	1.70E-02	2.31E-03
	11	270.64	1.21E+02	59.89	1.56E-02	2.26E-03
	12	277.28	4.07E+01	42.79	1.54E-02	2.24E-03

Analysis Report for 1606064-09

CP-5015 00-02

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	13	293.17	2.24E+01	17.75	1.48E-02	2.22E-03
m	14	300.17	3.12E+01	33.16	1.45E-02	2.21E-03
	15	327.85	6.55E+01	44.93	1.37E-02	2.16E-03
	16	338.63	1.66E+02	69.25	1.33E-02	2.14E-03
	17	352.16	4.00E+02	56.50	1.30E-02	2.12E-03
	18	408.94	3.59E+01	31.80	1.16E-02	1.96E-03
	19	463.00	6.32E+01	35.55	1.05E-02	1.68E-03
	20	510.52	1.54E+02	67.50	9.77E-03	1.43E-03
	21	583.50	2.11E+02	45.48	8.79E-03	1.06E-03
	22	609.76	2.97E+02	54.73	8.48E-03	9.20E-04
	23	727.98	8.81E+01	38.27	7.34E-03	7.37E-04
	24	795.53	3.71E+01	25.35	6.82E-03	8.24E-04
	25	808.67	2.59E+01	32.83	6.73E-03	8.41E-04
	26	860.77	4.01E+01	30.37	6.39E-03	9.08E-04
	27	911.71	1.59E+02	36.64	6.09E-03	9.28E-04
	28	934.85	1.46E+01	19.21	5.97E-03	8.81E-04
M	29	964.84	4.67E+01	26.68	5.81E-03	8.20E-04
m	30	969.49	8.02E+01	26.32	5.79E-03	8.11E-04
	31	1120.39	8.58E+01	36.11	5.15E-03	5.06E-04
	32	1238.68	2.90E+01	28.07	4.77E-03	3.84E-04
	33	1381.48	3.91E+01	31.56	4.40E-03	3.66E-04
	34	1402.20	1.30E+01	14.14	4.35E-03	3.68E-04
M	35	1457.52	1.08E+01	6.22	4.24E-03	3.72E-04
m	36	1461.62	6.90E+02	52.75	4.23E-03	3.72E-04
	37	1512.40	1.75E+01	17.55	4.13E-03	3.76E-04
	38	1582.45	1.06E+01	12.69	4.02E-03	3.82E-04
	39	1588.66	1.74E+01	11.28	4.01E-03	3.82E-04
	40	1618.33	2.31E+01	16.03	3.96E-03	3.84E-04
	41	1630.82	9.50E+00	9.82	3.94E-03	3.85E-04
	42	1676.06	4.75E+00	5.50	3.88E-03	3.89E-04
	43	1722.78	9.00E+00	9.82	3.82E-03	3.92E-04
	44	1731.95	1.51E+01	13.22	3.81E-03	3.93E-04
	45	1765.53	6.00E+01	16.64	3.77E-03	3.96E-04
	46	1872.06	8.50E+00	10.79	3.66E-03	4.01E-04
	47	1906.24	4.93E+00	6.34	3.63E-03	4.01E-04
	48	1957.48	6.00E+00	4.90	3.59E-03	4.01E-04
	49	2103.64	1.71E+01	9.59	3.50E-03	4.01E-04
	50	2204.84	1.92E+01	11.14	3.45E-03	4.01E-04
	51	2615.51	9.00E+01	18.97	3.40E-03	4.01E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 6/16/2016 6:09:56PM

Analysis Report for 1606064-09

CP-5015 00-02

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	12.96	1.71E+03	120.62			1.71E+03	1.21E+02
	2	46.82	9.36E+01	66.39	2.17E+01	5.74E+00	7.18E+01	6.66E+01
M	3	63.53	2.11E+02	99.58	2.91E+01	8.34E+00	1.82E+02	9.99E+01
m	4	76.30	1.00E+03	116.79			1.00E+03	1.17E+02
	5	86.38	1.31E+02	94.23			1.31E+02	9.42E+01
	6	129.12	6.41E+01	63.76			6.41E+01	6.38E+01
	7	186.19	1.54E+02	77.67	3.13E+01	6.95E+00	1.22E+02	7.80E+01
	8	210.33	1.18E+02	64.44			1.18E+02	6.44E+01
	9	218.64	5.99E+01	61.02			5.99E+01	6.10E+01
	10	239.03	6.69E+02	91.26	1.19E+01	7.10E+00	6.57E+02	9.15E+01
	11	270.64	1.21E+02	59.89			1.21E+02	5.99E+01
	12	277.28	4.07E+01	42.79			4.07E+01	4.28E+01
M	13	293.17	2.24E+01	17.75			2.24E+01	1.77E+01
m	14	300.17	3.12E+01	33.16			3.12E+01	3.32E+01
	15	327.85	6.55E+01	44.93			6.55E+01	4.49E+01
	16	338.63	1.66E+02	69.25			1.66E+02	6.92E+01
	17	352.16	4.00E+02	56.50	9.12E+00	4.79E+00	3.91E+02	5.67E+01
	18	408.94	3.59E+01	31.80			3.59E+01	3.18E+01
	19	463.00	6.32E+01	35.55			6.32E+01	3.56E+01
	20	510.52	1.54E+02	67.50	6.97E+01	5.00E+00	8.46E+01	6.77E+01
	21	583.50	2.11E+02	45.48	3.98E+00	3.57E+00	2.07E+02	4.56E+01
	22	609.76	2.97E+02	54.73	8.66E+00	3.90E+00	2.88E+02	5.49E+01
	23	727.98	8.81E+01	38.27			8.81E+01	3.83E+01
	24	795.53	3.71E+01	25.35			3.71E+01	2.53E+01
	25	808.67	2.59E+01	32.83			2.59E+01	3.28E+01
	26	860.77	4.01E+01	30.37			4.01E+01	3.04E+01
	27	911.71	1.59E+02	36.64	2.01E+00	2.72E+00	1.57E+02	3.67E+01
	28	934.85	1.46E+01	19.21			1.46E+01	1.92E+01
M	29	964.84	4.67E+01	26.68			4.67E+01	2.67E+01
m	30	969.49	8.02E+01	26.32			8.02E+01	2.63E+01
	31	1120.39	8.58E+01	36.11			8.58E+01	3.61E+01
	32	1238.68	2.90E+01	28.07			2.90E+01	2.81E+01
	33	1381.48	3.91E+01	31.56			3.91E+01	3.16E+01
	34	1402.20	1.30E+01	14.14			1.30E+01	1.41E+01
M	35	1457.52	1.08E+01	6.22			1.08E+01	6.22E+00
m	36	1461.62	6.90E+02	52.75	3.09E+00	1.97E+00	6.87E+02	5.28E+01
	37	1512.40	1.75E+01	17.55			1.75E+01	1.75E+01
	38	1582.45	1.06E+01	12.69			1.06E+01	1.27E+01
	39	1588.66	1.74E+01	11.28			1.74E+01	1.13E+01
	40	1618.33	2.31E+01	16.03			2.31E+01	1.60E+01
	41	1630.82	9.50E+00	9.82			9.50E+00	9.82E+00
	42	1676.06	4.75E+00	5.50			4.75E+00	5.50E+00
	43	1722.78	9.00E+00	9.82			9.00E+00	9.82E+00
	44	1731.95	1.51E+01	13.22			1.51E+01	1.32E+01
	45	1765.53	6.00E+01	16.64	2.70E+00	1.86E+00	5.73E+01	1.67E+01
	46	1872.06	8.50E+00	10.79			8.50E+00	1.08E+01
	47	1906.24	4.93E+00	6.34			4.93E+00	6.34E+00
	48	1957.48	6.00E+00	4.90			6.00E+00	4.90E+00
	49	2103.64	1.71E+01	9.59			1.71E+01	9.59E+00

Analysis Report for 1606064-09

CP-5015 00-02

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
50	2204.84	1.92E+01	11.14			1.92E+01	1.11E+01
51	2615.51	9.00E+01	18.97	3.07E+00	1.34E+00	8.69E+01	1.90E+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 : 6/16/2016 6:09:56PM

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	12.96	1.71E+03	120.62			1.71E+03	1.21E+02
	2	46.82	9.36E+01	66.39	2.17E+01	5.74E+00	7.18E+01	6.66E+01
M	3	63.53	2.11E+02	99.58	2.91E+01	8.34E+00	1.82E+02	9.99E+01
m	4	76.30	1.00E+03	116.79			1.00E+03	1.17E+02
	5	86.38	1.31E+02	94.23			1.31E+02	9.42E+01
	6	129.12	6.41E+01	63.76			6.41E+01	6.38E+01
	7	186.19	1.54E+02	77.67	3.13E+01	6.95E+00	1.22E+02	7.80E+01
	8	210.33	1.18E+02	64.44			1.18E+02	6.44E+01
	9	218.64	5.99E+01	61.02			5.99E+01	6.10E+01
	10	239.03	6.69E+02	91.26	1.19E+01	7.10E+00	6.57E+02	9.15E+01
	11	270.64	1.21E+02	59.89			1.21E+02	5.99E+01
	12	277.28	4.07E+01	42.79			4.07E+01	4.28E+01
M	13	293.17	2.24E+01	17.75			2.24E+01	1.77E+01
m	14	300.17	3.12E+01	33.16			3.12E+01	3.32E+01
	15	327.85	6.55E+01	44.93			6.55E+01	4.49E+01
	16	338.63	1.66E+02	69.25			1.66E+02	6.92E+01
	17	352.16	4.00E+02	56.50	9.12E+00	4.79E+00	3.91E+02	5.67E+01
	18	408.94	3.59E+01	31.80			3.59E+01	3.18E+01
	19	463.00	6.32E+01	35.55			6.32E+01	3.56E+01
	20	510.52	1.54E+02	67.50	6.97E+01	5.00E+00	8.46E+01	6.77E+01
	21	583.50	2.11E+02	45.48	3.98E+00	3.57E+00	2.07E+02	4.56E+01
	22	609.76	2.97E+02	54.73	8.66E+00	3.90E+00	2.88E+02	5.49E+01
	23	727.98	8.81E+01	38.27			8.81E+01	3.83E+01
	24	795.53	3.71E+01	25.35			3.71E+01	2.53E+01
	25	808.67	2.59E+01	32.83			2.59E+01	3.28E+01
	26	860.77	4.01E+01	30.37			4.01E+01	3.04E+01

Analysis Report for 1606064-09

CP-5015 00-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	27	911.71	1.59E+02	36.64	2.01E+00	2.72E+00	1.57E+02	3.67E+01
	28	934.85	1.46E+01	19.21			1.46E+01	1.92E+01
M	29	964.84	4.67E+01	26.68			4.67E+01	2.67E+01
m	30	969.49	8.02E+01	26.32			8.02E+01	2.63E+01
	31	1120.39	8.58E+01	36.11			8.58E+01	3.61E+01
	32	1238.68	2.90E+01	28.07			2.90E+01	2.81E+01
	33	1381.48	3.91E+01	31.56			3.91E+01	3.16E+01
	34	1402.20	1.30E+01	14.14			1.30E+01	1.41E+01
M	35	1457.52	1.08E+01	6.22			1.08E+01	6.22E+00
m	36	1461.62	6.90E+02	52.75	3.09E+00	1.97E+00	6.87E+02	5.28E+01
	37	1512.40	1.75E+01	17.55			1.75E+01	1.75E+01
	38	1582.45	1.06E+01	12.69			1.06E+01	1.27E+01
	39	1588.66	1.74E+01	11.28			1.74E+01	1.13E+01
	40	1618.33	2.31E+01	16.03			2.31E+01	1.60E+01
	41	1630.82	9.50E+00	9.82			9.50E+00	9.82E+00
	42	1676.06	4.75E+00	5.50			4.75E+00	5.50E+00
	43	1722.78	9.00E+00	9.82			9.00E+00	9.82E+00
	44	1731.95	1.51E+01	13.22			1.51E+01	1.32E+01
	45	1765.53	6.00E+01	16.64	2.70E+00	1.86E+00	5.73E+01	1.67E+01
	46	1872.06	8.50E+00	10.79			8.50E+00	1.08E+01
	47	1906.24	4.93E+00	6.34			4.93E+00	6.34E+00
	48	1957.48	6.00E+00	4.90			6.00E+00	4.90E+00
	49	2103.64	1.71E+01	9.59			1.71E+01	9.59E+00
	50	2204.84	1.92E+01	11.14			1.92E+01	1.11E+01
	51	2615.51	9.00E+01	18.97	3.07E+00	1.34E+00	8.69E+01	1.90E+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	0.900	1460.81	*	10.67	1.95E+01	2.32E+00
CE-143	0.412	57.36		11.80		
		293.26	*	42.00	4.83E+00	3.90E+00
		664.55		5.20		
EU-155	0.361	86.50	*	30.90	2.10E-01	1.52E-01
		105.30		20.70		

Analysis Report for 1606064-09

CP-5015 00-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.933	583.14	*	30.22	1.00E+00	2.51E-01
		860.37	*	4.48	1.80E+00	1.39E+00
		2614.66	*	35.85	9.15E-01	2.28E-01
PB-210	0.984	46.50	*	4.25	1.26E+00	1.18E+00
BI-212	0.685	727.17	*	11.80	1.31E+00	5.82E-01
		1620.62		2.75		
PB-212	0.977	238.63	*	44.60	1.11E+00	2.16E-01
		300.09	*	3.41	8.08E-01	8.66E-01
BI-214	0.743	609.31	*	46.30	9.41E-01	2.06E-01
		1120.29	*	15.10	1.41E+00	6.11E-01
		1764.49		15.80		
		2204.22	*	4.98	1.43E+00	8.47E-01
PB-214	0.426	295.21		19.19		
		351.92	*	37.19	1.04E+00	2.27E-01
RA-226	1.000	186.21	*	3.28	2.41E+00	4.67E+00
AC-228	0.958	338.32	*	11.40	1.40E+00	6.26E-01
		911.07	*	27.70	1.20E+00	3.33E-01
		969.11	*	16.60	1.07E+00	3.82E-01
TH-234	0.991	63.29	*	3.80	2.59E+00	1.43E+00
NP-237	0.998	86.50	*	12.60	5.13E-01	3.71E-01
CM-243	0.359	209.75	*	3.29	2.50E+00	1.40E+00
		228.14		10.60		
		277.60	*	14.00	2.42E-01	2.58E-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 : 6/16/2016 6:09:56PM
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	12.96	4.75889E-01	3.52		
m	4	76.30	2.78842E-01	5.82		
	6	129.12	1.78179E-02	49.70		
	9	218.64	1.66318E-02	50.96		
	11	270.64	3.36698E-02	24.70		
	15	327.85	1.81883E-02	34.31	Tol.	LA-140

Analysis Report for 1606064-09

CP-5015 00-02

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	18	408.94	9.98264E-03	44.24		
	19	463.00	1.75582E-02	28.12	Sum	
	20	510.52	2.35010E-02	40.00	Sum	
	24	795.53	1.02984E-02	34.19	Sum	
	25	808.67	7.20013E-03	63.33		
	28	934.85	4.06481E-03	65.64	Sum	
M	29	964.84	1.29757E-02	28.56	Tol.	EU-152
	32	1238.68	8.05556E-03	48.40		
	33	1381.48	1.08690E-02	40.33		
	34	1402.20	3.60043E-03	54.55		
M	35	1457.52	3.01064E-03	28.72		
	37	1512.40	4.85243E-03	50.23		
	38	1582.45	2.94444E-03	59.85		
	39	1588.66	4.84375E-03	32.35	Sum	
	40	1618.33	6.42974E-03	34.63		
	41	1630.82	2.63889E-03	51.70		
	42	1676.06	1.31944E-03	57.89		
	43	1722.78	2.50000E-03	54.57		
	44	1731.95	4.18651E-03	43.86		
	45	1765.53	1.59161E-02	14.61		
	46	1872.06	2.36111E-03	63.49		
	47	1906.24	1.36905E-03	64.36		
	48	1957.48	1.66667E-03	40.82		
	49	2103.64	4.74415E-03	28.08	S-Esc	

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.90	1460.81	*	10.67	1.95E+01	2.32E+00
CE-143	0.41	57.36		11.80		
		293.26	*	42.00	4.83E+00	3.90E+00
		664.55		5.20		

Analysis Report for 1606064-09

CP-5015 00-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
EU-155	0.36	86.50	*	30.90	2.10E-01	1.52E-01
		105.30		20.70		
TL-208	0.93	583.14	*	30.22	1.00E+00	2.51E-01
		860.37	*	4.48	1.80E+00	1.39E+00
		2614.66	*	35.85	9.15E-01	2.28E-01
PB-210	0.98	46.50	*	4.25	1.26E+00	1.18E+00
BI-212	0.68	727.17	*	11.80	1.31E+00	5.82E-01
		1620.62		2.75		
PB-212	0.97	238.63	*	44.60	1.11E+00	2.16E-01
		300.09	*	3.41	8.08E-01	8.66E-01
BI-214	0.74	609.31	*	46.30	9.41E-01	2.06E-01
		1120.29	*	15.10	1.41E+00	6.11E-01
		1764.49		15.80		
		2204.22	*	4.98	1.43E+00	8.47E-01
PB-214	0.42	295.21		19.19		
		351.92	*	37.19	1.04E+00	2.27E-01
RA-226	1.00	186.21	*	3.28	2.41E+00	4.67E+00
AC-228	0.95	338.32	*	11.40	1.40E+00	6.26E-01
		911.07	*	27.70	1.20E+00	3.33E-01
		969.11	*	16.60	1.07E+00	3.82E-01
TH-234	0.99	63.29	*	3.80	2.59E+00	1.43E+00
NP-237	0.99	86.50	*	12.60	5.13E-01	3.71E-01
CM-243	0.35	209.75	*	3.29	2.50E+00	1.40E+00
		228.14		10.60		
		277.60	*	14.00	2.42E-01	2.58E-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	0.900	1.95E+01	2.32E+00	
CE-143	0.412	4.83E+00	3.90E+00	

Analysis Report for 1606064-09

CP-5015 00-02

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
?	EU-155	0.361	2.10E-01	1.52E-01	
	TL-208	0.933	9.67E-01	1.67E-01	
	PB-210	0.984	1.26E+00	1.18E+00	
	BI-212	0.685	1.31E+00	5.82E-01	
	PB-212	0.977	1.09E+00	2.10E-01	
	BI-214	0.743	1.01E+00	1.91E-01	
	PB-214	0.426	1.04E+00	2.27E-01	
	RA-226	1.000	2.41E+00	4.67E+00	
	AC-228	0.958	1.18E+00	2.33E-01	
	TH-234	0.991	2.59E+00	1.43E+00	
?	NP-237	0.998	5.13E-01	3.71E-01	
	CM-243	0.359	3.16E-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

Analysis Report for 1606064-09

CP-5015 00-02

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/16/2016 6:09:56PM
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	12.96	4.75889E-01	3.52		
m	4	76.30	2.78842E-01	5.82		
	6	129.12	1.78179E-02	49.70		
	9	218.64	1.66318E-02	50.96		
	11	270.64	3.36698E-02	24.70		
	15	327.85	1.81883E-02	34.31	Tol.	LA-140
	18	408.94	9.98264E-03	44.24		
	19	463.00	1.75582E-02	28.12	Sum	
	20	510.52	2.35010E-02	40.00	Sum	
	24	795.53	1.02984E-02	34.19	Sum	
	25	808.67	7.20013E-03	63.33		
	28	934.85	4.06481E-03	65.64	Sum	
M	29	964.84	1.29757E-02	28.56	Tol.	EU-152
	32	1238.68	8.05556E-03	48.40		
	33	1381.48	1.08690E-02	40.33		
	34	1402.20	3.60043E-03	54.55		
M	35	1457.52	3.01064E-03	28.72		
	37	1512.40	4.85243E-03	50.23		
	38	1582.45	2.94444E-03	59.85		
	39	1588.66	4.84375E-03	32.35	Sum	
	40	1618.33	6.42974E-03	34.63		
	41	1630.82	2.63889E-03	51.70		
	42	1676.06	1.31944E-03	57.89		
	43	1722.78	2.50000E-03	54.57		
	44	1731.95	4.18651E-03	43.86		
	45	1765.53	1.59161E-02	14.61		
	46	1872.06	2.36111E-03	63.49		
	47	1906.24	1.36905E-03	64.36		
	48	1957.48	1.66667E-03	40.82		
	49	2103.64	4.74415E-03	28.08	S-Esc	

Analysis Report for 1606064-09

CP-5015 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 : \\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	2.73E-03	5.76E-01	5.76E-01
+		NA-22	1274.54		99.94	1.16E-02	9.30E-02	9.30E-02
+		NA-24	1368.53		99.99	-8.02E+00	1.12E+03	1.88E+03
			2754.09		99.86	-2.77E+02		1.12E+03
+		AL-26	1808.65		99.76	3.45E-03	4.15E-02	4.15E-02
+		K-40	1460.81	*	10.67	1.95E+01	7.44E-01	7.44E-01
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	2.69E-03	4.92E-02	4.92E-02
			78.34		96.00	2.96E-01		7.33E-02
+		SC-46	889.25		99.98	-5.52E-03	7.40E-02	7.40E-02
			1120.51		99.99	1.98E-01		1.42E-01
+		V-48	983.52		99.98	-4.51E-02	1.02E-01	1.02E-01
			1312.10		97.50	5.83E-02		1.28E-01
+		CR-51	320.08		9.83	-4.56E-01	5.88E-01	5.88E-01
+		MN-54	834.83		99.97	3.10E-02	8.60E-02	8.60E-02
+		CO-56	846.75		99.96	-1.29E-02	7.14E-02	7.14E-02
			1037.75		14.03	-2.14E-01		5.88E-01
			1238.25		67.00	1.38E-01		1.92E-01
			1771.40		15.51	-1.31E-01		3.97E-01
			2598.48		16.90	-2.42E-02		2.25E-01
+		CO-57	122.06		85.51	9.37E-04	5.53E-02	5.53E-02
			136.48		10.60	-1.90E-01		4.61E-01
+		CO-58	810.76		99.40	3.10E-02	8.09E-02	8.09E-02
+		FE-59	1099.22		56.50	-1.76E-02	1.73E-01	1.73E-01
			1291.56		43.20	4.29E-02		2.30E-01
+		CO-60	1173.22		100.00	6.26E-02	8.16E-02	9.39E-02
			1332.49		100.00	3.40E-02		8.16E-02
+		ZN-65	1115.52		50.75	3.58E-03	1.79E-01	1.79E-01
+		GA-67	93.31		35.70	7.96E-01	1.21E+00	1.21E+00
			208.95		2.24	4.90E+00		1.78E+01
			300.22		16.00	-4.70E-01		2.25E+00
+		SE-75	121.11		16.70	-6.37E-02	8.29E-02	2.86E-01

Analysis Report for 1606064-09

CP-5015 00-02

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	1.37E-02	8.29E-02	8.54E-02
		264.65	59.80	2.64E-03		8.29E-02
		279.53	25.20	3.24E-02		2.24E-01
		400.65	11.40	1.55E-01		5.03E-01
+	RB-82	776.52	13.00	1.29E-01	7.38E-01	7.38E-01
+	RB-83	520.41	46.00	-3.73E-02	1.09E-01	1.09E-01
		529.64	30.30	1.00E-02		1.69E-01
		552.65	16.40	-1.51E-01		3.39E-01
+	KR-85	513.99	0.43	-1.25E+01	1.43E+01	1.43E+01
+	SR-85	513.99	99.27	-6.04E-02	6.87E-02	6.87E-02
+	Y-88	898.02	93.40	1.20E-02	6.46E-02	8.57E-02
		1836.01	99.38	-1.41E-02		6.46E-02
+	NB-93M	16.57	9.43	5.16E+01	8.14E+01	8.14E+01
+	NB-94	702.63	100.00	3.31E-02	7.02E-02	7.39E-02
		871.10	100.00	-2.65E-03		7.02E-02
+	NB-95	765.79	99.81	6.43E-02	9.31E-02	9.31E-02
+	NB-95M	235.69	25.00	1.34E-01	1.53E+00	1.53E+00
+	ZR-95	724.18	43.70	-1.10E-03	1.46E-01	2.08E-01
		756.72	55.30	9.28E-02		1.46E-01
+	MO-99	181.06	6.20	5.86E-01	5.56E+00	8.60E+00
		739.58	12.80	2.01E+00		5.56E+00
		778.00	4.50	9.57E-01		1.65E+01
+	RU-103	497.08	89.00	6.53E-03	6.88E-02	6.88E-02
+	RU-106	621.84	9.80	2.24E-01	6.91E-01	6.91E-01
+	AG-108M	433.93	89.90	3.01E-02	6.06E-02	6.06E-02
		614.37	90.40	2.53E-03		7.59E-02
		722.95	90.50	2.09E-02		8.42E-02
+	CD-109	88.03	3.72	1.59E+00	1.74E+00	1.74E+00
+	AG-110M	657.75	93.14	-6.43E-03	7.76E-02	7.76E-02
		677.61	10.53	4.98E-01		7.12E-01
		706.67	16.46	-1.81E-01		4.37E-01
		763.93	21.98	-8.14E-02		3.21E-01
		884.67	71.63	2.35E-02		1.05E-01
		1384.27	23.94	1.38E-01		3.63E-01
+	CD-113M	263.70	0.02	-4.04E+01	2.00E+02	2.00E+02
+	SN-113	255.12	1.93	-8.21E-01	8.46E-02	2.69E+00
		391.69	64.90	3.12E-02		8.46E-02
+	TE123M	159.00	84.10	6.73E-03	6.27E-02	6.27E-02
+	SB-124	602.71	97.87	-1.55E-02	7.14E-02	7.14E-02
		645.85	7.26	-4.98E-01		9.91E-01
		722.78	11.10	1.89E-01		7.63E-01
		1691.02	49.00	7.00E-03		1.52E-01
+	I-125	35.49	6.49	1.17E-01	1.53E+00	1.53E+00
+	SB-125	176.33	6.89	-2.83E-01	1.85E-01	6.88E-01
		427.89	29.33	3.94E-02		1.85E-01
		463.38	10.35	6.98E-01		6.25E-01
		600.56	17.80	2.89E-03		3.59E-01
		635.90	11.32	1.07E-01		6.20E-01

Analysis Report for 1606064-09

CP-5015 00-02

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70	83.30	4.03E-02	1.02E-01	1.02E-01
		666.33	99.60	-6.81E-02		1.17E-01
		695.00	99.60	-4.21E-02		1.14E-01
		720.50	53.80	3.96E-02		2.22E-01
+	SN-126	87.57	37.00	1.58E-01	1.72E-01	1.72E-01
+	SB-127	473.00	25.00	1.86E-02	1.01E+00	1.11E+00
		685.20	35.70	4.86E-01		1.01E+00
		783.80	14.70	1.02E+00		2.70E+00
+	I-129	29.78	57.00	-6.53E-02	2.71E-01	2.71E-01
		33.60	13.20	3.77E-01		7.91E-01
		39.58	7.52	5.43E-02		9.36E-01
+	I-131	284.30	6.05	9.84E-01	1.21E-01	1.88E+00
		364.48	81.20	-1.99E-02		1.21E-01
		636.97	7.26	-3.85E-01		2.09E+00
		722.89	1.80	2.33E+00		9.37E+00
+	TE-132	49.72	13.10	2.35E-01	3.90E-01	2.65E+00
		228.16	88.00	-3.59E-02		3.90E-01
+	BA-133	81.00	33.00	3.87E-02	7.84E-02	1.20E-01
		302.84	17.80	-3.62E-03		2.79E-01
		356.01	60.00	2.36E-02		7.84E-02
+	I-133	529.87	86.30	-6.26E+01	8.49E+01	8.49E+01
+	XE-133	81.00	38.00	1.14E-01	3.51E-01	3.51E-01
+	CS-134	563.23	8.38	2.57E-01	6.96E-02	7.34E-01
		569.32	15.43	1.89E-02		3.76E-01
		604.70	97.60	-6.88E-03		6.96E-02
		795.84	85.40	7.12E-02		9.80E-02
		801.93	8.73	-8.44E-02		7.65E-01
+	CS-135	268.24	16.00	-3.39E-01	3.34E-01	3.34E-01
+	I-135	1131.51	22.50	5.77E+08	3.68E+09	4.59E+09
		1260.41	28.60	5.73E+06		3.68E+09
		1678.03	9.54	4.17E+07		7.56E+09
+	CS-136	153.22	7.46	-6.66E-01	1.20E-01	1.07E+00
		163.89	4.61	-3.37E-01		1.76E+00
		176.55	13.56	-3.42E-01		5.72E-01
		273.65	12.66	-1.34E+00		6.63E-01
		340.57	48.50	5.26E-02		2.25E-01
		818.50	99.70	6.30E-02		1.20E-01
		1048.07	79.60	1.18E-02		1.65E-01
		1235.34	19.70	6.33E-02		8.91E-01
+	CS-137	661.65	85.12	1.40E-02	8.62E-02	8.62E-02
+	LA-138	788.74	34.00	8.45E-02	1.02E-01	2.27E-01
		1435.80	66.00	-5.30E-03		1.02E-01
+	CE-139	165.85	80.35	1.53E-02	6.58E-02	6.58E-02
+	BA-140	162.64	6.70	-5.19E-01	3.60E-01	1.20E+00
		304.84	4.50	-8.95E-02		1.73E+00
		423.70	3.20	2.53E-01		2.73E+00
		437.55	2.00	-2.02E+00		4.28E+00
		537.32	25.00	-2.76E-02		3.60E-01
+	LA-140	328.77	20.50	3.56E-01	1.24E-01	4.85E-01

Analysis Report for 1606064-09

CP-5015 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-140	487.03		45.50	1.15E-02	1.24E-01	1.78E-01
		815.85		23.50	5.99E-02		4.75E-01
		1596.49		95.49	1.63E-02		1.24E-01
+	CE-141	145.44		48.40	7.38E-02	1.26E-01	1.26E-01
+	CE-143	57.36		11.80	2.64E+01	2.26E+01	4.21E+01
		293.26	*	42.00	4.83E+00		2.26E+01
		664.55		5.20	8.12E+01		1.53E+02
+	CE-144	133.54		10.80	1.83E-02	4.52E-01	4.52E-01
+	PM-144	476.78		42.00	6.11E-04	6.26E-02	1.29E-01
		618.01		98.60	-1.12E-02		6.26E-02
		696.49		99.49	-3.26E-02		7.13E-02
+	PM-145	36.85		21.70	1.14E-01	1.94E-01	3.67E-01
		37.36		39.70	6.04E-02		1.94E-01
		42.30		15.10	6.51E-02		4.13E-01
		72.40		2.31	-1.20E+00		2.03E+00
+	PM-146	453.90		39.94	7.16E-02	1.41E-01	1.41E-01
		735.90		14.01	2.25E-02		4.78E-01
		747.13		13.10	2.04E-01		5.34E-01
+	ND-147	91.11		28.90	7.07E-01	3.92E-01	3.92E-01
		531.02		13.10	-5.96E-01		6.15E-01
+	PM-149	285.90		3.10	-2.18E+01	2.74E+01	2.74E+01
+	EU-152	121.78		20.50	3.82E-03	2.25E-01	2.25E-01
		244.69		5.40	-2.18E+00		9.74E-01
		344.27		19.13	-9.17E-02		2.52E-01
		778.89		9.20	2.69E-01		7.92E-01
		964.01		10.40	-1.30E+00		9.24E-01
		1085.78		7.22	6.08E-01		1.21E+00
		1112.02		9.60	1.51E-02		9.10E-01
		1407.95		14.94	7.20E-02		5.14E-01
+	GD-153	97.43		31.30	-4.14E-02	1.50E-01	1.50E-01
		103.18		22.20	-2.06E-01		2.09E-01
+	EU-154	123.07		40.50	4.16E-03	1.15E-01	1.15E-01
		723.30		19.70	9.62E-02		3.88E-01
		873.19		11.50	-2.40E-01		5.82E-01
		996.32		10.30	9.92E-02		8.34E-01
		1004.76		17.90	1.67E-01		4.55E-01
		1274.45		35.50	3.25E-02		2.61E-01
+	EU-155	86.50	*	30.90	2.10E-01	2.21E-01	2.45E-01
		105.30		20.70	2.94E-02		2.21E-01
+	EU-156	811.77		10.40	-3.75E-01	9.70E-01	9.70E-01
		1153.47		7.20	9.02E-02		1.90E+00
		1230.71		8.90	-2.92E-01		1.49E+00
+	HO-166M	184.41		72.60	-5.79E-02	8.29E-02	8.29E-02
		280.45		29.60	2.62E-02		1.81E-01
		410.94		11.10	-2.63E-02		4.71E-01
		711.69		54.10	2.36E-02		1.36E-01
+	TM-171	66.72		0.14	4.72E+00	3.38E+01	3.38E+01
+	HF-172	81.75		4.52	2.84E-01	4.17E-01	8.68E-01
		125.81		11.30	2.16E-01		4.17E-01

Analysis Report for 1606064-09

CP-5015 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53		20.60	-7.18E-02	3.26E-01	6.60E-01
		810.06		16.63	4.40E-01		1.15E+00
		912.12		15.25	5.18E+00		2.36E+00
		1093.66		62.50	-3.42E-03		3.26E-01
+	LU-173	100.72		5.24	6.32E-01	2.95E-01	8.92E-01
		272.11		21.20	3.88E-01		2.95E-01
+	HF-175	343.40		84.00	1.37E-02	6.44E-02	6.44E-02
+	LU-176	88.34		13.30	4.39E-01	5.25E-02	4.79E-01
		201.83		86.00	8.73E-03		6.17E-02
		306.78		94.00	1.23E-02		5.25E-02
+	TA-182	67.75		41.20	6.51E-03	1.19E-01	1.19E-01
		1121.30		34.90	5.20E-01		3.97E-01
		1189.05		16.23	-7.49E-02		6.22E-01
		1221.41		26.98	2.31E-01		4.37E-01
		1231.02		11.44	1.50E-01		8.48E-01
+	IR-192	308.46		29.68	4.40E-02	1.13E-01	1.82E-01
		468.07		48.10	3.18E-02		1.13E-01
+	HG-203	279.19		77.30	-1.93E-02	8.08E-02	8.08E-02
+	BI-207	569.67		97.72	2.97E-03	5.90E-02	5.90E-02
		1063.62		74.90	-1.24E-02		1.03E-01
+	TL-208	583.14	*	30.22	1.00E+00	9.35E-02	2.94E-01
		860.37	*	4.48	1.80E+00		2.16E+00
		2614.66	*	35.85	9.15E-01		9.35E-02
+	BI-210M	262.00		45.00	7.97E-03	1.07E-01	1.07E-01
		300.00		23.00	-4.60E-02		2.21E-01
+	PB-210	46.50	*	4.25	1.26E+00	1.91E+00	1.91E+00
+	PB-211	404.84		2.90	0.00E+00	1.83E+00	1.83E+00
		831.96		2.90	-1.67E+00		2.65E+00
+	BI-212	727.17	*	11.80	1.31E+00	8.53E-01	8.53E-01
		1620.62		2.75	2.50E-01		3.17E+00
+	PB-212	238.63	*	44.60	1.11E+00	2.16E-01	2.16E-01
		300.09	*	3.41	8.08E-01		2.80E+00
+	BI-214	609.31	*	46.30	9.41E-01	2.41E-01	2.41E-01
		1120.29	*	15.10	1.41E+00		8.85E-01
		1764.49		15.80	1.24E+00		8.47E-01
		2204.22	*	4.98	1.43E+00		1.04E+00
+	PB-214	295.21		19.19	1.14E+00	1.85E-01	4.11E-01
		351.92	*	37.19	1.04E+00		1.85E-01
+	RN-219	401.80		6.50	-2.67E-01	8.07E-01	8.07E-01
+	RA-223	323.87		3.88	9.53E-02	1.30E+00	1.30E+00
+	RA-224	240.98		3.95	1.42E+01	2.89E+00	2.89E+00
+	RA-225	40.00		31.00	1.98E-02	3.42E-01	3.42E-01
+	RA-226	186.21	*	3.28	2.41E+00	2.47E+00	2.47E+00
+	TH-227	50.10		8.40	5.10E-02	5.68E-01	5.75E-01
		236.00		11.50	4.95E-02		5.68E-01
		256.20		6.30	-4.00E-01		7.75E-01
+	AC-228	338.32	*	11.40	1.40E+00	3.56E-01	9.15E-01
		911.07	*	27.70	1.20E+00		3.56E-01

Analysis Report for 1606064-09

CP-5015 00-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	*	16.60	1.07E+00	3.56E-01	9.28E-01
+	TH-230	48.44		16.90	-5.27E-01	2.91E-01	2.91E-01
		62.85		4.60	1.59E+00		1.21E+00
		67.67		0.37	6.86E-01		1.26E+01
+	PA-231	283.67		1.60	1.68E+00	2.16E+00	3.20E+00
		302.67		2.30	-2.80E-02		2.16E+00
+	TH-231	25.64		14.70	-6.94E-01	6.84E-01	2.09E+00
		84.21		6.40	4.82E-01		6.84E-01
+	PA-233	311.98		38.60	-4.40E-02	1.65E-01	1.65E-01
+	PA-234	131.20		20.40	1.06E-01	2.49E-01	2.49E-01
		733.99		8.80	9.70E-02		7.75E-01
		946.00		12.00	-7.51E-02		6.20E-01
+	PA-234M	1001.03		0.92	1.61E+00	8.96E+00	8.96E+00
+	TH-234	63.29	*	3.80	2.59E+00	5.18E+00	5.18E+00
+	U-235	143.76		10.50	1.22E-01	4.80E-01	4.80E-01
		163.35		4.70	-4.50E-01		1.04E+00
		205.31		4.70	3.65E-02		1.06E+00
+	NP-237	86.50	*	12.60	5.13E-01	5.98E-01	5.98E-01
+	NP-239	106.10		22.70	-9.08E-01	3.03E+00	3.03E+00
		228.18		10.70	-6.26E-01		6.82E+00
		277.60		14.10	2.47E+00		5.81E+00
+	AM-241	59.54		35.90	-1.37E-01	1.30E-01	1.30E-01
+	AM-243	74.67		66.00	-1.98E-01	1.00E-01	1.00E-01
+	CM-243	209.75	*	3.29	2.50E+00	4.17E-01	2.17E+00
		228.14		10.60	-4.19E-02		4.56E-01
		277.60	*	14.00	2.42E-01		4.17E-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 1606064-09

CP-5015 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	5.76E-01	5.76E-01	2.73E-03	2.70E-01
	NA-22	1274.54		99.94	9.30E-02	9.30E-02	1.16E-02	4.27E-02
	NA-24	1368.53		99.99	1.88E+03	1.12E+03	-8.02E+00	8.34E+02
		2754.09		99.86	1.12E+03		-2.77E+02	4.19E+02
	AL-26	1808.65		99.76	4.15E-02	4.15E-02	3.45E-03	1.61E-02
+	K-40	1460.81	*	10.67	7.44E-01	7.44E-01	1.95E+01	3.34E-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	4.92E-02	4.92E-02	2.69E-03	2.38E-02
		78.34		96.00	7.33E-02		2.96E-01	3.60E-02
	SC-46	889.25		99.98	7.40E-02	7.40E-02	-5.52E-03	3.40E-02
		1120.51		99.99	1.42E-01		1.98E-01	6.76E-02
	V-48	983.52		99.98	1.02E-01	1.02E-01	-4.51E-02	4.67E-02
		1312.10		97.50	1.28E-01		5.83E-02	5.83E-02
	CR-51	320.08		9.83	5.88E-01	5.88E-01	-4.56E-01	2.78E-01
	MN-54	834.83		99.97	8.60E-02	8.60E-02	3.10E-02	4.03E-02
	CO-56	846.75		99.96	7.14E-02	7.14E-02	-1.29E-02	3.28E-02
		1037.75		14.03	5.88E-01		-2.14E-01	2.70E-01
		1238.25		67.00	1.92E-01		1.38E-01	9.00E-02
		1771.40		15.51	3.97E-01		-1.31E-01	1.66E-01
		2598.48		16.90	2.25E-01		-2.42E-02	7.97E-02
	CO-57	122.06		85.51	5.53E-02	5.53E-02	9.37E-04	2.68E-02
		136.48		10.60	4.61E-01		-1.90E-01	2.23E-01
	CO-58	810.76		99.40	8.09E-02	8.09E-02	3.10E-02	3.76E-02
	FE-59	1099.22		56.50	1.73E-01	1.73E-01	-1.76E-02	7.99E-02
		1291.56		43.20	2.30E-01		4.29E-02	1.05E-01
	CO-60	1173.22		100.00	9.39E-02	8.16E-02	6.26E-02	4.34E-02
		1332.49		100.00	8.16E-02		3.40E-02	3.69E-02
	ZN-65	1115.52		50.75	1.79E-01	1.79E-01	3.58E-03	8.25E-02
	GA-67	93.31		35.70	1.21E+00	1.21E+00	7.96E-01	5.89E-01
		208.95		2.24	1.78E+01		4.90E+00	8.60E+00
		300.22		16.00	2.25E+00		-4.70E-01	1.07E+00
	SE-75	121.11		16.70	2.86E-01	8.29E-02	-6.37E-02	1.39E-01
		136.00		59.20	8.54E-02		1.37E-02	4.14E-02
		264.65		59.80	8.29E-02		2.64E-03	3.95E-02
		279.53		25.20	2.24E-01		3.24E-02	1.07E-01
		400.65		11.40	5.03E-01		1.55E-01	2.38E-01
	RB-82	776.52		13.00	7.38E-01	7.38E-01	1.29E-01	3.44E-01
	RB-83	520.41		46.00	1.09E-01	1.09E-01	-3.73E-02	5.03E-02
		529.64		30.30	1.69E-01		1.00E-02	7.82E-02
		552.65		16.40	3.39E-01		-1.51E-01	1.57E-01
	KR-85	513.99		0.43	1.43E+01	1.43E+01	-1.25E+01	6.72E+00
	SR-85	513.99		99.27	6.87E-02	6.87E-02	-6.04E-02	3.24E-02
	Y-88	898.02		93.40	8.57E-02	6.46E-02	1.20E-02	3.97E-02
		1836.01		99.38	6.46E-02		-1.41E-02	2.73E-02
	NB-93M	16.57		9.43	8.14E+01	8.14E+01	5.16E+01	3.95E+01
	NB-94	702.63		100.00	7.39E-02	7.02E-02	3.31E-02	3.47E-02
		871.10		100.00	7.02E-02		-2.65E-03	3.24E-02
	NB-95	765.79		99.81	9.31E-02	9.31E-02	6.43E-02	4.36E-02
	NB-95M	235.69		25.00	1.53E+00	1.53E+00	1.34E-01	7.43E-01
	ZR-95	724.18		43.70	2.08E-01	1.46E-01	-1.10E-03	9.83E-02
		756.72		55.30	1.46E-01		9.28E-02	6.82E-02

Analysis Report for 1606064-09

CP-5015 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	8.60E+00	5.56E+00	5.86E-01	4.16E+00
	739.58	12.80	5.56E+00		2.01E+00	2.59E+00
	778.00	4.50	1.65E+01		9.57E-01	7.68E+00
RU-103	497.08	89.00	6.88E-02	6.88E-02	6.53E-03	3.21E-02
RU-106	621.84	9.80	6.91E-01	6.91E-01	2.24E-01	3.24E-01
AG-108M	433.93	89.90	6.06E-02	6.06E-02	3.01E-02	2.86E-02
	614.37	90.40	7.59E-02		2.53E-03	3.57E-02
	722.95	90.50	8.42E-02		2.09E-02	3.95E-02
CD-109	88.03	3.72	1.74E+00	1.74E+00	1.59E+00	8.49E-01
AG-110M	657.75	93.14	7.76E-02	7.76E-02	-6.43E-03	3.64E-02
	677.61	10.53	7.12E-01		4.98E-01	3.34E-01
	706.67	16.46	4.37E-01		-1.81E-01	2.04E-01
	763.93	21.98	3.21E-01		-8.14E-02	1.49E-01
	884.67	71.63	1.05E-01		2.35E-02	4.84E-02
	1384.27	23.94	3.63E-01		1.38E-01	1.65E-01
CD-113M	263.70	0.02	2.00E+02	2.00E+02	-4.04E+01	9.52E+01
SN-113	255.12	1.93	2.69E+00	8.46E-02	-8.21E-01	1.29E+00
	391.69	64.90	8.46E-02		3.12E-02	4.00E-02
TE123M	159.00	84.10	6.27E-02	6.27E-02	6.73E-03	3.03E-02
SB-124	602.71	97.87	7.14E-02	7.14E-02	-1.55E-02	3.34E-02
	645.85	7.26	9.91E-01		-4.98E-01	4.62E-01
	722.78	11.10	7.63E-01		1.89E-01	3.58E-01
	1691.02	49.00	1.52E-01		7.00E-03	6.56E-02
I-125	35.49	6.49	1.53E+00	1.53E+00	1.17E-01	7.32E-01
SB-125	176.33	6.89	6.88E-01	1.85E-01	-2.83E-01	3.32E-01
	427.89	29.33	1.85E-01		3.94E-02	8.72E-02
	463.38	10.35	6.25E-01		6.98E-01	2.96E-01
	600.56	17.80	3.59E-01		2.89E-03	1.68E-01
	635.90	11.32	6.20E-01		1.07E-01	2.91E-01
SB-126	414.70	83.30	1.02E-01	1.02E-01	4.03E-02	4.82E-02
	666.33	99.60	1.17E-01		-6.81E-02	5.47E-02
	695.00	99.60	1.14E-01		-4.21E-02	5.31E-02
	720.50	53.80	2.22E-01		3.96E-02	1.04E-01
SN-126	87.57	37.00	1.72E-01	1.72E-01	1.58E-01	8.42E-02
SB-127	473.00	25.00	1.11E+00	1.01E+00	1.86E-02	5.21E-01
	685.20	35.70	1.01E+00		4.86E-01	4.74E-01
	783.80	14.70	2.70E+00		1.02E+00	1.26E+00
I-129	29.78	57.00	2.71E-01	2.71E-01	-6.53E-02	1.30E-01
	33.60	13.20	7.91E-01		3.77E-01	3.79E-01
	39.58	7.52	9.36E-01		5.43E-02	4.50E-01
I-131	284.30	6.05	1.88E+00	1.21E-01	9.84E-01	8.97E-01
	364.48	81.20	1.21E-01		-1.99E-02	5.69E-02
	636.97	7.26	2.09E+00		-3.85E-01	9.82E-01
	722.89	1.80	9.37E+00		2.33E+00	4.40E+00
TE-132	49.72	13.10	2.65E+00	3.90E-01	2.35E-01	1.27E+00
	228.16	88.00	3.90E-01		-3.59E-02	1.87E-01
BA-133	81.00	33.00	1.20E-01	7.84E-02	3.87E-02	5.78E-02
	302.84	17.80	2.79E-01		-3.62E-03	1.33E-01
	356.01	60.00	7.84E-02		2.36E-02	3.70E-02
I-133	529.87	86.30	8.49E+01	8.49E+01	-6.26E+01	3.90E+01
XE-133	81.00	38.00	3.51E-01	3.51E-01	1.14E-01	1.70E-01
CS-134	563.23	8.38	7.34E-01	6.96E-02	2.57E-01	3.44E-01
	569.32	15.43	3.76E-01		1.89E-02	1.75E-01

Analysis Report for 1606064-09

CP-5015 00-02

	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	6.96E-02	6.96E-02	-6.88E-03	3.27E-02
		795.84		85.40	9.80E-02		7.12E-02	4.60E-02
		801.93		8.73	7.65E-01		-8.44E-02	3.53E-01
	CS-135	268.24		16.00	3.34E-01	3.34E-01	-3.39E-01	1.60E-01
	I-135	1131.51		22.50	4.59E+09	3.68E+09	5.77E+08	2.12E+09
		1260.41		28.60	3.68E+09		5.73E+06	1.69E+09
		1678.03		9.54	7.56E+09		4.17E+07	3.22E+09
	CS-136	153.22		7.46	1.07E+00	1.20E-01	-6.66E-01	5.18E-01
		163.89		4.61	1.76E+00		-3.37E-01	8.50E-01
		176.55		13.56	5.72E-01		-3.42E-01	2.76E-01
		273.65		12.66	6.63E-01		-1.34E+00	3.17E-01
		340.57		48.50	2.25E-01		5.26E-02	1.08E-01
		818.50		99.70	1.20E-01		6.30E-02	5.57E-02
		1048.07		79.60	1.65E-01		1.18E-02	7.60E-02
		1235.34		19.70	8.91E-01		6.33E-02	4.16E-01
	CS-137	661.65		85.12	8.62E-02	8.62E-02	1.40E-02	4.05E-02
	LA-138	788.74		34.00	2.27E-01	1.02E-01	8.45E-02	1.06E-01
		1435.80		66.00	1.02E-01		-5.30E-03	4.48E-02
	CE-139	165.85		80.35	6.58E-02	6.58E-02	1.53E-02	3.18E-02
	BA-140	162.64		6.70	1.20E+00	3.60E-01	-5.19E-01	5.78E-01
		304.84		4.50	1.73E+00		-8.95E-02	8.22E-01
		423.70		3.20	2.73E+00		2.53E-01	1.28E+00
		437.55		2.00	4.28E+00		-2.02E+00	2.01E+00
		537.32		25.00	3.60E-01		-2.76E-02	1.68E-01
	LA-140	328.77		20.50	4.85E-01	1.24E-01	3.56E-01	2.32E-01
		487.03		45.50	1.78E-01		1.15E-02	8.26E-02
		815.85		23.50	4.75E-01		5.99E-02	2.19E-01
		1596.49		95.49	1.24E-01		1.63E-02	5.47E-02
	CE-141	145.44		48.40	1.26E-01	1.26E-01	7.38E-02	6.12E-02
+	CE-143	57.36		11.80	4.21E+01	2.26E+01	2.64E+01	2.03E+01
		293.26	*	42.00	2.26E+01		4.83E+00	1.10E+01
		664.55		5.20	1.53E+02		8.12E+01	7.20E+01
	CE-144	133.54		10.80	4.52E-01	4.52E-01	1.83E-02	2.19E-01
	PM-144	476.78		42.00	1.29E-01	6.26E-02	6.11E-04	6.03E-02
		618.01		98.60	6.26E-02		-1.12E-02	2.92E-02
		696.49		99.49	7.13E-02		-3.26E-02	3.33E-02
	PM-145	36.85		21.70	3.67E-01	1.94E-01	1.14E-01	1.76E-01
		37.36		39.70	1.94E-01		6.04E-02	9.28E-02
		42.30		15.10	4.13E-01		6.51E-02	1.99E-01
		72.40		2.31	2.03E+00		-1.20E+00	9.85E-01
	PM-146	453.90		39.94	1.41E-01	1.41E-01	7.16E-02	6.64E-02
		735.90		14.01	4.78E-01		2.25E-02	2.22E-01
		747.13		13.10	5.34E-01		2.04E-01	2.49E-01
	ND-147	91.11		28.90	3.92E-01	3.92E-01	7.07E-01	1.92E-01
		531.02		13.10	6.15E-01		-5.96E-01	2.82E-01
	PM-149	285.90		3.10	2.74E+01	2.74E+01	-2.18E+01	1.30E+01
	EU-152	121.78		20.50	2.25E-01	2.25E-01	3.82E-03	1.09E-01
		244.69		5.40	9.74E-01		-2.18E+00	4.68E-01
		344.27		19.13	2.52E-01		-9.17E-02	1.19E-01
		778.89		9.20	7.92E-01		2.69E-01	3.69E-01
		964.01		10.40	9.24E-01		-1.30E+00	4.33E-01
		1085.78		7.22	1.21E+00		6.08E-01	5.59E-01
		1112.02		9.60	9.10E-01		1.51E-02	4.20E-01

Analysis Report for 1606064-09

CP-5015 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	5.14E-01	2.25E-01	7.20E-02	2.30E-01
	GD-153	97.43		31.30	1.50E-01	1.50E-01	-4.14E-02	7.30E-02
		103.18		22.20	2.09E-01		-2.06E-01	1.01E-01
	EU-154	123.07		40.50	1.15E-01	1.15E-01	4.16E-03	5.58E-02
		723.30		19.70	3.88E-01		9.62E-02	1.82E-01
		873.19		11.50	5.82E-01		-2.40E-01	2.67E-01
		996.32		10.30	8.34E-01		9.92E-02	3.87E-01
		1004.76		17.90	4.55E-01		1.67E-01	2.10E-01
		1274.45		35.50	2.61E-01		3.25E-02	1.20E-01
+	EU-155	86.50	*	30.90	2.45E-01	2.21E-01	2.10E-01	1.20E-01
		105.30		20.70	2.21E-01		2.94E-02	1.07E-01
	EU-156	811.77		10.40	9.70E-01	9.70E-01	-3.75E-01	4.47E-01
		1153.47		7.20	1.90E+00		9.02E-02	8.77E-01
		1230.71		8.90	1.49E+00		-2.92E-01	6.83E-01
	HO-166M	184.41		72.60	8.29E-02	8.29E-02	-5.79E-02	4.02E-02
		280.45		29.60	1.81E-01		2.62E-02	8.67E-02
		410.94		11.10	4.71E-01		-2.63E-02	2.22E-01
		711.69		54.10	1.36E-01		2.36E-02	6.35E-02
	TM-171	66.72		0.14	3.38E+01	3.38E+01	4.72E+00	1.64E+01
	HF-172	81.75		4.52	8.68E-01	4.17E-01	2.84E-01	4.19E-01
		125.81		11.30	4.17E-01		2.16E-01	2.02E-01
	LU-172	181.53		20.60	6.60E-01	3.26E-01	-7.18E-02	3.19E-01
		810.06		16.63	1.15E+00		4.40E-01	5.33E-01
		912.12		15.25	2.36E+00		5.18E+00	1.13E+00
		1093.66		62.50	3.26E-01		-3.42E-03	1.49E-01
	LU-173	100.72		5.24	8.92E-01	2.95E-01	6.32E-01	4.33E-01
		272.11		21.20	2.95E-01		3.88E-01	1.42E-01
	HF-175	343.40		84.00	6.44E-02	6.44E-02	1.37E-02	3.05E-02
	LU-176	88.34		13.30	4.79E-01	5.25E-02	4.39E-01	2.34E-01
		201.83		86.00	6.17E-02		8.73E-03	2.98E-02
		306.78		94.00	5.25E-02		1.23E-02	2.50E-02
	TA-182	67.75		41.20	1.19E-01	1.19E-01	6.51E-03	5.78E-02
		1121.30		34.90	3.97E-01		5.20E-01	1.88E-01
		1189.05		16.23	6.22E-01		-7.49E-02	2.88E-01
		1221.41		26.98	4.37E-01		2.31E-01	2.05E-01
		1231.02		11.44	8.48E-01		1.50E-01	3.91E-01
	IR-192	308.46		29.68	1.82E-01	1.13E-01	4.40E-02	8.66E-02
		468.07		48.10	1.13E-01		3.18E-02	5.25E-02
	HG-203	279.19		77.30	8.08E-02	8.08E-02	-1.93E-02	3.87E-02
	BI-207	569.67		97.72	5.90E-02	5.90E-02	2.97E-03	2.75E-02
		1063.62		74.90	1.03E-01		-1.24E-02	4.69E-02
+	TL-208	583.14	*	30.22	2.94E-01	9.35E-02	1.00E+00	1.41E-01
		860.37	*	4.48	2.16E+00		1.80E+00	1.02E+00
		2614.66	*	35.85	9.35E-02		9.15E-01	3.25E-02
	BI-210M	262.00		45.00	1.07E-01	1.07E-01	7.97E-03	5.13E-02
		300.00		23.00	2.21E-01		-4.60E-02	1.05E-01
+	PB-210	46.50	*	4.25	1.91E+00	1.91E+00	1.26E+00	9.30E-01
	PB-211	404.84		2.90	1.83E+00	1.83E+00	0.00E+00	8.63E-01
		831.96		2.90	2.65E+00		-1.67E+00	1.23E+00
+	BI-212	727.17	*	11.80	8.53E-01	8.53E-01	1.31E+00	4.07E-01
		1620.62		2.75	3.17E+00		2.50E-01	1.42E+00
+	PB-212	238.63	*	44.60	2.16E-01	2.16E-01	1.11E+00	1.06E-01
		300.09	*	3.41	2.80E+00		8.08E-01	1.37E+00

Analysis Report for 1606064-09

CP-5015 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	2.41E-01	2.41E-01	9.41E-01	1.16E-01
		1120.29	*	15.10	8.85E-01		1.41E+00	4.20E-01
		1764.49		15.80	8.47E-01		1.24E+00	3.94E-01
		2204.22	*	4.98	1.04E+00		1.43E+00	4.21E-01
+	PB-214	295.21		19.19	4.11E-01	1.85E-01	1.14E+00	1.99E-01
		351.92	*	37.19	1.85E-01		1.04E+00	8.89E-02
	RN-219	401.80		6.50	8.07E-01	8.07E-01	-2.67E-01	3.81E-01
	RA-223	323.87		3.88	1.30E+00	1.30E+00	9.53E-02	6.19E-01
	RA-224	240.98		3.95	2.89E+00	2.89E+00	1.42E+01	1.42E+00
	RA-225	40.00		31.00	3.42E-01	3.42E-01	1.98E-02	1.64E-01
+	RA-226	186.21	*	3.28	2.47E+00	2.47E+00	2.41E+00	1.21E+00
	TH-227	50.10		8.40	5.75E-01	5.68E-01	5.10E-02	2.77E-01
		236.00		11.50	5.68E-01		4.95E-02	2.75E-01
		256.20		6.30	7.75E-01		-4.00E-01	3.70E-01
+	AC-228	338.32	*	11.40	9.15E-01	3.56E-01	1.40E+00	4.46E-01
		911.07	*	27.70	3.56E-01		1.20E+00	1.68E-01
		969.11	*	16.60	9.28E-01		1.07E+00	4.46E-01
	TH-230	48.44		16.90	2.91E-01	2.91E-01	-5.27E-01	1.40E-01
		62.85		4.60	1.21E+00		1.59E+00	5.88E-01
		67.67		0.37	1.26E+01		6.86E-01	6.09E+00
	PA-231	283.67		1.60	3.20E+00	2.16E+00	1.68E+00	1.53E+00
		302.67		2.30	2.16E+00		-2.80E-02	1.03E+00
	TH-231	25.64		14.70	2.09E+00	6.84E-01	-6.94E-01	1.01E+00
		84.21		6.40	6.84E-01		4.82E-01	3.32E-01
	PA-233	311.98		38.60	1.65E-01	1.65E-01	-4.40E-02	7.83E-02
	PA-234	131.20		20.40	2.49E-01	2.49E-01	1.06E-01	1.21E-01
		733.99		8.80	7.75E-01		9.70E-02	3.61E-01
		946.00		12.00	6.20E-01		-7.51E-02	2.85E-01
	PA-234M	1001.03		0.92	8.96E+00	8.96E+00	1.61E+00	4.15E+00
+	TH-234	63.29	*	3.80	5.18E+00	5.18E+00	2.59E+00	2.57E+00
	U-235	143.76		10.50	4.80E-01	4.80E-01	1.22E-01	2.33E-01
		163.35		4.70	1.04E+00		-4.50E-01	5.01E-01
		205.31		4.70	1.06E+00		3.65E-02	5.08E-01
+	NP-237	86.50	*	12.60	5.98E-01	5.98E-01	5.13E-01	2.94E-01
	NP-239	106.10		22.70	3.03E+00	3.03E+00	-9.08E-01	1.47E+00
		228.18		10.70	6.82E+00		-6.26E-01	3.27E+00
		277.60		14.10	5.81E+00		2.47E+00	2.78E+00
	AM-241	59.54		35.90	1.30E-01	1.30E-01	-1.37E-01	6.29E-02
	AM-243	74.67		66.00	1.00E-01	1.00E-01	-1.98E-01	4.90E-02
+	CM-243	209.75	*	3.29	2.17E+00	4.17E-01	2.50E+00	1.05E+00
		228.14		10.60	4.56E-01		-4.19E-02	2.19E-01
		277.60	*	14.00	4.17E-01		2.42E-01	2.00E-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 1606064-09

CP-5015 00-02

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

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-5015 00-02

Elapsed Live time: 3600
Elapsed Real Time: 3602

Channel								
1:	0	0	0	0	0	0	40	511
9:	1040	722	447	204	2001	399	116	150
17:	132	90	100	99	63	75	54	70
25:	67	60	74	77	57	70	54	60
33:	62	59	67	48	73	62	47	80
41:	76	69	65	60	63	75	174	63
49:	64	79	75	77	90	86	73	102
57:	78	106	81	102	111	139	137	180
65:	105	115	98	132	114	112	102	123
73:	145	159	420	183	443	346	99	86
81:	100	87	79	130	133	97	188	190
89:	83	182	118	112	235	118	83	77
97:	68	67	70	90	77	67	69	58
105:	84	88	57	70	82	71	70	73
113:	71	74	71	65	62	60	64	66
121:	50	80	65	75	69	68	51	72
129:	112	74	67	71	63	68	58	74
137:	61	71	64	76	63	74	59	88
145:	69	60	67	48	49	78	56	60
153:	56	80	59	69	69	73	52	67
161:	49	55	70	54	57	62	72	57
169:	47	46	55	66	45	55	48	54
177:	47	40	61	62	65	49	55	62
185:	60	157	116	40	59	65	51	57
193:	45	42	46	55	43	41	58	60
201:	42	67	52	43	46	49	35	40
209:	89	67	53	55	49	34	36	42
217:	37	55	53	51	41	36	39	36
225:	40	34	37	36	47	31	37	34
233:	44	42	40	35	37	176	617	68
241:	110	148	68	24	39	39	30	31
249:	45	35	40	39	38	29	30	28
257:	39	35	39	36	33	25	28	31
265:	24	28	31	31	28	64	73	42
273:	38	25	29	31	50	41	31	26
281:	31	43	35	24	24	28	21	31
289:	34	23	19	23	34	20	150	119
297:	33	19	18	44	32	26	28	20
305:	25	16	28	26	32	25	21	26
313:	24	32	26	27	24	20	14	26
321:	23	19	31	21	22	30	29	66
329:	30	24	25	23	35	25	35	26
337:	22	100	114	26	21	27	18	21
345:	20	15	28	26	15	25	50	338
353:	82	11	17	18	27	18	20	20
361:	22	19	16	13	14	16	14	16

369:	15	17	14	21	20	19	13	23

Sample Title: CP-5015 00-02

Channel								
377:	16	20	16	24	23	17	18	29
385:	28	17	17	23	14	24	17	17
393:	17	22	17	17	17	15	27	22
401:	14	21	19	19	19	18	21	20
409:	27	23	11	11	19	13	19	18
417:	16	13	17	17	18	12	16	25
425:	16	20	23	10	20	18	12	15
433:	21	21	14	20	13	12	22	17
441:	23	12	15	13	16	24	18	15
449:	20	14	20	20	15	27	13	15
457:	13	9	9	12	12	21	47	27
465:	9	11	13	11	15	16	15	8
473:	14	22	15	13	15	15	16	11
481:	14	10	13	10	8	12	11	13
489:	16	10	13	14	14	15	17	8
497:	10	17	14	17	5	13	24	17
505:	11	9	13	17	18	44	86	39
513:	21	12	9	9	18	10	11	8
521:	8	11	5	17	6	14	14	10
529:	3	10	12	10	8	20	15	8
537:	14	12	15	10	16	8	10	14
545:	10	13	12	15	15	6	16	11
553:	14	7	12	15	14	8	12	9
561:	13	17	16	13	16	11	15	10
569:	12	17	11	12	12	19	18	12
577:	15	4	18	8	15	20	143	92
585:	14	10	11	14	16	9	11	8
593:	12	11	7	9	11	8	17	7
601:	14	8	8	12	12	10	9	23
609:	145	152	25	13	9	7	11	9
617:	9	5	11	7	11	7	14	12
625:	14	13	8	8	6	1	7	11
633:	13	9	16	11	13	7	12	10
641:	13	12	9	9	18	9	11	4
649:	7	15	10	12	7	12	13	9
657:	9	10	7	14	16	17	10	10
665:	12	13	12	12	5	13	12	7
673:	7	14	10	10	12	17	10	7
681:	6	8	7	6	18	4	15	11
689:	7	8	17	7	8	9	12	9
697:	11	9	11	10	16	10	12	10
705:	8	7	7	13	11	14	9	12
713:	11	4	14	8	8	12	7	18
721:	9	9	5	11	12	14	32	34
729:	15	15	9	10	5	8	8	7
737:	13	10	6	9	9	8	4	8
745:	14	6	7	8	9	9	9	5
753:	12	7	15	10	11	3	8	2
761:	8	4	7	7	9	8	14	9
769:	19	4	9	9	11	9	9	10
777:	9	9	9	8	8	9	6	5
785:	10	17	11	6	6	10	9	7
793:	11	10	24	12	12	5	5	5

801:	7	11	6	9	5	9	15	12

Sample Title: CP-5015 00-02

Channel								
809:	7	8	6	7	4	3	9	5
817:	8	9	11	5	11	10	4	9
825:	11	4	9	11	4	7	10	14
833:	11	7	9	15	14	5	8	9
841:	10	4	3	9	4	7	10	5
849:	5	8	6	4	6	7	5	6
857:	7	7	10	19	28	7	5	10
865:	5	7	8	10	8	5	4	2
873:	14	4	7	6	7	7	4	8
881:	4	7	9	7	9	5	9	5
889:	7	10	2	5	5	6	8	6
897:	11	8	8	5	6	7	8	6
905:	5	6	7	5	8	19	70	65
913:	15	5	2	4	7	8	6	8
921:	9	4	4	6	7	4	8	5
929:	5	8	7	5	8	11	14	6
937:	1	8	6	6	8	9	5	3
945:	8	8	11	3	8	7	5	7
953:	4	7	8	4	3	11	9	4
961:	3	4	6	27	15	14	8	17
969:	50	31	6	4	6	5	6	7
977:	6	8	5	6	4	7	2	5
985:	7	5	6	9	6	8	9	6
993:	12	7	4	7	6	12	9	5
1001:	10	8	6	2	8	5	11	5
1009:	3	7	4	9	5	6	5	10
1017:	4	8	6	7	6	10	2	12
1025:	6	3	11	10	4	8	5	8
1033:	6	4	8	7	3	3	8	8
1041:	8	8	4	14	9	4	6	5
1049:	6	8	8	7	1	4	9	9
1057:	9	9	3	5	4	4	6	10
1065:	6	5	8	5	6	5	6	4
1073:	3	5	5	7	4	7	7	2
1081:	10	3	3	12	9	9	8	7
1089:	5	2	7	2	6	5	10	8
1097:	5	6	6	7	10	5	6	8
1105:	6	6	7	9	7	6	9	10
1113:	4	4	9	6	9	8	8	32
1121:	42	12	6	7	3	9	4	6
1129:	6	3	9	9	6	7	7	4
1137:	8	3	4	12	4	3	4	9
1145:	3	6	4	4	12	4	8	5
1153:	5	7	8	12	4	7	7	4
1161:	5	4	3	3	11	8	9	3
1169:	6	8	8	5	5	5	6	15
1177:	4	3	5	4	9	2	5	8
1185:	9	8	9	8	7	9	5	7
1193:	11	5	10	7	9	6	9	7
1201:	7	5	6	11	6	6	7	10
1209:	6	5	9	5	8	14	8	6
1217:	9	8	9	7	11	10	14	12
1225:	4	9	4	4	5	8	8	8

1233:	4	9	5	5	14	20	22	6

Sample Title: CP-5015 00-02

Channel								
1241:	7	6	8	9	5	7	5	7
1249:	4	4	4	1	3	5	10	3
1257:	5	3	9	1	8	8	6	5
1265:	5	8	7	5	1	5	9	8
1273:	3	4	7	8	5	8	7	3
1281:	8	12	5	4	3	9	4	6
1289:	4	8	4	4	6	5	3	3
1297:	2	7	3	7	4	4	6	6
1305:	2	2	2	2	5	7	4	5
1313:	7	2	4	3	4	4	5	4
1321:	2	5	4	3	4	4	2	4
1329:	4	3	6	6	1	6	5	1
1337:	4	2	2	3	3	5	4	2
1345:	3	4	1	1	5	4	1	5
1353:	5	3	2	4	5	5	4	1
1361:	2	4	4	5	5	1	3	4
1369:	3	4	0	5	2	1	2	5
1377:	8	6	6	2	4	2	4	2
1385:	9	6	5	3	1	1	2	1
1393:	1	0	6	1	2	0	0	2
1401:	9	2	3	5	3	2	4	5
1409:	4	2	2	4	3	2	1	3
1417:	3	1	2	1	3	1	2	1
1425:	2	1	2	0	4	1	2	2
1433:	3	4	3	3	2	1	3	4
1441:	2	1	4	4	0	4	1	2
1449:	2	3	4	2	1	4	3	0
1457:	6	2	20	132	345	155	35	3
1465:	1	3	3	4	3	0	0	1
1473:	2	2	1	1	1	0	5	1
1481:	3	0	0	3	2	2	2	2
1489:	1	1	3	0	1	2	5	1
1497:	2	0	1	1	2	2	2	1
1505:	4	2	1	1	5	5	4	4
1513:	2	1	4	2	2	1	1	1
1521:	3	3	1	2	3	0	3	1
1529:	5	0	1	3	3	1	1	2
1537:	1	1	2	1	0	4	2	0
1545:	1	6	2	2	0	2	0	1
1553:	3	0	1	2	1	3	2	2
1561:	2	0	1	3	2	0	1	0
1569:	2	2	1	0	1	0	0	0
1577:	1	0	1	2	4	6	2	4
1585:	1	0	3	13	6	2	2	4
1593:	4	0	1	3	3	0	2	1
1601:	3	0	0	2	7	1	2	1
1609:	1	1	0	1	3	3	4	2
1617:	3	1	2	7	8	0	3	1
1625:	0	1	1	2	0	2	5	1
1633:	1	1	0	1	2	1	3	1
1641:	0	1	0	1	0	4	0	2
1649:	2	2	0	0	0	1	0	3
1657:	2	3	0	4	1	4	5	2

1665:	0	3	0	1	1	0	0	0

Sample Title: CP-5015 00-02

Channel								
1673:	0	0	3	3	0	1	0	3
1681:	1	0	2	3	2	1	2	0
1689:	1	3	3	2	0	2	0	1
1697:	0	3	2	0	1	0	1	2
1705:	0	0	0	2	1	2	1	2
1713:	0	2	3	1	3	0	0	1
1721:	4	3	1	1	1	1	2	0
1729:	3	5	5	1	1	2	1	1
1737:	0	0	3	1	3	0	1	0
1745:	2	0	0	0	0	0	1	1
1753:	2	2	0	2	2	0	1	0
1761:	0	0	4	18	24	11	4	1
1769:	1	0	1	1	1	0	0	4
1777:	0	2	0	1	2	1	3	1
1785:	2	0	1	1	1	2	2	1
1793:	1	1	1	1	2	0	0	2
1801:	0	0	1	0	1	1	0	0
1809:	0	2	0	0	1	0	0	0
1817:	1	2	1	3	0	1	1	0
1825:	2	2	1	2	2	1	0	0
1833:	1	1	1	2	1	3	1	2
1841:	2	0	0	0	0	1	1	3
1849:	4	1	3	3	0	0	0	2
1857:	1	0	1	1	2	0	0	1
1865:	1	0	1	3	1	0	0	2
1873:	5	0	1	1	0	3	1	0
1881:	0	0	2	1	2	2	1	4
1889:	0	2	1	1	2	1	2	2
1897:	1	1	0	0	4	0	0	0
1905:	4	1	1	1	0	1	1	1
1913:	3	0	0	1	2	0	0	1
1921:	3	0	1	1	1	1	0	2
1929:	2	1	2	1	2	0	2	1
1937:	1	2	2	2	0	2	3	1
1945:	0	1	3	0	3	1	0	2
1953:	0	0	0	2	3	1	0	0
1961:	1	0	2	1	0	1	1	0
1969:	3	1	0	0	0	1	1	0
1977:	0	1	1	1	0	0	1	2
1985:	2	1	0	2	0	0	1	2
1993:	0	0	2	0	0	2	1	1
2001:	0	2	0	1	0	0	2	0
2009:	2	2	2	0	3	2	2	1
2017:	1	0	0	1	0	0	1	1
2025:	0	0	0	0	2	2	0	1
2033:	2	2	0	1	1	1	1	1
2041:	2	0	1	0	1	0	1	1
2049:	3	0	0	0	1	1	3	0
2057:	0	1	1	1	1	0	1	1
2065:	1	0	2	1	0	0	0	1
2073:	0	0	2	1	0	2	2	1
2081:	0	0	0	0	0	1	2	1
2089:	1	0	1	0	0	2	0	3

2097:	2	1	0	1	5	2	3	4

Sample Title: CP-5015 00-02

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

2529:	0	1	0	0	1	1	0	0

Sample Title: CP-5015 00-02

Channel								
2537:	0	0	0	0	0	0	0	0
2545:	0	0	0	0	1	1	0	0
2553:	1	0	0	1	1	1	1	0
2561:	0	2	0	0	1	0	0	0
2569:	0	0	1	0	0	0	2	0
2577:	1	0	0	1	0	2	0	1
2585:	0	1	0	0	0	0	0	0
2593:	1	0	0	1	0	0	0	0
2601:	0	1	0	1	0	1	1	0
2609:	0	0	0	1	15	18	32	18
2617:	6	0	0	1	0	0	0	1
2625:	0	0	0	0	0	0	1	0
2633:	0	0	0	2	0	0	0	2
2641:	0	0	0	0	0	0	0	0
2649:	0	0	1	0	0	1	0	0
2657:	0	0	0	0	0	0	0	0
2665:	0	0	0	0	0	0	1	1
2673:	0	0	0	0	1	1	2	0
2681:	1	0	0	1	0	1	1	0
2689:	0	0	1	0	0	1	0	0
2697:	0	0	1	3	1	0	1	0
2705:	0	0	0	1	1	1	0	1
2713:	0	0	1	0	0	1	0	1
2721:	0	0	1	0	2	1	1	0
2729:	0	1	1	0	0	0	0	0
2737:	0	0	1	0	0	0	0	0
2745:	1	0	0	0	1	0	0	0
2753:	0	2	0	0	0	1	1	1
2761:	0	0	0	0	0	2	0	0
2769:	0	0	0	0	0	0	0	0
2777:	0	1	0	2	0	1	0	0
2785:	0	0	0	0	0	0	0	0
2793:	1	1	0	0	0	0	0	0
2801:	0	1	0	0	1	0	0	1
2809:	0	0	0	0	0	1	0	0
2817:	1	0	0	0	0	0	0	0
2825:	0	0	0	0	0	0	1	0
2833:	1	0	0	1	1	0	1	1
2841:	1	0	0	0	1	1	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	1	0	0	0	0
2873:	0	0	2	1	0	0	0	0
2881:	0	0	0	0	0	1	0	0
2889:	0	0	0	0	1	2	0	0
2897:	1	0	0	0	0	0	0	0
2905:	1	0	0	0	0	1	0	0
2913:	0	0	1	0	1	1	0	0
2921:	0	0	0	0	0	1	0	0
2929:	0	0	0	0	1	0	1	0
2937:	0	1	0	0	0	0	0	3
2945:	1	0	0	0	0	0	0	0
2953:	1	0	1	0	0	0	0	0

2961:	0	0	0	1	0	0	1	0

Sample Title: CP-5015 00-02

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

3393:	0	0	0	0	0	0	0	0

Sample Title: CP-5015 00-02

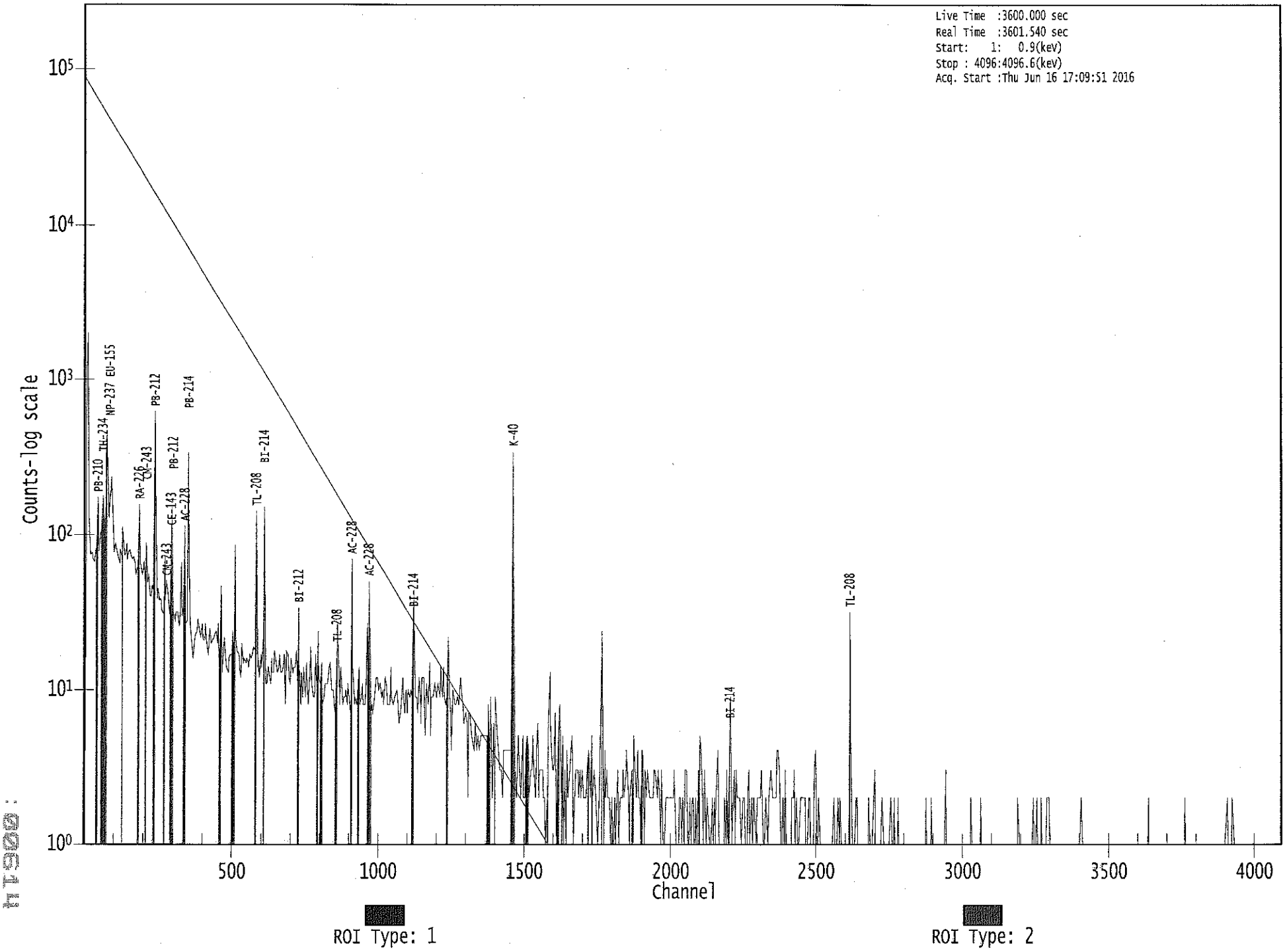
Channel								
3401:	1	0	0	0	0	2	0	0
3409:	0	1	1	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	1	0	0	0	0	0
3433:	0	0	0	0	0	0	1	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	1	0	0
3465:	0	0	1	0	0	0	0	0
3473:	0	1	0	0	0	1	0	0
3481:	1	1	0	0	0	0	0	0
3489:	0	0	0	1	0	0	1	0
3497:	0	0	1	1	0	1	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: CP-5015 00-02

Channel								
3833:	0	0	1	0	0	0	0	0
3841:	0	0	0	0	0	1	0	0
3849:	0	0	0	1	1	1	0	1
3857:	0	0	0	0	0	0	0	0
3865:	0	0	0	0	1	0	0	0
3873:	1	0	0	0	0	0	0	0
3881:	0	1	0	0	0	0	0	0
3889:	0	1	0	0	1	0	0	0
3897:	0	0	0	1	1	0	0	0
3905:	0	0	0	2	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	2	0	2	1	0
3929:	0	0	0	1	0	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	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	1	0	0	0
3985:	0	0	0	0	0	0	0	0
3993:	0	0	0	0	0	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	1	0	0	1	0
4017:	0	1	0	0	0	0	0	0
4025:	0	0	0	0	0	0	0	0
4033:	0	0	0	1	0	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	0	1	1	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	1	0	0	0	1	0

0000039038.CNF



Apex-Gamma

Analysis Report for 1606064-10
CP-5015 02-05

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1606064-10
Sample Description	: CP-5015 02-05
Sample Type	: SOIL
Sample Size	: 6.067E+02 grams
Facility	: Countroom
Sample Taken On	: 6/7/2016 12:19:55PM
Acquisition Started	: 6/16/2016 5:10:00PM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1402
Live Time	: 3600.0 seconds
Real Time	: 3618.7 seconds
Dead Time	: 0.52 %
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	: 39039

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
6/17/16

Analysis Report for 1606064-10

CP-5015 02-05

PEAK LOCATE REPORT

Peak Locate Performed on : 6/16/2016 6:10:21PM
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	46.34	46.57	0.0000	0.00
2	76.76	76.97	0.0000	0.00
3	87.24	87.45	0.0000	0.00
4	92.96	93.16	0.0000	0.00
5	130.56	130.75	0.0000	0.00
6	186.26	186.42	0.0000	0.00
7	207.02	207.17	0.0000	0.00
8	210.03	210.17	0.0000	0.00
9	239.18	239.31	0.0000	0.00
10	242.08	242.20	0.0000	0.00
11	270.50	270.61	0.0000	0.00
12	272.89	273.00	0.0000	0.00
13	295.79	295.89	0.0000	0.00
14	300.88	300.98	0.0000	0.00
15	338.90	338.98	0.0000	0.00
16	352.41	352.48	0.0000	0.00
17	410.86	410.90	0.0000	0.00
18	453.60	453.62	0.0000	0.00
19	463.52	463.53	0.0000	0.00
20	506.20	506.19	0.0000	0.00
21	511.38	511.37	0.0000	0.00
22	563.69	563.65	0.0000	0.00
23	572.85	572.81	0.0000	0.00
24	583.70	583.66	0.0000	0.00
25	609.86	609.81	0.0000	0.00
26	671.19	671.10	0.0000	0.00
27	701.79	701.69	0.0000	0.00
28	713.69	713.58	0.0000	0.00
29	727.09	726.98	0.0000	0.00
30	795.94	795.79	0.0000	0.00
31	860.90	860.73	0.0000	0.00
32	911.79	911.60	0.0000	0.00
33	934.02	933.82	0.0000	0.00
34	968.47	968.25	0.0000	0.00
35	1115.29	1115.01	0.0000	0.00
36	1120.73	1120.45	0.0000	0.00
37	1199.21	1198.90	0.0000	0.00
38	1214.56	1214.24	0.0000	0.00
39	1240.30	1239.96	0.0000	0.00
40	1288.58	1288.22	0.0000	0.00
41	1376.97	1376.58	0.0000	0.00
42	1386.35	1385.96	0.0000	0.00

Analysis Report for 1606064-10

CP-5015 02-05

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1461.12	1460.70	0.0000	0.00
44	1510.22	1509.78	0.0000	0.00
45	1590.93	1590.46	0.0000	0.00
46	1662.53	1662.04	0.0000	0.00
47	1731.04	1730.53	0.0000	0.00
48	1764.70	1764.17	0.0000	0.00
49	1782.99	1782.45	0.0000	0.00
50	1847.27	1846.71	0.0000	0.00
51	1908.20	1907.62	0.0000	0.00
52	2104.61	2103.97	0.0000	0.00
53	2336.44	2335.73	0.0000	0.00
54	2446.64	2445.90	0.0000	0.00
55	2614.52	2613.74	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1606064-10

CP-5015 02-05

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 6/16/2016 6:10:21PM

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	46.34	43 -	50	46.57	1.57E+02	87.20	1.17E+03	2.80
	2	76.76	72 -	83	76.97	1.03E+03	169.34	3.03E+03	3.23
M	3	87.24	83 -	97	87.45	4.80E+02	123.41	2.00E+03	3.86
m	4	92.96	83 -	97	93.16	4.21E+02	95.47	1.23E+03	2.18
	5	130.56	126 -	135	130.75	1.21E+02	100.92	1.39E+03	1.93
	6	186.26	182 -	189	186.42	2.20E+02	75.47	8.00E+02	2.22
M	7	207.02	206 -	214	207.17	2.82E+01	24.94	1.85E+02	1.85
m	8	210.03	206 -	214	210.17	7.38E+01	55.23	5.46E+02	1.86
M	9	239.18	234 -	246	239.31	8.17E+02	70.80	4.09E+02	1.81
m	10	242.08	234 -	246	242.20	1.64E+02	80.85	5.18E+02	2.36
M	11	270.50	268 -	276	270.61	8.77E+01	46.42	3.43E+02	2.07
m	12	272.89	268 -	276	273.00	3.87E+01	41.70	2.89E+02	1.75
	13	295.79	291 -	299	295.89	1.70E+02	68.25	6.12E+02	1.55
	14	300.88	299 -	304	300.98	3.49E+01	43.02	3.38E+02	1.54
	15	338.90	335 -	343	338.98	1.69E+02	59.26	4.36E+02	1.40
	16	352.41	346 -	357	352.48	4.14E+02	73.48	4.68E+02	1.97
	17	410.86	407 -	414	410.90	3.87E+01	42.28	2.73E+02	4.38
	18	453.60	450 -	456	453.62	3.94E+01	34.67	1.85E+02	2.91
	19	463.52	459 -	469	463.53	7.62E+01	48.15	2.66E+02	2.16
M	20	506.20	505 -	521	506.19	2.31E+01	12.37	3.83E+01	2.13
m	21	511.38	505 -	521	511.37	1.72E+02	44.03	1.83E+02	2.84
	22	563.69	560 -	567	563.65	2.97E+01	31.18	1.39E+02	1.22
	23	572.85	568 -	577	572.81	5.07E+01	35.41	1.51E+02	4.88
	24	583.70	578 -	589	583.66	2.27E+02	49.44	1.92E+02	2.02
	25	609.86	606 -	614	609.81	2.46E+02	49.52	2.27E+02	1.78
	26	671.19	669 -	674	671.10	2.22E+01	22.91	8.76E+01	1.73
	27	701.79	698 -	705	701.69	3.68E+01	29.80	1.23E+02	1.71
	28	713.69	711 -	717	713.58	2.49E+01	23.19	7.82E+01	1.93
	29	727.09	722 -	730	726.98	5.74E+01	32.79	1.29E+02	2.76
	30	795.94	791 -	800	795.79	4.55E+01	33.02	1.29E+02	1.54
	31	860.90	854 -	863	860.73	2.40E+01	30.59	1.20E+02	2.68
	32	911.79	906 -	916	911.60	1.66E+02	41.60	1.41E+02	2.10
	33	934.02	930 -	938	933.82	2.15E+01	27.53	1.03E+02	2.23
	34	968.47	963 -	972	968.25	1.18E+02	36.22	1.20E+02	1.57
M	35	1115.29	1113 -	1127	1115.01	1.81E+01	15.75	5.76E+01	2.74
m	36	1120.73	1113 -	1127	1120.45	6.85E+01	29.19	1.13E+02	2.23
	37	1199.21	1196 -	1202	1198.90	1.79E+01	19.07	5.42E+01	2.21
	38	1214.56	1211 -	1217	1214.24	1.75E+01	20.80	6.49E+01	3.16
	39	1240.30	1235 -	1245	1239.96	3.41E+01	29.61	9.77E+01	2.92
	40	1288.58	1285 -	1293	1288.22	1.37E+01	16.30	3.46E+01	4.62

Analysis Report for 1606064-10

CP-5015 02-05

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1376.97	1371 -	1382	1376.58	2.53E+01	18.44	2.93E+01	5.50
42	1386.35	1383 -	1390	1385.96	1.46E+01	11.31	1.09E+01	1.73
43	1461.12	1455 -	1466	1460.70	5.59E+02	49.72	2.81E+01	2.19
44	1510.22	1505 -	1515	1509.78	1.60E+01	10.31	6.00E+00	6.83
45	1590.93	1583 -	1597	1590.46	2.10E+01	19.21	3.00E+01	8.18
46	1662.53	1658 -	1665	1662.04	1.01E+01	8.00	3.83E+00	3.87
47	1731.04	1724 -	1737	1730.53	2.28E+01	12.37	6.35E+00	2.51
48	1764.70	1759 -	1769	1764.17	4.81E+01	15.31	5.71E+00	2.09
49	1782.99	1779 -	1785	1782.45	1.10E+01	6.63	0.00E+00	3.00
50	1847.27	1843 -	1849	1846.71	9.18E+00	7.50	3.64E+00	3.38
51	1908.20	1905 -	1910	1907.62	6.67E+00	7.35	4.67E+00	1.86
52	2104.61	2100 -	2111	2103.97	2.09E+01	13.56	1.43E+01	5.70
53	2336.44	2332 -	2339	2335.73	9.92E+00	8.00	4.17E+00	1.37
54	2446.64	2443 -	2449	2445.90	1.00E+01	6.32	0.00E+00	3.16
55	2614.52	2608 -	2618	2613.74	7.32E+01	18.28	5.66E+00	2.21

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 : 6/16/2016 6:10:21PM

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	46.34	43 -	50	1.57E+02	87.20	1.17E+03	6.87E+01
	2	76.76	72 -	83	1.03E+03	169.34	3.03E+03	1.29E+02
M	3	87.24	83 -	97	4.80E+02	123.41	2.00E+03	7.35E+01
m	4	92.96	83 -	97	4.21E+02	95.47	1.23E+03	5.75E+01
	5	130.56	126 -	135	1.21E+02	100.92	1.39E+03	8.10E+01
	6	186.26	182 -	189	2.20E+02	75.47	8.00E+02	5.70E+01
M	7	207.02	206 -	214	2.82E+01	24.94	1.85E+02	2.23E+01
m	8	210.03	206 -	214	7.38E+01	55.23	5.46E+02	3.84E+01
M	9	239.18	234 -	246	8.17E+02	70.80	4.09E+02	3.33E+01
m	10	242.08	234 -	246	1.64E+02	80.85	5.18E+02	3.74E+01
M	11	270.50	268 -	276	8.77E+01	46.42	3.43E+02	3.05E+01
m	12	272.89	268 -	276	3.87E+01	41.70	2.89E+02	2.80E+01
	13	295.79	291 -	299	1.70E+02	68.25	6.12E+02	5.18E+01

Analysis Report for 1606064-10

CP-5015 02-05

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	14	300.88	299 -	304	3.49E+01	43.02	3.38E+02	3.40E+01
	15	338.90	335 -	343	1.69E+02	59.26	4.36E+02	4.38E+01
	16	352.41	346 -	357	4.14E+02	73.48	4.68E+02	2.76E+01
	17	410.86	407 -	414	3.87E+01	42.28	2.73E+02	3.32E+01
	18	453.60	450 -	456	3.94E+01	34.67	1.85E+02	2.66E+01
	19	463.52	459 -	469	7.62E+01	48.15	2.66E+02	3.69E+01
M	20	506.20	505 -	521	2.31E+01	12.37	3.83E+01	1.02E+01
m	21	511.38	505 -	521	1.72E+02	44.03	1.83E+02	2.22E+01
	22	563.69	560 -	567	2.97E+01	31.18	1.39E+02	2.40E+01
	23	572.85	568 -	577	5.07E+01	35.41	1.51E+02	2.67E+01
	24	583.70	578 -	589	2.27E+02	49.44	1.92E+02	3.22E+01
	25	609.86	606 -	614	2.46E+02	49.52	2.27E+02	3.15E+01
	26	671.19	669 -	674	2.22E+01	22.91	8.76E+01	1.72E+01
	27	701.79	698 -	705	3.68E+01	29.80	1.23E+02	2.24E+01
	28	713.69	711 -	717	2.49E+01	23.19	7.82E+01	1.72E+01
	29	727.09	722 -	730	5.74E+01	32.79	1.29E+02	2.39E+01
	30	795.94	791 -	800	4.55E+01	33.02	1.29E+02	2.48E+01
	31	860.90	854 -	863	2.40E+01	30.59	1.20E+02	2.38E+01
	32	911.79	906 -	916	1.66E+02	41.60	1.41E+02	2.69E+01
	33	934.02	930 -	938	2.15E+01	27.53	1.03E+02	2.13E+01
	34	968.47	963 -	972	1.18E+02	36.22	1.20E+02	2.38E+01
M	35	1115.29	1113 -	1127	1.81E+01	15.75	5.76E+01	1.25E+01
m	36	1120.73	1113 -	1127	6.85E+01	29.19	1.13E+02	1.75E+01
	37	1199.21	1196 -	1202	1.79E+01	19.07	5.42E+01	1.41E+01
	38	1214.56	1211 -	1217	1.75E+01	20.80	6.49E+01	1.57E+01
	39	1240.30	1235 -	1245	3.41E+01	29.61	9.77E+01	2.24E+01
	40	1288.58	1285 -	1293	1.37E+01	16.30	3.46E+01	1.19E+01
	41	1376.97	1371 -	1382	2.53E+01	18.44	2.93E+01	1.27E+01
	42	1386.35	1383 -	1390	1.46E+01	11.31	1.09E+01	6.86E+00
	43	1461.12	1455 -	1466	5.59E+02	49.72	2.81E+01	1.26E+01
	44	1510.22	1505 -	1515	1.60E+01	10.31	6.00E+00	5.34E+00
	45	1590.93	1583 -	1597	2.10E+01	19.21	3.00E+01	1.39E+01
	46	1662.53	1658 -	1665	1.01E+01	8.00	3.83E+00	4.00E+00
	47	1731.04	1724 -	1737	2.28E+01	12.37	6.35E+00	6.46E+00
	48	1764.70	1759 -	1769	4.81E+01	15.31	5.71E+00	5.31E+00
	49	1782.99	1779 -	1785	1.10E+01	6.63	0.00E+00	0.00E+00
	50	1847.27	1843 -	1849	9.18E+00	7.50	3.64E+00	3.63E+00
	51	1908.20	1905 -	1910	6.67E+00	7.35	4.67E+00	4.30E+00
	52	2104.61	2100 -	2111	2.09E+01	13.56	1.43E+01	8.24E+00
	53	2336.44	2332 -	2339	9.92E+00	8.00	4.17E+00	4.05E+00
	54	2446.64	2443 -	2449	1.00E+01	6.32	0.00E+00	0.00E+00
	55	2614.52	2608 -	2618	7.32E+01	18.28	5.66E+00	5.30E+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 1606064-10

CP-5015 02-05

PEAK WITH NID REPORT

Peak Analysis Performed on : 6/16/2016 6:10:21PM

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	46.34	43 -	50	46.57	1.57E+02	87.20	1.17E+03	PB-210
	2	76.76	72 -	83	76.97	1.03E+03	169.34	3.03E+03	.....
M	3	87.24	83 -	97	87.45	4.80E+02	123.41	2.00E+03	SN-126
									NP-237
									EU-155
									CD-109
m	4	92.96	83 -	97	93.16	4.21E+02	95.47	1.23E+03	GA-67
	5	130.56	126 -	135	130.75	1.21E+02	100.92	1.39E+03	PA-234
	6	186.26	182 -	189	186.42	2.20E+02	75.47	8.00E+02	RA-226
M	7	207.02	206 -	214	207.17	2.82E+01	24.94	1.85E+02	.....
m	8	210.03	206 -	214	210.17	7.38E+01	55.23	5.46E+02	CM-243
M	9	239.18	234 -	246	239.31	8.17E+02	70.80	4.09E+02	PB-212
m	10	242.08	234 -	246	242.20	1.64E+02	80.85	5.18E+02	.....
M	11	270.50	268 -	276	270.61	8.77E+01	46.42	3.43E+02	.....
m	12	272.89	268 -	276	273.00	3.87E+01	41.70	2.89E+02	CS-136
									LU-173
	13	295.79	291 -	299	295.89	1.70E+02	68.25	6.12E+02	PB-214
	14	300.88	299 -	304	300.98	3.49E+01	43.02	3.38E+02	GA-67
									PB-212
									BI-210M
	15	338.90	335 -	343	338.98	1.69E+02	59.26	4.36E+02	AC-228
	16	352.41	346 -	357	352.48	4.14E+02	73.48	4.68E+02	PB-214
	17	410.86	407 -	414	410.90	3.87E+01	42.28	2.73E+02	HO-166M
	18	453.60	450 -	456	453.62	3.94E+01	34.67	1.85E+02	PM-146
	19	463.52	459 -	469	463.53	7.62E+01	48.15	2.66E+02	SB-125
M	20	506.20	505 -	521	506.19	2.31E+01	12.37	3.83E+01	.....
m	21	511.38	505 -	521	511.37	1.72E+02	44.03	1.83E+02	.....
	22	563.69	560 -	567	563.65	2.97E+01	31.18	1.39E+02	CS-134
	23	572.85	568 -	577	572.81	5.07E+01	35.41	1.51E+02	.....
	24	583.70	578 -	589	583.66	2.27E+02	49.44	1.92E+02	TL-208
	25	609.86	606 -	614	609.81	2.46E+02	49.52	2.27E+02	BI-214
	26	671.19	669 -	674	671.10	2.22E+01	22.91	8.76E+01	.....
	27	701.79	698 -	705	701.69	3.68E+01	29.80	1.23E+02	NB-94
	28	713.69	711 -	717	713.58	2.49E+01	23.19	7.82E+01	.....
	29	727.09	722 -	730	726.98	5.74E+01	32.79	1.29E+02	BI-212
	30	795.94	791 -	800	795.79	4.55E+01	33.02	1.29E+02	CS-134
	31	860.90	854 -	863	860.73	2.40E+01	30.59	1.20E+02	TL-208
	32	911.79	906 -	916	911.60	1.66E+02	41.60	1.41E+02	LU-172

Analysis Report for 1606064-10

CP-5015 02-05

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									AC-228
	33	934.02	930 -	938	933.82	2.15E+01	27.53	1.03E+02	.....
	34	968.47	963 -	972	968.25	1.18E+02	36.22	1.20E+02	AC-228
M	35	1115.29	1113 -	1127	1115.01	1.81E+01	15.75	5.76E+01	ZN-65
m	36	1120.73	1113 -	1127	1120.45	6.85E+01	29.19	1.13E+02	SC-46
									BI-214
									TA-182
	37	1199.21	1196 -	1202	1198.90	1.79E+01	19.07	5.42E+01	.....
	38	1214.56	1211 -	1217	1214.24	1.75E+01	20.80	6.49E+01	.....
	39	1240.30	1235 -	1245	1239.96	3.41E+01	29.61	9.77E+01	.....
	40	1288.58	1285 -	1293	1288.22	1.37E+01	16.30	3.46E+01	.....
	41	1376.97	1371 -	1382	1376.58	2.53E+01	18.44	2.93E+01	.....
	42	1386.35	1383 -	1390	1385.96	1.46E+01	11.31	1.09E+01	.....
	43	1461.12	1455 -	1466	1460.70	5.59E+02	49.72	2.81E+01	K-40
	44	1510.22	1505 -	1515	1509.78	1.60E+01	10.31	6.00E+00	.....
	45	1590.93	1583 -	1597	1590.46	2.10E+01	19.21	3.00E+01	.....
	46	1662.53	1658 -	1665	1662.04	1.01E+01	8.00	3.83E+00	.....
	47	1731.04	1724 -	1737	1730.53	2.28E+01	12.37	6.35E+00	.....
	48	1764.70	1759 -	1769	1764.17	4.81E+01	15.31	5.71E+00	BI-214
	49	1782.99	1779 -	1785	1782.45	1.10E+01	6.63	0.00E+00	.....
	50	1847.27	1843 -	1849	1846.71	9.18E+00	7.50	3.64E+00	.....
	51	1908.20	1905 -	1910	1907.62	6.67E+00	7.35	4.67E+00	.....
	52	2104.61	2100 -	2111	2103.97	2.09E+01	13.56	1.43E+01	.....
	53	2336.44	2332 -	2339	2335.73	9.92E+00	8.00	4.17E+00	.....
	54	2446.64	2443 -	2449	2445.90	1.00E+01	6.32	0.00E+00	.....
	55	2614.52	2608 -	2618	2613.74	7.32E+01	18.28	5.66E+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 : 6/16/2016 6:10:21PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.34	1.57E+02	87.20	1.49E-02	1.58E-03
	2	76.76	1.03E+03	169.34	2.38E-02	2.15E-03
M	3	87.24	4.80E+02	123.41	2.44E-02	2.50E-03
m	4	92.96	4.21E+02	95.47	2.44E-02	2.41E-03

Analysis Report for 1606064-10

CP-5015 02-05

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	5	130.56	1.21E+02	100.92	2.24E-02	1.69E-03
	6	186.26	2.20E+02	75.47	1.83E-02	1.42E-03
M	7	207.02	2.82E+01	24.94	1.69E-02	1.32E-03
m	8	210.03	7.38E+01	55.23	1.68E-02	1.31E-03
M	9	239.18	8.17E+02	70.80	1.52E-02	1.18E-03
m	10	242.08	1.64E+02	80.85	1.51E-02	1.17E-03
M	11	270.50	8.77E+01	46.42	1.38E-02	1.04E-03
m	12	272.89	3.87E+01	41.70	1.37E-02	1.03E-03
	13	295.79	1.70E+02	68.25	1.28E-02	9.73E-04
	14	300.88	3.49E+01	43.02	1.26E-02	9.66E-04
	15	338.90	1.69E+02	59.26	1.14E-02	9.12E-04
	16	352.41	4.14E+02	73.48	1.10E-02	8.93E-04
	17	410.86	3.87E+01	42.28	9.68E-03	8.18E-04
	18	453.60	3.94E+01	34.67	8.89E-03	7.75E-04
	19	463.52	7.62E+01	48.15	8.72E-03	7.66E-04
M	20	506.20	2.31E+01	12.37	8.08E-03	7.23E-04
m	21	511.38	1.72E+02	44.03	8.01E-03	7.18E-04
	22	563.69	2.97E+01	31.18	7.35E-03	6.66E-04
	23	572.85	5.07E+01	35.41	7.25E-03	6.56E-04
	24	583.70	2.27E+02	49.44	7.13E-03	6.46E-04
	25	609.86	2.46E+02	49.52	6.87E-03	6.20E-04
	26	671.19	2.22E+01	22.91	6.32E-03	5.60E-04
	27	701.79	3.68E+01	29.80	6.08E-03	5.35E-04
	28	713.69	2.49E+01	23.19	5.99E-03	5.25E-04
	29	727.09	5.74E+01	32.79	5.89E-03	5.14E-04
	30	795.94	4.55E+01	33.02	5.45E-03	4.58E-04
	31	860.90	2.40E+01	30.59	5.09E-03	4.05E-04
	32	911.79	1.66E+02	41.60	4.85E-03	3.72E-04
	33	934.02	2.15E+01	27.53	4.75E-03	3.68E-04
	34	968.47	1.18E+02	36.22	4.61E-03	3.62E-04
M	35	1115.29	1.81E+01	15.75	4.09E-03	3.34E-04
m	36	1120.73	6.85E+01	29.19	4.08E-03	3.33E-04
	37	1199.21	1.79E+01	19.07	3.85E-03	3.18E-04
	38	1214.56	1.75E+01	20.80	3.81E-03	3.14E-04
	39	1240.30	3.41E+01	29.61	3.75E-03	3.09E-04
	40	1288.58	1.37E+01	16.30	3.64E-03	2.98E-04
	41	1376.97	2.53E+01	18.44	3.45E-03	2.82E-04
	42	1386.35	1.46E+01	11.31	3.43E-03	2.80E-04
	43	1461.12	5.59E+02	49.72	3.29E-03	2.69E-04
	44	1510.22	1.60E+01	10.31	3.21E-03	2.62E-04
	45	1590.93	2.10E+01	19.21	3.08E-03	2.50E-04
	46	1662.53	1.01E+01	8.00	2.98E-03	2.39E-04
	47	1731.04	2.28E+01	12.37	2.90E-03	2.29E-04
	48	1764.70	4.81E+01	15.31	2.86E-03	2.24E-04
	49	1782.99	1.10E+01	6.63	2.84E-03	2.21E-04
	50	1847.27	9.18E+00	7.50	2.77E-03	2.13E-04
	51	1908.20	6.67E+00	7.35	2.70E-03	2.13E-04
	52	2104.61	2.09E+01	13.56	2.54E-03	2.13E-04
	53	2336.44	9.92E+00	8.00	2.38E-03	2.13E-04
	54	2446.64	1.00E+01	6.32	2.32E-03	2.13E-04
	55	2614.52	7.32E+01	18.28	2.24E-03	2.13E-04

Analysis Report for 1606064-10

CP-5015 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 : 6/16/2016 6:10:21PM

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	46.34	1.57E+02	87.20	4.97E+01	7.81E+00	1.07E+02	8.75E+01
	2	76.76	1.03E+03	169.34	6.70E+00	3.28E+00	1.02E+03	1.69E+02
M	3	87.24	4.80E+02	123.41	1.07E+01	3.99E+00	4.69E+02	1.23E+02
m	4	92.96	4.21E+02	95.47	8.20E+01	2.30E+01	3.39E+02	9.82E+01
	5	130.56	1.21E+02	100.92			1.21E+02	1.01E+02
	6	186.26	2.20E+02	75.47	3.45E+01	5.92E+00	1.86E+02	7.57E+01
M	7	207.02	2.82E+01	24.94			2.82E+01	2.49E+01
m	8	210.03	7.38E+01	55.23			7.38E+01	5.52E+01
M	9	239.18	8.17E+02	70.80	1.33E+01	5.09E+00	8.04E+02	7.10E+01
m	10	242.08	1.64E+02	80.85			1.64E+02	8.08E+01
M	11	270.50	8.77E+01	46.42			8.77E+01	4.64E+01
m	12	272.89	3.87E+01	41.70			3.87E+01	4.17E+01
	13	295.79	1.70E+02	68.25	1.94E+00	4.39E+00	1.68E+02	6.84E+01
	14	300.88	3.49E+01	43.02			3.49E+01	4.30E+01
	15	338.90	1.69E+02	59.26			1.69E+02	5.93E+01
	16	352.41	4.14E+02	73.48	4.00E+00	3.58E+00	4.10E+02	7.36E+01
	17	410.86	3.87E+01	42.28			3.87E+01	4.23E+01
	18	453.60	3.94E+01	34.67			3.94E+01	3.47E+01
	19	463.52	7.62E+01	48.15			7.62E+01	4.81E+01
M	20	506.20	2.31E+01	12.37			2.31E+01	1.24E+01
m	21	511.38	1.72E+02	44.03	6.05E+01	4.93E+00	1.11E+02	4.43E+01
	22	563.69	2.97E+01	31.18			2.97E+01	3.12E+01
	23	572.85	5.07E+01	35.41			5.07E+01	3.54E+01
	24	583.70	2.27E+02	49.44	5.50E+00	3.61E+00	2.22E+02	4.96E+01
	25	609.86	2.46E+02	49.52	5.07E+00	3.83E+00	2.41E+02	4.97E+01
	26	671.19	2.22E+01	22.91			2.22E+01	2.29E+01
	27	701.79	3.68E+01	29.80			3.68E+01	2.98E+01
	28	713.69	2.49E+01	23.19			2.49E+01	2.32E+01
	29	727.09	5.74E+01	32.79			5.74E+01	3.28E+01
	30	795.94	4.55E+01	33.02			4.55E+01	3.30E+01
	31	860.90	2.40E+01	30.59			2.40E+01	3.06E+01
	32	911.79	1.66E+02	41.60			1.66E+02	4.16E+01
	33	934.02	2.15E+01	27.53			2.15E+01	2.75E+01
	34	968.47	1.18E+02	36.22			1.18E+02	3.62E+01
M	35	1115.29	1.81E+01	15.75			1.81E+01	1.57E+01

Analysis Report for 1606064-10

CP-5015 02-05

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	36	1120.73	6.85E+01	29.19	1.09E+00	2.08E+00	6.74E+01	2.93E+01
	37	1199.21	1.79E+01	19.07			1.79E+01	1.91E+01
	38	1214.56	1.75E+01	20.80			1.75E+01	2.08E+01
	39	1240.30	3.41E+01	29.61			3.41E+01	2.96E+01
	40	1288.58	1.37E+01	16.30			1.37E+01	1.63E+01
	41	1376.97	2.53E+01	18.44			2.53E+01	1.84E+01
	42	1386.35	1.46E+01	11.31			1.46E+01	1.13E+01
	43	1461.12	5.59E+02	49.72	4.33E+00	2.02E+00	5.55E+02	4.98E+01
	44	1510.22	1.60E+01	10.31			1.60E+01	1.03E+01
	45	1590.93	2.10E+01	19.21			2.10E+01	1.92E+01
	46	1662.53	1.01E+01	8.00			1.01E+01	8.00E+00
	47	1731.04	2.28E+01	12.37			2.28E+01	1.24E+01
	48	1764.70	4.81E+01	15.31			4.81E+01	1.53E+01
	49	1782.99	1.10E+01	6.63			1.10E+01	6.63E+00
	50	1847.27	9.18E+00	7.50			9.18E+00	7.50E+00
	51	1908.20	6.67E+00	7.35			6.67E+00	7.35E+00
	52	2104.61	2.09E+01	13.56			2.09E+01	1.36E+01
	53	2336.44	9.92E+00	8.00			9.92E+00	8.00E+00
	54	2446.64	1.00E+01	6.32			1.00E+01	6.32E+00
	55	2614.52	7.32E+01	18.28	2.52E+00	1.44E+00	7.07E+01	1.83E+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 : 6/16/2016 6:10:21PM

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	46.34	1.57E+02	87.20	4.97E+01	7.81E+00	1.07E+02	8.75E+01
	2	76.76	1.03E+03	169.34	6.70E+00	3.28E+00	1.02E+03	1.69E+02
M	3	87.24	4.80E+02	123.41	1.07E+01	3.99E+00	4.69E+02	1.23E+02
m	4	92.96	4.21E+02	95.47	8.20E+01	2.30E+01	3.39E+02	9.82E+01
	5	130.56	1.21E+02	100.92			1.21E+02	1.01E+02
	6	186.26	2.20E+02	75.47	3.45E+01	5.92E+00	1.86E+02	7.57E+01
M	7	207.02	2.82E+01	24.94			2.82E+01	2.49E+01
m	8	210.03	7.38E+01	55.23			7.38E+01	5.52E+01

Analysis Report for 1606064-10

CP-5015 02-05

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	9	239.18	8.17E+02	70.80	1.33E+01	5.09E+00	8.04E+02	7.10E+01
m	10	242.08	1.64E+02	80.85			1.64E+02	8.08E+01
M	11	270.50	8.77E+01	46.42			8.77E+01	4.64E+01
m	12	272.89	3.87E+01	41.70			3.87E+01	4.17E+01
	13	295.79	1.70E+02	68.25	1.94E+00	4.39E+00	1.68E+02	6.84E+01
	14	300.88	3.49E+01	43.02			3.49E+01	4.30E+01
	15	338.90	1.69E+02	59.26			1.69E+02	5.93E+01
	16	352.41	4.14E+02	73.48	4.00E+00	3.58E+00	4.10E+02	7.36E+01
	17	410.86	3.87E+01	42.28			3.87E+01	4.23E+01
	18	453.60	3.94E+01	34.67			3.94E+01	3.47E+01
	19	463.52	7.62E+01	48.15			7.62E+01	4.81E+01
M	20	506.20	2.31E+01	12.37			2.31E+01	1.24E+01
m	21	511.38	1.72E+02	44.03	6.05E+01	4.93E+00	1.11E+02	4.43E+01
	22	563.69	2.97E+01	31.18			2.97E+01	3.12E+01
	23	572.85	5.07E+01	35.41			5.07E+01	3.54E+01
	24	583.70	2.27E+02	49.44	5.50E+00	3.61E+00	2.22E+02	4.96E+01
	25	609.86	2.46E+02	49.52	5.07E+00	3.83E+00	2.41E+02	4.97E+01
	26	671.19	2.22E+01	22.91			2.22E+01	2.29E+01
	27	701.79	3.68E+01	29.80			3.68E+01	2.98E+01
	28	713.69	2.49E+01	23.19			2.49E+01	2.32E+01
	29	727.09	5.74E+01	32.79			5.74E+01	3.28E+01
	30	795.94	4.55E+01	33.02			4.55E+01	3.30E+01
	31	860.90	2.40E+01	30.59			2.40E+01	3.06E+01
	32	911.79	1.66E+02	41.60			1.66E+02	4.16E+01
	33	934.02	2.15E+01	27.53			2.15E+01	2.75E+01
	34	968.47	1.18E+02	36.22			1.18E+02	3.62E+01
M	35	1115.29	1.81E+01	15.75			1.81E+01	1.57E+01
m	36	1120.73	6.85E+01	29.19	1.09E+00	2.08E+00	6.74E+01	2.93E+01
	37	1199.21	1.79E+01	19.07			1.79E+01	1.91E+01
	38	1214.56	1.75E+01	20.80			1.75E+01	2.08E+01
	39	1240.30	3.41E+01	29.61			3.41E+01	2.96E+01
	40	1288.58	1.37E+01	16.30			1.37E+01	1.63E+01
	41	1376.97	2.53E+01	18.44			2.53E+01	1.84E+01
	42	1386.35	1.46E+01	11.31			1.46E+01	1.13E+01
	43	1461.12	5.59E+02	49.72	4.33E+00	2.02E+00	5.55E+02	4.98E+01
	44	1510.22	1.60E+01	10.31			1.60E+01	1.03E+01
	45	1590.93	2.10E+01	19.21			2.10E+01	1.92E+01
	46	1662.53	1.01E+01	8.00			1.01E+01	8.00E+00
	47	1731.04	2.28E+01	12.37			2.28E+01	1.24E+01
	48	1764.70	4.81E+01	15.31			4.81E+01	1.53E+01
	49	1782.99	1.10E+01	6.63			1.10E+01	6.63E+00
	50	1847.27	9.18E+00	7.50			9.18E+00	7.50E+00
	51	1908.20	6.67E+00	7.35			6.67E+00	7.35E+00
	52	2104.61	2.09E+01	13.56			2.09E+01	1.36E+01
	53	2336.44	9.92E+00	8.00			9.92E+00	8.00E+00
	54	2446.64	1.00E+01	6.32			1.00E+01	6.32E+00
	55	2614.52	7.32E+01	18.28	2.52E+00	1.44E+00	7.07E+01	1.83E+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 1606064-10

CP-5015 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	0.985	1460.81	*	10.67	1.95E+01	2.41E+00
ZN-65	0.992	1115.52	*	50.75	1.11E-01	9.67E-02
GA-67	0.871	93.31	*	35.70	3.42E+00	5.71E+00
		208.95		2.24		
		300.22	*	16.00	1.52E+00	3.13E+00
CD-109	0.905	88.03	*	3.72	6.49E+00	1.87E+00
SN-126	0.983	87.57	*	37.00	6.43E-01	1.82E-01
PM-146	0.425	453.90	*	39.94	1.38E-01	1.22E-01
		735.90		14.01		
		747.13		13.10		
EU-155	0.309	86.50	*	30.90	7.73E-01	2.18E-01
		105.30		20.70		
LU-173	0.529	100.72		5.24		
		272.11	*	21.20	1.67E-01	1.81E-01
TL-208	0.974	583.14	*	30.22	1.27E+00	3.07E-01
		860.37	*	4.48	1.30E+00	1.66E+00
		2614.66	*	35.85	1.09E+00	3.01E-01
PB-210	0.996	46.50	*	4.25	2.09E+00	1.72E+00
BI-212	0.770	727.17	*	11.80	1.02E+00	5.90E-01
		1620.62		2.75		
PB-212	0.949	238.63	*	44.60	1.47E+00	1.72E-01
		300.09	*	3.41	1.00E+00	1.24E+00
BI-214	0.899	609.31	*	46.30	9.39E-01	2.11E-01
		1120.29	*	15.10	1.35E+00	5.99E-01
		1764.49	*	15.80	1.32E+00	4.32E-01
		2204.22		4.98		
PB-214	0.957	295.21	*	19.19	8.46E-01	3.50E-01
		351.92	*	37.19	1.23E+00	2.43E-01
RA-226	1.000	186.21	*	3.28	3.83E+00	7.19E+00
AC-228	0.931	338.32	*	11.40	1.61E+00	5.78E-01
		911.07	*	27.70	1.53E+00	4.01E-01
		969.11	*	16.60	1.91E+00	6.05E-01
PA-234	0.442	131.20	*	20.40	3.29E-01	2.74E-01
		733.99		8.80		
		946.00		12.00		
NP-237	0.916	86.50	*	12.60	1.89E+00	5.33E-01

Analysis Report for 1606064-10

CP-5015 02-05

* = 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 : 6/16/2016 6:10:21PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.76	2.83925E-01	8.29		
M	7	207.02	7.82239E-03	44.28		
m	8	210.03	2.05020E-02	37.41	Tol.	CM-243
m	10	242.08	4.55554E-02	24.65		
M	11	270.50	2.43480E-02	26.48		
	17	410.86	1.07524E-02	54.62	Tol.	HO-166M
	19	463.52	2.11550E-02	31.61	Tol.	SB-125
M	20	506.20	6.41787E-03	26.77		
m	21	511.38	3.08539E-02	19.94	Sum	
	22	563.69	8.25196E-03	52.47	Tol.	CS-134
	23	572.85	1.40763E-02	34.94	Sum	
	26	671.19	6.17003E-03	51.58	Sum	
	27	701.79	1.02083E-02	40.54	Tol.	NB-94
	28	713.69	6.92274E-03	46.52	Sum	
	30	795.94	1.26288E-02	36.31	Sum	
	33	934.02	5.97983E-03	63.94		
	37	1199.21	4.97222E-03	53.27	Sum	
	38	1214.56	4.86944E-03	59.33	Sum	
	39	1240.30	9.48461E-03	43.35		
	40	1288.58	3.79928E-03	59.59		
	41	1376.97	7.04167E-03	36.37		
	42	1386.35	4.04861E-03	38.81		
	44	1510.22	4.44444E-03	32.21		
	45	1590.93	5.83333E-03	45.74	Sum	
	46	1662.53	2.80093E-03	39.67		
	47	1731.04	6.34081E-03	27.09	Sum	
	49	1782.99	3.05556E-03	30.15		
	50	1847.27	2.55051E-03	40.84	Sum	
	51	1908.20	1.85185E-03	55.11		
	52	2104.61	5.79365E-03	32.52		
	53	2336.44	2.75463E-03	40.34		
	54	2446.64	2.77778E-03	31.62		

Analysis Report for 1606064-10

CP-5015 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	0.98	1460.81	*	10.67	1.95E+01	2.41E+00
ZN-65	0.99	1115.52	*	50.75	1.11E-01	9.67E-02
GA-67	0.87	93.31	*	35.70	3.42E+00	5.71E+00
		208.95		2.24		
		300.22	*	16.00	1.52E+00	3.13E+00
CD-109	0.90	88.03	*	3.72	6.49E+00	1.87E+00
SN-126	0.98	87.57	*	37.00	6.43E-01	1.82E-01
PM-146	0.42	453.90	*	39.94	1.38E-01	1.22E-01
		735.90		14.01		
		747.13		13.10		
EU-155	0.30	86.50	*	30.90	7.73E-01	2.18E-01
		105.30		20.70		
LU-173	0.52	100.72		5.24		
		272.11	*	21.20	1.67E-01	1.81E-01
TL-208	0.97	583.14	*	30.22	1.27E+00	3.07E-01
		860.37	*	4.48	1.30E+00	1.66E+00
		2614.66	*	35.85	1.09E+00	3.01E-01
PB-210	0.99	46.50	*	4.25	2.09E+00	1.72E+00
BI-212	0.77	727.17	*	11.80	1.02E+00	5.90E-01
		1620.62		2.75		
PB-212	0.94	238.63	*	44.60	1.47E+00	1.72E-01
		300.09	*	3.41	1.00E+00	1.24E+00
BI-214	0.89	609.31	*	46.30	9.39E-01	2.11E-01
		1120.29	*	15.10	1.35E+00	5.99E-01
		1764.49	*	15.80	1.32E+00	4.32E-01
		2204.22		4.98		
PB-214	0.95	295.21	*	19.19	8.46E-01	3.50E-01
		351.92	*	37.19	1.23E+00	2.43E-01
RA-226	1.00	186.21	*	3.28	3.83E+00	7.19E+00
AC-228	0.93	338.32	*	11.40	1.61E+00	5.78E-01
		911.07	*	27.70	1.53E+00	4.01E-01
		969.11	*	16.60	1.91E+00	6.05E-01

Analysis Report for 1606064-10

CP-5015 02-05

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PA-234	0.44	131.20	*	20.40	3.29E-01	2.74E-01
		733.99		8.80		
		946.00		12.00		
NP-237	0.91	86.50	*	12.60	1.89E+00	5.33E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.985	1.95E+01	2.41E+00	
	ZN-65	0.992	1.11E-01	9.67E-02	
	GA-67	0.871	2.46E+00	3.09E+00	
?	CD-109	0.905	6.49E+00	1.87E+00	
?	SN-126	0.983	6.43E-01	1.82E-01	
	PM-146	0.425	1.38E-01	1.22E-01	
?	EU-155	0.309	7.73E-01	2.18E-01	
	LU-173	0.529	1.67E-01	1.81E-01	
	TL-208	0.974	1.18E+00	2.13E-01	
	PB-210	0.996	2.09E+00	1.72E+00	
	BI-212	0.770	1.02E+00	5.90E-01	
	PB-212	0.949	1.43E+00	1.71E-01	
	BI-214	0.899	1.04E+00	1.81E-01	
	PB-214	0.957	1.11E+00	2.00E-01	
	RA-226	1.000	3.83E+00	7.19E+00	
	AC-228	0.931	1.63E+00	2.89E-01	
	PA-234	0.442	3.29E-01	2.74E-01	
?	NP-237	0.916	1.89E+00	5.33E-01	

Analysis Report for 1606064-10

CP-5015 02-05

? = 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 1606064-10

CP-5015 02-05

UNIDENTIFIED PEAKS

Peak Locate Performed on : 6/16/2016 6:10:21PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.76	2.83925E-01	8.29		
M	7	207.02	7.82239E-03	44.28		
m	8	210.03	2.05020E-02	37.41	Tol.	CM-243
m	10	242.08	4.55554E-02	24.65		
M	11	270.50	2.43480E-02	26.48		
	17	410.86	1.07524E-02	54.62	Tol.	HO-166M
	19	463.52	2.11550E-02	31.61	Tol.	SB-125
M	20	506.20	6.41787E-03	26.77		
m	21	511.38	3.08539E-02	19.94	Sum	
	22	563.69	8.25196E-03	52.47	Tol.	CS-134
	23	572.85	1.40763E-02	34.94	Sum	
	26	671.19	6.17003E-03	51.58	Sum	
	27	701.79	1.02083E-02	40.54	Tol.	NB-94
	28	713.69	6.92274E-03	46.52	Sum	
	30	795.94	1.26288E-02	36.31	Sum	
	33	934.02	5.97983E-03	63.94		
	37	1199.21	4.97222E-03	53.27	Sum	
	38	1214.56	4.86944E-03	59.33	Sum	
	39	1240.30	9.48461E-03	43.35		
	40	1288.58	3.79928E-03	59.59		
	41	1376.97	7.04167E-03	36.37		
	42	1386.35	4.04861E-03	38.81		
	44	1510.22	4.44444E-03	32.21		
	45	1590.93	5.83333E-03	45.74	Sum	
	46	1662.53	2.80093E-03	39.67		
	47	1731.04	6.34081E-03	27.09	Sum	
	49	1782.99	3.05556E-03	30.15		
	50	1847.27	2.55051E-03	40.84	Sum	
	51	1908.20	1.85185E-03	55.11		
	52	2104.61	5.79365E-03	32.52		
	53	2336.44	2.75463E-03	40.34		
	54	2446.64	2.77778E-03	31.62		

Analysis Report for 1606064-10

CP-5015 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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-1.51E-01	7.61E-01	7.61E-01
+	NA-22	1274.54		99.94	-3.55E-02	1.16E-01	1.16E-01
+	NA-24	1368.53		99.99	-4.74E+02	1.15E+03	2.37E+03
		2754.09		99.86	-3.14E+02		1.15E+03
+	AL-26	1808.65		99.76	-2.36E-02	7.01E-02	7.01E-02
+	K-40	1460.81	*	10.67	1.95E+01	1.03E+00	1.03E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-6.34E-02	6.93E-02	6.93E-02
		78.34		96.00	1.85E-01		8.85E-02
+	SC-46	889.25		99.98	3.84E-02	1.00E-01	1.00E-01
		1120.51		99.99	1.96E-01		1.72E-01
+	V-48	983.52		99.98	-1.61E-02	1.29E-01	1.29E-01
		1312.10		97.50	4.57E-02		1.74E-01
+	CR-51	320.08		9.83	-1.27E-01	8.41E-01	8.41E-01
+	MN-54	834.83		99.97	1.24E-02	9.99E-02	9.99E-02
+	CO-56	846.75		99.96	-1.26E-03	1.02E-01	1.02E-01
		1037.75		14.03	1.80E-02		6.91E-01
		1238.25		67.00	5.28E-02		2.02E-01
		1771.40		15.51	-6.28E-02		5.06E-01
		2598.48		16.90	-1.77E-02		3.28E-01
+	CO-57	122.06		85.51	-1.57E-02	5.61E-02	5.61E-02
		136.48		10.60	-7.13E-02		5.06E-01
+	CO-58	810.76		99.40	3.48E-03	9.37E-02	9.37E-02
+	FE-59	1099.22		56.50	5.58E-02	2.11E-01	2.11E-01
		1291.56		43.20	3.04E-03		2.53E-01
+	CO-60	1173.22		100.00	-1.79E-03	1.05E-01	1.15E-01
		1332.49		100.00	8.77E-03		1.05E-01
+	ZN-65	1115.52	*	50.75	1.11E-01	4.57E-01	4.57E-01
+	GA-67	93.31	*	35.70	3.42E+00	2.63E+00	2.63E+00
		208.95		2.24	1.35E+01		2.23E+01
		300.22	*	16.00	1.52E+00		3.08E+00
+	SE-75	121.11		16.70	-8.26E-02	9.34E-02	2.96E-01

Analysis Report for 1606064-10

CP-5015 02-05

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-1.80E-02	9.34E-02	9.34E-02
		264.65		59.80	6.07E-02		1.15E-01
		279.53		25.20	2.59E-01		2.94E-01
		400.65		11.40	-3.08E-01		6.43E-01
+	RB-82	776.52		13.00	1.67E-01	9.56E-01	9.56E-01
+	RB-83	520.41		46.00	3.65E-02	1.83E-01	1.83E-01
		529.64		30.30	6.25E-02		2.60E-01
		552.65		16.40	6.93E-02		4.98E-01
+	KR-85	513.99		0.43	4.16E+01	2.64E+01	2.64E+01
+	SR-85	513.99		99.27	2.00E-01	1.27E-01	1.27E-01
+	Y-88	898.02		93.40	4.09E-02	8.63E-02	1.13E-01
		1836.01		99.38	2.38E-02		8.63E-02
+	NB-93M	16.57		9.43	1.53E+00	8.28E+01	8.28E+01
+	NB-94	702.63		100.00	2.81E-02	8.41E-02	9.35E-02
		871.10		100.00	1.23E-03		8.41E-02
+	NB-95	765.79		99.81	9.47E-02	1.25E-01	1.25E-01
+	NB-95M	235.69		25.00	1.74E+00	2.48E+00	2.48E+00
+	ZR-95	724.18		43.70	-1.69E-01	1.81E-01	2.35E-01
		756.72		55.30	4.56E-02		1.81E-01
+	MO-99	181.06		6.20	1.43E-01	6.64E+00	8.65E+00
		739.58		12.80	-3.87E+00		6.64E+00
		778.00		4.50	2.40E+00		2.16E+01
+	RU-103	497.08		89.00	3.39E-02	9.86E-02	9.86E-02
+	RU-106	621.84		9.80	1.54E-01	8.13E-01	8.13E-01
+	AG-108M	433.93		89.90	3.39E-03	7.74E-02	7.74E-02
		614.37		90.40	4.01E-03		1.08E-01
		722.95		90.50	8.47E-03		9.22E-02
+	CD-109	88.03	*	3.72	6.49E+00	3.67E+00	3.67E+00
+	AG-110M	657.75		93.14	-9.27E-02	8.02E-02	8.02E-02
		677.61		10.53	-4.84E-02		7.80E-01
		706.67		16.46	1.46E-01		5.21E-01
		763.93		21.98	-5.84E-01		4.06E-01
		884.67		71.63	-2.98E-02		1.24E-01
		1384.27		23.94	-1.51E-01		3.79E-01
+	CD-113M	263.70		0.02	1.19E+02	2.86E+02	2.86E+02
+	SN-113	255.12		1.93	2.09E-01	1.09E-01	3.52E+00
		391.69		64.90	-7.07E-02		1.09E-01
+	TE123M	159.00		84.10	-4.91E-02	6.39E-02	6.39E-02
+	SB-124	602.71		97.87	5.64E-02	9.54E-02	9.54E-02
		645.85		7.26	7.32E-01		1.24E+00
		722.78		11.10	7.67E-02		8.36E-01
		1691.02		49.00	7.35E-02		1.92E-01
+	I-125	35.49		6.49	4.91E-01	2.25E+00	2.25E+00
+	SB-125	176.33		6.89	1.70E-01	2.38E-01	7.81E-01
		427.89		29.33	-5.79E-02		2.38E-01
		463.38		10.35	9.04E-01		8.54E-01
		600.56		17.80	7.87E-02		4.58E-01
		635.90		11.32	-1.69E-01		6.39E-01

Analysis Report for 1606064-10

CP-5015 02-05

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70		83.30	-1.06E-02	1.35E-01	1.44E-01
		666.33		99.60	-2.26E-02		1.42E-01
		695.00		99.60	-2.95E-02		1.35E-01
		720.50		53.80	8.61E-02		2.37E-01
+	SN-126	87.57	*	37.00	6.43E-01	3.64E-01	3.64E-01
+	SB-127	473.00		25.00	6.74E-01	1.22E+00	1.54E+00
		685.20		35.70	-3.35E-01		1.22E+00
		783.80		14.70	7.05E-01		3.32E+00
+	I-129	29.78		57.00	-1.21E-01	3.93E-01	3.93E-01
		33.60		13.20	-7.82E-02		1.15E+00
		39.58		7.52	9.50E-01		1.40E+00
+	I-131	284.30		6.05	-4.14E-01	1.79E-01	2.39E+00
		364.48		81.20	-8.18E-02		1.79E-01
		636.97		7.26	9.37E-02		2.16E+00
		722.89		1.80	9.43E-01		1.03E+01
+	TE-132	49.72		13.10	-1.15E+00	5.27E-01	3.96E+00
		228.16		88.00	-2.91E-01		5.27E-01
+	BA-133	81.00		33.00	-3.47E-01	1.67E-01	1.91E-01
		302.84		17.80	5.23E-02		4.06E-01
		356.01		60.00	-3.06E-02		1.67E-01
+	I-133	529.87		86.30	3.26E+01	1.35E+02	1.35E+02
+	XE-133	81.00		38.00	-1.02E+00	5.61E-01	5.61E-01
+	CS-134	563.23		8.38	5.77E-01	9.14E-02	9.53E-01
		569.32		15.43	-3.47E-01		4.77E-01
		604.70		97.60	2.12E-02		9.14E-02
		795.84		85.40	1.03E-01		1.23E-01
		801.93		8.73	-6.93E-02		9.91E-01
+	CS-135	268.24		16.00	-2.70E-02	4.44E-01	4.44E-01
+	I-135	1131.51		22.50	-1.87E+09	4.62E+09	5.49E+09
		1260.41		28.60	-7.23E+08		4.62E+09
		1678.03		9.54	-3.23E+09		7.90E+09
+	CS-136	153.22		7.46	5.50E-01	1.38E-01	1.19E+00
		163.89		4.61	8.01E-01		1.90E+00
		176.55		13.56	-8.11E-02		6.31E-01
		273.65		12.66	-5.19E-01		9.41E-01
		340.57		48.50	6.53E-01		3.21E-01
		818.50		99.70	-2.92E-03		1.38E-01
		1048.07		79.60	2.71E-02		1.91E-01
		1235.34		19.70	4.07E-02		9.75E-01
+	CS-137	661.65		85.12	3.64E-03	1.01E-01	1.01E-01
+	LA-138	788.74		34.00	7.45E-02	1.35E-01	2.67E-01
		1435.80		66.00	-1.61E-02		1.35E-01
+	CE-139	165.85		80.35	-4.68E-02	6.75E-02	6.75E-02
+	BA-140	162.64		6.70	1.51E-01	4.63E-01	1.31E+00
		304.84		4.50	-2.87E-01		2.39E+00
		423.70		3.20	1.01E+00		3.67E+00
		437.55		2.00	2.74E+00		6.20E+00
		537.32		25.00	-9.11E-02		4.63E-01
+	LA-140	328.77		20.50	2.11E-01	1.74E-01	6.02E-01

Analysis Report for 1606064-10

CP-5015 02-05

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-140	487.03		45.50	-2.20E-01	1.74E-01	2.36E-01
		815.85		23.50	-7.26E-02		5.79E-01
		1596.49		95.49	2.43E-02		1.74E-01
+	CE-141	145.44		48.40	1.53E-02	1.34E-01	1.34E-01
+	CE-143	57.36		11.80	-2.09E+01	2.24E+01	6.15E+01
		293.26		42.00	2.69E+01		2.24E+01
		664.55		5.20	1.68E+02		1.85E+02
+	CE-144	133.54		10.80	-3.31E-01	4.93E-01	4.93E-01
+	PM-144	476.78		42.00	1.52E-02	8.14E-02	1.75E-01
		618.01		98.60	-2.28E-02		8.29E-02
		696.49		99.49	-2.75E-02		8.14E-02
+	PM-145	36.85		21.70	-6.92E-02	2.95E-01	5.46E-01
		37.36		39.70	-1.18E-01		2.95E-01
		42.30		15.10	2.72E-01		6.17E-01
		72.40		2.31	-5.91E+00		3.23E+00
+	PM-146	453.90	*	39.94	1.38E-01	1.95E-01	1.95E-01
		735.90		14.01	-2.17E-02		6.02E-01
		747.13		13.10	-8.10E-03		6.53E-01
+	ND-147	91.11		28.90	-6.69E-01	4.12E-01	4.12E-01
		531.02		13.10	3.57E-01		1.00E+00
+	PM-149	285.90		3.10	-2.28E+01	3.73E+01	3.73E+01
+	EU-152	121.78		20.50	-6.41E-02	2.29E-01	2.29E-01
		244.69		5.40	4.78E-02		1.43E+00
		344.27		19.13	1.15E-02		3.63E-01
		778.89		9.20	1.07E-02		9.97E-01
		964.01		10.40	-1.10E-01		1.07E+00
		1085.78		7.22	-4.28E-01		1.30E+00
		1112.02		9.60	1.33E-01		1.13E+00
		1407.95		14.94	1.83E-01		6.90E-01
+	GD-153	97.43		31.30	-6.27E-03	1.60E-01	1.60E-01
		103.18		22.20	-1.28E-01		2.31E-01
+	EU-154	123.07		40.50	1.49E-02	1.18E-01	1.18E-01
		723.30		19.70	3.90E-02		4.25E-01
		873.19		11.50	-2.35E-01		7.34E-01
		996.32		10.30	-4.51E-01		8.40E-01
		1004.76		17.90	-5.62E-02		4.75E-01
		1274.45		35.50	-9.94E-02		3.26E-01
+	EU-155	86.50	*	30.90	7.73E-01	2.48E-01	4.37E-01
		105.30		20.70	1.05E-01		2.48E-01
+	EU-156	811.77		10.40	6.36E-01	1.28E+00	1.28E+00
		1153.47		7.20	9.39E-01		2.45E+00
		1230.71		8.90	7.34E-01		2.07E+00
+	HO-166M	184.41		72.60	1.46E-01	9.37E-02	9.37E-02
		280.45		29.60	1.38E-01		2.36E-01
		410.94		11.10	4.44E-01		7.09E-01
		711.69		54.10	1.98E-02		1.63E-01
+	TM-171	66.72		0.14	-4.68E+01	4.92E+01	4.92E+01
+	HF-172	81.75		4.52	-6.14E+00	4.27E-01	1.32E+00
		125.81		11.30	-3.69E-02		4.27E-01

Analysis Report for 1606064-10

CP-5015 02-05

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53		20.60	-3.26E-03	4.40E-01	6.78E-01
		810.06		16.63	1.28E-01		1.37E+00
		912.12		15.25	6.87E+00		3.00E+00
		1093.66		62.50	1.62E-01		4.40E-01
+	LU-173	100.72		5.24	1.82E-01	3.95E-01	9.67E-01
		272.11	*	21.20	1.67E-01		3.95E-01
+	HF-175	343.40		84.00	2.86E-03	9.72E-02	9.72E-02
+	LU-176	88.34		13.30	1.25E-01	6.99E-02	5.15E-01
		201.83		86.00	1.81E-02		7.95E-02
		306.78		94.00	4.17E-02		6.99E-02
+	TA-182	67.75		41.20	-1.54E-01	1.68E-01	1.68E-01
		1121.30		34.90	7.67E-01		4.90E-01
		1189.05		16.23	2.31E-01		7.73E-01
		1221.41		26.98	1.27E-01		4.67E-01
		1231.02		11.44	-8.34E-02		1.08E+00
+	IR-192	308.46		29.68	-6.82E-02	1.57E-01	2.34E-01
		468.07		48.10	-4.17E-03		1.57E-01
+	HG-203	279.19		77.30	6.46E-02	1.04E-01	1.04E-01
+	BI-207	569.67		97.72	-2.72E-02	7.80E-02	7.80E-02
		1063.62		74.90	-4.90E-02		1.34E-01
+	TL-208	583.14	*	30.22	1.27E+00	2.28E-01	3.90E-01
		860.37	*	4.48	1.30E+00		2.73E+00
		2614.66	*	35.85	1.09E+00		2.28E-01
+	BI-210M	262.00		45.00	3.99E-02	1.48E-01	1.48E-01
		300.00		23.00	-5.76E-01		3.43E-01
+	PB-210	46.50	*	4.25	2.09E+00	2.78E+00	2.78E+00
+	PB-211	404.84		2.90	1.58E+00	2.50E+00	2.50E+00
		831.96		2.90	-1.97E+00		3.03E+00
+	BI-212	727.17	*	11.80	1.02E+00	8.99E-01	8.99E-01
		1620.62		2.75	2.14E+00		3.91E+00
+	PB-212	238.63	*	44.60	1.47E+00	2.69E-01	2.69E-01
		300.09	*	3.41	1.00E+00		2.03E+00
+	BI-214	609.31	*	46.30	9.39E-01	2.59E-01	2.59E-01
		1120.29	*	15.10	1.35E+00		1.55E+00
		1764.49	*	15.80	1.32E+00		3.65E-01
		2204.22		4.98	1.91E+00		2.52E+00
+	PB-214	295.21	*	19.19	8.46E-01	3.12E-01	5.38E-01
		351.92	*	37.19	1.23E+00		3.12E-01
+	RN-219	401.80		6.50	1.67E-01	1.10E+00	1.10E+00
+	RA-223	323.87		3.88	-1.34E+00	1.72E+00	1.72E+00
+	RA-224	240.98		3.95	2.03E+01	3.41E+00	3.41E+00
+	RA-225	40.00		31.00	3.47E-01	5.09E-01	5.09E-01
+	RA-226	186.21	*	3.28	3.83E+00	2.46E+00	2.46E+00
+	TH-227	50.10		8.40	-2.50E-01	8.60E-01	8.60E-01
		236.00		11.50	6.44E-01		9.19E-01
		256.20		6.30	6.34E-01		1.05E+00
+	AC-228	338.32	*	11.40	1.61E+00	5.20E-01	8.58E-01
		911.07	*	27.70	1.53E+00		5.20E-01

Analysis Report for 1606064-10

CP-5015 02-05

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	*	16.60	1.91E+00	5.20E-01	8.15E-01
+	TH-230	48.44		16.90	1.83E-01	4.79E-01	4.79E-01
		62.85		4.60	1.80E+00		1.67E+00
		67.67		0.37	-1.62E+01		1.77E+01
+	PA-231	283.67		1.60	-7.05E-01	3.14E+00	4.06E+00
		302.67		2.30	4.04E-01		3.14E+00
+	TH-231	25.64		14.70	-1.37E+00	9.52E-01	3.03E+00
		84.21		6.40	-1.27E+00		9.52E-01
+	PA-233	311.98		38.60	2.45E-02	2.16E-01	2.16E-01
+	PA-234	131.20	*	20.40	3.29E-01	4.46E-01	4.46E-01
		733.99		8.80	6.02E-02		9.81E-01
		946.00		12.00	-1.52E-01		7.05E-01
+	PA-234M	1001.03		0.92	2.02E+00	1.05E+01	1.05E+01
+	TH-234	63.29		3.80	1.15E+00	1.99E+00	1.99E+00
+	U-235	143.76		10.50	1.08E-01	5.16E-01	5.16E-01
		163.35		4.70	4.82E-01		1.15E+00
		205.31		4.70	-5.50E-01		1.39E+00
+	NP-237	86.50	*	12.60	1.89E+00	1.07E+00	1.07E+00
+	NP-239	106.10		22.70	1.58E+00	3.39E+00	3.39E+00
		228.18		10.70	-5.08E+00		9.20E+00
		277.60		14.10	3.38E-01		7.32E+00
+	AM-241	59.54		35.90	1.16E-01	2.01E-01	2.01E-01
+	AM-243	74.67		66.00	-3.95E-02	1.32E-01	1.32E-01
+	CM-243	209.75		3.29	2.07E+00	4.88E-01	2.17E+00
		228.14		10.60	-3.40E-01		6.15E-01
		277.60		14.00	2.25E-02		4.88E-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 1606064-10

CP-5015 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	7.61E-01	7.61E-01	-1.51E-01	3.59E-01
	NA-22	1274.54		99.94	1.16E-01	1.16E-01	-3.55E-02	5.36E-02
	NA-24	1368.53		99.99	2.37E+03	1.15E+03	-4.74E+02	1.05E+03
		2754.09		99.86	1.15E+03		-3.14E+02	3.65E+02
	AL-26	1808.65		99.76	7.01E-02	7.01E-02	-2.36E-02	2.91E-02
+	K-40	1460.81	*	10.67	1.03E+00	1.03E+00	1.95E+01	4.65E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	6.93E-02	6.93E-02	-6.34E-02	3.39E-02
		78.34		96.00	8.85E-02		1.85E-01	4.35E-02
	SC-46	889.25		99.98	1.00E-01	1.00E-01	3.84E-02	4.65E-02
		1120.51		99.99	1.72E-01		1.96E-01	8.17E-02
	V-48	983.52		99.98	1.29E-01	1.29E-01	-1.61E-02	5.90E-02
		1312.10		97.50	1.74E-01		4.57E-02	7.97E-02
	CR-51	320.08		9.83	8.41E-01	8.41E-01	-1.27E-01	4.02E-01
	MN-54	834.83		99.97	9.99E-02	9.99E-02	1.24E-02	4.67E-02
	CO-56	846.75		99.96	1.02E-01	1.02E-01	-1.26E-03	4.76E-02
		1037.75		14.03	6.91E-01		1.80E-02	3.16E-01
		1238.25		67.00	2.02E-01		5.28E-02	9.37E-02
		1771.40		15.51	5.06E-01		-6.28E-02	2.12E-01
		2598.48		16.90	3.28E-01		-1.77E-02	1.16E-01
	CO-57	122.06		85.51	5.61E-02	5.61E-02	-1.57E-02	2.72E-02
		136.48		10.60	5.06E-01		-7.13E-02	2.46E-01
	CO-58	810.76		99.40	9.37E-02	9.37E-02	3.48E-03	4.34E-02
	FE-59	1099.22		56.50	2.11E-01	2.11E-01	5.58E-02	9.73E-02
		1291.56		43.20	2.53E-01		3.04E-03	1.14E-01
	CO-60	1173.22		100.00	1.15E-01	1.05E-01	-1.79E-03	5.31E-02
		1332.49		100.00	1.05E-01		8.77E-03	4.76E-02
+	ZN-65	1115.52	*	50.75	4.57E-01	4.57E-01	1.11E-01	2.20E-01
+	GA-67	93.31	*	35.70	2.63E+00	2.63E+00	3.42E+00	1.30E+00
		208.95		2.24	2.23E+01		1.35E+01	1.09E+01
		300.22	*	16.00	3.08E+00		1.52E+00	1.48E+00
	SE-75	121.11		16.70	2.96E-01	9.34E-02	-8.26E-02	1.43E-01
		136.00		59.20	9.34E-02		-1.80E-02	4.53E-02
		264.65		59.80	1.15E-01		6.07E-02	5.54E-02
		279.53		25.20	2.94E-01		2.59E-01	1.42E-01
		400.65		11.40	6.43E-01		-3.08E-01	3.06E-01
	RB-82	776.52		13.00	9.56E-01	9.56E-01	1.67E-01	4.48E-01
	RB-83	520.41		46.00	1.83E-01	1.83E-01	3.65E-02	8.68E-02
		529.64		30.30	2.60E-01		6.25E-02	1.22E-01
		552.65		16.40	4.98E-01		6.93E-02	2.34E-01
	KR-85	513.99		0.43	2.64E+01	2.64E+01	4.16E+01	1.27E+01
	SR-85	513.99		99.27	1.27E-01	1.27E-01	2.00E-01	6.13E-02
	Y-88	898.02		93.40	1.13E-01	8.63E-02	4.09E-02	5.29E-02
		1836.01		99.38	8.63E-02		2.38E-02	3.67E-02
	NB-93M	16.57		9.43	8.28E+01	8.28E+01	1.53E+00	4.04E+01
	NB-94	702.63		100.00	9.35E-02	8.41E-02	2.81E-02	4.40E-02
		871.10		100.00	8.41E-02		1.23E-03	3.87E-02
	NB-95	765.79		99.81	1.25E-01	1.25E-01	9.47E-02	5.89E-02
	NB-95M	235.69		25.00	2.48E+00	2.48E+00	1.74E+00	1.22E+00
	ZR-95	724.18		43.70	2.35E-01	1.81E-01	-1.69E-01	1.10E-01
		756.72		55.30	1.81E-01		4.56E-02	8.46E-02

Analysis Report for 1606064-10

CP-5015 02-05

	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	8.65E+00	6.64E+00	1.43E-01	4.18E+00
		739.58		12.80	6.64E+00		-3.87E+00	3.09E+00
		778.00		4.50	2.16E+01		2.40E+00	1.01E+01
	RU-103	497.08		89.00	9.86E-02	9.86E-02	3.39E-02	4.66E-02
	RU-106	621.84		9.80	8.13E-01	8.13E-01	1.54E-01	3.81E-01
	AG-108M	433.93		89.90	7.74E-02	7.74E-02	3.39E-03	3.67E-02
		614.37		90.40	1.08E-01		4.01E-03	5.14E-02
		722.95		90.50	9.22E-02		8.47E-03	4.30E-02
+	CD-109	88.03	*	3.72	3.67E+00	3.67E+00	6.49E+00	1.82E+00
	AG-110M	657.75		93.14	8.02E-02	8.02E-02	-9.27E-02	3.72E-02
		677.61		10.53	7.80E-01		-4.84E-02	3.64E-01
		706.67		16.46	5.21E-01		1.46E-01	2.43E-01
		763.93		21.98	4.06E-01		-5.84E-01	1.89E-01
		884.67		71.63	1.24E-01		-2.98E-02	5.74E-02
		1384.27		23.94	3.79E-01		-1.51E-01	1.69E-01
	CD-113M	263.70		0.02	2.86E+02	2.86E+02	1.19E+02	1.38E+02
	SN-113	255.12		1.93	3.52E+00	1.09E-01	2.09E-01	1.70E+00
		391.69		64.90	1.09E-01		-7.07E-02	5.20E-02
	TE123M	159.00		84.10	6.39E-02	6.39E-02	-4.91E-02	3.09E-02
	SB-124	602.71		97.87	9.54E-02	9.54E-02	5.64E-02	4.50E-02
		645.85		7.26	1.24E+00		7.32E-01	5.81E-01
		722.78		11.10	8.36E-01		7.67E-02	3.90E-01
		1691.02		49.00	1.92E-01		7.35E-02	8.29E-02
	I-125	35.49		6.49	2.25E+00	2.25E+00	4.91E-01	1.09E+00
	SB-125	176.33		6.89	7.81E-01	2.38E-01	1.70E-01	3.78E-01
		427.89		29.33	2.38E-01		-5.79E-02	1.13E-01
		463.38		10.35	8.54E-01		9.04E-01	4.08E-01
		600.56		17.80	4.58E-01		7.87E-02	2.16E-01
		635.90		11.32	6.39E-01		-1.69E-01	2.97E-01
	SB-126	414.70		83.30	1.44E-01	1.35E-01	-1.06E-02	6.87E-02
		666.33		99.60	1.42E-01		-2.26E-02	6.64E-02
		695.00		99.60	1.35E-01		-2.95E-02	6.27E-02
		720.50		53.80	2.37E-01		8.61E-02	1.10E-01
+	SN-126	87.57	*	37.00	3.64E-01	3.64E-01	6.43E-01	1.80E-01
	SB-127	473.00		25.00	1.54E+00	1.22E+00	6.74E-01	7.28E-01
		685.20		35.70	1.22E+00		-3.35E-01	5.72E-01
		783.80		14.70	3.32E+00		7.05E-01	1.55E+00
	I-129	29.78		57.00	3.93E-01	3.93E-01	-1.21E-01	1.90E-01
		33.60		13.20	1.15E+00		-7.82E-02	5.58E-01
		39.58		7.52	1.40E+00		9.50E-01	6.78E-01
	I-131	284.30		6.05	2.39E+00	1.79E-01	-4.14E-01	1.15E+00
		364.48		81.20	1.79E-01		-8.18E-02	8.53E-02
		636.97		7.26	2.16E+00		9.37E-02	1.00E+00
		722.89		1.80	1.03E+01		9.43E-01	4.78E+00
	TE-132	49.72		13.10	3.96E+00	5.27E-01	-1.15E+00	1.93E+00
		228.16		88.00	5.27E-01		-2.91E-01	2.55E-01
	BA-133	81.00		33.00	1.91E-01	1.67E-01	-3.47E-01	9.34E-02
		302.84		17.80	4.06E-01		5.23E-02	1.96E-01
		356.01		60.00	1.67E-01		-3.06E-02	8.11E-02
	I-133	529.87		86.30	1.35E+02	1.35E+02	3.26E+01	6.36E+01
	XE-133	81.00		38.00	5.61E-01	5.61E-01	-1.02E+00	2.74E-01
	CS-134	563.23		8.38	9.53E-01	9.14E-02	5.77E-01	4.49E-01
		569.32		15.43	4.77E-01		-3.47E-01	2.24E-01

Analysis Report for 1606064-10

CP-5015 02-05

	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	9.14E-02	9.14E-02	2.12E-02	4.32E-02
		795.84		85.40	1.23E-01		1.03E-01	5.79E-02
		801.93		8.73	9.91E-01		-6.93E-02	4.60E-01
	CS-135	268.24		16.00	4.44E-01	4.44E-01	-2.70E-02	2.14E-01
	I-135	1131.51		22.50	5.49E+09	4.62E+09	-1.87E+09	2.52E+09
		1260.41		28.60	4.62E+09		-7.23E+08	2.12E+09
		1678.03		9.54	7.90E+09		-3.23E+09	3.24E+09
	CS-136	153.22		7.46	1.19E+00	1.38E-01	5.50E-01	5.78E-01
		163.89		4.61	1.90E+00		8.01E-01	9.22E-01
		176.55		13.56	6.31E-01		-8.11E-02	3.05E-01
		273.65		12.66	9.41E-01		-5.19E-01	4.55E-01
		340.57		48.50	3.21E-01		6.53E-01	1.56E-01
		818.50		99.70	1.38E-01		-2.92E-03	6.36E-02
		1048.07		79.60	1.91E-01		2.71E-02	8.73E-02
		1235.34		19.70	9.75E-01		4.07E-02	4.51E-01
	CS-137	661.65		85.12	1.01E-01	1.01E-01	3.64E-03	4.73E-02
	LA-138	788.74		34.00	2.67E-01	1.35E-01	7.45E-02	1.24E-01
		1435.80		66.00	1.35E-01		-1.61E-02	5.99E-02
	CE-139	165.85		80.35	6.75E-02	6.75E-02	-4.68E-02	3.26E-02
	BA-140	162.64		6.70	1.31E+00	4.63E-01	1.51E-01	6.32E-01
		304.84		4.50	2.39E+00		-2.87E-01	1.15E+00
		423.70		3.20	3.67E+00		1.01E+00	1.74E+00
		437.55		2.00	6.20E+00		2.74E+00	2.95E+00
		537.32		25.00	4.63E-01		-9.11E-02	2.17E-01
	LA-140	328.77		20.50	6.02E-01	1.74E-01	2.11E-01	2.90E-01
		487.03		45.50	2.36E-01		-2.20E-01	1.11E-01
		815.85		23.50	5.79E-01		-7.26E-02	2.68E-01
		1596.49		95.49	1.74E-01		2.43E-02	7.75E-02
	CE-141	145.44		48.40	1.34E-01	1.34E-01	1.53E-02	6.51E-02
	CE-143	57.36		11.80	6.15E+01	2.24E+01	-2.09E+01	3.00E+01
		293.26		42.00	2.24E+01		2.69E+01	1.09E+01
		664.55		5.20	1.85E+02		1.68E+02	8.71E+01
	CE-144	133.54		10.80	4.93E-01	4.93E-01	-3.31E-01	2.39E-01
	PM-144	476.78		42.00	1.75E-01	8.14E-02	1.52E-02	8.28E-02
		618.01		98.60	8.29E-02		-2.28E-02	3.89E-02
		696.49		99.49	8.14E-02		-2.75E-02	3.79E-02
	PM-145	36.85		21.70	5.46E-01	2.95E-01	-6.92E-02	2.65E-01
		37.36		39.70	2.95E-01		-1.18E-01	1.43E-01
		42.30		15.10	6.17E-01		2.72E-01	3.00E-01
		72.40		2.31	3.23E+00		-5.91E+00	1.58E+00
+	PM-146	453.90	*	39.94	1.95E-01	1.95E-01	1.38E-01	9.29E-02
		735.90		14.01	6.02E-01		-2.17E-02	2.81E-01
		747.13		13.10	6.53E-01		-8.10E-03	3.04E-01
	ND-147	91.11		28.90	4.12E-01	4.12E-01	-6.69E-01	2.02E-01
		531.02		13.10	1.00E+00		3.57E-01	4.71E-01
	PM-149	285.90		3.10	3.73E+01	3.73E+01	-2.28E+01	1.79E+01
	EU-152	121.78		20.50	2.29E-01	2.29E-01	-6.41E-02	1.11E-01
		244.69		5.40	1.43E+00		4.78E-02	6.93E-01
		344.27		19.13	3.63E-01		1.15E-02	1.74E-01
		778.89		9.20	9.97E-01		1.07E-02	4.65E-01
		964.01		10.40	1.07E+00		-1.10E-01	4.98E-01
		1085.78		7.22	1.30E+00		-4.28E-01	5.96E-01
		1112.02		9.60	1.13E+00		1.33E-01	5.23E-01

Analysis Report for 1606064-10

CP-5015 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	6.90E-01	2.29E-01	1.83E-01	3.12E-01
	GD-153	97.43		31.30	1.60E-01	1.60E-01	-6.27E-03	7.78E-02
		103.18		22.20	2.31E-01		-1.28E-01	1.12E-01
	EU-154	123.07		40.50	1.18E-01	1.18E-01	1.49E-02	5.73E-02
		723.30		19.70	4.25E-01		3.90E-02	1.98E-01
		873.19		11.50	7.34E-01		-2.35E-01	3.38E-01
		996.32		10.30	8.40E-01		-4.51E-01	3.84E-01
		1004.76		17.90	4.75E-01		-5.62E-02	2.16E-01
		1274.45		35.50	3.26E-01		-9.94E-02	1.50E-01
+	EU-155	86.50	*	30.90	4.37E-01	2.48E-01	7.73E-01	2.16E-01
		105.30		20.70	2.48E-01		1.05E-01	1.21E-01
	EU-156	811.77		10.40	1.28E+00	1.28E+00	6.36E-01	5.94E-01
		1153.47		7.20	2.45E+00		9.39E-01	1.13E+00
		1230.71		8.90	2.07E+00		7.34E-01	9.59E-01
	HO-166M	184.41		72.60	9.37E-02	9.37E-02	1.46E-01	4.56E-02
		280.45		29.60	2.36E-01		1.38E-01	1.14E-01
		410.94		11.10	7.09E-01		4.44E-01	3.39E-01
		711.69		54.10	1.63E-01		1.98E-02	7.63E-02
	TM-171	66.72		0.14	4.92E+01	4.92E+01	-4.68E+01	2.41E+01
	HF-172	81.75		4.52	1.32E+00	4.27E-01	-6.14E+00	6.46E-01
		125.81		11.30	4.27E-01		-3.69E-02	2.07E-01
	LU-172	181.53		20.60	6.78E-01	4.40E-01	-3.26E-03	3.28E-01
		810.06		16.63	1.37E+00		1.28E-01	6.38E-01
		912.12		15.25	3.00E+00		6.87E+00	1.44E+00
		1093.66		62.50	4.40E-01		1.62E-01	2.03E-01
+	LU-173	100.72		5.24	9.67E-01	3.95E-01	1.82E-01	4.70E-01
		272.11	*	21.20	3.95E-01		1.67E-01	1.92E-01
	HF-175	343.40		84.00	9.72E-02	9.72E-02	2.86E-03	4.67E-02
	LU-176	88.34		13.30	5.15E-01	6.99E-02	1.25E-01	2.52E-01
		201.83		86.00	7.95E-02		1.81E-02	3.86E-02
		306.78		94.00	6.99E-02		4.17E-02	3.35E-02
	TA-182	67.75		41.20	1.68E-01	1.68E-01	-1.54E-01	8.21E-02
		1121.30		34.90	4.90E-01		7.67E-01	2.33E-01
		1189.05		16.23	7.73E-01		2.31E-01	3.58E-01
		1221.41		26.98	4.67E-01		1.27E-01	2.16E-01
		1231.02		11.44	1.08E+00		-8.34E-02	4.99E-01
	IR-192	308.46		29.68	2.34E-01	1.57E-01	-6.82E-02	1.12E-01
		468.07		48.10	1.57E-01		-4.17E-03	7.39E-02
	HG-203	279.19		77.30	1.04E-01	1.04E-01	6.46E-02	5.02E-02
	BI-207	569.67		97.72	7.80E-02	7.80E-02	-2.72E-02	3.66E-02
		1063.62		74.90	1.34E-01		-4.90E-02	6.19E-02
+	TL-208	583.14	*	30.22	3.90E-01	2.28E-01	1.27E+00	1.87E-01
		860.37	*	4.48	2.73E+00		1.30E+00	1.29E+00
		2614.66	*	35.85	2.28E-01		1.09E+00	9.29E-02
	BI-210M	262.00		45.00	1.48E-01	1.48E-01	3.99E-02	7.11E-02
		300.00		23.00	3.43E-01		-5.76E-01	1.66E-01
+	PB-210	46.50	*	4.25	2.78E+00	2.78E+00	2.09E+00	1.37E+00
	PB-211	404.84		2.90	2.50E+00	2.50E+00	1.58E+00	1.19E+00
		831.96		2.90	3.03E+00		-1.97E+00	1.40E+00
+	BI-212	727.17	*	11.80	8.99E-01	8.99E-01	1.02E+00	4.26E-01
		1620.62		2.75	3.91E+00		2.14E+00	1.76E+00
+	PB-212	238.63	*	44.60	2.69E-01	2.69E-01	1.47E+00	1.32E-01
		300.09	*	3.41	2.03E+00		1.00E+00	9.78E-01

Analysis Report for 1606064-10

CP-5015 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	2.59E-01	2.59E-01	9.39E-01	1.24E-01
		1120.29	*	15.10	1.55E+00		1.35E+00	7.46E-01
		1764.49	*	15.80	3.65E-01		1.32E+00	1.46E-01
		2204.22		4.98	2.52E+00		1.91E+00	1.13E+00
+	PB-214	295.21	*	19.19	5.38E-01	3.12E-01	8.46E-01	2.62E-01
		351.92	*	37.19	3.12E-01		1.23E+00	1.52E-01
	RN-219	401.80		6.50	1.10E+00	1.10E+00	1.67E-01	5.23E-01
	RA-223	323.87		3.88	1.72E+00	1.72E+00	-1.34E+00	8.25E-01
	RA-224	240.98		3.95	3.41E+00	3.41E+00	2.03E+01	1.68E+00
	RA-225	40.00		31.00	5.09E-01	5.09E-01	3.47E-01	2.47E-01
+	RA-226	186.21	*	3.28	2.46E+00	2.46E+00	3.83E+00	1.20E+00
	TH-227	50.10		8.40	8.60E-01	8.60E-01	-2.50E-01	4.18E-01
		236.00		11.50	9.19E-01		6.44E-01	4.50E-01
		256.20		6.30	1.05E+00		6.34E-01	5.04E-01
+	AC-228	338.32	*	11.40	8.58E-01	5.20E-01	1.61E+00	4.16E-01
		911.07	*	27.70	5.20E-01		1.53E+00	2.48E-01
		969.11	*	16.60	8.15E-01		1.91E+00	3.86E-01
	TH-230	48.44		16.90	4.79E-01	4.79E-01	1.83E-01	2.33E-01
		62.85		4.60	1.67E+00		1.80E+00	8.17E-01
		67.67		0.37	1.77E+01		-1.62E+01	8.65E+00
	PA-231	283.67		1.60	4.06E+00	3.14E+00	-7.05E-01	1.95E+00
		302.67		2.30	3.14E+00		4.04E-01	1.51E+00
	TH-231	25.64		14.70	3.03E+00	9.52E-01	-1.37E+00	1.47E+00
		84.21		6.40	9.52E-01		-1.27E+00	4.65E-01
	PA-233	311.98		38.60	2.16E-01	2.16E-01	2.45E-02	1.04E-01
+	PA-234	131.20	*	20.40	4.46E-01	4.46E-01	3.29E-01	2.19E-01
		733.99		8.80	9.81E-01		6.02E-02	4.58E-01
		946.00		12.00	7.05E-01		-1.52E-01	3.23E-01
	PA-234M	1001.03		0.92	1.05E+01	1.05E+01	2.02E+00	4.84E+00
	TH-234	63.29		3.80	1.99E+00	1.99E+00	1.15E+00	9.73E-01
	U-235	143.76		10.50	5.16E-01	5.16E-01	1.08E-01	2.50E-01
		163.35		4.70	1.15E+00		4.82E-01	5.55E-01
		205.31		4.70	1.39E+00		-5.50E-01	6.76E-01
+	NP-237	86.50	*	12.60	1.07E+00	1.07E+00	1.89E+00	5.29E-01
	NP-239	106.10		22.70	3.39E+00	3.39E+00	1.58E+00	1.65E+00
		228.18		10.70	9.20E+00		-5.08E+00	4.45E+00
		277.60		14.10	7.32E+00		3.38E-01	3.53E+00
	AM-241	59.54		35.90	2.01E-01	2.01E-01	1.16E-01	9.83E-02
	AM-243	74.67		66.00	1.32E-01	1.32E-01	-3.95E-02	6.48E-02
	CM-243	209.75		3.29	2.17E+00	4.88E-01	2.07E+00	1.06E+00
		228.14		10.60	6.15E-01		-3.40E-01	2.98E-01
		277.60		14.00	4.88E-01		2.25E-02	2.35E-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 1606064-10

CP-5015 02-05

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

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-5015 02-05

Elapsed Live time: 3600
Elapsed Real Time: 3619

Channel								
1:	0	0	0	0	0	0	0	0
9:	1	147	158	116	101	107	108	102
17:	113	98	85	97	79	81	98	71
25:	88	75	63	65	70	50	64	64
33:	71	58	58	75	68	75	57	76
41:	90	76	58	82	86	118	133	115
49:	78	71	85	73	100	91	90	91
57:	88	107	121	138	138	130	131	229
65:	158	121	139	130	125	114	141	146
73:	159	150	281	376	264	500	212	118
81:	116	130	91	136	148	127	141	235
89:	134	130	169	115	218	253	151	76
97:	73	87	83	83	102	80	72	73
105:	88	102	99	67	70	84	67	78
113:	89	80	77	82	71	86	64	59
121:	65	63	81	62	70	66	72	66
129:	87	118	97	75	78	85	71	70
137:	78	74	83	79	82	72	79	72
145:	82	77	64	70	66	70	74	51
153:	80	73	84	56	66	59	64	63
161:	48	67	82	68	52	56	64	54
169:	66	69	58	53	69	61	64	69
177:	43	53	51	50	58	51	59	64
185:	67	121	136	78	44	48	49	64
193:	57	56	44	44	46	57	59	72
201:	63	48	53	57	45	48	62	41
209:	58	87	65	40	57	38	51	50
217:	58	49	44	45	41	43	52	56
225:	31	50	52	44	42	38	41	43
233:	48	44	42	42	38	97	451	322
241:	92	108	87	50	28	30	40	32
249:	32	40	29	28	40	33	41	28
257:	36	36	38	29	31	36	35	47
265:	31	29	30	26	28	64	65	47
273:	50	29	32	30	29	57	37	25
281:	28	43	30	24	21	35	26	29
289:	34	33	34	28	27	35	80	145
297:	65	32	30	39	54	36	24	21
305:	32	24	22	25	27	34	19	20
313:	26	29	25	26	25	31	24	24
321:	23	23	21	26	26	31	24	40
329:	37	27	27	29	29	27	22	22
337:	33	55	126	52	32	24	21	27
345:	20	21	24	22	31	20	30	189
353:	203	43	21	26	18	19	12	25
361:	23	18	25	19	12	20	20	22

369:	26	19	27	23	19	20	16	19

Sample Title: CP-5015 02-05

Channel								
377:	26	26	21	14	18	19	23	21
385:	18	11	26	21	18	23	15	18
393:	16	18	17	24	21	19	12	13
401:	19	28	21	17	26	18	15	13
409:	25	33	25	16	29	19	16	20
417:	17	13	11	17	15	13	29	18
425:	14	19	15	17	16	17	16	13
433:	15	14	16	24	14	13	17	22
441:	24	12	19	16	20	19	18	18
449:	18	16	19	16	29	19	25	8
457:	13	18	9	18	15	23	35	41
465:	16	14	18	10	10	12	16	17
473:	16	17	11	17	10	17	13	17
481:	11	13	15	11	14	8	10	11
489:	16	9	22	17	7	16	22	12
497:	11	12	12	16	13	11	15	12
505:	7	21	11	14	21	33	79	51
513:	33	20	15	15	20	12	14	18
521:	7	15	17	11	10	12	12	12
529:	14	15	8	16	9	12	9	8
537:	14	9	12	13	7	17	11	18
545:	10	10	10	12	8	15	9	12
553:	10	9	14	17	12	13	10	12
561:	10	12	23	11	12	11	8	6
569:	11	11	16	12	18	19	14	13
577:	6	10	11	11	13	14	87	101
585:	29	11	16	12	8	8	11	8
593:	11	17	18	12	9	5	12	16
601:	11	12	16	13	16	7	13	24
609:	87	144	43	8	18	16	11	14
617:	11	9	8	13	13	11	9	11
625:	9	9	9	7	10	10	15	6
633:	11	9	9	10	5	10	5	9
641:	10	5	6	10	15	8	10	12
649:	13	5	8	8	8	10	4	9
657:	10	8	11	3	12	18	20	5
665:	11	13	13	8	6	17	13	11
673:	11	8	7	8	15	12	6	10
681:	8	9	11	11	10	8	17	4
689:	14	13	11	14	8	7	9	8
697:	10	7	13	13	12	21	14	12
705:	6	8	11	10	11	9	4	9
713:	19	14	8	7	3	7	12	10
721:	8	3	10	9	9	15	26	27
729:	18	5	13	6	10	8	10	9
737:	11	9	6	11	7	8	17	11
745:	9	12	10	9	5	7	5	9
753:	8	6	13	12	11	10	11	7
761:	7	10	12	9	9	9	7	22
769:	24	9	6	12	10	14	16	12
777:	8	6	11	10	11	10	7	4
785:	9	19	9	6	8	7	7	9
793:	7	10	25	15	12	9	8	8

801:	4	7	9	10	10	9	9	5

Sample Title: CP-5015 02-05

Channel								
809:	11	9	10	5	9	5	8	5
817:	4	12	7	5	11	8	8	8
825:	10	5	5	8	5	8	8	9
833:	8	6	11	20	11	4	8	12
841:	6	13	7	6	8	13	6	6
849:	13	10	5	11	7	8	8	7
857:	4	4	5	16	9	20	3	6
865:	6	8	5	4	9	6	5	5
873:	11	6	4	9	11	8	9	6
881:	6	9	3	9	5	7	9	11
889:	6	8	7	7	6	4	6	8
897:	11	12	10	8	8	6	11	12
905:	8	9	11	8	6	21	65	74
913:	20	9	8	5	4	5	8	7
921:	6	10	5	6	5	5	9	3
929:	8	4	9	9	7	13	13	8
937:	5	5	6	7	8	6	6	6
945:	8	5	4	4	7	7	6	6
953:	5	10	5	6	6	3	5	5
961:	8	5	7	12	14	12	11	22
969:	59	28	7	6	6	8	4	7
977:	4	7	7	6	3	6	8	7
985:	5	4	5	6	1	2	6	7
993:	6	3	3	8	5	7	6	11
1001:	7	8	2	7	7	4	2	6
1009:	6	1	6	7	11	6	8	9
1017:	5	5	8	3	11	6	5	3
1025:	4	6	6	6	6	7	4	9
1033:	6	3	5	7	4	6	1	5
1041:	10	6	6	5	8	8	1	7
1049:	8	4	5	7	3	3	4	4
1057:	5	8	8	6	5	6	6	5
1065:	10	9	11	7	6	9	2	5
1073:	6	9	8	3	12	8	4	6
1081:	9	8	5	4	6	10	4	6
1089:	4	3	9	8	7	8	4	11
1097:	8	3	5	3	9	8	3	7
1105:	7	5	4	8	5	6	5	10
1113:	4	6	15	5	3	8	12	44
1121:	29	12	7	6	6	5	7	11
1129:	7	4	7	6	3	6	6	12
1137:	3	3	7	7	4	6	7	6
1145:	15	9	5	7	9	9	7	7
1153:	6	5	10	11	6	2	5	10
1161:	8	2	4	5	8	7	5	8
1169:	10	4	10	10	9	10	4	5
1177:	8	5	4	8	6	5	5	5
1185:	6	10	7	2	7	4	11	14
1193:	3	11	3	3	6	7	12	11
1201:	4	2	7	6	7	5	10	10
1209:	6	7	4	7	11	5	13	7
1217:	3	5	9	7	13	7	4	8
1225:	5	9	9	6	10	7	6	7

1233:	9	5	5	8	5	12	11	11

Sample Title: CP-5015 02-05

Channel								
1241:	5	7	6	7	6	2	7	10
1249:	9	4	6	10	6	2	6	10
1257:	5	12	8	4	3	4	6	7
1265:	5	7	6	7	4	4	4	6
1273:	3	7	5	4	5	8	5	9
1281:	4	7	3	0	2	6	3	3
1289:	4	10	1	2	0	5	1	2
1297:	4	7	6	5	6	1	6	3
1305:	8	1	4	5	5	6	7	4
1313:	4	5	2	4	4	5	4	6
1321:	6	2	2	4	3	5	2	2
1329:	5	5	1	5	5	2	6	3
1337:	1	6	4	3	2	4	1	2
1345:	3	6	3	3	4	6	3	0
1353:	3	4	6	3	5	1	1	3
1361:	5	6	3	0	4	5	1	1
1369:	4	2	1	3	2	5	4	3
1377:	7	7	5	2	1	0	2	1
1385:	5	7	1	3	1	0	1	3
1393:	0	3	3	6	1	0	3	3
1401:	0	7	2	3	0	4	6	7
1409:	5	1	1	3	1	1	5	5
1417:	3	1	0	2	1	1	1	6
1425:	3	1	2	2	3	1	1	2
1433:	1	1	3	3	2	3	5	4
1441:	3	3	0	3	2	3	1	3
1449:	2	0	2	2	3	2	3	4
1457:	2	6	47	183	230	77	17	3
1465:	1	0	0	1	0	0	3	2
1473:	1	2	2	1	5	2	3	1
1481:	1	1	1	2	1	1	1	1
1489:	1	1	0	1	1	1	2	4
1497:	2	2	2	4	1	3	4	0
1505:	0	1	1	4	3	4	1	1
1513:	1	3	0	1	1	0	4	0
1521:	1	0	1	3	3	1	2	1
1529:	2	1	3	2	1	0	0	1
1537:	1	1	2	0	1	2	8	1
1545:	1	0	2	1	4	2	1	3
1553:	3	2	1	2	2	0	4	2
1561:	2	1	0	3	2	1	1	1
1569:	0	2	0	6	2	0	0	2
1577:	1	2	2	2	1	0	2	0
1585:	0	3	4	5	2	1	1	4
1593:	7	1	5	1	0	2	2	1
1601:	1	0	0	1	4	1	3	1
1609:	0	0	0	1	1	0	2	2
1617:	5	2	2	2	7	1	2	3
1625:	0	3	2	2	4	4	2	2
1633:	1	0	3	1	2	1	2	0
1641:	1	0	3	0	0	2	0	0
1649:	1	2	1	1	1	1	0	0
1657:	1	0	1	1	3	3	2	2

1665:	0	0	0	0	2	2	2	3

Sample Title: CP-5015 02-05

Channel								
1673:	1	0	2	1	0	1	1	0
1681:	0	2	2	0	1	0	1	2
1689:	1	2	2	0	4	1	1	1
1697:	1	1	1	0	0	2	0	1
1705:	0	1	3	1	1	0	2	2
1713:	2	1	2	1	1	1	2	0
1721:	0	1	1	0	1	2	0	0
1729:	6	7	4	1	1	2	1	1
1737:	0	0	1	0	1	0	1	1
1745:	1	3	0	2	2	0	0	3
1753:	0	0	0	1	1	0	0	1
1761:	1	4	7	18	11	5	1	2
1769:	1	0	1	0	2	1	1	3
1777:	0	0	0	2	0	4	1	4
1785:	0	0	0	0	1	0	1	0
1793:	1	1	0	3	2	2	3	1
1801:	0	3	0	1	2	3	0	1
1809:	0	0	0	1	3	0	2	2
1817:	1	0	0	1	0	1	2	0
1825:	0	1	0	1	0	1	0	2
1833:	0	1	3	2	0	2	1	0
1841:	1	1	0	0	2	3	3	3
1849:	0	0	0	1	0	0	2	2
1857:	1	0	1	2	1	2	1	0
1865:	0	0	1	1	0	2	0	2
1873:	1	2	0	2	0	2	1	0
1881:	0	0	2	1	0	2	0	0
1889:	0	0	1	0	0	0	0	1
1897:	1	2	1	3	2	2	1	1
1905:	1	0	4	3	1	0	0	1
1913:	2	0	2	2	0	1	0	2
1921:	1	0	1	0	0	0	0	2
1929:	1	1	2	2	2	1	0	1
1937:	1	0	3	1	1	1	1	0
1945:	0	1	1	2	1	1	3	0
1953:	0	1	0	0	3	2	0	3
1961:	3	0	3	1	2	0	2	1
1969:	0	0	0	0	1	0	0	1
1977:	2	2	1	0	0	1	1	1
1985:	1	2	1	1	2	2	1	2
1993:	0	1	1	0	3	0	0	0
2001:	2	0	0	4	0	0	1	1
2009:	0	2	1	0	2	0	0	0
2017:	2	0	0	0	0	0	1	1
2025:	2	0	0	2	3	1	0	1
2033:	0	0	0	1	2	2	1	2
2041:	0	0	3	0	0	1	1	1
2049:	1	1	0	2	0	0	1	0
2057:	1	0	0	1	0	0	1	0
2065:	0	0	1	0	0	1	1	1
2073:	0	1	2	0	0	0	0	1
2081:	2	0	0	0	2	0	0	0
2089:	1	2	0	1	0	0	0	0

2097:	1	0	0	0	2	4	3	6

Sample Title: CP-5015 02-05

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

2529:	0	1	0	1	0	3	1	0

Sample Title: CP-5015 02-05

Channel								
2537:	0	0	1	1	1	0	1	0
2545:	0	1	0	0	0	0	0	1
2553:	1	1	0	1	1	0	0	0
2561:	1	1	0	1	0	1	0	0
2569:	0	0	1	1	0	1	0	0
2577:	1	0	0	0	1	0	0	0
2585:	1	0	0	1	0	0	0	1
2593:	0	0	0	0	0	0	0	0
2601:	1	1	0	0	0	0	1	0
2609:	1	1	1	11	17	28	10	6
2617:	1	0	0	0	0	0	0	0
2625:	0	0	0	0	0	0	0	0
2633:	0	0	0	0	0	2	0	0
2641:	0	0	0	0	0	1	0	0
2649:	0	0	0	0	0	0	0	1
2657:	0	2	1	0	1	0	1	0
2665:	0	1	0	1	0	0	0	0
2673:	1	1	1	0	0	0	1	1
2681:	2	1	0	0	0	0	1	0
2689:	3	0	1	0	0	0	0	0
2697:	1	0	0	1	0	0	0	0
2705:	0	0	0	0	0	0	0	1
2713:	1	0	0	0	0	0	0	0
2721:	0	0	0	0	0	0	0	1
2729:	0	0	0	1	2	1	0	0
2737:	0	0	1	0	0	0	0	1
2745:	0	0	1	0	0	0	0	0
2753:	1	0	0	0	0	1	0	0
2761:	0	1	2	0	0	0	0	0
2769:	0	0	0	1	0	0	0	0
2777:	0	0	0	1	0	0	0	0
2785:	0	0	1	1	1	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	1	0	1	0	1	0
2817:	0	1	0	0	0	0	0	0
2825:	0	0	0	0	0	0	0	0
2833:	1	0	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	1	1	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	0	0	0	1	0
2873:	0	0	0	0	0	0	0	0
2881:	0	0	0	0	0	1	0	0
2889:	1	0	0	2	0	0	0	0
2897:	0	0	1	0	0	0	0	0
2905:	0	0	0	0	1	1	0	0
2913:	2	0	0	0	1	1	0	0
2921:	0	1	0	0	1	0	1	0
2929:	1	0	0	1	1	0	2	0
2937:	0	0	0	0	0	0	1	0
2945:	0	0	0	0	1	0	0	0
2953:	0	1	0	0	0	0	0	0

2961:	0	0	0	0	1	0	0	0

Sample Title: CP-5015 02-05

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

3393:	0	0	0	0	0	0	0	0

Sample Title: CP-5015 02-05

Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	1	0
3417:	0	0	0	0	0	2	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	1	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	1	0	1	0	0	1
3457:	0	1	0	0	0	0	0	0
3465:	1	1	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	1	0	0	0	0
3489:	0	1	1	0	0	0	0	0
3497:	0	0	0	0	0	0	0	1
3505:	0	0	1	0	0	0	0	0
3513:	0	0	1	0	0	0	0	0
3521:	0	0	0	0	1	0	0	1
3529:	0	0	0	0	0	0	0	0
3537:	0	0	0	1	1	0	0	0
3545:	0	0	0	0	0	0	0	0
3553:	1	0	0	0	0	0	0	0
3561:	0	1	0	0	0	0	0	1
3569:	0	0	0	0	0	0	0	0
3577:	0	0	0	0	0	0	0	0
3585:	0	0	0	1	0	0	0	0
3593:	0	0	0	0	0	0	0	0
3601:	0	0	0	0	0	0	0	1
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	0	0
3633:	0	0	0	0	0	0	0	0
3641:	1	0	0	1	0	0	0	0
3649:	0	0	0	1	0	0	0	0
3657:	0	0	0	0	0	0	0	0
3665:	0	1	0	0	0	0	0	0
3673:	0	0	1	0	0	0	0	1
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	0	0
3713:	0	1	0	1	0	0	0	0
3721:	0	0	0	0	0	0	0	1
3729:	0	0	1	0	0	0	0	0
3737:	2	0	0	1	0	1	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	0	1	0	0
3769:	0	0	1	0	0	0	0	0
3777:	0	0	0	0	1	1	0	0
3785:	0	0	0	0	0	0	0	0
3793:	0	0	0	0	1	0	0	0
3801:	0	1	0	0	0	0	0	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	1	0	0	0	0	0

3825:	0	0	0	0	0	0	0	0

Sample Title: CP-5015 02-05

Channel								
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	1
3865:	1	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	0	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	1	0	1	0	0	0
3921:	0	0	0	0	0	0	0	0
3929:	0	1	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	1	0	0	0	0	0
3969:	0	0	1	0	0	1	0	0
3977:	0	0	0	0	0	0	0	0
3985:	0	1	0	0	0	1	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	1	0	1
4017:	0	1	0	0	0	0	0	0
4025:	0	0	1	0	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	1	0	0	1	0	0	0
4073:	0	0	1	0	0	0	0	0
4081:	0	1	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000039039.CNF